

# Gender-Responsive Just Transition Pathways for India's Fossil Fuel Regions





# **Gender-Responsive Just Transition Pathways for India's Fossil Fuel Regions**

**iFOREST**

INTERNATIONAL  
FORUM  
FOR ENVIRONMENT,  
SUSTAINABILITY  
& TECHNOLOGY

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## List of Abbreviations

CIL	Coal India Limited
CSO	Civil Society Organisation
CSR	Corporate Social Responsibility
DMF	District Mineral Foundation
FGD	Focus Group Discussion
JTWP	Just Transition Work Programme
LWPG	Lima Work Programme on Gender
LT-LEDS	Long-Term Low-Emission Development Strategies
MCL	Mahanadi Coalfields Limited
NAP	National Adaptation Plans
NDC	Nationally Determined Contribution
OBC	Other Backward Classes
PMKKKY	Pradhan Mantri Khanij Kshetra Kalyan Yojana
PRI	Panchayati Raj Institution
SC	Scheduled Castes
SHG	Self-help group
ST	Scheduled Tribes
UN	United Nations
WCL	Western Coalfields Limited

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# Summary for Stakeholders

**The energy** transition in India's fossil fuel regions offers a crucial opportunity to integrate gender-responsive strategies into the framework of a just transition. This report highlights the importance of incorporating these approaches as fossil fuel regions plan for, and transition to, a low-carbon economy. Drawing on experiences from Jharkhand, Odisha, and Maharashtra, this report outlines actionable recommendations to address gender disparities and enhance women's participation in the transition process. The findings underscore the critical need for an intersectional, rights-based approach that prioritises inclusive and equitable outcomes for all stakeholders.

## A. Key Observations

A total of 22 focus group discussions (FGDs) were conducted in four coal districts of Jharkhand (Ramgarh and Hazaribagh districts), Odisha (Angul district) and Maharashtra (Nagpur district) covering 255 female respondents. The observations provide important insights into the employment status of women in these regions, their income, education and skills, the scope of mobility, access to finances and markets, and their aspirations for the future and integration in the low-carbon economy. The key observations can be summarised as follows.

- i. **A significant proportion of women are non-working:** A significant proportion of women were found to be not earning given their household and caregiving responsibilities. For example, in Jharkhand, over 60% are primarily engaged in household work and caregiving tasks. The proportions are similar in Odisha (nearly 60 %) and Maharashtra (49%) as well.
- ii. **High proportion of informal economic dependence:** Women are largely confined to low-paying, insecure informal jobs in coal gathering, construction, and agriculture, perpetuating economic vulnerability. For example, in Jharkhand, 95% of the respondents were informally engaged as coal gatherers, coal loaders, or as seasonal labourers in the construction, brick-making and agriculture sectors. Similarly, in Odisha, 74% of the respondents were informally engaged as coal washery workers, construction workers, or as agricultural labourers. In Maharashtra too, 63% of the respondents were construction workers and agricultural labourers.
- iii. **Low income and employment uncertainty:** The informal engagement of women results in low-income levels. About 45% of the women earned below INR 5,000 per month, and an additional 50% reported a monthly income between INR 6,000-8,000. In Odisha, while earnings below INR 5,000 were not reported, about 57% reported earnings below INR 8,000 per month. In Maharashtra, overall 75% women earned less than INR 5,000 per month. Besides, low-income levels, most of these women face uncertainty of regular income considering that these are daily wage or seasonal work.
- iv. **Education and skills deficit:** Women also have low levels of educational attainment, with significant deficits in higher levels of education and technical education. For example, in Jharkhand and Odisha, 43% and 48% of women respectively attended schools. Also, in all three states, of those who attended schools, only a small fraction (less than 10%) had a college education. None of the women had undergone any vocational or technical education. These deficits collectively perpetuate reliance on informal work and hinder access to better-paying, formal jobs.
- v. **Structural barriers to employment and access to resources:** Household responsibilities and restricted mobility due to caregiving duties limit women's ability to participate in jobs or skilling programmes. Prevalent socio-cultural biases often exclude women from male-dominated industries, including green technology sectors. Women also face obstacles in accessing credit, financial aid, and market opportunities.
- vi. **Aspirations and needs:** A significant proportion of women aspire to formal employment or entrepreneurship, highlighting the need for skilling, financial support, and market access as critical enablers. Locally available, skill-based job opportunities tailored to women's needs are essential for fostering their participation.



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## B. Policy Recommendations

To ensure gender equality, integration, and empowerment of women in the energy transition process, several key principles must be considered. These include the following:

- Gender considerations should be mainstreamed in government policies and plans to incorporate responsive measures effectively.
- Formal job opportunities for women should be maximised in the low-carbon economy, including ensuring decent wages and social protection.
- Foster equal employment opportunities, including equal pay and access to green jobs.
- Remove barriers to education and skill development, and enable women to acquire foundational skills, including technical and higher education, necessary for employability in the emerging sectors.
- Improve women's access to resources, such as finance and markets, to support economic independence.
- Ensure equal and meaningful participation of women in decision-making processes and promote their leadership.

Aligning with such principles, the following are some of the key action points that need to be considered by the national and state governments to develop gender-sensitive just transition pathways.

- Enhance understanding of gender issues of the transition through data and impact studies:** Ground-level studies should be conducted to gather gender-disaggregated data on women's dependence on fossil fuel industries and the impacts of energy transitions, and the data should be utilised for impact assessments and informed policy-making.
- Develop gender-sensitive and gender-transformative policies and plans:** Formulate inclusive policies and plans addressing women's unique vulnerabilities, ensuring equal pay, formal employment, and equitable outcomes through intersectional and rights-based approaches.
- Strengthen existing schemes:** Women-focused initiative/schemes focusing on job creation, entrepreneurship, and skill development, should be bolstered in collaboration with civil society organisations (CSOs) and vocational training institutes for effective implementation. Besides, strengthening women's self-help groups (SHGs), which provide a model of micro-financing to strengthen livelihoods and income in rural areas, and similar interventions, will be important to promote entrepreneurship and augment income.
- Promote women's education, especially higher education:** Improving access to education, especially attaining higher education, is crucial to enable women's participation in skill development and formal employment. As the ground observations show, addressing barriers that hinder such education, is also important to build the confidence of women to participate in technical skilling programmes and aspire for higher-paying jobs which will be required for their integration into the low-carbon economy.
- Develop targeted skilling programmes:** Create flexible, women-friendly training programmes in renewable energy (RE), electric mobility, and other green sectors. These programmes should address existing skill gaps while equipping women with the technical and entrepreneurial skills needed to secure meaningful employment and leadership roles in the low-carbon economy.
- Foster local employment:** Enhance local employment opportunities, including community-based employment, and flexible work models to overcome mobility constraints and ensure sustainable livelihoods.
- Ensure dedicated financial support:** Funds from District Mineral Foundations (DMF), Corporate Social Responsibility (CSR) funds, and other such resources available at the local level, should be leveraged to finance gender-responsive programmes and initiatives.
- Ensure women's meaningful participation in decision-making:** Institutionalise mechanisms for women's active participation in governance and decision-making to ensure their perspectives inform just transition plans and investments. For this, it is also important to build their awareness and capacity. Such measures can be strengthened by collaboration between the government, local-level institutions, and CSOs working with the local communities.

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# Introduction

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**Climate change** impacts individuals differently, with women often facing unique vulnerabilities due to longstanding social and economic structures that influence their access to resources, education, and employment. Climate change is also estimated to drive up to 158 million more women and girls into poverty and push 236 million more women into hunger by 2050.<sup>1</sup> As the global community advances climate action and energy transitions, it is, therefore, crucial to develop gender-responsive approaches to ensure that the benefits of a low-carbon economy are accessible to all, in alignment with the UN's principle of "leaving no one behind."<sup>2</sup>

Gender considerations have become a focal point in national and international discussions on just energy transitions. The Paris Agreement underscores the importance of human rights and gender equality in climate action, calling on Parties to uphold commitments to gender equality, women's empowerment, and equity across vulnerable groups. Para 11 in the Preamble of the Agreement notes that "*Acknowledging that climate change is a common concern of humankind, Parties should, when taking action to address climate change, respect, promote and consider their respective obligations on human rights, the right to health, the rights of indigenous peoples, local communities, migrants, children, persons with disabilities and people in vulnerable situations and the right to development, as well as gender equality, empowerment of women and intergenerational equity*".<sup>3</sup>

Besides the Paris Agreement, the Lima Work Programme on Gender (LWPG) initially proposed in 2014, and its further enhancements noted in various climate deliberations, also has placed a strong focus on gender. The various deliberations have underscored the need to "promote the systematic integration of gender sensitive and participatory education, training, public awareness, public participation and public access to information" into all aspects of climate action aligned with the Paris Agreement goals and national circumstances.<sup>4</sup>

The recently developed Just Transition Work Programme (JTWP) under the Paris Agreement that all countries are required to integrate in their Nationally Determined Contributions (NDCs), National Adaptation Plans (NAPs), and Long-Term Low-Emission Development Strategies (LT-LEDS), have also upheld the issue of gender equality and rights for developing just transition pathways by various countries based on their national circumstances.<sup>5</sup> Therefore, for India to plan a low-carbon economy, integrating gender considerations will be important in such policies and plans.

