

WOMEN AND WORK MEGATRENDS RESHAPING WOMEN'S WORK IN INDIA 2025





About IWWAGE

The Institute for What Works to Advance Gender Equality (IWWAGE) was established in 2018 with an aim to build and deepen evidence around the low participation of women in the economy – caused by low asset base, poor access to public services, restrictive gender norms, and the burden of unpaid work - in order to find solutions to inform gender transformative changes and policy reforms.

IWWAGE is an initiative of LEAD at KREA University, an action-oriented research centre housed at the Institute for Financial Management and Research (IFMR), a not-for-profit society which is also the Sponsoring Body of KREA University.

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About this report

This report is largely based on data from secondary sources, coupled with insights from primary research conducted by IWWAGE and LEAD. The contents of this brief do not necessarily represent the views of the Gates Foundation.

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INTRODUCTION

The Periodic Labour Force Survey 2025 records female labour force participation (ages 15 and above) in India at 40%, up from 23.3% in 2017-18 — a significant statistical shift that also carries India above the estimated South Asian regional female LFPR of around 26-27% and closes some of the distance from the global female LFPR of approximately 47% (ILO Modelled Estimates, 2024). Rural female LFPR has nearly doubled over this period, from 24.6% to 45.9%, while urban female LFPR has risen more modestly from 20.4% to 27.7%. A closer reading shows that this growth has been concentrated in self-employment — 70.7% of rural working women are now self-employed, with unpaid family work still accounting for nearly half of rural women's self-employment. The Time Use Survey 2024 finds that women aged 15-59 continue to spend an average of 305 minutes a day on unpaid domestic services and 140 minutes on caregiving, against 75 minutes and 74 minutes respectively for men. The rise in measured labour force engagement therefore sits within a continuing structure of unequal work, unpaid burden, and uneven economic agency.

The years 2024 and 2025 marked a period of substantial change in the policy landscape shaping this work. The four Labour Codes, enacted in 2020 and notified for implementation only in late 2025, came into effect on 21 November 2025, consolidating a fragmented body of labour law and bringing platform and gig workers under social security for the first time. Alongside the central Codes, a wave of state-level legislation has extended dedicated welfare frameworks to platform and gig workers — beginning with Rajasthan's Platform Based Gig Workers (Registration and Welfare) Act, 2023, and now including Karnataka, Bihar, Jharkhand, and Telangana. In December 2025, the Mahatma Gandhi National Rural Employment Guarantee Act was replaced by the Viksit Bharat—Guarantee for Rozgar and Aajeevika Mission (Gramin) Act, raising the statutory employment guarantee from 100 to 125 days but shifting the scheme from demand-based to normative funding. Cash transfer schemes targeting women — from the central Pradhan Mantri Matru Vandana Yojana to state programmes in West Bengal, Tamil Nadu, Odisha, Madhya Pradesh, and Jharkhand — have continued to expand as an income-support instrument, with contested evidence on their labour force effects. The Time Use Survey 2024, released in February 2025, confirmed the persistence of the gender care gap; the IndiaAI Mission scaled up its rollout through the AI Impact Summit in February 2026; and Karnataka's 2025 decision to grant formal-sector women paid menstrual leave reopened a policy debate that culminated in the Supreme Court's observations on the question in March 2026.

What makes this moment distinct is the convergence of structural forces reshaping the world of work. Digitalisation has produced the platform and gig economy, now among the fastest-growing employment categories for women in urban India. Artificial intelligence and automation are reshaping female-dominated sectors from data entry and business process outsourcing to care work, carrying both displacement risk and new skilling opportunities, while creating entirely new categories of digitally embedded work in data annotation and content moderation. Climate change is altering the conditions under which women labour in agriculture, fisheries, forestry, and the urban informal sector, while intensifying the unpaid work that absorbs environmental stress. Long-invisible health concerns, including menstrual and menopausal health, are entering policy and workplace debate. And the legal architecture governing women's work has been substantially rewritten through the Labour Codes, with implications still unfolding.

Against this backdrop, this report examines the principal trends and policy developments shaping women's engagement with work in 2024 and 2025.

Chapter 1 examines the state of female labour and employment in India. Drawing on PLFS data through 2025, it documents the rise of female LFPR alongside the widening rural-urban divergence, with rural participation rising sharply while urban participation lags. The chapter argues that the headline increase masks a more complex picture: self-employment has been the principal driver, rising to 70.7% of rural women's employment, and while the share of unpaid family workers within self-employment has declined in favour of own-account work, this shift does not automatically imply improved earnings or security — with rural self-employed women earning only around 37% of men's earnings.

Agriculture continues to employ nearly three-quarters of rural working women, pointing to limited diversification, and participation follows a U-shaped relationship with education, with the largest gains among women with the least schooling — a sign of economic necessity as a driver. Inter-state variation remains among the widest of any major economy, from 66.7% in Sikkim to 13.1% in Delhi, the only major state to decline. The chapter reviews the principal policy responses — cash transfers, skilling initiatives whose placement outcomes remain modest, the DAY-NRLM SHG architecture now covering over 10 crore women, and a care infrastructure whose operationalisation continues to lag well behind approval and need.

Chapter 2 takes up digitalisation and the platform economy. NITI Aayog projects that India's gig workforce will rise from 7.7 million in 2020-21 to 23.5 million by 2029-30, with women constituting a significant share, particularly in home-based platform services such as beauty, wellness, and domestic work. The chapter argues that platformisation has reorganised informal work through digital infrastructures, often building on existing occupational patterns while offering meaningful advantages — greater visibility, expanded customer reach, and structured payment systems — alongside continuing challenges. It examines the dynamics of algorithmic management and the conditional nature of flexibility, the pressures on earnings and operational costs, the inadequacies of automated grievance redressal for women workers, and the ways in which digital systems can reproduce existing social biases of gender, caste, class, and language. On the regulatory landscape, the chapter traces important recent progress, including the Code on Social Security 2020 and the 2025-26 Union Budget's extension of healthcare and e-Shram registration to gig workers, alongside a wave of state legislation — beginning with Rajasthan in 2023 and now including Karnataka, Bihar, Jharkhand, and Telangana — that address welfare boards, social security funds, and, in some cases, algorithmic transparency and grievance redressal. The chapter closes by arguing that the central challenge now is moving from legislative recognition to substantive implementation, particularly for women workers in home-based, domestic, and care-related services who face compounded vulnerabilities.

Chapter 3 turns to artificial intelligence and women's work. It opens from the evidence that AI's labour market effects are sharply gendered: ILO analysis finds that occupations dominated by women, particularly clerical and administrative work, face almost double the exposure to generative AI of male-dominated occupations, with women's jobs over five times as likely to sit in the highest automation-risk tier. The chapter maps the AI governance landscape — the IndiaAI Mission's budgetary trajectory, the new AI Governance Guidelines' treatment of hiring-related harms, women-led AI ventures at the 2026 AI Impact Summit, and skilling initiatives from the MSDE-Microsoft AI Careers for Women programme to Karnataka's HerShakti and the National Commission for Women's Yashoda AI Abhiyan. It then examines four areas where AI's gender implications are most acute: the emerging workforce of "ghost workers" in data annotation and content moderation, where women, particularly from marginalised communities, perform psychologically demanding tasks with minimal protection; the patterns of AI adoption among women microentrepreneurs, where awareness substantially outpaces uptake and embedded tools work better than standalone deployment; the infrastructural footprint of AI data centres on water and electricity, with implications for women's unpaid care work in resource-stressed

regions; and the growing digitalisation of frontline work, where AI tools have supported anganwadi workers in some deployments while functioning as instruments of surveillance in others.

Chapter 4 addresses the impact of climate change on women's work in India. It argues that climate stress reshapes women's labour through interlinked channels: as a care multiplier intensifying unpaid work, as a structural pressure in climate-sensitive sectors including agriculture, fisheries, and forest-dependent livelihoods, as a driver of distress migration into precarious urban informal work, and as a determinant of access to the emerging green economy. Drawing on the most recent data from the Lancet Countdown 2025 and the Internal Displacement Monitoring Centre, alongside IWWAGE fieldwork and recent policy developments including the Labour Codes 2025 and the VB-GRAMG Act, the chapter examines the recognition gap in climate finance and adaptation planning, the heat exposure of informal women workers from garment floors to ASHA rounds to dryland agriculture, and the conditions under which women emerge as adaptation agents. It closes with a five-point policy direction on the just transition that takes gender seriously.

Chapter 5 examines menstrual and menopausal health as workplace concerns. It frames these as a life-course question, recognising that women in India menstruate for nearly three decades and that the menopausal transition begins on average at 46.6 years, earlier than in industrialised countries. NFHS data show hygienic menstrual protection rising to 79.2%, but with a 15.7-percentage-point urban-rural gap that leaves nearly one in four rural young women without access. The chapter takes up the contested policy debate on menstrual leave — from the Supreme Court's March 2026 observations declining a nationwide mandate to Karnataka's 2025 policy joining Bihar, Odisha, Kerala, and Sikkim — and considers implementation in practice through a police-district pilot in West Bengal. It examines the occupational routes through which menstrual and menopausal health deteriorates — shift work, heat exposure, chemical hazards, heavy manual labour — and the sanitation failures that fall hardest on informal workers, including WaterAid's findings on waste pickers and the persistence of hysterectomies among sugarcane workers in Maharashtra. It closes with the new bodily precarities of gig work, where restroom access has become a measurable occupational health concern.

