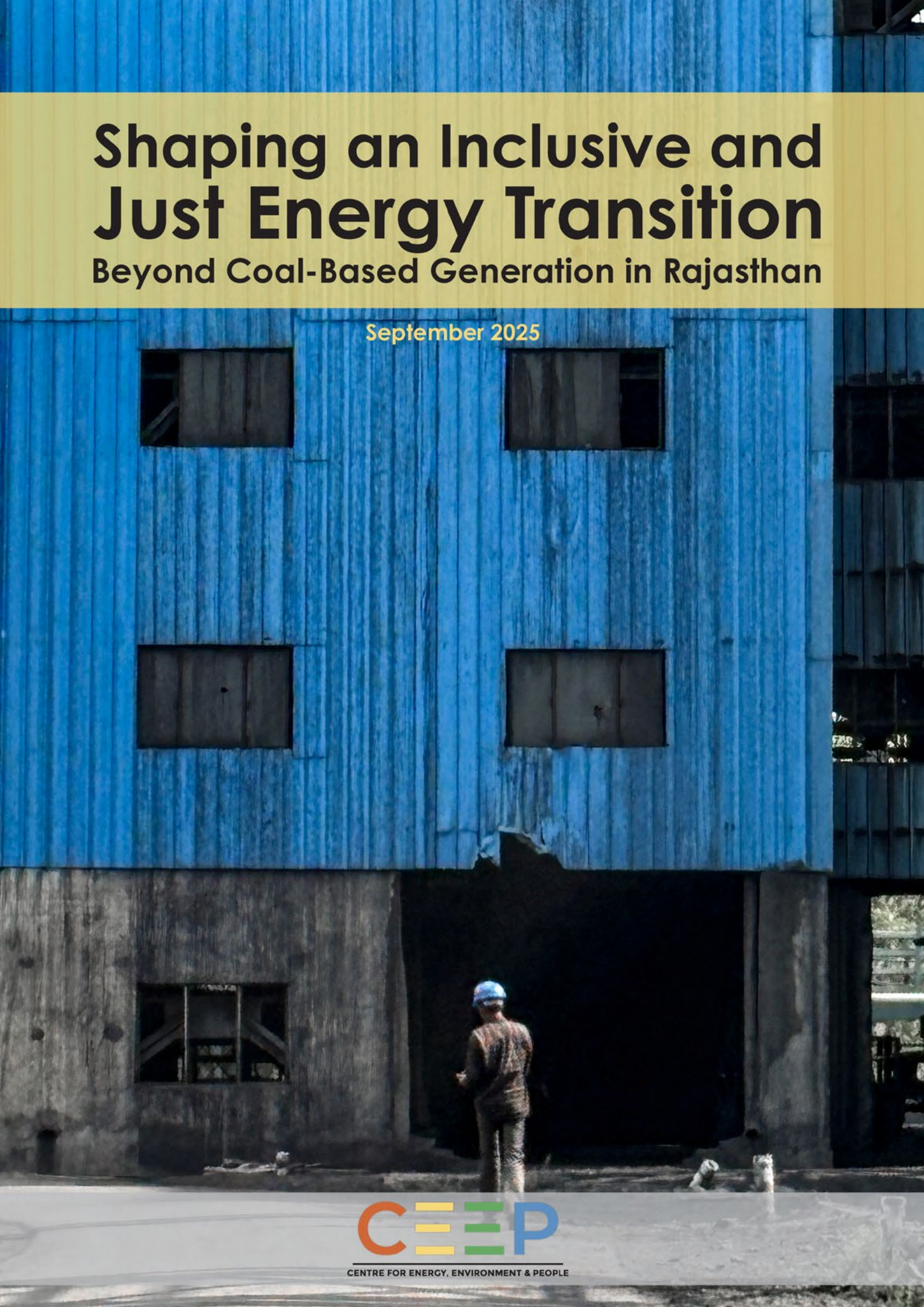
# Shaping an Inclusive and Just Energy Transition

## Beyond Coal-Based Generation in Rajasthan

September 2025



CENTRE FOR ENERGY, ENVIRONMENT & PEOPLE

# About Centre for Energy, Environment and People (CEEP)

Centre for Energy, Environment and People (CEEP) is a human-centric research and policy advocacy initiative working towards energy justice in Rajasthan. Our work prioritises workers, communities, and environment at the intersection of energy infrastructure and services.