In India's fossil fuel-dependent regions, particularly coal districts, gender disparities are pronounced in workforce participation, job roles, and wages. For example, in the coal mining sector, formal participation of women is extremely low. Women represent only about 8% of the formal workforce in Coal India Limited (CIL), the world's largest coal producer.<sup>6</sup> This imbalance often confines women to lower-paid, informal, and less secure positions. These gender inequalities are further compounded by intersecting factors such as caste, class, and ethnicity, which add layers of socioeconomic challenges for women in coal-dependent communities.

The shift to a low-carbon economy risks widening gender disparities in employment and income. Many new jobs in green industries globally tend to be in high-tech, traditionally male-dominated sectors and occupations, suggesting that the creation of green jobs alone does not inherently address gender inequalities. Without a deliberate focus on bridging these disparities, the energy transition could perpetuate or even worsen existing inequities.<sup>7</sup> There are concerns of gender inequalities being exacerbated in the energy sector without adequate focus on gender disparities. A study by the International Energy Agency (IEA) revealed that, on average, women are underrepresented in the energy sector by 76% compared to men across 29 countries, highlighting the urgency of addressing gender imbalances in this evolving landscape.<sup>8</sup>

As the energy transition unfolds in India, and the country progresses towards a green energy economy, evidently concerns are rising about the potential differential impacts on men and women, with a risk of amplifying existing inequalities.

Given the context, this report explores how a gender-responsive just transition can be ensured for the women in India's coal regions. Building on existing literature the study specifically deep-dives into three states—Jharkhand, Odisha, and Maharashtra—to evaluate this. Based on this analysis, the report offers recommendations for developing gender-responsive pathways that can support a just and equitable energy transition in India's fossil fuel regions.

## DEFINING A GENDER-RESPONSIVE APPROACH

A gender-responsive approach to just transition recognises that the impacts of climate change and the shift to a low-carbon economy are experienced differently by men and women due to existing social, economic, and cultural inequalities. It emphasises the integration of gender considerations at every stage of planning and implementation of transition measures to ensure equitable opportunities, address systemic disparities, and empower women to actively contribute to and benefit from the transition process. This approach aims to rectify historical gender imbalances, foster inclusivity, and build resilience among marginalised groups, ensuring that the movement toward a sustainable and just future is both fair and transformative.

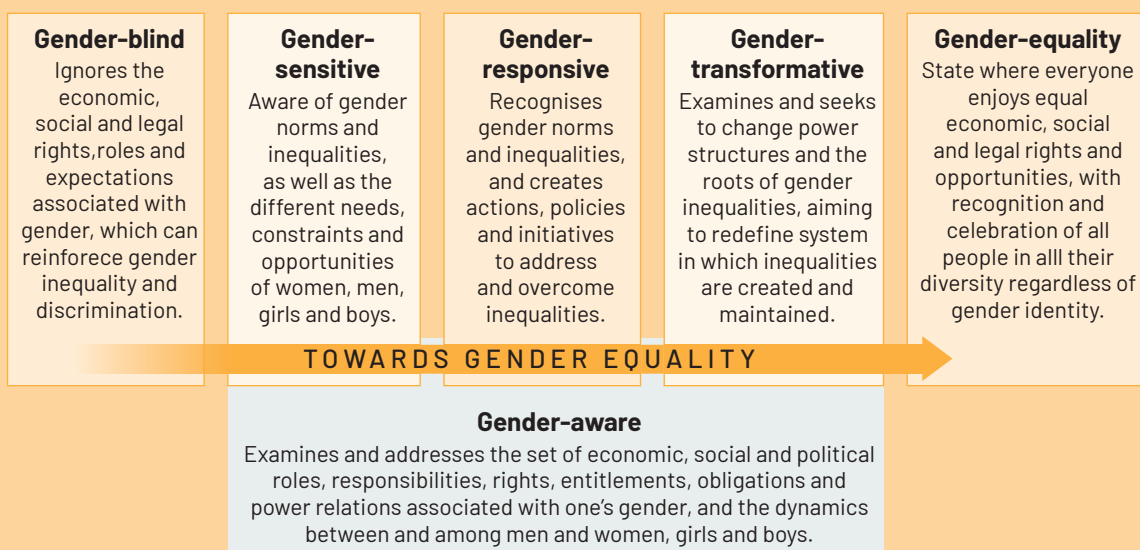
Various definitions provide insights into the concept of gender responsiveness in the context of climate change.

The UN Women describes a gender-responsive just transition as an “opportunity to ensure that sectoral and occupational segregation is not perpetuated, wage and skills gaps are eradicated, inclusive social dialogue is established, working conditions are improved, and social protection is enhanced” as countries move away from fossil fuels and build a low carbon economy. The group has also underscored that to ensure a gender-responsive just transition, transformations and redefinition of jobs and workplaces are required to create new opportunities for the women, and more importantly to facilitate the formalisation of the informal workforce.<sup>9</sup>

Similarly, CARE International describes gender responsiveness as “creating dialogue and platforms to critically evaluate the fairness and value of gender roles and norms, and to renegotiate these rules and norms in the context of action on climate change”.<sup>10</sup>

The literature also distinguishes between gender-responsive and gender-transformative approaches to climate action, an essential consideration for developing policies and plans. A gender-responsive approach addresses the specific needs of women and men, ensuring equitable participation and benefits. In contrast, a gender-transformative approach goes further by addressing the root causes of gender inequality and reshaping problematic gender roles, norms, and relations. The International Labour Organization (ILO) highlights that gender-transformative policies are designed to fundamentally challenge and change societal structures that perpetuate inequality. Thus, a gender-transformative approach can be viewed as a more advanced step beyond gender responsiveness.

**Figure 1: Mainstreaming gender issues in developmental aspects**



Source: Figure adopted from Center for International Forestry Research<sup>11</sup>

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## **Study Approach**

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**The approach** to evaluating the gender-responsive pathways for just transition in India's coal regions is based on a systematic literature review and primary survey in coal mining districts of three states- Jharkhand and Odisha in Eastern India, and Maharashtra in Western India.

The primary survey involved Focus Group Discussions (FGDs) and key informant interviews. The FGDs and interviews were conducted in Ramgarh and Hazaribagh (Jharkhand), Angul (Odisha), and Nagpur (Maharashtra), chosen for their distinct socio-economic profiles and varying levels of coal dependency.

Overall, a total of 22 FGDs were conducted in these districts covering 255 participants. The FGDs paid deference to various occupations and caste representation, as per the regions where they were conducted.

The FGDs conducted in these districts specifically focussed on capturing the employment status of women, their dependence on the coal economy, income, and education and skill levels, all of which have implications for determining their vulnerability to the energy transition and their ability to avail opportunities in the low-carbon economy. The FGDs also specifically captured the aspirations of the women in a non-coal-based economy and the support that they require.

The key informant interviews were conducted with members of Panchayati Raj Institutions (PRI members), ward members, labour union representatives, and civil society organisations (CSOs) working on issues of livelihood, women's empowerment, and poverty alleviation in these regions.