Drawing on secondary data, IWWAGE and LEAD research, and the most recent policy developments, this report maps the current landscape of women's work in India and the trajectories most likely to shape it in the years ahead. It offers a forward-looking perspective on the pathways to greater inclusion, agency, and decent work for India's women workers.



CHAPTER ONE

FEMALE LABOUR AND EMPLOYMENT

1.1 Trends in Female Labour Force Participation

India's female labour force participation rate (FLFPR) has followed a complex and contested trajectory over the past three decades. Following a long period of decline from the late 1990s through 2017-18, official data from the Periodic Labour Force Survey (PLFS) record a sharp and sustained reversal. At the national level, the FLFPR for women aged 15 and above rose from **23.3% in 2017-18 to 40% in 2025** (usual status), representing the most significant recorded increase.^{1,2}

The Rural-Urban Divide

The rural-urban divergence in FLFPR has widened over this time period and has become central to understanding the nature of the increase. Rural FLFPR nearly doubled, rising from **24.6% in 2017-18 to 45.9% in 2025**, an increase of 21 percentage points. Urban FLFPR, by contrast, rose only modestly, from **20.4% to 27.7%** over the same period. The gender participation gap has consequently narrowed more sharply in rural than urban areas: the rural gap fell from 51.8% to 34.6% between 2017-18 and 2025, while the urban gap narrowed only marginally from 54.1% to 48.5%.

Table 1: LFPR for persons aged 15 and above (usual status)

	 RURAL FEMALE	 RURAL MALE	 URBAN FEMALE	 URBAN MALE	 ALL-INDIA
PLFS 2025 ³	45.9%	80.5%	27.7%	76.2%	59.3%
2023-2024	47.6%	80.2%	28.0%	75.6%	60.1%
2022-2023	41.5%	80.2%	25.4%	74.5%	57.9%
2021-2022	36.6%	78.2%	23.8%	74.7%	55.2%
2020-2021	36.5%	78.1%	23.2%	74.6%	54.9%
2019-2020	33.0%	77.9%	23.3%	74.6%	53.5%
2019-2020	26.4%	76.4%	20.4%	73.7%	50.2%
2017-2018	24.6%	76.4%	20.4%	74.5%	49.8%

Source: Annual PLFS Reports

¹ Ministry of Statistics and Programme Implementation, National Statistics Office, Periodic Labour Force Survey, January-December 2025 (Government of India, 2026). https://www.mospi.gov.in/uploads/publications_reports/publications_reports1780040415321_0624fb13-fb47-40bc-b470-7c7e9635c3ef_PLFS_2025_F_REV_29052026.pdf

² Ministry of Statistics and Programme Implementation, National Statistics Office, Periodic Labour Force Survey, July 2017-June 2018. (Government of India, 2019). https://www.mospi.gov.in/sites/default/files/publication_reports/Annual%20Report%2C%20PLFS%202017-18_31052019.pdf

³ From 2025 onwards, PLFS adopted a calendar-year format along with certain methodological revisions, which should be kept in mind when interpreting trends over time.

This divergence reflects a structural difference in the drivers of participation. Rural women have entered predominantly agricultural self-employment, particularly as own-account workers and unpaid family work. While urban women continue to face persistent barriers related to mobility, safety concerns, care responsibilities, and the structure of urban labour markets. Employment opportunities for women in urban areas remain concentrated either in low-paid informal work or in regular jobs that often require fixed working hours and continuous workforce attachment. The limited availability of flexible and part-time

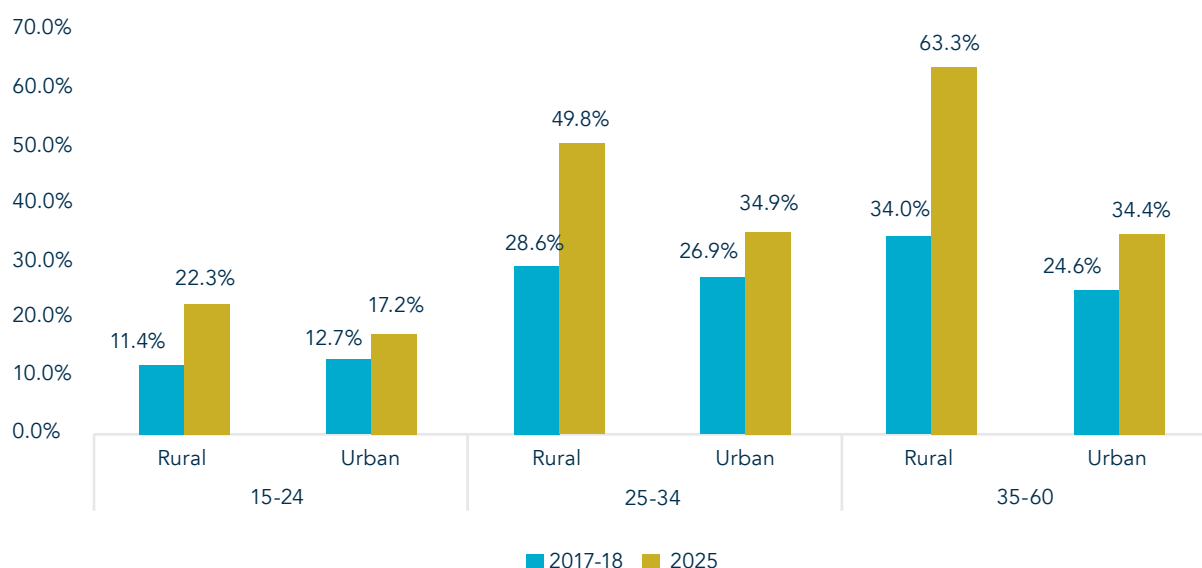
employment options may further constrain labour force participation among women balancing paid work with unpaid care responsibilities. For instance, urban female unemployment has remained elevated (6.4% in 2025 against 2.1% for rural women), suggesting that urban women who seek work face greater difficulty finding it. However, aggregate trends conceal important differences across age cohorts and educational groups. Examining these dimensions helps illuminate how life-cycle factors, educational attainment, and labour market opportunities interact to shape women's participation decisions.



FLFPR Across Age Groups: FLFPR in India has increased across all age groups between 2017-18 and 2025, though the magnitude of gains varies by age and location. Among young women aged 15-24 years, rural LFPR nearly doubled from **11.4%** to **22.3%**, while urban LFPR increased more modestly from **12.7%** to **17.2%**. Participation at these ages remains comparatively low, as many young women continue to pursue education, enter the labour market later, or transition into marriage and childbearing, when unpaid care responsibilities often begin to constrain employment. The sharpest increase is observed among women aged 25-34 years, with rural LFPR rising from **28.6%** to **49.8%** and urban LFPR from **26.9%** to **34.9%**, suggesting greater labour market engagement during the prime working years. Among women aged 35-60 years, participation also increased substantially, particularly in rural areas, where LFPR rose from **34.0%** to **63.3%**, while urban LFPR increased from **24.6%** to **34.4%**.

Overall, these trends indicate that women's labour force participation has strengthened across the life cycle, with rural women experiencing larger gains than their urban counterparts. Nevertheless, participation remains comparatively low among young women, reflecting continued educational enrolment, delayed entry into the labour market, and transitions into marriage and childbearing, which often increase unpaid care responsibilities and constrain employment opportunities.⁴

Figure 1: FLFPR by Age Cohort and Residence, 2017–18 and 2025



⁴ Sunita Sanghi, A Srijia, and Shirke Shrinivas Vijay. "Decline in Rural Female Labour Force Participation in India: A Relook Into the Causes." *Vikalpa* 40, no. 3 (September 1, 2015): 255–68. <https://doi.org/10.1177/0256090915598264>

FLFPR and Educational levels

Educational attainment continues to exhibit a U-shaped relationship with FLFPR.⁵ While participation increased across all educational categories between 2017-18 and 2025, the largest gains were observed among women with lower levels of education.

Participation among non-literate women rose from **27.8%** to **46.9%**, while FLFPR among women educated up to the primary level increased from **25.1%** to **47.9%**. Participation remains lowest among women with secondary (**27.2%**) and higher-secondary education (**26.2%**), before rising again among graduates (**39.2%**) and postgraduates (**51.6%**).

This pattern is consistent with the well-documented U-shaped relationship between education and women's labour force participation, whereby women with very low levels of education often enter the labour force out of economic necessity, while highly educated women are more likely to seek paid employment because the expected returns to work are higher. However, higher participation among graduates and postgraduates does not necessarily imply availability of suitable labour market opportunities. Many highly educated women continue to be concentrated in jobs below their qualifications or in forms of employment that do not utilise their skills, reflecting persistent mismatches between education attainment and nature of available work. The disproportionate increase in participation among women with lower levels of education points to the continued importance of economic necessity as a driver of women's labour market engagement.