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# Introduction

India is aggressively pursuing a clean energy transition while simultaneously expanding coal-based generation capacity. Despite announcing a net-zero target for 2070, there are no immediate policy mandates that may trigger closure of coal-powered Thermal Power Plants (TPPs). Instead, the risk of closure looms from other reasons, such as the techno-economic viability of TPPs and environmental risks. In the long term, the transition will be dictated by the plants' technical health and the economic competitiveness of alternative technologies.

The potential closure of TPPs places a disproportionate risk on contractual workers working in the plants. These risks are intensified by violations of existing labour codes and safeguards, a lack of assessments to identify the risks and a lack of mitigation measures. While the long-term trajectory of transition of TPPs remains uncertain, the inevitable closure of some plants because of various reasons imposes a troubling future for a substantial number of workers. The recent experience of the closure of the Talcher Thermal Power Station (Odisha) in 2021, which severely undermined the provisions of the Industrial Disputes Act 1947, leaving 1,479 contract workers without transition support.

Rajasthan follows a similar trajectory. Despite leading Indian states in renewable energy capacity installation, with 30.5 GW installed as of March 2025, the state continues to increase its reliance on coal-based generation. As of March 2025, Rajasthan operates 10,780 MW of coal-fired thermal capacity, of which 1,350 MW[1] of the state-owned thermal power capacity are over 25 years old and slated for closure in the next 10-15 years, threatening the livelihoods of over 1,600 contractual workers[2] and petty contractors. Plants like Kota Super Thermal Power Station (KSTPS) alone employ 800 permanent workers, 2,500 contractual workers, creating significant community dependencies on thermal power operations that extend beyond

[1] Author's analysis.

[2] Information sourced through an RTI filed by CEEP.

direct employment to include local businesses, transportation services, ancillary and allied industries.

Against this backdrop, extensive consultations were held with contractual workers, permanent workers, petty contractors, and the management of TPPs at Kota, Suratgarh (STPS), and Chhabra (CTPS). Some of the key dimensions explored included lived realities and experience of workers, engagement with the just transition discourse and their understanding of it. Additionally, the study examined the macro understanding of plant-level governance pertaining to workers, the transition concerns of various stakeholders, and the state of preparedness to respond to the eventual phasing out of thermal power.

The experience from the decommissioning of Talcher Thermal Power Station[3] and the struggle of workers from Ukai Thermal Power Station[4] (Gujarat) to secure their rights have significantly contributed to this report.

This report synthesises the inputs and insights from convenings and consultations held with permanent workers, contractual workers, and RRVUNL management, as well as our independent research. It attempts to highlight the complexity of building resilience of workers to navigate the energy transition in a just and dignified manner. The report briefly documents the struggle of workers and worker unions through case studies of Talcher Thermal Power Station and Ukai Thermal Power Station. Finally, the report identifies strategies for strengthening resilience among contractual workers across Rajasthan's thermal power stations.

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[3] Commissioned in 1967, TTPS was one of India's oldest coal-fired plants, located in Angul district, Odisha. Operated by NTPC, it had a capacity of 460 MW.

[4] Coal-fired plant located in Tapi district, Gujarat, and operational since 1976 under the Gujarat State Electricity Board (GSEB), with a capacity of over 850 MW.

# 1. Urgency of Transition Planning: Engaging with Coal's Uncertain Future

India's clean energy transition has been structurally plagued by uncertainty. The long-term future of TPPs is uncertain due to financial reasons, tightening environmental regulations, and the deteriorating infrastructure of ageing plants, along with the macro policy environment. At the same time, the clean energy alternatives are becoming increasingly affordable. Furthermore, India lacks a comprehensive policy and regulatory framework to govern a planned transition of thermal assets.

These critical gaps in policy and regulation create uncertainty and opacity in the end-of-life decision-making of the thermal generation assets. Without structured planning and stakeholder inclusion in decision-making, social and environmental risks are systemically ignored. These governance gaps could enable political-economy dynamics that serve narrow interests, while marginalising the disadvantaged workers directly and indirectly employed by the TPP.