Aakansha Gupta, iFOREST



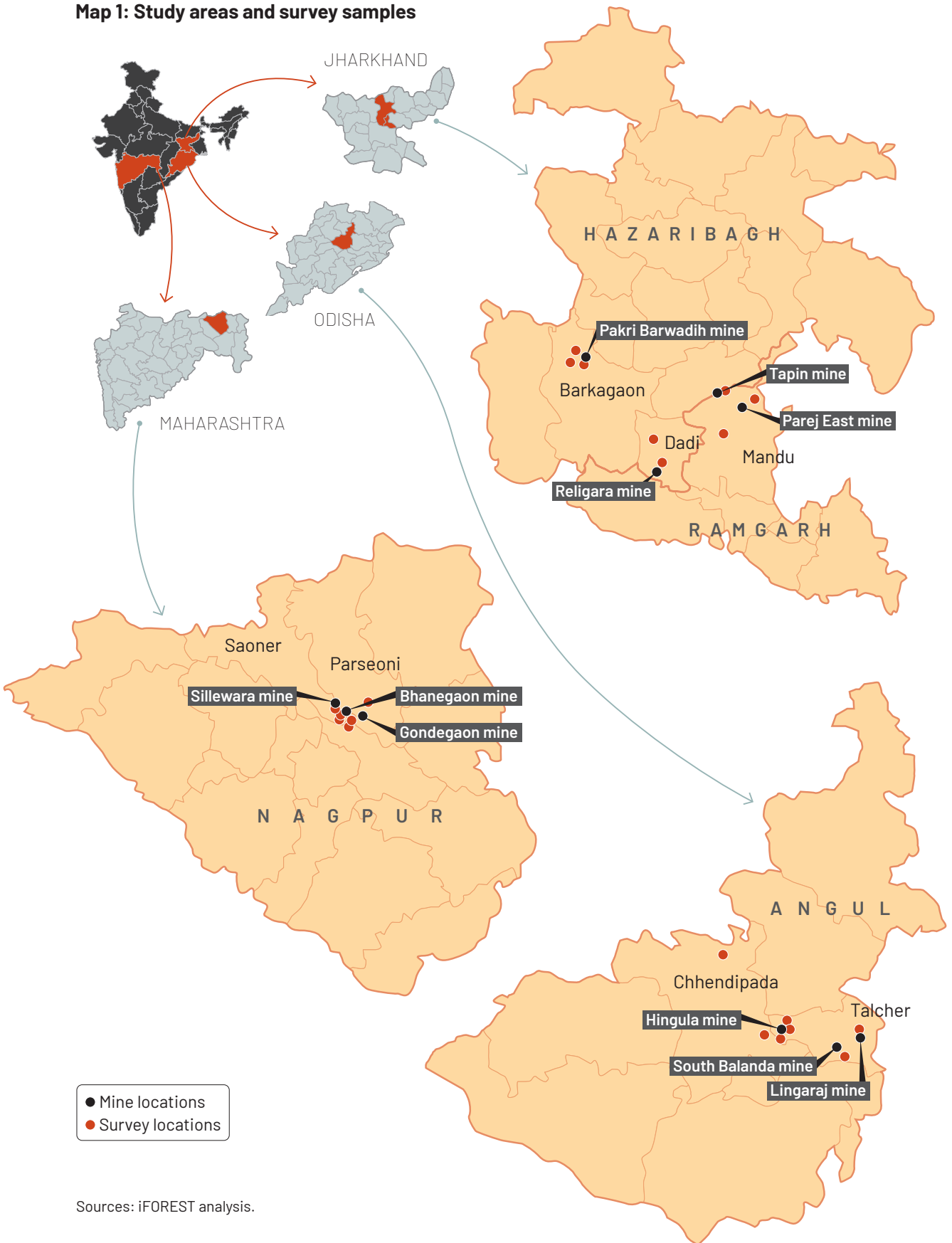
Aakansha Gupta, iFOREST



Rashi Agarwal, iFOREST



**Map 1: Study areas and survey samples**



● Mine locations  
● Survey locations

Sources: iFOREST analysis.

**Table 1: Characteristics of study areas**

State	District	Block	Rationale for district selection	
			Coal mining activity	Block-wise demographics
Jharkhand	Hazaribagh	Barkagaon and Dadi	<p>Hazaribagh has nine coal mines with a production capacity of about 27.9 million metric tonnes per annum (MMTPA). Out of these, three mines are in Barkagaon and there are in Dadi. All the mines of Dadi are reported to be unprofitable, whereas, one of the operational mines in Barkagaon is unprofitable.</p> <p>Besides, there are many abandoned mines in the area which constitute a source of livelihood.</p>	<p>48.5% of Barkagaon's population is female. Among them, 18.2% belong to Scheduled Caste (SC) and about 1% belong to Scheduled Tribe (ST) categories.</p> <p>Similarly, for Dadi, about 48.6% of the population is female. Among them, about 13% belong to SC and about 27.7% belong to ST categories.</p>
	Ramgarh	Mandu	<p>Ramgarh has 22 coal mines with a production capacity of about 38 MTPA. However, the district is grappling with challenges of financial viability and resource exhaustion of the mines. At the time of the analysis, at least 75% (out of the 20) operational mines were reported as unprofitable. In Mandu, which has about 15 mines operational, about 10 are unprofitable.</p> <p>The status of the mines shows the immediate transition challenges of the district, as there are large number of mines that are likely to close soon. The area also has several abandoned mines.</p>	<p>48% of Mandu's population is female. Among them, about 14% belong to SC and about 21% belong to ST categories.</p>
Odisha	Angul	Talcher and Chhendipada	<p>Angul is the highest coal-producing district in Odisha. This district has 12 mines with a production capacity of 141 MMTPA. Talcher is the oldest and largest coal-producing block in the district with all operational mines. Besides, four mines are temporarily/permanently closed. Chhendipada has newly allocated coal mine blocks where mining is soon to be started.</p>	<p>47.4% of Talcher's population is female. Among them, about 19.6% belong to SC and about 9.2% belong to ST categories.</p> <p>For Chhendipada, about 48.8% of the population is female. Among them, about 20.2% belong to SC and about 9% belong to ST categories.</p>



Table 1 continued

State	District	Block	Rationale for district selection	
			Coal mining activity	Block-wise demographics
Maharashtra	Nagpur	Parseoni and Saoner	<p>Nagpur is Maharashtra's second-largest coal-producing district, which has 15 mines with a production capacity of 23.7 MMTPA.</p> <p>Out of these, three mines are located in Parseoni block and eight in Saoner block. Out of the 11 operational mines in the district, seven mines are unprofitable which are all in Saoner block.</p>	<p>48.8% of Parseoni's population is female. Among them, about 20% belong to SC and about 9.5% belong to ST categories.</p> <p>For Saoner, about 48.3% of the population is female. Among them, about 19.3% belong to SC and about 10% belong to ST categories.</p>

Source: Data on coal mines as per information obtained from the coal companies, including through RTO queries. Socio-demographic data as per Census of India, 2011

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## **Just Transition Issues of Women in Fossil Fuel Regions: Perspectives from Key Coal States**

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**Developing a** just transition pathway for fossil fuel-dependent regions in India requires a thorough understanding of the socio-economic realities faced by women in these areas. In many coal districts, the focus of the study, women are variedly connected to the coal economy, both directly and indirectly, through various roles to sustain their households and communities. Their experiences, contributions, and challenges provide crucial insights for designing equitable and inclusive transition strategies that are not only gender-sensitive but also can offer opportunities to transform lives and livelihoods.

On-ground studies conducted in Jharkhand, Odisha, and Maharashtra highlight critical aspects such as women's reliance on the coal economy livelihoods, their educational and skill levels, the barriers they face (and are likely to face) in accessing opportunities and their aspirations and scope of engagement in a low-carbon economy as the energy transition unfolds. Such data-driven understanding is essential for identifying interventions and determining sustainable just transition pathways that empower women and promote gender equity in the event of an energy transition.

### 3.1 Jharkhand

In Jharkhand, eight FGDs were conducted with 101 women across villages in Hazaribagh and Ramgarh districts. The socioeconomic composition of the respondents included 52% STs, 31% SCs, and 17% Other Backward Classes (OBC). The villages where the FGDs were conducted in Hazaribagh included Rikba, Giddi C, Sonbarsa, Ara Ahar, and Chepa Kalan, which were located within a radius of about five to six kilometers from Pakri Barwadih and Religarh mines. In Ramgarh, the villages where FGDs were conducted included Tapin, Basantpur, and Hesagara villages, located within a radius of four kilometers from Tapin mines. The salient observations from the FGDs relevant to the study are outlined below.

Rashi Agarwal, iFOREST



### 3.1.1 Employment and dependence on coal

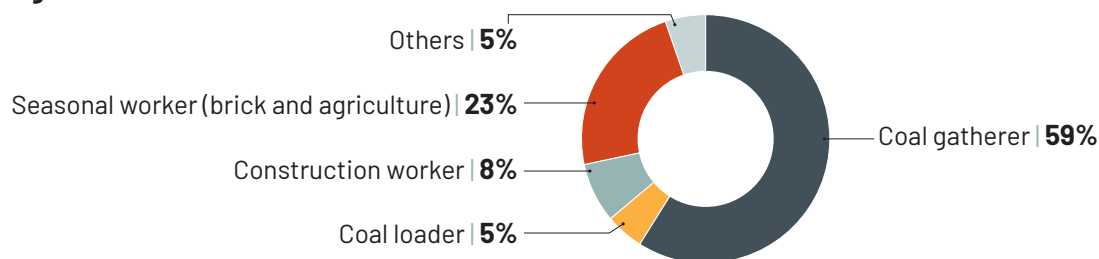
Among the women interviewed through FGDs in the two districts, approximately 40% reported being employed. The remaining 60% are primarily engaged in household work and caregiving tasks.

The women who reported to be working were engaged in various roles, the majority in coal-related work. Their engagement was primarily in the informal coal economy as coal gatherers. This is primarily due to the presence of abandoned coal mines in the area.

Overall, 64% of the working women were found to be dependent on coal for income or supporting the household income. Out of them, about 59% were involved in gathering coal to support the family to sell it in the local markets. All these women noted that while the work involved a lot of risk, there was no other option available for them to earn a livelihood, thereby compelling them to gather coal and help in selling.