1.2 Rise in Female Employment: Quality and Composition

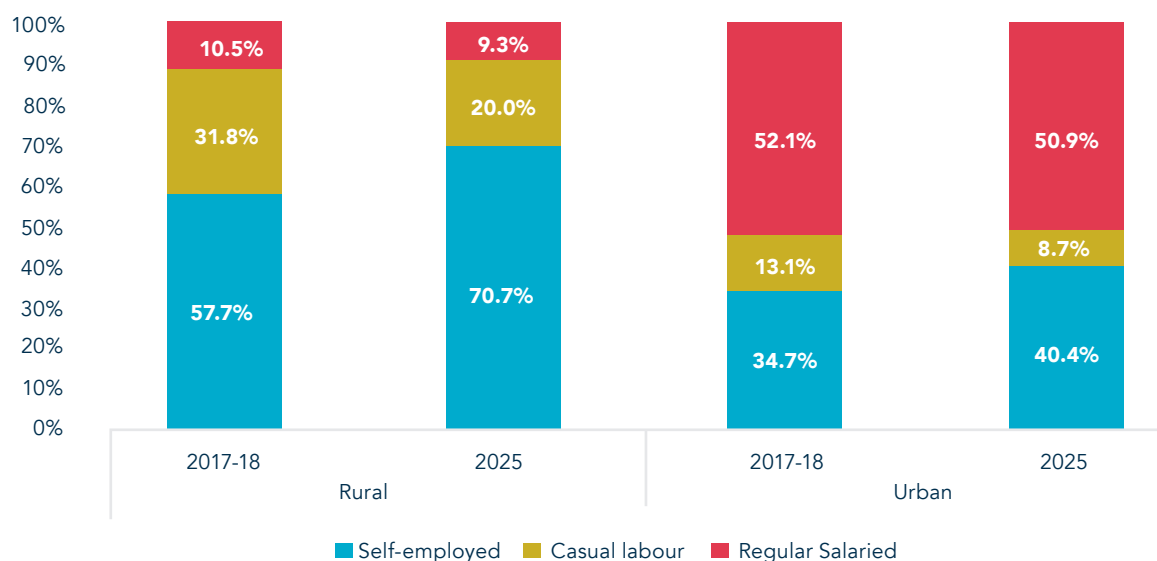
The sharp increase in FLFPR has not been accompanied by an equivalent transformation in the structure of employment. A closer examination of employment status, sectoral distribution, and earnings suggests that much of the increase has occurred within forms of work characterised by limited job security, low earnings, and weak social protection.

Types of Employment and the Rise of Self-Employment

Self-employment has been the principal driver of the rise in female employment over the past seven years. Between 2017-18 and 2025, the share of self-employed women increased from **57.7%** to **70.7%** in rural areas and from **34.7%** to **40.4%** in urban areas. Over the same period, the share of rural women in casual labour declined from **31.8%** to **20.0%**, while regular salaried employment fell marginally from **10.5%** to **9.3%**. In urban areas, regular salaried employment remained the dominant form of women's work at around half of total employment (**52.1%** in 2017-18 and **50.8%** in 2025), while casual labour declined from **13.1%** to **8.7%**.

Within self-employment, the share of own-account workers rose from 32.2% to 52.6%, while the share of unpaid family workers declined from 67.0% to 46.4%. In urban areas, self-employment is concentrated largely

Figure 2: Distribution of female workers by location and type of employment (2017-18 vs 2025)



⁵ Claudia Goldin, *The U-Shaped Female Labor Force Function in Economic Development and Economic History*, NBER Working Paper no. 4707 (Cambridge, MA: National Bureau of Economic Research, April 1994), <https://ssrn.com/abstract=233692>

in own-account activities in sectors such as wearing apparel, textiles, and retail trade, with own-account workers accounting for 67.6% of urban self-employed women in 2025.⁶ By contrast, the proportion of women operating as employers remains very small, accounting for only around 1.0% of rural and 3.2% of urban self-employed women, indicating that relatively few women own enterprises that employ others.

However, these shifts warrant careful interpretation. Although the decline in unpaid family work alongside the rise in own-account work represents an important improvement in the composition of women's self-employment, unpaid family workers still account for nearly half of all self-employed rural women and movement into own-account work does not automatically imply improvements in earnings, productivity, or economic security. In addition, recent research notes that the boundary between unpaid work in household enterprises (counted as employment) and domestic duties (classified outside the labour force) is often difficult to distinguish in practice. As a result, part of the increase in women's labour force participation may also reflect improved recognition and reporting of women's economic activities, alongside genuine changes in employment.⁷

Sectoral Distribution



Agriculture continues to be the single largest employer of women in India. In rural areas, nearly three-quarters of all employed women remained engaged in agriculture in 2025 (72.7%), a share that has changed little from 73.2% in 2017-18. Within agriculture, however, there has been some diversification. The share of rural women engaged in animal production increased from 18.5% in 2022 to 24.5% in 2025, while mixed farming rose from 8.0% to 11.7%, indicating a gradual shift towards allied agricultural activities.⁸ In urban areas, by contrast, the share of women employed in agriculture increased from 9.1% in 2017-18 to 12.7% in 2025. Between 2022 and 2025, urban agricultural employment saw relatively more diversification, with growing participation in animal production (28.8% to 31.1%), mixed farming (6.7% to 9.1%), and agricultural support services (5.0% to 6.8%).⁹ Although urban women's employment remains more diversified overall, with significant employment in education, retail trade, manufacturing, and other services, however, the increasing share of agriculture is notable.

The persistence of women's employment in agriculture points to the limited diversification of employment opportunities available to them, particularly in rural India.

This concentration is a concern because agricultural employment is often characterised by seasonal work, low earnings, informality, and limited social protection. A substantial proportion of women in agriculture continue to work as self-employed workers or contributing family workers, with restricted access to productive assets, land ownership, credit, and extension services. As a result, women's movement into non-farm sectors has lagged behind men's, who have diversified more rapidly into construction, manufacturing, and services, often facilitated by seasonal and long-term migration to urban labour markets. Existing research suggests that this persistent concentration in agriculture reflects both supply side and demand-side constraints. On the supply side women's unpaid care responsibilities, mobility restriction and limited access to productive resources constrain their ability to take up non-farm work. On the demand side, the limited expansion of labour-intensive manufacturing and other remunerative non-farm employment opportunities has restricted the availability of suitable jobs for women outside agriculture.¹⁰

Earnings and Job Security

The rise in women's employment has not been accompanied by a comparable improvement in earnings. Between 2022 and 2025, real earnings of self-employed women remained largely stagnant, particularly in rural areas, despite sizeable increases in nominal earnings. **Real monthly earnings of rural self-employed women declined slightly from ₹4,012 to ₹3,820, while urban women's real earnings increased only modestly from ₹7,411 to ₹8,836. Gender earnings disparities also remained substantial over the period. In 2025, rural self-employed women earned only around 37% of men's real earnings (₹3,820 compared to ₹10,325), while urban women earned about 39% of men's real earnings (₹8,836 compared to ₹22,523).** These patterns suggest that much of the recent growth in women's employment remains concentrated in low-productivity activities that offer limited economic security despite increasing labour force participation.¹¹

⁶ Vidhi Singh and Bidisha Mondal, *Trend in Female Labour Force Participation in India* (New Delhi: IWWAGE, June 2026), https://iwwage.org/wp-content/uploads/2026/07/IWWAGE295_Factsheet-All-India.pdf

⁷ Jayati Ghosh, "What Does Self-Employment Mean for Women in India?," *The India Forum*, January 17, 2025, <https://www.theindiaforum.in/economy/what-does-self-employment-mean-women-india>

⁸ Singh and Mondal, *Trend in Female Labour Force Participation in India*

⁹ Singh and Mondal, *Trend in Female Labour Force Participation in India*

¹⁰ Stephan Klasen and Janneke Pieters, "What Explains the Stagnation of Female Labor Force Participation in Urban India?," *The World Bank Economic Review* 29, no. 3 (2015): 449–478. <https://documents1.worldbank.org/curated/en/466621488434287942/pdf/112477JRN-PUBLIC-WBER-2015-29-3-what-explains-the-stagnation-of-female-labor-force-participation-in-urban-india-Copy.pdf>