The 2021 closure of the Talcher Thermal Power Station (TTPS) in Odisha highlights these avoidable challenges. The administrative opacity and lack of timely disclosure devastated workers' lives in Talcher. It embroiled the principal employer (NTPC) in a long legal battle that significantly increased the cost of closure.

Despite early warning signs such as halted maintenance, unresolved complaints, and rumours, the official announcement for the plant shutdown came abruptly on March 22, 2021. It stated that the plant would shut down within nine days. Workers were rendered jobless on March 31, 2021. This violated the Industrial Disputes Act[5], 1947, which mandates a 90-day formal notice and formal intimation to each

[5] The Industrial Disputes Act 1947 provides procedures and safeguards related to retrenchment and closure, particularly in cases of financial distress. Environmental legislations like the Water (Prevention and Control of Pollution) Act, 1974, and the Air (Prevention and Control of Pollution) Act, 1981, can trigger enforcement actions or shutdowns. However, none of these laws offer a framework for a just transition to mitigate the socioeconomic fallout for affected persons.

affected worker. NTPC did not issue a public notice or serve a formal notice with the Labour Secretary prior to the shutdown. The Labour Union took up the violation of the Industrial Disputes Act and was able to secure three months' wages from the date of intimation of closure to the Labour department.

However, the social costs during this period were steep as many families rapidly slipped into deep economic distress. A union leader shared how a worker's marriage was called off because of the financial crisis, and others struggled to afford their children's education and had to withdraw them from school. Ancillary systems like water supply and the schools funded by the plant's CSR initiatives, also faced shutdowns, impacting essential services to the local community.

In the days preceding the shutdown of the plant, misinformation and rumours perpetuated fear and anxiety amongst workers, requiring the management to pacify them with false claims. Consequently, workers remained completely unprepared for the transition.

Workers employed by thermal power plants, particularly contractual workers, typically survive on minimum wages, resulting in financial vulnerability. These vulnerabilities are further compounded by extreme and hazardous working conditions that deplete their physical and mental well-being.

Further, these vulnerabilities intersect with other existing vulnerabilities that may be a function of their social position, gender, migration status, age, and location in the thermal power plants.[6]

Building resilience of workers to navigate closure-induced stress shall require efforts to build their capabilities across various dimensions, such as financial, skills, well-being, social security, collective bargaining, and others. Global experiences suggest that building institutions, processes, frameworks, safeguards, plans (including financial) and executing them for a just transition may demand nearly a decade of diligent work and consensus-building. Despite India's uncertain position on coal-based generation, preparedness for a just energy transition needs investments in institutions, processes, and inclusive consensus-building urgently.

## 2. Determinants of Workers' Transition Resilience

Through the convenings and consultations, five core dimensions of vulnerability emerged that would shape workers' long-term ability to respond to a disruptive clean energy transition. These dimensions provide a useful framework for understanding why workers at certain plants or geographies remain significantly more vulnerable than others and how we can bridge the gap.

[6] Workers handling coal and fly-ash are often more vulnerable because of hazardous conditions.

## 2.1 Economic determinants

Economic determinants of a worker's current and future resilience include income levels and diversification, ownership of land or other productive assets, household savings, and access to finance. Contractual workers in particular reported having no financial buffers and expressed their inability to survive beyond a few months in the absence of any consistent source of income. Rajasthan's minimum wages rank amongst the lowest in the country.[7] This is compounded by frequent delays in payment of wages, spanning from several weeks to months, and non-payment of bonus as per the Payment of Bonus Act 1965[8], which was documented at least one RRVUNL plant. Wages of contractual workers are also not commensurate with their skill and experience. An overwhelming majority of the participants also reported being entirely dependent on the plant for their livelihood. Access to land, pucca houses, and asset ownership are also not universal, with the proportion of landless and asset-poor households being especially high in Kota. These economic constraints leave workers exceptionally vulnerable to plant closures and limit their capacity to transition to alternative livelihoods.

## 2.2 Barriers to human resource development

Human development is a function of formal education, training, well-being, and level of relevant skills (and their recognition). Despite years or decades of experience, none of the interviewed contractual workers received formal skills recognition gained through experience and informal apprenticeship. Some workers acknowledged having transferable skills relevant to other industries but expressed a lack of formal recognition of their skills as a barrier to employment. Additionally, others expressed interest in exploring gig-jobs outside of their full-time employment. However, they cited the inability to purchase basic equipment which prevents them from exploring gig opportunities.