Besides the coal gatherers, an additional 5% is reported to be engaged in coal loading in vehicles that transport coal from the local mines. In addition to their involvement in the coal economy, women in these areas also contribute to other informal sectors. Many are engaged in construction, brick-making, and agricultural worker, further emphasising their critical but often undervalued role in sustaining the local economy.

**Figure 2: Distribution of income source in Jharkhand**



Source: iFOREST analysis; 'Others' include a miscellaneous labour.

Besides income, women also mentioned their dependence on coal for cooking purposes due to its widespread availability of cheap coal in the area. While some respondents mentioned that they received LPG connections as part of the Pradhan Mantri Ujjwala Yojana – a scheme launched in 2016 by the Ministry of Petroleum and Natural Gas to increase the adoption of cleaner cooking options such as LPG in rural and deprived households<sup>12</sup> – they resorted back to using coal as it was a cheaper alternative than continuing with the LPG connection.

### 3.1.2 Income

The informal engagement of women results in low-income levels. About 45% of the women who reported to be employed and earning, earned below ₹5,000 per month, and an additional 50% reported a monthly income between ₹6,000-8,000. All women engaged in coal gathering (and thereafter their families selling coal) reported a monthly income below ₹8,000. Only 5% of the women reported an earning above ₹10,000-12,000 per month. This category included those either engaged as Anganwadi workers or had a formal engagement in nearby mines.

Overall, most respondents reported that household income primarily came from daily wage work, including coal gathering and selling, mining, construction, and agriculture-related activities. Women often contributed indirectly playing supportive roles.

**Table 2: Income distribution in Jharkhand**

Income range (in ₹) per month	Share of earning respondents (%)
Below 5,000	45
6,000-8,000	50
10,000-12,000	5

Source: iFOREST analysis

### 3.1.3 Education and skill levels

The education levels among women in the region show a clear pattern of limited access to formal education, which has significant implications for their employment prospects and economic opportunities. According to the survey data, a substantial proportion of women - 43% - reported that they had never attended school, highlighting lower levels of literacy and skill development in the region. The results also corroborate with the overall female literacy in the area which is about 55.42% (Census of India, 2011).

In terms of those who did attend school, 14% of women reported completing education up to the eighth (8th) standard, 18% up to the tenth (10th) standard, and another 18% had completed education up to the twelfth (12th) standard. Only 7% of the women surveyed had completed a college education. These figures reflect the overall low educational attainment of women in the region, with a clear gap in the pursuit of education beyond the secondary level.

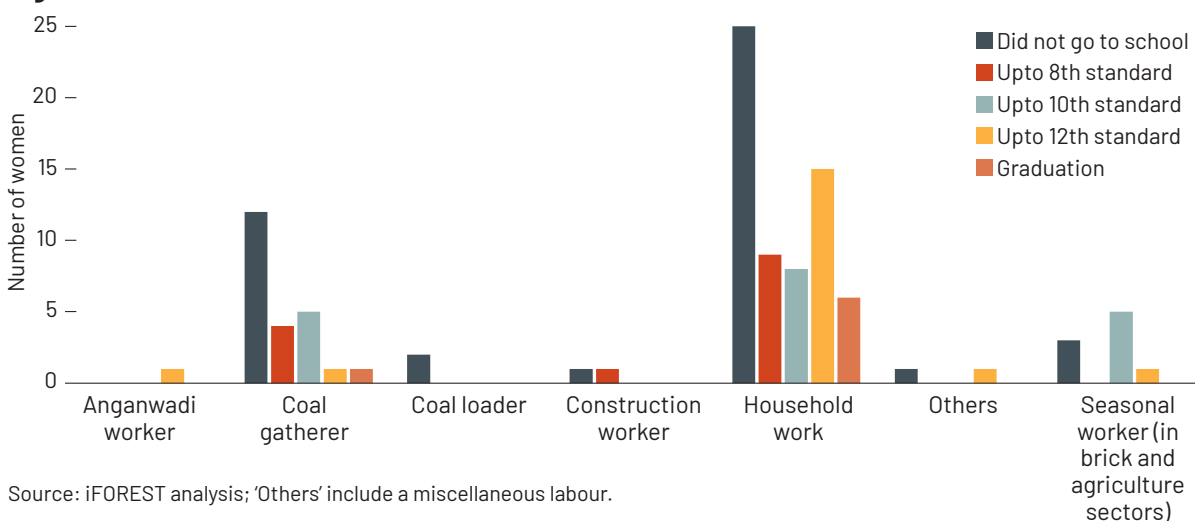
A particularly notable trend is the relationship between educational attainment and employment status. Most of the unemployed women reported having never attended school. This suggests that lower educational levels are closely associated with reduced access to employment opportunities, thereby perpetuating cycles of poverty and limited socio-economic mobility.

The lack of education is also evident among coal gatherers and other informal workers, such as in construction. These women are also often from marginalised communities and face significant challenges in improving their economic prospects due to the absence of formal education and also socioeconomic barriers.

Concerning skilling, according to the survey results no women had been part of training initiatives. Most of them can be categorised as unskilled workers considering the kind of work they are engaged in.

Overall, the observations show that the lack of education not only limits the women's potential to obtain secure and better-paying jobs, it also reinforces their reliance on informal and low-skilled work, such as coal gathering, construction, or agricultural worker. This highlights the need for targeted interventions to improve education and skill development for women in these regions, which could facilitate greater economic independence and upward mobility, ultimately contributing to a more sustainable and inclusive economy.

**Figure 3: Education level in Jharkhand**



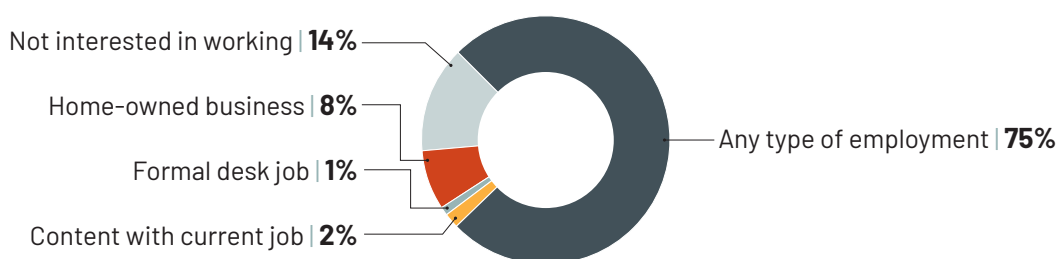
Source: iFOREST analysis; 'Others' include a miscellaneous labour.

### 3.1.4 Aspirations and support required

An important aspect of integrating women into the low-carbon economy is also capturing their aspirations. Among the women interviewed, 75% expressed a willingness to pursue employment in any form. Of those, 61% are currently engaged in household work, rendering them unemployed, and were keen on getting employed considering that it can empower them. The remaining 39% are currently working as informal workers, primarily being engaged as coal gatherers or seasonal workers, including in construction activities.

On the other hand, 14% of the women indicated no interest in working, with two-thirds of these women citing age as a limiting factor, expressing the belief that they were too old to acquire new skills or secure employment. Additionally, 8% of the women expressed a desire to start a small-scale business from home, driven by their caregiving responsibilities, which restrict their mobility and ability to engage in full-time employment outside of the home.

**Figure 4: Employment aspirations in Jharkhand**



Source: iFOREST analysis

To realise their aspirations, the women identified several areas of support they would require. Most women requested one or more forms of support to help them achieve their goals. Overall, the majority of the women expressed the need for access to the market, employment opportunities, and skill training.

**Table 3: Support required by respondents in Jharkhand**

Support required	Share of respondents (%)
Access to market and skills training	33
Employment opportunities and access to the market	27
Skill training	25
Skill training and conveyance support	3
No support required	12

Source: iFOREST analysis

The specific support needs mentioned by the respondents included sewing and tailoring, plate making, pickle/papad making. However, these skills were often chosen because the women were familiar with them or had been exposed to them through informal learning or community networks. Only one woman, who had completed her graduation, mentioned her interest in learning computer skills to attain a formal desk job.

Overall, many women expressed uncertainty about the type of skills they would like to pursue, due to the lack of exposure to alternative forms of employment. As most local jobs are coal-related, there is limited awareness about other skill sets that could open up new employment opportunities. Therefore, women requested general skills training to help them explore various options and make informed decisions about their future employment.

Despite their willingness to work or start businesses, most women were reluctant to travel long distances for employment. An overwhelming 99% of the respondents expressed that they would be willing to travel not

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more than 5 km from their homes. This reluctance is primarily attributed to their caregiving and household responsibilities, which they shoulder with little to no support from their male counterparts or other family members. The lack of shared responsibility for domestic tasks severely limits their ability to pursue employment further from home. This highlights the need for a more supportive domestic environment to empower women to explore employment or entrepreneurial opportunities outside their immediate vicinity.