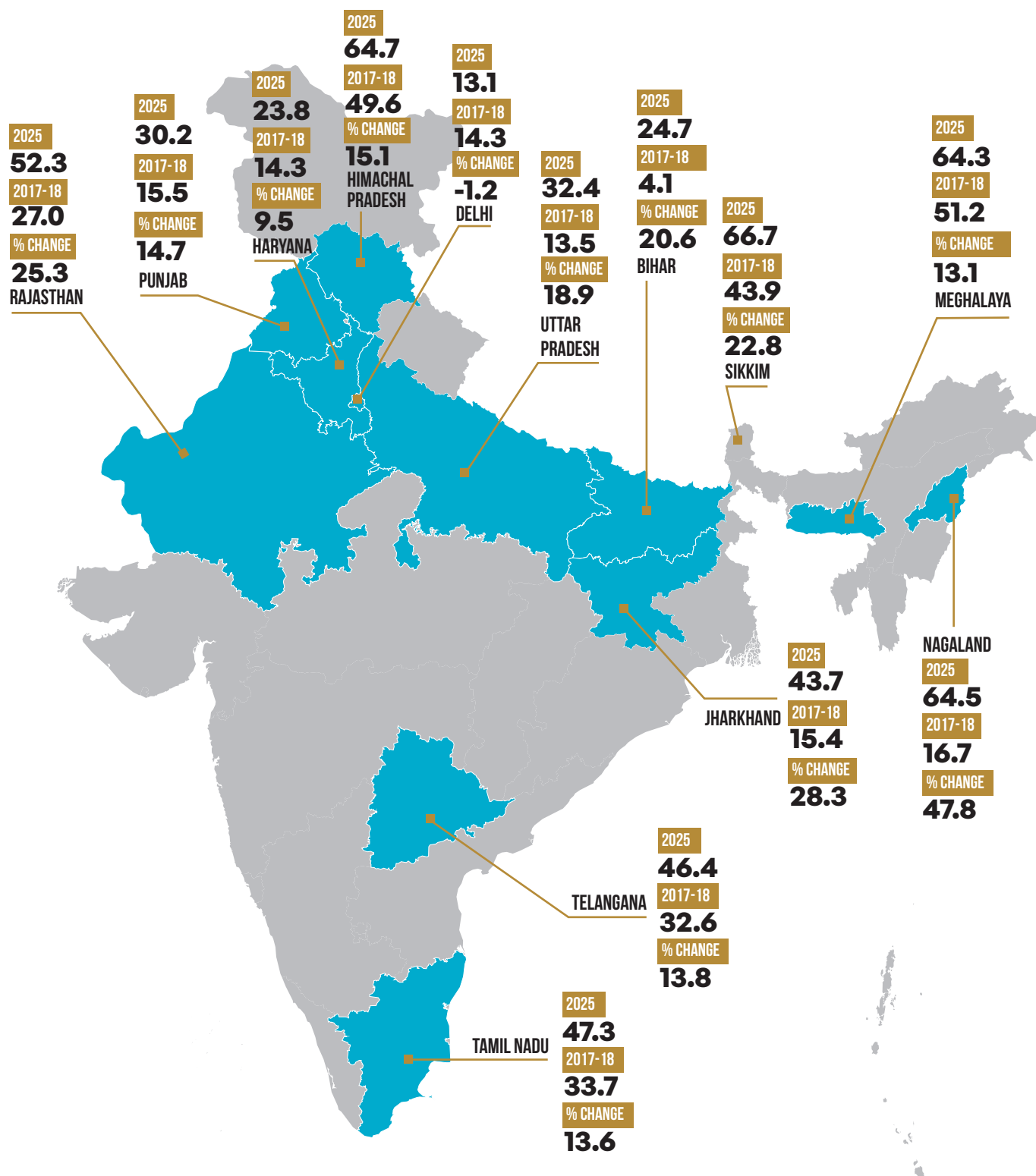
¹¹ Ghosh, "What Does Self-Employment Mean for Women in India?"

1.3 Inter-State Variation

India's FLFPR exhibits among the widest inter-state variation of any major economy. These rates range from 13.1% in Delhi to 66.7% in Sikkim, with Meghalaya (64.3%), Nagaland (64.5%), and Himachal Pradesh (64.7%) also among the top performers. Between 2017-18 and 2025, every major state recorded an increase over

this period, with the sole exception of Delhi (14.3% to 13.1%). However, states differ not only in the magnitude of the increase but also in the nature of employment underlying these gains, with some experiencing growth primarily through agricultural self-employment and unpaid family work, while others have seen greater diversification into non-farm and salaried employment.

Figure 3: Female LFPR (ages 15 and above) in Major States, 2017-18 and 2023-24 (in %)



High Performing States

- Sikkim (66.7%), Himachal Pradesh (64.7%), Nagaland (64.5%), and Meghalaya (64.3%) record the highest combined female LFPRs in 2025. In hill states such as Himachal Pradesh and Sikkim, small-holding agriculture places women's labour at the centre of household production, while the relative scarcity of male non-farm employment reinforces women's agricultural roles.¹²
- In Meghalaya and several North-Eastern states, relatively high female participation has been linked to tribal social institutions, women's visible role in agriculture and local markets, and gender norms that are generally more supportive of women's economic activity than in many other parts of India. In Meghalaya specifically, matrilineal inheritance practices among Khasi and Jaintia communities are often cited as one factor contributing to the social acceptance and visibility of women's work.
- Rajasthan is the most striking gainer among larger states, rising from 27.0% in 2017-18 to 52.3% in 2025, a 25.3 percentage point increase with rural female LFPR reaching 60.7%. Jharkhand (43.7%, up 28.3 pp) records the largest absolute gain of any state. Much of the increase in both states appears to be concentrated in rural self-employment and agricultural work.
- Tamil Nadu (47.3%) and Telangana (46.4%) represent a meaningful improvement within the southern cluster, with Tamil Nadu's rural female LFPR reaching 57.9%. Their relatively diversified economies and stronger presence of non-farm employment opportunities may have contributed to these gains.

Low Performing States

- Delhi (13.1%) remains the lowest-performing state by a wide margin and the only major state to have declined since 2017-18. High urbanisation, the absence of a manufacturing base, and restrictive social norms including safety and mobility constraints combine to suppress participation, with the latter being a particularly consistent predictor of low urban female LFPR across Indian cities.¹³
- Haryana (23.8%) and Punjab (30.2%) continue to record low participation despite high per capita incomes, reflecting strong patriarchal norms and a highly mechanised wheat-based agricultural system, which generates lower demand for female labour than the more labour-intensive rice cultivation prevalent in many eastern and southern states.¹⁴

- Bihar (24.7%) and Uttar Pradesh (32.4%) remain at the bottom of the large-state distribution despite gains of over 20 percentage points since 2017-18; these gains are concentrated overwhelmingly in unpaid family labour and agricultural self-employment.

The wide variation across states suggests that female labour force participation is shaped by a combination of economic structure, labour market opportunities, and social norms. The contrasting experiences of high- and low-performing states underscore that there is no single pathway to increasing women's participation in the labour market.

1.4 Policy Review

The rise in women's labour force participation has renewed policy attention towards women's economic empowerment. Over the past decade, interventions have expanded across four broad areas: income support, skilling and employment promotion, women's entrepreneurship, and care infrastructure.

Cash Transfer Schemes

Women's income support programmes have expanded rapidly across India in recent years, emerging as one of the most significant policy interventions directed at women. Alongside centrally sponsored schemes (CSS), several states, including **West Bengal's Lakshmir Bhandar**, **Tamil Nadu's Kalaingar Magalir Urimai Thogai**, **Odisha's Subhadra Yojana**, **Madhya Pradesh's Ladli Behna Yojana**, and **Jharkhand's Mukhyamantri Maiyan Samman Yojana**, now provide regular cash transfers directly to women.

From an economic empowerment perspective, these schemes can strengthen women's control over resources, improve financial security, enhance their agency within households, and provide a degree of income support in contexts where women's access to paid employment remains limited. They are particularly significant in a context where women continue to shoulder a disproportionate burden of unpaid domestic and care work, which constrains labour market participation and contributes to economic dependence. While evidence suggests positive effects on consumption smoothing, financial inclusion, and women's decision-making, cash transfers alone cannot address the structural barriers that restrict women's economic participation, including inadequate childcare services, mobility constraints, occupational segregation, and limited access to quality employment opportunities.¹⁵

¹² Surjit S. Bhalla and Ravinder Kaur, *Labour Force Participation of Women in India: Some Facts, Some Queries*, Asia Research Centre Working Paper 40 (London: London School of Economics and Political Science, 2011), <https://researchonline.lse.ac.uk/id/eprint/38367/1/ARCWP40-BhallaKaur.pdf>

¹³ Klasen and Pieters, "What Explains the Stagnation of Female Labor Force Participation in Urban India?"

¹⁴ Bina Agarwal, *A Field of One's Own: Gender and Land Rights in South Asia* (Cambridge: Cambridge University Press, 1994), https://assets.cambridge.org/97805214/29269/frontmatter/9780521429269_frontmatter.pdf

¹⁵ Francesca Bastagli, Jessica Hagen-Zanker, Luke Harman, Valentina Barca, Georgina Sturge, Tanja Schmidt, and Luca Pellerano, *Cash Transfers: What Does the Evidence Say? A Rigorous Review of Programme Impact and the Role of Design and Implementation Features* (London: Overseas Development Institute, 2016), <https://thedocs.worldbank.org/en/doc/111531529868058319-0160022017/original/Dav39am10749.pdf>

Skilling Initiatives

Skill development remains a central pillar of India's strategy for improving women's employability.