For contractual workers, the experience and skills gained during their time working in the TPP are not reflected in their compensation. Formal recognition avenues for on-the-jobs acquired skills remain absent, eliminating the incentive for skill investment or upgradation. Workers are unlikely to invest their time or energy in skilling and certification programs without assured better work opportunities and wages.

Lastly, the industry's hazardous nature continuously exposes workers to high temperatures, dust, and other pollutants. Long working hours and extreme working conditions cause chronic health issues and poor mental health that worsen with age, reducing the capacity to explore alternative opportunities in case of loss of livelihood.

## 2.3 Access to welfare schemes

Welfare schemes and various government schemes aid in building resilience, particularly during a crisis. For example, the Employees' Provident Fund (EPF)[9] serves as an instrument of savings for emergencies or post-retirement, whereas the Employees' State Insurance (ESI)[10] scheme provides healthcare and other benefits.

However, welfare scheme access remains erratic due to poor execution and awareness. ESI coverage is uneven, with less than 1 in 3 contractual workers covered in Suratgarh and Chhabra, while Kota achieves 60% coverage. Contractual workers often withdraw their EPF savings when changing contractors.

In multiple instances, it is also reported that workers or their families are not fully aware of the state's welfare

[7] Rajasthan's minimum wages range from ₹285/day for unskilled workers to ₹359/day to its highly skilled workers. In contrast, Delhi, with the highest minimum wages in India, pays from ₹642 per day to unskilled workers to ₹774 per day to skilled workers.

[8] The Payment of Bonus Act in 1965 mandates that workers- including contractual workers- are paid a minimum bonus, if they earn Rs. 21,000 per month or less and have worked at least 30 days in the year.

[9] The Employees' Provident Funds & Miscellaneous Provisions Act, 1952, mandates that contractors employing workers ensure their PF contributions are deducted and remitted. The principal employer (the entity that hires the contractor) is also responsible for ensuring the contractor fulfils their PF obligations.

[10] Employees' State Insurance Act 1948 provides both permanent and contractual employees a range of benefits, including medical care, sickness benefits, maternity benefits, disability benefits, dependent benefits, and funeral expenses in case of workplace accidents.

schemes. In extreme cases, involving accidents, loss of physical function or fatalities, benefits become inaccessible due to informal settlement and failure to file the First Information Reports (FIRs).

## 2.4 Political determinants

Union Membership, social group participation, relationships with local leaders, and participation in public meetings determine the workers' bargaining power to negotiate their interests and build safety nets for themselves. These can become particularly critical in the face of a crises that require responsive systems.

The impact of organising workers, the presence of a functional workers' union, impacts outcomes such as EPF and ESI coverage, timely payment of wages, and employer response to workplace accidents. This is evident in KSTPS vis-à-vis CTPS and STPS. Kota stands out due to its unionised workforce, which enjoys better social protection. For example, more than half of the workers are covered under ESI in Kota; it remains dismally low in Suratgarh and Chhabra, where the contractual workers' exclusion from the worker unions is likely a contributing factor. Furthermore, in the absence of a functional union, workers' voices are more likely to be ignored by authorities, as evident in Chhabra, where contractual workers continue to struggle for even access to clean drinking water.

## 2.5 Social determinants

According to a study conducted by CEEP, caste remains a critical fault line, with resilience lowest among Scheduled Tribes, followed by Scheduled Castes, Other Backward Castes, and highest among general caste workers. Even within the same skill levels, disparities persist: a skilled general caste worker is 57% more resilient than a skilled scheduled tribe worker, while a skilled scheduled tribe worker fares almost as poorly as a general unskilled worker. Very few workers are active in social organisations such as NGOs, self-help groups (SHGs), or socio-religious associations; among those who are, 70% participate in caste- or religion-based groups. Most workers lack access to social organisations that could provide networking, build collaborations, and safety nets during adverse events.

Resilience building is multi-dimensional in nature and demands a comprehensive 'risk and capability assessment', a long-term preparedness outlook, and fundamental shifts in workers' socio-economic realities. Interventions must be tailored to the skill levels, positions in social hierarchies, and spatial attributes.