Overall, the findings underscore the importance of addressing the educational, economic, and social barriers that women in coal-dependent regions face. By providing targeted skills training, market access, and creating local employment opportunities, women could have the chance to improve their socio-economic status and contribute more broadly to the region's development.

### 3.1.5 Overall observations from Jharkhand

The primary survey conducted in Jharkhand provides critical insights into the socio-economic challenges and opportunities faced by women in coal-dependent regions, highlighting the need for targeted interventions to facilitate their integration into a low-carbon economy. The key observations are summarised below:

- a. **Heavy dependence on the coal economy:** A significant proportion of women (64% of working respondents) are dependent on coal for their livelihoods, primarily through informal coal gathering and selling. This reflects the lack of diverse income-generating opportunities in the region. While coal is also widely used as a cooking fuel, its health and environmental implications remain unaddressed despite government efforts to promote cleaner alternatives like LPG.
- b. **Informal and low-income dependence:** Women's engagement in the workforce is largely informal, with 40% of respondents employed in precarious, low-income roles such as coal gathering, construction, and agricultural worker. The majority earn less than ₹8,000 per month, which underscores the need for economic diversification and the creation of formal employment opportunities that provide security and fair wages.
- c. **Low education and skill levels:** The limited educational attainment of women in the region is a critical barrier to their economic empowerment. With 43% having never attended school and only 7% achieving college-level education, opportunities for women to access higher-paying or skilled jobs are minimal. Moreover, the absence of exposure to and training in new skills perpetuates their reliance on informal, low-skilled labour.
- d. **Barriers to socio-economic mobility:** Women's ability to access employment is further hindered by entrenched caregiving responsibilities, lack of mobility, and minimal support from male household members. The reluctance of women to travel more than five kilometers for work due to household obligations highlights the importance of creating localised employment opportunities.
- e. **Aspirations and need for targeted support:** Despite challenges, 75% of women expressed a strong willingness to work or start small businesses, demonstrating their potential as active contributors to the economy. However, their aspirations are constrained by limited exposure to non-coal-related skills and economic activities. Women identified skill training, access to markets, and localised employment opportunities as critical enablers for their socio-economic advancement.

## 3.2 Odisha

In Odisha, seven FGDs were conducted with 70 women in villages of Talcher and Chhendipada blocks of Angul district. The socioeconomic composition of the respondents included 36% STs, 29% SCs, 32% OBCs, and 3% belonging to the general categories.

In Talcher block, FGDs were conducted in Gopalprasad, Malibandh and Banbasapur villages, all located within a distance of about six kilometers from the Hingula mine, Tentulei village located within three kilometers from the South Balanda mine (which is a closed mine), and in Deulabeda ward located within less than a kilometer from the Lingaraj mine. In Chhendipada, FGDs were conducted in Golagadia and Kankarei villages located near upcoming mine locations, to also capture future aspirations in mining more precisely as Angul is going to experience expansion of mining activities in the near future, particularly with coal blocks allocated in Chhendipada block. The salient observations from the FGDs relevant to the study are outlined below.

Aakansha Gupta, iFOREST



### 3.2.1 Employment status and dependence on coal

Among the women interviewed, about 40% reported working or contributing to household income, while the remaining 60% were involved with household chores and occupied in caregiving activities.

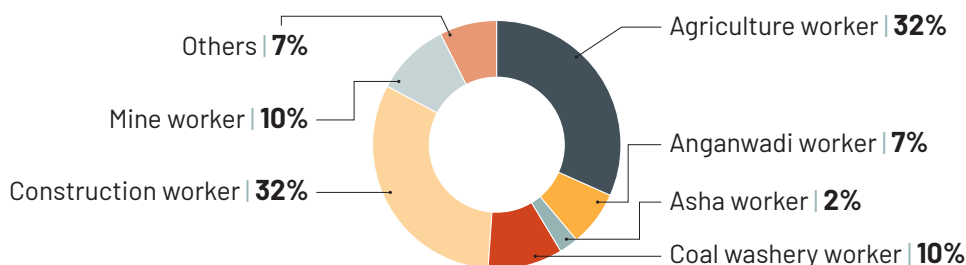
Overall, among the women who reported to be working, about 32% were working as construction workers. This group primarily included women from the ST and SC communities. Additionally, 32% of women were employed in agriculture and allied activities, almost all of them being engaged as agricultural workers in the Chhendipada block.

Concerning coal-related employment, 10% reported to be employed in Mahanadi Coalfields Limited (MCL). These women were formally engaged by the company and were involved in blasting, dumper-washing, and clerical work. Additionally, about 10% of the workers reported to be working in the coal washeries engaged in various informal work.



Unlike in Jharkhand, no women in Odisha were reported to be engaged in gathering or selling coal. This can primarily be attributed to the absence of abandoned mines in the region and the higher level of mechanization in mining operations in Angul, including activities like loading and unloading.

**Figure 5: Distribution of income source in Odisha**



Source: iFOREST analysis; 'Others' include women working as community resource person in Odisha Livelihood Mission and self-employed (leaf-plate stitching and selling).

Also, unlike Jharkhand, women in Angul were not dependent on coal as cooking fuel for two primary reasons. One, most of them had received LPG connections as part of the Pradhan Mantri Ujjwala Yojana. Secondly, the state government prohibits the locals from accessing coal, and therefore, some respondents mentioned instances wherein they were physically attacked by the police when they attempted to gather coal from the coal mines.

### 3.2.2 Income

The overall income levels among the women who were engaged in various economic activities are low considering the informal nature of work. About 57% reported earning between ₹6,000-8,000 per month, and 19% reported a monthly income between ₹8,000-10,000. All of them were daily wagers.

Considering coal mining-related jobs, the women who were MCL employees earned a decent ₹30,000-40,000 a month. In contrast, the women who worked in coal washery as informal workers had a monthly income between ₹8,000-10,000.

**Table 4: Income distribution in Odisha**

Income range (in ₹) per month	Share of earning respondents (%)
6,000-8,000	57
8,000-10,000	19
10,000-20,000	7
30,000-40,000	15

Source: iFOREST analysis

In the households where women were not working, the household income was majorly dependent on income from MCL. Women involved in agriculture belonged primarily to agricultural households where the household income was mainly from farming activities. In many households, a key source of income was also construction activities, including for men and women.

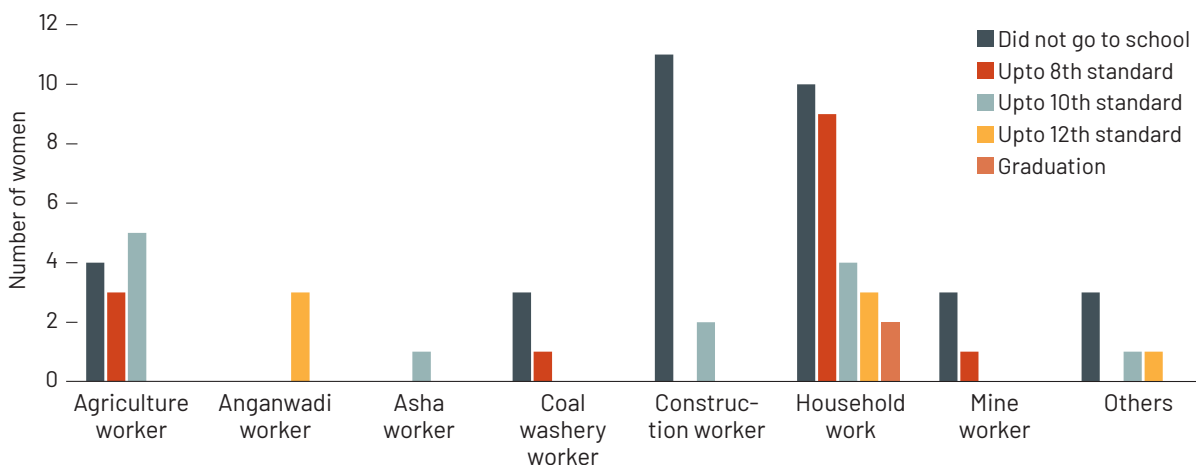
### 3.2.3 Education and skill levels

The education levels among women in the state are alarmingly low, reflecting significant barriers to skill development and economic advancement. Of the women surveyed, 48% had never attended school, 20% had completed education up to the eighth (8th) standard, 19% up to the tenth (10th) standard, and 10% up to the twelfth (12th) standard, while only 3% had attained a college degree. These statistics underscore the overall low educational attainment of women in the region.

A closer evaluation of education levels among women and the work they are engaged in shows that women with no formal education or education levels up to eighth standard were primarily confined to household duties or engaged as agricultural workers. Similarly, women involved in low-paying and physically demanding jobs, such as construction work, often have minimal educational backgrounds, underscoring how inadequate education perpetuates economic vulnerability.