The **Pradhan Mantri Kaushal Vikas Yojana (PMKVY)** has trained more than 1.64 crore candidates since its launch, with women accounting for approximately 40 per cent of total trainees. While the expansion of skill development opportunities is an important step towards improving women's access to the labour market, evidence on employment outcomes remains mixed. The Parliamentary Standing Committee on Labour, Textiles and Skill Development (2022) noted that placement rates under the scheme remained modest, with only 23 per cent of trainees placed under PMKVY 2.0 and 8 per cent under PMKVY 3.0 at the time of review.¹⁶



प्रधानमंत्री कौशल विकास योजना

The Committee also reported dropout rates of nearly 20 per cent across programme phases, identifying factors such as distance from training centres, limited employment opportunities, and gender-specific constraints, including marriage and pregnancy. In addition, industry stakeholders highlighted persistent mismatches between training curricula and labour market requirements. These findings suggest that skill acquisition alone is insufficient to improve women's labour market outcomes when mobility constraints, care responsibilities, workplace safety concerns, and weak labour demand continue to limit access to employment opportunities. Similar concerns are highlighted in the India Employment Report 2024, which argues that skills training programmes have had limited success in translating increased participation in training into sustained and quality employment, particularly for women facing multiple structural barriers to labour market entry.¹⁷

Recent policy efforts have increasingly moved beyond stand-alone skilling programmes towards integrated livelihood and entrepreneurship models. Initiatives such as **Lakshpati Didi**, **Drone Didi**, **DDU-GKY**, and state-level programmes such as **JOHAR in Jharkhand** seek to combine skills training with access to productive assets, technology, credit, producer collectives, and market linkages. While these initiatives reflect a broader understanding of the constraints women face in accessing employment and enterprise opportunities, robust evidence on their long-term effects on women's earnings, employment quality, and economic empowerment is still emerging.



Micro-Enterprise and SHG-Based Programmes

Self-help groups (SHGs) have emerged as one of the most important institutional platforms for promoting women's economic participation in India. The **DAY-NRLM** represents India's most extensive platform for women's economic mobilisation, with over 10.05 crore women organised into approximately 90.9 lakh SHGs as of June 2025, and cumulative bank credit to SHGs crossing ₹12.18 lakh crore since inception.¹⁷ Beyond providing access to savings and credit, the programme seeks to strengthen women's collective agency, market participation, and livelihood opportunities through community-based institutions. Recent policy efforts have also focused on improving market access, including the announcement of She-Mart in the Union Budget 2026–27 as a national digital marketplace for products made by women SHGs.¹⁹

Several complementary schemes have built upon this foundation by expanding women's access to enterprise finance and entrepreneurship support. The PM Mudra Yojana²⁰ has disbursed over ₹40 lakh crore in collateral-free loans since launch, with approximately 67% of beneficiaries being women.²⁰ The Stand-Up India scheme and PM Vishwakarma Yojana²¹ have extended credit and skill support to women entrepreneurs in formal and semi-formal sectors; over 2.05 lakh women entrepreneurs have received institutional credit under Stand-Up India alone.²³ At the state level, notable programmes include **Jharkhand's Palash Brand (market linkages for SHG products)**, **Maharashtra's Mahila Arthik Vikas Mahamandal (MAVIM) (women's livelihood promotion and SHG federations)**, **Tamil Nadu's Mahalir Thittam (SHG mobilisation, enterprise development and financial inclusion)**, and **Odisha's Mission Shakti (large-scale SHG-based livelihoods and women's entrepreneurship platform)**.

Evidence consistently shows that SHG-based programmes improve access to credit, strengthen women's financial inclusion, reduce economic vulnerability, and generate incremental income. However, evidence on their ability to support sustained enterprise growth, asset accumulation, productivity improvements, and long-term upward economic mobility remains more limited, suggesting that complementary investments in markets, infrastructure, and value-chain integration remain essential.

¹⁶ PRS Legislative Research, *Standing Committee Report Summary: Implementation of Pradhan Mantri Kaushal Vikas Yojana* (New Delhi: Institute for Policy Research Studies, 2022), https://prsindia.org/files/policy/policy_committee_reports/SCR%20Summary_Implementation%20of%20PMKVY.pdf

¹⁷ International Labour Organization and Institute for Human Development, *India Employment Report 2024: Youth Employment, Education and Skills* (New Delhi: International Labour Organization and Institute for Human Development, 2024), https://www.ilo.org/sites/default/files/2024-08/India%20Employment%20-%20web_8%20April.pdf

¹⁸ Press Information Bureau, Government of India, Ministry of Rural Development, "SELF-HELP GROUP UNDER DAY NRLM," February 3, 2026, <https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=2222697®=48&lang=2>

¹⁹ Press Information Bureau, Government of India, Ministry of Rural Development, "700 SHE-MARTS, 1,000 District Fulfilment Centres to Be Set Up to Ensure 6 Crore Lakshpati Didis," June 14, 2026, <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2272753®=48&lang=1>

²⁰ Pradhan Mantri Mudra Yojana facilitates micro credit/loan up to Rs. 20 lakhs to income generating micro enterprises engaged in the non-farm sector in manufacturing, trading or service sectors including activities allied to agriculture such as poultry, dairy, beekeeping etc.

Care Infrastructure

Deficit in care infrastructure remains one of the most significant policy gaps in efforts to improve women's labour force participation. While the ICDS network provides childcare through anganwadi centres, coverage remains uneven, service quality varies considerably, and operating hours are often not aligned with women's work schedules. The **Palna Scheme**, which subsumed the erstwhile **National Crèche Scheme** under Mission Shakti to expand childcare services for working mothers, represents an important step in this direction. However, its scale remains modest relative to need. As of early 2025, only 1,761 Anganwadi-cum-Crèches and 1,284 standalone crèches were operational nationwide, serving roughly 52,000 children in total. Even though over 11,395 centres had been approved, operationalisation has remained slow, highlighting the gap between policy intent and service delivery.²⁴

Evidence consistently shows that access to affordable and reliable childcare can increase women's labour market participation, working hours, and earnings. Several states have also experimented with innovative approaches, including workplace and community crèches in Haryana and the **Koosina Mane** initiative in Karnataka. Recent policy discussions have increasingly recognised the care economy not only as a welfare intervention but also as a source of employment, particularly for women and economic growth. Reflecting this shift, the Economic Survey 2024-25 highlighted the expansion of childcare and eldercare services as a strategy to reduce women's unpaid care burden and generate decent employment for women in this sector. The Union Budget 2026-27 increased allocations for **Saksham Anganwadi** and **POSHAN 2.0**, and announced training for 1.5 lakh caregivers across childcare, geriatric care, and allied health services. While these measures signal growing recognition of care as productive economic infrastructure, the broader challenge of building a universal and adequately financed care ecosystem with quality childcare services, trained care workers, and appropriate compensation structures remains largely unaddressed.²⁵

²¹ Press Information Bureau, Government of India, Ministry of Finance, "Pradhan Mantri Mudra Yojana (PMMY) — Completes 11 Years of Empowering Small and Micro Entrepreneurs," April 8, 2026, <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2249915®=3&lang=1>

²² PM Vishwakarma scheme provides holistic and end-to-end support to artisans and craftspeople through access to collateral free credit, skill training, modern tools, incentive for digital transactions and market linkage support.

²³ Press Information Bureau, Government of India, "From Welfare to Women-Led Development," June 2, 2026, <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2267960®=3&lang=1>

²⁴ Kavita Bajeli-Datt, "Centre Approves over 11,000 Anganwadi-cum-Crèches, but Only 1,761 Operational," *The New Indian Express*, April 2, 2025, <https://www.newindianexpress.com/india/2025/Apr/02/centre-approves-over-11000-anganwadi-cum-crches-but-only-1761-operational>

²⁵ Sharati Roy and Vidhi Singh, Union Budget: 2026–27: *What It Means for Women's Economic Empowerment* (New Delhi: IWwAGE, February 2026), <https://iwwage.org/wp-content/uploads/2026/02/abc.pdf>



CHAPTER TWO

WOMEN WORKERS IN INDIA'S PLATFORM ECONOMY: OPPORTUNITIES, CHALLENGES, AND THE REGULATORY LANDSCAPE

Initiatives such as the Government of India's flagship Make in India programme, introduced under Prime Minister Narendra Modi, have significantly accelerated the growth of India's start-up ecosystem and digital economy. Recent government estimates indicate that India has over 2 lakh recognised start-ups¹, reflecting the rapid expansion of entrepreneurial and technology-led enterprises in the country. This expansion has also motivated the rise of platform-based companies, online or app-based intermediaries that connect consumers with workers or 'partners' providing a range of on-demand services.

The visibility of these platform companies in everyday urban life has grown remarkably over the last decade. Equally visible, however, is the large and expanding workforce that sustains them, identifiable through company-branded t-shirts, backpacks, delivery bags, and vehicles across Indian cities. Through digital platforms, these workers have increasingly become central to the functioning of urban economies. They facilitate the delivery of groceries, restaurant food, medicines, smartphones, and even high-value commodities such as jewellery, often within minutes of placing an order. Platform-mediated services have also transformed urban mobility by enabling relatively predictable and accessible transport through app-based cabs, autos, and bike taxis. Beyond logistics and mobility, platforms now mediate a range of home-based services, including beauty and wellness, appliance repair, wardrobe organisation, and caregiving services. In recent years, platformisation has also extended into domestic work, especially through 'urgent help' or short-notice household assistance services that are becoming increasingly common in metropolitan centres.