# 3. Legal Literacy and Workers' Solidarity as Instruments of Resilience

Workers, in their individual capacity and as representatives of their respective organisations, have engaged in various struggles to secure their individual and collective rights. This section highlights powerful testimonies of worker leaders from Ukai and Talcher power plants, exemplifying their journey of litigation and collective action.

## 3.1 Building resilience through a decades-long struggle: Ukai Thermal Power Plant

The Ukai Thermal Power Plant in Gujarat, operational since the 1970s, stands as a stark example of procedural injustice in the daily operations of thermal power plants. Predominantly Adivasi communities, who lost their land to the project, faced long-term exclusion from stable employment and entitlements. Despite the State Government mandates for 60–80% local employment, locals were only hired as contractual workers, violating the legal frameworks and jurisprudence that require continuous work to be filled by permanent workers only.

Workers were hired in 1975 at ₹5 per day and remained contractual for over six years, despite doing

identical work to permanent employees[11]. In response, workers initiated a sustained movement against the erstwhile Gujarat State Electricity Board (GSEB).

In 1981, workers invited prominent labour rights activists to assess the discrepancy between contractual and permanent roles, following which Hind Mazdoor Sabha and others filed a petition (1995 SCC (5) 27) with the High Court, raising questions of law relating to the abolition of the contract system of labour. The High Court initially declined jurisdiction, suggesting the matter be raised under the Industrial Disputes Act. This catalysed the formation of the Bijli Majdoor Panchayat (BMP) in 1982, a registered trade union, under the Trade Unions Act, 1926.

Facing continued denial of regularisation, in 1983, workers shut down the plant through a strike. The government responded with arrests, imposition of Section 144 of the CrPC, and even opened fire on protestors, killing one worker and injuring several others. Despite this, the movement escalated. In 1985, the union launched a Gujarat Bandh during elections, with protesters refusing to withdraw until their demands were met.

The outcome: following a landmark judgment, over 3,500 workers were regularised with back wages entitlement from 1981. Compensation victories such as raising accident payouts from ₹3-4 lakh to ₹20 lakh were achieved through formidable negotiations and pressure on the management. The court also

[11] Violating the principle of "equal pay for equal work", upheld by the Supreme Court (1986, Randhir Singh v. Union of India) and protected under Article 14 and 16 of the Constitution.

recognised the practice of "sham and bogus contracting"[12] and directed that employment be routed through the principal employer, per Section 10 of the Contract Labour (Regulation and Abolition) Act, 1970. The Israni Commission was constituted to investigate and document these violations.

Ukai's resistance strategies combined legal action, protests, and community-based documentation including gathering evidence of deaths, injuries, illegal dismissals, and wage theft. The journey demonstrates how constitutional rights, labour laws, and collective action can become instruments of justice – ensuring not just job security, but dignity for marginalised workers.

## 3.2 Legal battles against abrupt TTPS closures

Talcher Thermal Power Station (TTPS), a 460 MW coal-fired power plant with six units commissioned between 1967 and 1983, initially operated by the Odisha State Electricity Board (OSEB) and later handed over to NTPC in 1995, was decommissioned in March 2021. The union members narrated the crisis that followed the abrupt termination without prior intimation or formal notice to workers and contractors.

The unplanned closure was marred by several violations of Indian labour and environmental law, leading to widespread displacement of workers and disruption of local livelihoods. Despite earlier plans to expand the

[12] The term ***"sham and bogus contracting"***- now widely recognised in Indian labour jurisprudence- was significantly shaped by struggles like that of Ukai's power plant workers, whose legal battles in the 1980s–90s exposed how contract labour was being misused to bypass core employment protections under the Contract Labour (Regulation and Abolition) Act, 1970. Their victories helped institutionalise this legal doctrine and set precedents for future challenges across India.

plant through the commissioning of two new units (tendered in 2014), the closure was announced informally on March 22, 2021, to be executed by March 31, with no formal notice issued to the workers.[13]

NTPC also failed to seek mandatory prior permission from the Labour Secretary, under the Industrial Disputes Act, for closures involving 100 or more workers. This provision also requires a valid reason and an opportunity for workers to be heard before the legal closure. Additionally, the closure occurred despite a government circular issued under the Disaster Management Act, 2005, prohibiting the closure of industrial establishments during the COVID-19 pandemic. NTPC's decision to proceed with the shutdown during this period ignored these pandemic-era protections for workers as well.