The analysis also shows that only women employed in MCL mines had received formal skill training, provided by the company during onboarding. Despite this, most women lacked awareness of upskilling opportunities, reflecting gaps in outreach and the availability of programmes designed to enhance women’s economic participation. Addressing these gaps through targeted education and skill development initiatives could significantly improve women’s access to better-paying and more secure jobs in the region.

**Figure 6: Education level in Odisha**



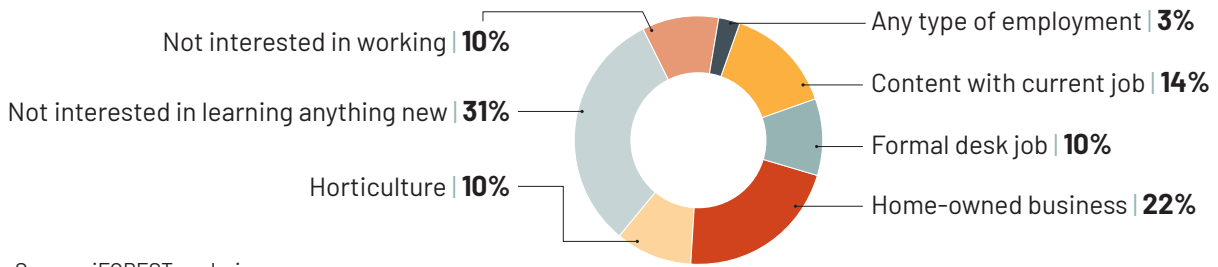
Source: iFOREST analysis; ‘Others’ include women working as community resource person engaged in Odisha Livelihood Mission and self-employed (leaf-plate stitching and selling).

### 3.2.4 Aspirations and required support

Among the women interviewed, 31%—primarily housewives—expressed no interest in acquiring new skills. The lack of interest, as they reasoned, was given their low education levels and the belief that they were not employable. Some also considered age as a limiting factor in learning new skills. About 14% of women, including those employed by MCL were content with their current work.

Among the women who expressed future aspirations the most common was to start their own business. About 22% of women aspired to start home-based businesses such as tailoring, sewing, leaf plate stitching, or incense stick making. These preferences are largely influenced by mobility restrictions, as most women handle household responsibilities and prefer income-generating opportunities they can manage from home. Another 10% showed interest in horticulture and mushroom cultivation. Only 10% of women aspired to learn computer skills to pursue formal desk jobs.

**Figure 7: Employment aspirations in Odisha**



Source: iFOREST analysis

To achieve their aspirations, the women identified various types of support they needed. Among them, skill training was a major need. Overall, 23% of women expressed the need for skilling, including a small percentage (2%) also indicating the need for financial support alongside it. The types of skills they indicated include, horticulture and associated activities, sewing and tailoring, and also computer operations. Women who were interested in acquiring computer skills were educated up till graduation or they were young and could learn technical skills. The women who still owned some agricultural land showed interest in learning horticulture, especially mushroom growing, to enhance their income. Some women were open to learning any kind of skills to increase their employability. Since many women were open to home-owned businesses, they also felt the need for financial support.

About 37% of women who said no support was required, included those who were either content with their current roles (such as the women working in MCL, ASHA workers, and Anganwadi workers), or those who were not interested in working at all due to illiteracy, mobility restriction, and age.

Overall, all the women who wanted to work wanted employment opportunities to be available locally, or to get skilled in areas where there is employment in the area. They expressed their inability to travel far for employment due to caregiving and household responsibilities.

**Table 5: Support required by respondents in Odisha**

Support required	Share of respondents (%)
Skill training	21
Financial support only	5
Employment opportunities and access to the market	2
Skill training and financial support	2
Unsure	3
No support required	37

Source: iFOREST analysis

### 3.2.5 Overall observations from Odisha

Like Jharkhand, the primary survey conducted in Odisha provides critical insights into the socio-economic challenges and opportunities faced by women in coal-dependent regions, highlighting the need for targeted interventions to facilitate their integration into a low-carbon economy. The key observations are summarised below:

- a. **Informal and low-income dependence:** Employment patterns in Odisha's Angul district reflect a strong reliance on informal work associated with the construction (32%) and agriculture (32%) sectors especially. Coal-related employment is limited, with only 10% of women formally engaged with MCL in roles such as blasting, dumper washing, and clerical work, and another 10% employed informally in coal washeries. Unlike Jharkhand, there is minimal informal coal collection and sale by women.

The income levels among women are generally low given the nature of informal employment. A majority (57%) earn between ₹6,000-8,000 per month, while only a small percentage (15%) in formal MCL employment earn higher salaries of ₹30,000-40,000 per month. Households without women in the workforce rely on incomes from agriculture, construction, or family members employed in coal mining.

- b. **Low education and skill levels:** Educational attainment among women is strikingly low, with nearly half (48%) of the respondents having never attended school. A lack of education directly limits their access to formal employment opportunities and skill development. Most women engaged in MCL's formal workforce had received training at the time of onboarding, but overall, awareness and opportunities for upskilling remain scarce.
- c. **Aspirations and need for targeted support:** A significant proportion of women, particularly those with low education or older age groups, express disinterest in acquiring new skills or pursuing employment, citing factors such as low self-perceived employability and household. For women who wanted to work, noted skill training (21%) and financial support as primary needs to achieve their aspirations.
- d. **Barriers to socio-economic mobility:** However, among those with aspirations, starting home-based businesses (22%) and engaging in horticulture (10%) emerged as popular preferences, given mobility restrictions and household commitments. Most women emphasised the importance of local employment opportunities due to caregiving responsibilities and limited mobility.

### 3.3 Maharashtra

In Maharashtra, seven FGDs were conducted with 84 women in Parseoni and Saoner blocks of Nagpur district. The socioeconomic composition of the respondents included 49% OBCs, 30% STs, 2% SCs, and 19% belonging to the general categories.

The FGDs were conducted in the villages of Yesamba and Gondegaon in Parseoni block, and Sillewada, Bhanegaon and Waregaon in Saoner block. All the villages were located within five to six kilometers distance from the Gondegaon, Sillewara, and Bhanegaon mines. The salient observations from the FGDs relevant to the study are outlined below.

Chetan Malekar



### 3.3.1 Employment status and dependence on coal

According to survey responses in Maharashtra, 51% were employed and 49% were occupied only in household chores and/or caregiving activities at home.

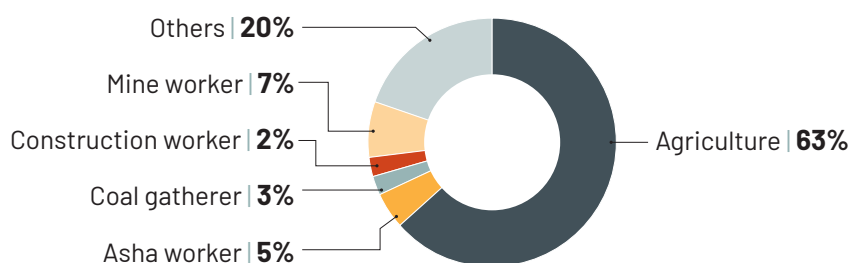
The women who had an income, a significant proportional of them were engaged as informal workers in various activities. For example, 61% worked in agriculture and allied activities as labourers. Another 2% were engaged as construction workers.

Participation of women as formal workers was observed to be minimal. Only 7% of employed women worked with Western Coalfields Limited (WCL) as cleaners and clerks. Additionally, 7% were engaged as ASHA workers, and 3% were engaged as Anganwadi workers. Coal gathering remained a small-scale activity in the regions, with only 3% of women reported to be engaged as coal gatherers.

In Maharashtra, 17% working women were engaged in various other types of work like in a beauty parlour, or as a school teacher or a security guard.

Overall, women’s dependence on coal for livelihood was found to be low in Maharashtra. Many women cited their engagement in current roles due to limited employment opportunities and inadequate skills for formal sector jobs.

**Figure 8: Distribution of income source in Maharashtra**



Source: iFOREST analysis; ‘Others’ include women working in beauty parlours, as security guards, and as school teachers.

### 3.3.2 Income

Given the informal nature of employment, women’s earnings in Maharashtra were generally very low. Among the women who reported an income, 75%—primarily those engaged in agriculture—earned less than ₹5,000 per month. A smaller percentage reported earnings in the ranges of ₹6,000–8,000 (8%) and ₹10,000–20,000 (8%).

Considering coal-related work, the few women employed by WCL earned relatively higher salaries, exceeding ₹30,000 per month. By contrast, the coal gatherers reported a monthly income of ₹6,000–8,000.

**Table 6: Income distribution in Maharashtra**

Income range (in ₹) per month	Share of earning respondents (%)
Below 5000	75
6,000-8,000	8
10,000-15,000	8
30,000-40,000	6
40,000-60,000	3

Source: iFOREST analysis

In most households where women were not employed, male counterparts held jobs in the coal industry, such as WCL mine workers or drivers. In households where women were engaged in agriculture, men often contributed to agricultural activities while supplementing the household income through part-time daily wage labor.