Recognising the rapid expansion of this sector, NITI Aayog estimated that India's gig workforce could increase from 7.7 million workers in 2020–21 to 23.5 million workers by 2029–30, constituting approximately 4.1 per cent of the country's total workforce.² A significant proportion of this workforce comprises women, particularly in home-based platform services such as beauty, wellness, and domestic work. Despite the rapid growth of the platform economy, there remains limited information regarding the experiences, working conditions, and sectoral diversification of women workers within these digital labour arrangements.

A study conducted by IWWAGE on women workers in platform-based services highlights important insights into women's participation in the gig economy.³ The study found a greater proportion of women service providers in beauty and wellness segments, where platform-mediated work has reportedly enabled greater income generation and entrepreneurial opportunity compared to previous opportunities. At the same time, the report also underscored the need to address persistent structural challenges within platform-mediated employment arrangements in order to fully realise the sector's potential for inclusive growth. Existing literature on women's work in digital and informal economies similarly suggests that while platform labour creates important new employment opportunities and holds the potential to meaningfully improve women's labour-force participation, ensuring that these gains are sustainable requires addressing underlying challenges in work arrangements.⁴

¹ Government of India, *Decade of Startup India* (New Delhi: Press Information Bureau, 2026). <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2214872®=3&lang=2>

² NITI Aayog, *India's Booming Gig and Platform Economy: Perspectives and Recommendations on the Future of Work* (New Delhi: NITI Aayog, 2022). https://www.niti.gov.in/sites/default/files/2022-06/25th_June_Final_Report_27062022.pdf

³ IWWAGE, *The Changing World of Women's Work* (New Delhi: IWWAGE, 2025). <https://iwwage.org/wp-content/uploads/2026/02/The-changing-world-of-womens-work.pdf>

⁴ IWWAGE, *Changing World of Women's Work*, pp 36.

The increasing participation of women in platform-based employment makes it important to examine how platform work is experienced in practice, including the factors that shape earnings, flexibility, worker autonomy, and access to support systems. This chapter, therefore examines: (a) the type of platform-mediated work women do, and how it relates to their traditional occupational patterns; (b) the challenges and opportunities pertaining to platform-mediated work and its impact on women workers; and (c) the regulatory landscape of platform work in India, with particular attention to recent legislative developments.

2.1 Women's Participation and Occupational Segmentation

With the rapid expansion of the platform economy in India, there has been a corresponding diversification in the kinds of services mediated through digital labour platforms. Existing research broadly categorises these services into three segments: ride-sharing and cab-hailing services; delivery services such as food, grocery, and parcel delivery; and home-based services including domestic work, beauty and wellness, and household maintenance. Within this expanding ecosystem, women workers remain concentrated largely within the third category, particularly as domestic workers and beauty and wellness service providers.⁵ While platformisation has reorganised the structure and visibility of work through digital mediation, it has, in many cases, built on pre-existing occupational patterns. Crucially, however, this digital layer offers meaningful advantages: it provides greater visibility, expanded customer reach, and structured payment systems that hold the potential to enhance both earnings and safety compared with informal alternatives. Traditional and feminised forms of labour, now mediated through app-based economies, are gaining new forms of market access through this shift.

This continuity is also reflected in the recruitment and onboarding practices adopted by platforms. Research on home-service platforms suggests that workers are frequently onboarded based on prior experience and existing skill sets, with training often limited to app navigation, customer interaction protocols, and service standardisation.⁶ Furthermore, studies find caste-based occupational segregation in the traditionally women-dominated sectors.⁷ Reportedly, women from marginalised castes are prominent in domestic work, thereby reflecting the caste-based segregation of the

traditional labour being repeated in the digital economy. Participation in platform work continues to depend on broader structural⁸ factors such as ownership of smartphones, internet connectivity, digital literacy, affordability of devices, and prevailing social norms around women's mobility and paid work.^{9,10} Addressing these enablers, through digital literacy programmes, subsidised device access, and community-level support, therefore, represents a significant opportunity to expand women's meaningful participation in the platform economy. In this sense, platform work can serve as both an entry point and a pathway for women who already possess certain forms of work experience, mobility, or social support that enable labour market participation.

In ride-sharing services, targeted interventions by Non-Governmental Organisations (NGOs) have successfully enabled women to acquire driving and navigation skills and enter occupations from which they were previously not a part of.¹¹ Expanding such programmes more systematically, with platforms taking a greater role, would meaningfully broaden economic opportunity for women across sectors. In the platform's early growth phase, many companies relied on investor subsidies, performance incentives, referral bonuses, and relatively generous onboarding schemes to rapidly attract and retain workers. As platforms have shifted toward market consolidation and greater number of workers are joining the existing platform workforce, these incentives have often been reduced, while earnings have become increasingly dependent on variable demand, algorithmic management, and platform-set pricing structures. Workers consequently bear a greater share of income volatility and business risk.¹² Recent policy discussions around social security, income protection, and portable benefits reflect growing recognition of these challenges.

2.2 Work Organisation, Algorithmic Management, and Worker Well-being

Most platform workers are classified not as formal employees, but as "gig workers" or "independent contractors" who obtain work through digital platforms. While this classification has provided operational flexibility¹³ for companies and workers alike, it has also meant that many workers remain outside conventional labour protections and formal employment frameworks. Several characteristics historically associated with informal labour, including fluctuating earnings, limited social security coverage, and absence of employment

⁵ IWWAGE, *Changing World of Women's Work*, pp 24-31.

⁶ IWWAGE, *Changing World of Women's Work*, pp 24-31.

⁷ IWWAGE, *Changing World of Women's Work*, pp 69-73.

⁸ These factors arise from broader social, economic, and institutional arrangements rather than individual choices or characteristics

⁹ Fairwork India, *Study on the Status of Platform-Based Gig Workers in Tamil Nadu* (Chennai: Centre for Social Justice and Equity, Madras School of Social Work, and Tamil Nadu State Planning Commission, 2026). <https://fairwork/wp-content/uploads/sites/17/2026/03/Study-on-the-Status-of-Platform-Based-Gig-Workers-in-Tamil-Nadu-2026.pdf>

¹⁰ Anwesha Ghosh, Mubashira Zaidi, and Risha Ramchandran, "Locating Women Workers in the Platform Economy in India: Old Wine in a New Bottle?" *Gender & Development* 30, no. 3 (2022): 765-784. https://www.researchgate.net/publication/367628164_Women_Workers_in_the_Gig_Economy_in_India_An_Exploratory_Study

¹¹ IWWAGE, *Changing World of Women's Work*, 37.

¹² Kaveri Medappa, "Lived Capitalisation: How Speculative Finance Shapes the Social and Financial Lives of 'Gig' Workers in Bengaluru, India," *Work, Employment and Society* (2025). <https://journals.sagepub.com/doi/10.1177/09500170251343277?con>

guarantees, therefore persist within digitally mediated work arrangements and represent areas where targeted policy reform can deliver meaningful improvements.^{14,15}

The organisation of labour within platform economies is increasingly shaped through systems of algorithmic management. Platforms rely on automated systems to allocate work, determine visibility, monitor performance, and structure incentives through ratings, rankings, and task-completion targets. While such systems can deliver efficiency gains and reduce entry barriers, workers have reported limited transparency around pricing structures, customer ratings, penalties, and incentive calculations.¹⁶ Greater algorithmic transparency, including clear disclosures of how decisions affecting earnings and visibility are made, is an important area for both regulatory attention and platform practice reform. As incentive structures evolve and earnings become increasingly linked to performance metrics and customer demand, ensuring that these systems are fair, explainable, and contestable is essential to worker well-being.

For women workers in particular, this dynamic relates to the widely promoted idea of work time flexibility as a key feature of platform work. The possibility of choosing work hours and balancing paid work with unpaid domestic and care responsibilities has been a significant draw for women entering the sector.¹⁷ Emerging evidence suggests, however, that such flexibility is often conditional on demand patterns, platform-generated targets, and peak-hour availability requirements.¹⁸ Workers may retain formal discretion over when they log in, while simultaneously facing economic incentives and algorithmic pressures that encourage availability during specific periods of peak demand. For women workers, these dynamics intersect with ongoing responsibilities for unpaid care and domestic labour, creating tensions between platform work and caregiving obligations.^{19,20} This suggests the importance of examining how platform design and work allocation systems in actuality accommodate the realities of workers with substantial care responsibilities.

These pressures are closely linked to broader concerns around earnings and financial sustainability. While workers may retain some control over their schedules, the need to remain available during high-demand periods is often driven by income considerations. At the same time, platform workers frequently bear many of the operational costs associated with their work, including smartphones, internet access, fuel, vehicle maintenance, transport, work equipment, and other service-related expenses.²¹ Since incomes are dependent on fluctuating customer demand, dynamic pricing systems, ratings, and incentives, earnings can remain uncertain and variable over time.²² Women workers may face additional constraints arising from lower asset ownership, reduced access to formal credit, restrictions on mobility, and limited control over household finances.²³ Delivery workers and drivers navigate risks associated with long working hours, road accidents, physical fatigue, air pollution, and extreme weather conditions²⁴, while women in beauty, domestic, and home-service work similarly report physical strain, extensive travel between service locations, and emotional labour linked to customer-facing interactions.²⁰ Despite the physically and emotionally demanding nature of platform work, access to healthcare benefits, paid leave, insurance coverage, and occupational safety protections remains uneven across the sector.¹⁸ Expanding these protections, through both regulatory mandates and voluntary platform commitments, represents a clear pathway to improving the quality and sustainability of platform-based gig employment.