Environmentally, NTPC cited the lack of pollution clearance due to outdated technology and excess $SO_2$ emissions. However, unlike other plants that were granted emission standard extensions due to COVID-related delays, NTPC failed to even apply for such an extension - implying negligence in complying with the Ministry of Environment, Forest and Climate Change (MoEFCC) norms under the Environment (Protection) Act, 1986 and guidelines related to Flue Gas Desulphurisation (FGD) installation. Crucially, the closure was carried out without public hearings or community consultation, violating principles of environmental justice and the requirement of public participation embedded in the EIA Notification, 2006.

[13] In violation of Section 25FFA of the Industrial Disputes Act, 1947, which mandates 60-day prior notice to the workers before closing an undertaking.

Legal action taken by the trade union and local leaders led to the High Court reprimanding NTPC and ordering the company to pay ₹21 crores in back wages for the period of illegal closure. This case exemplifies the urgent need for clear procedural frameworks for policy-induced closures and reinforces the importance of legal capacity building of labour unions to build resilience to transition-induced shocks.

# 4. Towards a Just Transition: Building Resilience and Capabilities

This section highlights macro and micro strategies that may be leveraged to commence interventions that can aid in building transition resilience of workers and trade unions in short term and long term.

## 4.1 Integration of contractual workers in trade unions

Contractual workers typically report dysfunctional relationships with the trade unions at their worksites. Except in the case of KSTPS, most contractual workers were not affiliated with unions. Despite only partial assimilation of contractual workers in the existing trade union at KSTPS, the impacts are fairly substantive. Contractual workers in KSTPS experience better wage disbursement practices, significantly higher EPF/ESI penetration, and active support in case of matters of safety and accidents.

Without formal communication and bargaining platforms, the collective demands and priorities of contractual workers remain unvoiced. Enabling such platforms and channels to address the same may catalyse broader

inclusion of contractual workers in trade unions and promote their democratic expansion.

## 4.2 Livelihood diversification and access to finance

Workers, particularly contractual workers, expressed deep uncertainty about their prospects in the renewable energy sector. However, they were confident that their existing skills, such as fitting, welding, and other technical capabilities, would remain in demand. Many access local gig opportunities, but cannot afford the necessary equipment (typically costing ₹25,000–₹50,000), preventing them from taking up such opportunities. Additionally, contractual workers lack access to formal financial systems and have limited capital-building capacity due to poor wages, preventing income supplementation and livelihood diversification. Hence, small-ticket, affordable, and higher-risk financial instruments could play a crucial role in enabling livelihood diversification, income enhancement, and long-term resilience of the workers.

## 4.3 Access to social welfare and rights

Access to social-welfare benefits and awareness of rights within the ambit of various legislative frameworks, such as the Industrial Disputes Act 1947, Factories Act 1948, Minimum Wages Act 1948, Payment of Bonus Act 1965, and the new Labour Codes, remain fairly limited. Addressing these gaps shall aid contractual workers and worker unions to negotiate their interests with contractors and the principal employer.

## 4.4 Healthcare baseline

Workers in thermal power plants are exposed to adverse working conditions, including extreme temperatures, high decibel levels, long working hours, coal dust and fly-ash, and other air and water effluents. Despite provisions of regular health check-ups and maintenance of health register for hazardous processes under the Rajasthan Factory Rules 1951, health checkups and records for contractual workers are mostly missing. Periodic medical camps and building data on health records, particularly for contractual workers, shall aid in establishing the baseline health indicators for workers. This shall further inform health safeguards, medical care support, and financial budgets for a just transition.

## 4.5 Capacity building of trade unions

Currently, TPP trade unions face challenges, including declining strength and the decline of the public sector. At the plant level, unions lack the opportunities and the capacity to meaningfully engage in decision-making related to the energy transition beyond their immediate existential needs. Consequently, proactive engagement is absent, and they risk marginalisation by any sudden decision of concerned authorities. Building capacity to understand energy transition risks and uncertainties, developing appropriate legal frameworks, conducting risk assessment, and improving communications would strengthen union participation and worker representation in the energy transition discourse.