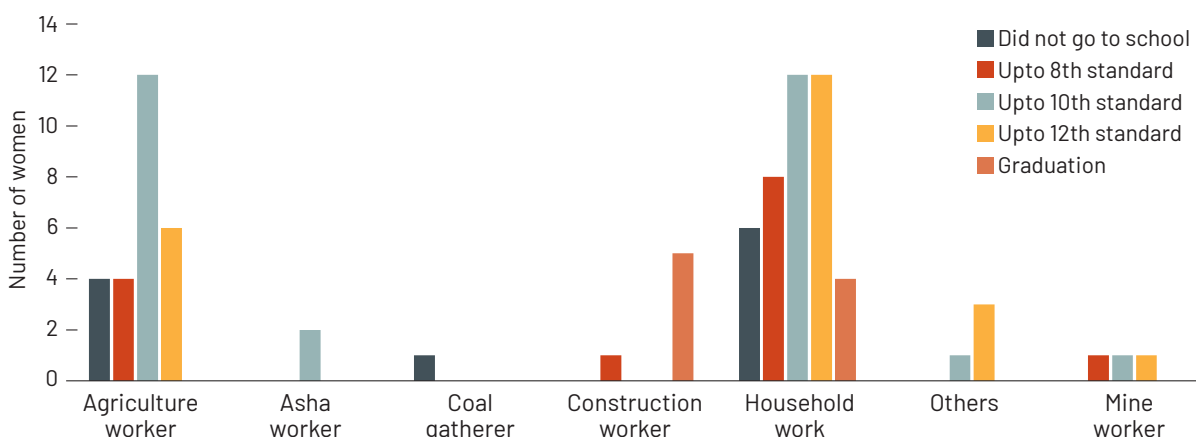
### 3.3.3 Education and skill levels

Among the women interviewed, school attendance was notably higher in Maharashtra compared to Jharkhand and Odisha. Education levels varied, with 13% of women having studied up to the eighth (8th) standard, another 13% up to the tenth (10th) standard, 26% up to the twelfth (12th) standard, and 11% having completed graduation. However, 13% of respondents had never attended school.

A closer look at the relationship between education levels and employment types highlights a key trend: a significant portion of unemployed women lacked formal education. Women who had completed up to the tenth standard were predominantly engaged in household work or agriculture. This pattern suggests that even with basic schooling, many women lacked access to jobs in other sectors, likely due to inadequate vocational training, or cultural and societal norms that restrict women’s participation in non-traditional roles. In fact, none of the women reported receiving vocational training.

Notably, about half of the women with graduate degrees were self-employed, indicating that higher education levels may empower women to pursue entrepreneurial activities. However, none of the women reported receiving formal skill training, pointing to a critical gap in enabling them to transition into skilled or higher-paying jobs.

**Figure 9: Education level in Maharashtra**



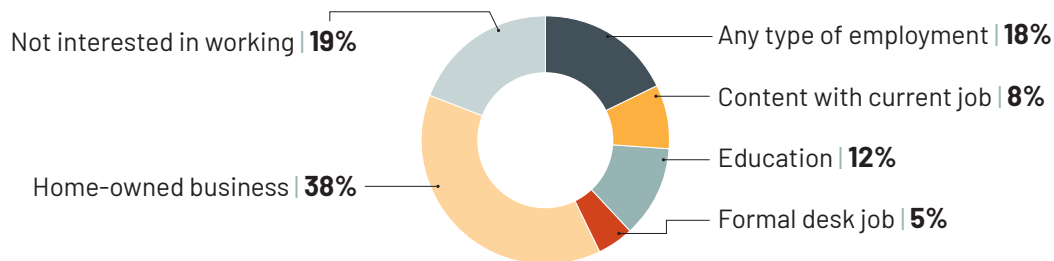
Source: iFOREST analysis; ‘Others’ include women working in beauty parlours, as security guards, and as school teachers.

### 3.3.4 Aspirations and required support

Among the women interviewed, a notable 19%—primarily elderly women focused on household chores—were not interested in employment. However, about 38% expressed interest in starting a small business from home, with many already engaged in farming or caregiving responsibilities.

Additionally, 18% were eager to secure any form of employment, and 12% aspired to pursue higher education. About 8% were satisfied with their current work, which included agricultural activities or self-owned enterprises. The remaining 5% had higher education levels and aimed for formal desk jobs to leverage their qualifications.

**Figure 10: Employment aspirations in Maharashtra**



Source: iFOREST analysis

The respondents identified various forms of support needed to achieve their aspirations. A key one among these was skill training to make them employable or to help them secure an income. Overall, about 55% of women expressed the need for skill training, including a significant proportion indicating the need for financial support as well. Besides, women also indicated the need for local income opportunities considering the limitation of mobility.

Among the women who indicated skilling needs, a large number of women were open to learning any type of skill to enhance their employability. Those who specified types of skilling indicated sewing and tailoring, making papads/pickles etc., packaging of products, and also beautician courses as the primary ones. Like in the other cases, their aspiration is primarily reflective of their limited exposure to/understanding of other opportunities. The women who expressed interest in home-based businesses indicated the need for financial assistance.

The women who did not require any support included those who were wither content with their current work, specifically those who were self-employed or were not interested in working due to their age or inability to work or engage in anything new due to household responsibilities or age.

**Table 7: Support required by respondents in Maharashtra**

Support required	Share of respondents (%)
Skill training	35
Skill training and financial support	20
Financial support only	17
Employment opportunities and access to market	4
No support required	24

Source: iFOREST analysis

### 3.3.5 Overall observations from Maharashtra

The analysis of women’s employment status, income levels, education, aspirations, and support needs in Maharashtra provides several important insights.

- a. **Informal and low-income dependence:** The women who reported to be earning are engaged in informal and low-income activities such as agricultural workers. Formal employment opportunities were limited, with only 7% of women employed by WCL, and another 10% working as ASHA or anganwadi workers. Coal gathering was a minor activity, with just 3% of women involved in it. Overall, women’s dependence on coal-related livelihoods in Maharashtra was low, with many women participating in other forms of informal or domestic work.

Income levels reflected the informal nature of women’s employment, as 75% of those employed earned less than ₹5,000 per month.

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- b. **Education has not translated into better income opportunities:** While the proportion of women completing schooling at tenth and twelfth standards was comparatively better as compared to Jharkhand or Odisha, it has not necessarily created better income opportunities for all. As the FGD results indicated, a significant proportion of women despite completing schooling were engaged in informal work, such as agricultural workers. Besides, none of the women reported receiving any formal skill training. This highlights a significant gap in education, skilling, and employability in decently paid jobs.
  - c. **Skilling and creation of local employment opportunities:** About 55% of women identified skill training as a key requirement to enhance their employability or help them earn a livelihood. Many respondents were open to learning any type of skill to increase their job opportunities. A key demand also to create localised employment given their limited opportunity to move away from home to work.
  - d. **Besides skilling, the need to support entrepreneurship is important:** A notable 38% of the respondents expressed a desire to start a small business from home, with many already engaged in farming or caregiving responsibilities that made it difficult for them to take up employment outside the home. The responses indicate that not only it is important to enhance skilling for women and their employability, but supporting women's entrepreneurship and creating localised jobs as suited to their needs will be necessary.

## 3.4 Overall observations

The on-ground studies in the coal regions of three important states, Jharkhand, Odisha and Maharashtra, provide an understanding of the challenges and needs that should be addressed while designing just transition policy(ies), plans and investment measures. Overall, the assessments highlight the following issues.

- a. **Women are predominantly engaged as informal workers:** A significant proportion of women in these regions are engaged in informal, low-income activities such as coal gathering, construction work, and agriculture. These roles offer little job security, lower wages, and no social protection. Their limited exposure to formal jobs, combined with socio-cultural biases, perpetuates a cycle of economic vulnerability.
- b. **Low education levels:** Women in the coal-dependent regions often exhibit low literacy rates, with many never having attended school. This lack of education limits their access to formal employment, engagement in skill development programmes (particularly for industrial jobs), and higher-paying opportunities. Even among those with basic education, a disconnect exists between their qualifications and the skills required for employment in a transitioning economy.
- c. **Barriers to entrepreneurship and financial independence:** Women face challenges in accessing credit, financial support, and market opportunities to establish or grow businesses. Most financial schemes fail to cater specifically to women's entrepreneurial needs. Except for Odisha, existing self-help group (SHG) networks appear to be underutilised for income-generating activities.
- d. **Mobility constraints:** Household responsibilities and caregiving duties disproportionately fall on women, limiting their ability to participate in employment (especially that is not localised) or medium or long-term training programmes. Most women are unable to travel beyond their villages, further restricting their opportunities for income generation.
- e. **Limited awareness of policies, schemes, and resources:** Women lack awareness of existing government schemes that can support skilling and entrepreneurship, and also could provide financial and developmental support. Many are also unaware of the potential impacts and opportunities presented by the energy transition, leaving them unprepared for change.