2.3 Grievance Redressal, Safety, and Social Inequalities

As platforms have scaled, they have increasingly shifted toward automated support systems to resolve worker grievances, including AI-powered chatbots and algorithmic redressal tools. While these systems offer the potential for rapid, standardised responses and round-the-clock availability, in practice even routine grievances can encounter processing limitations that

¹³ Refers to the capacity of platforms to engage workers on a demand-responsive basis without fixed employment arrangements, while allowing workers a degree of discretion over their working hours and participation on the platform.

¹⁴ United Nations Department of Economic and Social Affairs (UN DESA), Policy Brief No. 113: *Digitally Enabled New Forms of Work and Policy Implications for Labour Regulation Frameworks and Social Protection Systems* (New York: United Nations, 2021). <https://desapublications.un.org/policy-briefs/undesa-policy-brief-113-digitally-enabled-new-forms-work-and-policy-implications>

¹⁵ International Labour Organization (ILO), *World Employment and Social Outlook 2021: The Role of Digital Labour Platforms in Transforming the World of Work* (Geneva: ILO, 2021). <https://www.ilo.org/publications/flagship-reports/role-digital-labour-platforms-transforming-world-work>

¹⁶ Uma Rani and Marianne Furrer, "Digital Labour Platforms and New Forms of Flexible Work in Developing Countries: Algorithmic Management of Work and Workers," *Competition & Change* 25, no. 2 (2021): 212–236. <https://doi.org/10.1177/1024529420905187>

¹⁷ Abigail Hunt and Emma Samman, *Gender and the Gig Economy* (London: Overseas Development Institute, 2019). <https://odi.org/en/publications/gender-and-the-gig-economy-critical-steps-for-evidence-based-policy/>

¹⁸ Rani and Furrer, *Digital Labour Platforms and New Forms of Flexible Work*.

¹⁹ Aditi Tandon and Anu Sekharan, "Labouring (on) the App: Agency and Organisation of Work in the Platform Economy," *Gender & Development* 30, no. 3 (2022): 687–706. <https://www.tandfonline.com/doi/abs/10.1080/13552074.2022.2130515>

²⁰ M. Saikrishna, "Balancing Invisible Burdens: Exploring the Lived Experiences of Unpaid Care Work among Gig Economy Workers Using Gioia Methodology," *International Journal of Sociology and Social Policy* (2025). <https://doi.org/10.1108/IJSSP-12-2024-0627>

²¹ ILO, *World Employment and Social Outlook 2021*, pp 155–159.

²² ILO, *World Employment and Social Outlook 2021*, pp 146–152.

²³ IWwAGE, *Changing World of Women's Work*, pp 36.

²⁴ Jamie Woodcock and Mark Graham, *The Gig Economy: A Critical Introduction* (Cambridge: Polity Press, 2020). <https://www.tandfonline.com/doi/full/10.1080/00130095.2020.1831908>

²⁵ IWwAGE and International Labour Organization India, (forthcoming).

reduce consistency and adequacy of outcomes.²⁵ The growing reliance on AI-driven chatbot systems for worker support raises specific concerns for women workers across several dimensions. For women workers, access to effective redressal may be further shaped by broader inequalities in digital access, digital literacy, and familiarity with platform systems. Research also suggests that complaints relating to harassment, safety, and discrimination often require contextual assessment and may be difficult to address through highly standardised reporting mechanisms alone.²⁶ More broadly, women platform workers continue to navigate concerns related to personal safety, harassment, abusive customer behaviour, and social norms surrounding women's mobility and participation in public workspaces. At the same time, growing evidence indicates that ratings, reviews, and other forms of algorithmic evaluation can reproduce existing social biases, including those associated with gender, caste, class, language, and other markers of identity²⁷. In some cases, workers' have the option to provide feedback or ratings to customers as well, however, they are currently reported to carry limited weight in practice. Although some platforms claim to take appropriate action based on worker ratings, these ratings often do not translate into meaningful customer accountability or platform action, even when customers consistently receive poor feedback from workers.²⁸ In such scenarios, workers informed that earlier arrangements with category managers were accessible and responsive to report such information readily, however, the current automated systems govern most platform interactions with limited scope for contextual judgement.²⁹

These findings suggest that platform design cannot be viewed as socially neutral. Rather, digital systems often interact with pre-existing social and economic inequalities, shaping how workers experience opportunities, risks, and access to support within the platform economy. This is also reflected in workers' experiences with grievance redressal, which vary across platforms and sectors. While many platforms have relatively elaborate grievance redressal mechanisms in place on paper, workers' accounts do not always indicate

that these mechanisms are consistently accessible, responsive, or effective in practice.

2.4 Regulatory Landscape and Social Protection

These concerns become particularly significant in the context of social security and labour protections for gig workers. Existing welfare frameworks in India have historically been designed around formal employer-employee relationships, making the inclusion of platform workers within labour protections a continuing policy challenge. Recent years have seen important legislative progress in recognising gig workers as a distinct labour category, though barriers related to awareness, registration, documentation, portability of benefits, and implementation continue to limit meaningful access to social protection measures. Consequently, many platform workers remain dependent on informal coping mechanisms despite operating within technologically sophisticated work systems, and closing this gap between legal recognition and practical access to benefits is one of the most pressing near-term policy challenges.

At the national level, the Code on Social Security (2020) represents a significant legislative step in extending protections to gig and platform workers, mandating that aggregators contribute to a social security fund and providing for life and disability cover, health and maternity benefits, and old-age protection³⁰. The 2025–26 Union Budget further extended healthcare coverage for gig workers under PM Jan Arogya Yojana and enabled registration on the e-Shram portal³¹. Full implementation of these provisions, particularly for women workers in low-visibility segments such as domestic and home-service work, remains an important ongoing priority.

State governments have emerged as important sites of policy innovation in relation to platform work. Following Rajasthan's enactment of the Platform Based Gig Workers (Registration and Welfare) Act, 2023³², Karnataka³³, Bihar³⁴, Jharkhand³⁵, and Telangana³⁶ have also adopted legislation governing the welfare and regulation of platform-based gig work.

²⁵Hunt and Samman, *Gender and the Gig Economy*.

²⁷Ira Anjali Anwar, Joyojeet Pal, and Julie Hui, "Watched, but Moving: Platformisation of Beauty Work and Its Gendered Mechanisms of Control," in Proceedings of the ACM on Human-Computer Interaction 4, CSCW3 (2021): Article 250. <https://www.microsoft.com/en-us/research/wp-content/uploads/2020/10/cscw-anwar-msri-5f85442559730.pdf>

²⁸IWWAGE and International Labour Organization India, (forthcoming).

²⁹IWWAGE and International Labour Organization India, (forthcoming).

³⁰Government of India, *Code on Social Security, 2020* (No. 36 of 2020) (New Delhi: Ministry of Law and Justice, 2020).

https://prsindia.org/files/bills_acts/bills_parliament/2020/Code%20on%20Social%20Security,%202020.pdf

³¹Government of India, *Union Budget 2025–26: Budget Speech* (New Delhi: Ministry of Finance, 2025).

<https://static.pib.gov.in/WriteReadData/specificdocs/documents/2025/aug/doc2025830624501.pdf>

³²Government of Rajasthan, *The Rajasthan Platform Based Gig Workers (Registration and Welfare) Act, 2023* (Jaipur: Government of Rajasthan, 2023).

https://prsindia.org/files/bills_acts/acts_states/rajasthan/2023/Act29of2023Rajasthan.pdf

³³Government of Karnataka, *The Karnataka Platform Based Gig Workers (Social Security and Welfare) Act, 2025* (Bengaluru: Government of Karnataka, 2025).

<https://kla.kar.nic.in/council/house/bills/156/31E.pdf>

³⁴Government of Bihar, *The Bihar Platform Based Gig Workers (Registration, Social Security and Welfare) Act, 2025* (Patna: Government of Bihar, 2025).

https://prsindia.org/files/bills_acts/acts_states/bihar/2025/Act8of2025BR.pdf

³⁵Government of Jharkhand, *The Jharkhand Platform-Based Gig Workers (Registration and Welfare) Act, 2025* (Ranchi: Government of Jharkhand, 2025).

https://prsindia.org/files/bills_acts/bills_states/jharkhand/2025/Bill9of2025JH.pdf

³⁶Government of Telangana, *The Telangana Platform Based Gig Workers (Registration, Social Security and Welfare) Act, 2026* (Hyderabad: Government of Telangana, 2026).

https://prsindia.org/files/bills_acts/acts_states/telangana/2026/Act21of2026TG.pdf

Across states, these laws generally provide for the registration of gig workers, the establishment of welfare boards, and the creation of social security funds financed through contributions from platform aggregators.