Overall, the primary survey demonstrated a mix of challenges and aspirations. While many women were eager to improve their employability through skill training and financial support, their limited exposure to formal employment opportunities and diverse career paths created barriers to realising their potential. To address these gaps, targeted measures to improve education attainments and development of foundational skills, professional skilling, financial aid, and raising awareness of broader employment opportunities and support that can be availed could significantly enhance women's economic participation and empowerment.



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## **Approach for Gender-Responsive Just Transition Pathways**

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## 4.1 Guiding principles

A gender-responsive just transition emphasises integrating gender considerations as part of the entire just transition process, including in policies, plans, and decision-making measures.<sup>13</sup> Moreover, a truly transformative approach to a just transition integrating gender considerations should move beyond addressing existing disparities to actively challenging and changing systemic power dynamics and societal norms. This involves empowering women as key agents of change, fostering their equitable participation,<sup>14</sup> and addressing structural barriers that constrain their access to opportunities. Such an approach can ensure that the just transition not only promotes gender equality but also creates a foundation for more inclusive and resilient communities where women are the agents of change.

The following are the key principles that need to be considered to ensure gender equality, integration, and empowerment in the energy transition process.<sup>15</sup>

- a. **Develop inclusive transition policies and plans:** Mainstream gender considerations in just transition policies, plans, and investment measures to ensure mainstreaming of gender-responsive measures.
- b. **Maximise formal job opportunities:** Maximise formal jobs for the women workforce in the low-carbon economy, to ensure decent wages and social protection benefits for them.
- c. **Foster equal employment opportunities:** Ensure equal employment opportunities for women, including equal pay and access to green jobs.
- d. **Strengthen education alongside skill development:** Remove barriers to the acquisition of foundational skills (including higher and technical education) and training/skilling for women, enabling them to acquire the necessary education and skills for emerging sectors in the low-carbon economy.
- e. **Support resource accessibility:** Improve women's access to resources such as finance, supportive infrastructure, and markets to enhance economic opportunities, and foster entrepreneurial ventures and local economic growth.
- f. **Ensure representation in decision-making:** Ensure equal and meaningful participation of women at all levels of decision-making processes and promote women's leadership.

## 4.2 Action points for policies, plans and investments

Developing gender-responsive just transition pathways in India's coal-dependent regions demands more than a one-size-fits-all approach to reskilling and skilling. A multifaceted strategy is essential, with a key focus on investments in education and supporting higher levels of educational attainment. These efforts are crucial not only for building foundational skills but also for enhancing women's confidence and capacity to participate in emerging economic opportunities.

By adopting a holistic approach that combines education, skills training, and empowerment initiatives, women can be better equipped to transition into formal employment, secure sustainable livelihoods, and play a meaningful role in the low-carbon economy. Further, targeted interventions are required to address structural barriers and create an enabling ecosystem for their inclusion.

Following are some of the key action points, aligned with the guiding principles, that should be considered for developing gender-responsive and more importantly gender-transformative just transition pathways.

- a. **Generate data to enhance understanding of gender issues:** While there is a recognition of integrating gender issues in just transition measures, however, a major drawback of developing precise policies, plans, and investment measures is the lack of disaggregated data.

To understand the dependence of women in various fossil fuel sectors (such as coal), and fossil fuel-dependent industries, and the impact of the energy transition on women, ground-level studies are necessary. Governments at the national, state, or district levels should facilitate such studies to

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understand the dependence and impact. An impact assessment study on the gendered nature of energy transition, including how the loss of employment in certain sectors (such as fossil fuel industries, and other related sectors in the induced economy) can affect women, will be essential to integrate and implement appropriate economic and social protection measures.

- b. **Develop gender-sensitive policies and plans:** Developing gender-sensitive and inclusive just transition policies is critical to redefining jobs and workplaces for women. Such policies should support formal employment, ensure equal pay, and promote equitable outcomes for women, requiring active engagement by both national and state governments.

The just transition plans should also be especially attentive to gender issues. The plans should be developed on the basis of an intersectional and rights-based approach considering unique vulnerabilities faced by women (and girl child) given the economic status, social status and identity, age, migration status, and other relevant determinants.

- c. **Strengthen existing programmes and schemes:** Strengthening existing women-focused schemes with an emphasis on job creation, entrepreneurship, and skill development will be equally essential.

A range of policies and programmes already exists in states like Jharkhand, Odisha, and Maharashtra, which can serve as a foundation for these efforts. For example:

- Jharkhand has schemes such as the Jharkhand Mukhyamantri Maiyan Samman Yojna (2024),<sup>16</sup> which focuses on empowering women through direct support, and the Mukhyamantri Rojgar Srijan Yojana (2022),<sup>17</sup> aimed at promoting employment generation.
- Odisha offers initiatives like the Subhadra Scheme (2024),<sup>18</sup> the MSME Development Policy (2022),<sup>19</sup> and the longstanding Mission Shakti (2001),<sup>20</sup> which is a flagship programme for promoting women's self-help groups and entrepreneurship.
- Maharashtra has programmes such as the Maharashtra Women's Economic Empowerment Programme (2022)<sup>21</sup> and the Women Entrepreneurship Cell (2021),<sup>22</sup> which focus on creating economic opportunities and supporting women entrepreneurs.

Collaboration between the government agencies, CSOs and vocational training institutes can help in better designing of programmes as per the needs and interests of the women and help in effective implementation.

Besides, strengthening women's SHGs and similar interventions, and ensuring the women build on these opportunities, will also be important to promote entrepreneurship and augment income. SHGs provide a model of micro-financing to women to strengthen livelihoods and income in the rural areas. As per the information of central Government (as of October 2024), about 10 crore (100 million) women have been mobilised into 90.9 lakh (0.9 million) SHGs across India. These SHGs are supported through revolving fund, community investment fund, and bank linkages as per their eligibility and demands.<sup>23</sup>

- d. **Strengthen education for women:** As observed in the case studies, the education attainment of women in India's coal regions is poor. Poor education levels hinder their ability to get skilled, in fact create an inhabitation among them that they can be skilled. Therefore, efforts to education completion levels among women, including higher levels, are extremely important.
- e. **Develop dedicated skilling and capacity-building programmes:** Develop skilling programmes in renewable energy (RE), electric mobility, and climate-resilient sectors, that cater to some of the limitations that women face to respect to their time, domestic obligations, and mobility. These programmes should offer flexible schedules, on-site childcare facilities, and transportation support to address socio-cultural constraints.

Besides, training and capacity-building programmes should also promote technical and managerial skill development for women to enable their participation in traditionally male-dominated sectors.

- f. **Create local employment opportunities:** Considering mobility restrictions faced by many women, creating local employment opportunities will be crucial for ensuring their participation in the labour

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market. By focusing on community-based employment, flexible work models, and targeted skill-building initiatives, women can access sustainable livelihoods without the need for extensive travel or relocation.

- g. **Provide financial support and ensure access to resources:** Securing consistent funding is crucial for implementing gender-responsive programmes and initiatives. A crucial opportunity is to leverage the funds available with local resources, such as District Mineral Foundation (DMF) funds available at the district level. The Pradhan Mantri Khanij Kshetra Kalyan Yojana (PMKKKY), the flagship central government scheme aligned to the implementation of DMF, highlights ‘women development’ as a high-priority issue for utilising the funds.<sup>24</sup> Besides, the Corporate Social Responsibility (CSR) funds, with a strong welfare focus including for women, is another important resource.
- h. **Develop processes and platforms to enhance women’s participation in decision-making:** Enhancing women’s participation in decision-making is crucial for fostering inclusive governance and equitable development. It is essential to actively encourage women’s participation in various platforms, including local-level platforms (such as Gram Sabhas and Gram Panchayat meetings), to engage in systematic decision-making processes.

For just transition, it will be essential to develop a formal process of women’s engagement and ensure that their viewpoints and appropriately captured and reflected in just transition policies, plans, and investment measures.

- i. **Build awareness and capacity:** To ensure meaningful participation of women, designing and investing in awareness-building and capacity-building programmes will be required. Both government and non-governmental actors, including local CSOs, can play an active and complementary role in these efforts.

Governments can allocate resources and provide necessary institutional support to develop and sustain these programmes, while CSOs can leverage their grassroots presence and community relationships to ensure effective outreach and engagement. Collaborative efforts between these stakeholders can create an enabling environment where women feel empowered to contribute to decision-making processes, advocate for gender-responsive policies, and address issues impacting their communities.

A gender-responsive approach to just transition in India’s fossil fuel regions is not just a matter of equity, but a critical lever for achieving sustainable and inclusive development. By integrating gender considerations into policy frameworks, education and skilling programmes, and economic diversification strategies, India can ensure that women are not left behind in the transition to a low-carbon economy. Such approach will also strengthen the overall progressive impacts and sustainability of India’s energy transition.

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