More recent legislation has expanded beyond welfare-focused measures to address issues such as algorithmic transparency, grievance redressal, occupational safety, data protection, and worker representation. Karnataka's legislation is particularly notable for provisions relating to algorithmic transparency, the right to refuse tasks without adverse consequences, and guaranteed access to human review in grievance processes³⁷. Bihar's framework goes further in providing statutory entitlements to accident compensation and maternity benefits, while Jharkhand and Telangana include provisions relating to transparency, worker welfare, and platform accountability.

These state-level initiatives reflect growing recognition that existing labour law frameworks are not fully equipped to address the realities of platform-mediated work. At the same time, differences in legislative scope, implementation timelines, and enforcement capacity mean that protections remain uneven across jurisdictions. The emergence of multiple state-level frameworks, therefore, highlights both the momentum behind platform-worker regulation and the continuing need for coordination with national-level social security and labour policy.

Conclusion

Taken together, the platform economy represents a significant reorganisation of informal and semi-formal work through digital infrastructures and algorithmic systems. Literature informs that the future of platform work will be shaped not only by technological change, but also by decisions around platform design, worker support systems, social protection, and regulatory governance. Addressing the challenges of informality, precarious earnings, social protection gaps, gender-based occupational and sectoral segregation, and lack of gender-inclusivity in platform policies is not only compatible with a thriving platform economy, it is essential to it: a workforce that is well-supported, fairly compensated, and protected from exploitation and any form of discrimination, is more productive, more stable, and more sustainable.

The wave of state-level legislations marks a critical turning point in India's approach to platform labour regulation. The central challenge now is to move from legislative recognition to substantive implementation, ensuring that the frameworks enacted serve the full diversity of the gig workforce, including women workers engaged in home-based, domestic, and care-related services, who are most likely to face compounded vulnerabilities. Policy and practice responses that prioritise algorithmic transparency, accessible grievance mechanisms with human escalation pathways, portable social security benefits, and targeted support for women's participation will be essential to realising the inclusive economic potential of India's platform economy.

³⁷ Khaitan & Co., *Karnataka Platform Based Gig Workers (Social Security and Welfare) Ordinance, 2025: A Paradigm Shift in Labour Welfare* (New Delhi: Khaitan & Co., 2025). <https://www.lexology.com/library/detail.aspx?g=6846315a-83dd-4aa0-8ec1-3f0bf48d2466>



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CHAPTER THREE

ARTIFICIAL INTELLIGENCE AND WOMEN'S WORK

Artificial intelligence (AI), which enables the simulation and automation of human cognitive functions across numerous sectors, is reshaping labour markets, livelihoods, and social relations worldwide. As the United States and China compete for technological leadership in AI, labour markets in India are undergoing significant transformations. These changes are unfolding alongside the rapid expansion of digital public infrastructure (DPI), which refers to foundational digital systems, including identity, payments, and data exchange layers, within which AI is increasingly being leveraged for social good.

While the scale of AI-driven job displacement remains uncertain, with the ILO cautioning that most occupations are likely to see task transformation rather than outright loss of jobs, the gendered dimensions of this exposure is easier to establish. Where data exists, occupations dominated by women, particularly clerical and administrative work, show almost double the exposure to Gen AI as those dominated by men, such as construction and manufacturing, and the gap widens considerably at the highest risk tier, where women's jobs are over five times as likely as men's to face the steepest automation

pressure.¹ These figures capture only the formal sector of the workforce, and the implications run deeper still for the much larger share of women workers who remain concentrated in agriculture, home-based work, micro-enterprises, frontline and care work, platform-based services, and other segments of the informal economy in India. In these sectors, AI tools may improve productivity and expand access to economic opportunities for some workers, while also intensifying surveillance, algorithmic management, and precarious employment for others.²

At the same time, the pyrrhic use and development of AI has created new forms of work within data and AI value chains, including data annotation, content moderation, and other forms of micro-task labour that increasingly rely on women workers.³ These developments raise important questions about who benefits from AI-led economic transformation and under what conditions. Examining women's participation in emerging digital economies is therefore critical to understanding how technological change is reshaping work and labour market opportunities and conditions in India.

¹ International Labour Organization, *Gen AI, Occupational Segregation and Gender Equality in the World of Work*, research brief (Geneva: International Labour Office, 2026), <https://www.ilo.org/publications/gen-ai-occupational-segregation-and-gender-equality-world-work>.

² IWWAGE and Gender x Digital Hub, *Women's Work and AI: Unlocking Potential, Bridging the Divide* (LEAD at Krea University, 2026), <https://iwwage.org/wp-content/uploads/2026/02/Womens-Work-and-AI.pdf>.

³ Anjora Sarangi et al., *Decoded: Women and the Future of Digital Work in India* (Gender x Digital Hub, LEAD at Krea University, November 2025), <https://gxdhub.org/wp-content/uploads/2025/11/decoded-insights-women-future-digital-work-india.pdf>.

3.1 Government Initiatives on AI Skilling and Gender Inclusion

In India, recent budgetary allocations positions AI and allied technologies as “force multipliers” within a service-led economy.



▶ The Union Budget 2026-27 has earmarked Rs. 1000 crore for the IndiaAI Mission, reaffirming the government’s commitment to strengthening indigenous AI research, innovation, and computational infrastructure.⁵ There is also a decisive push toward building India’s AI infrastructure through global investments in data centres, cloud services⁶, and digital ecosystems. For instance, the proposed tax holiday until 2047 for foreign cloud service providers using Indian data centres.⁷

The country’s recently released AI Governance Guidelines address hiring-related AI harms primarily through existing law rather than dedicated AI legislation, listing discrimination in hiring decisions using AI recruitment tools as a recognised harm category and mapping it to the Rights of Persons with Disabilities Act 2016, the Transgender Persons (Protection of Rights) Act 2019, the Code on Wages 2019, and the SC/ST (Prevention of Atrocities) Act 1989.⁸ India-specific empirical evidence on gendered AI hiring bias remains scarce. However, Ip’s 2025 experimental study on AI hiring found that when job seekers were told a hiring algorithm favoured male candidates, qualified women were significantly less likely to apply at all, regardless of how strong their qualifications were. Switching to a gender-blind or equality-of-prediction algorithm reversed this effect, drawing in substantially more female applicants without any decline in the quality of the overall applicant pool.⁹

Meanwhile, the government of India has also shifted its focus from developing large language models (LLMs) to more functional, high-impact applications, such as Bharat-VISTAAR, a multilingual AI platform that integrates Agri-Stack and ICAR data to provide real-time advisory services to farmers.¹⁰ The government has taken steps to address gender gaps in AI literacy, technical skilling, and workforce participation. The AI Careers for Women initiative, launched through a partnership between the Ministry of Skill Development and Entrepreneurship (MSDE) and tech giant Microsoft, aims to train 20,000 women through a 240-hour curriculum delivered across women’s colleges and Tier-II and Tier-III towns, with pathways into certifications, internships, apprenticeships, and AI-linked employment.¹¹ More recently, the LinkedIn Fellowship for non-STEM women students and faculty received over 2,000 applications in its first cohort.¹²

Karnataka’s HerShakti programme targets women returning to the workforce after career breaks, offering training in AI, machine learning, cybersecurity, and cloud computing through industry partners such as **Infosys** and **UiPath**.¹³ In **Uttar Pradesh**, the state government partnered with **GUVI** and the **South Asian Women in Tech (SAWiT)** network to launch a Generative AI Upskilling Learnathon aimed at training 500,000 women in AI and Python across South Asia.⁴ The initiative delivered multilingual AI training in seven regional languages.¹⁴

At the community level, the **National Commission for Women’s Yashoda AI Abhiyan** focuses on AI literacy, cybersecurity, and digital safety training for women in rural and semi-urban areas, and has trained nearly 2,500 women, including SHG members, ASHA workers, elected representatives, and women in law enforcement.¹⁵

3.2 Women’s Participation in AI Innovation and Development

At the **AI Impact Summit** in February 2026, women-led enterprises presented applications spanning education, healthcare, climate resilience, and digital governance. RoshniAI’s voice-first learning companion is delivered in local languages through women-led community networks. Arghyam’s integration of AI

⁴ KPMG India, “Union Budget 2026: A Strategic Push on AI, Semiconductors, and Data Infrastructure,” February 2026, <https://kpmg.com/in/en/blogs/2026/02/union-budget-2026-a-strategic-push-on-ai-semiconductors-and-data-infrastructure.html>.

⁵ KPMG India, “Union Budget 2026.”

⁶ Foreign cloud service providers refer to multinational technology companies, such as Amazon Web Services, Microsoft Azure, and Google Cloud, that offer remote computing storage and processing capacity.

⁷ Ministry of Electronics and Information Technology, “Budget 2026-27 Lays Strong Foundation for AI Data Centres and Semiconductor Ecosystem” (press release, February 1, 2026), <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2221894®=48&lang=2>.

⁸ Ministry of Electronics and Information Technology, *India AI Governance Guidelines* (New Delhi: Government of India, November 5, 2025), <https://static.pib.gov.in/WriteReadData/specificdocs/documents/2025/nov/doc2025115685601.pdf>.

⁹ Edwin Ip, “Fair AI in Hiring: Experimental Evidence on How Biased Hiring Algorithms and Different Debiasing Methods Affect the Quality and Diversity of Applicants,” *Behavioral Science & Policy* 11, no. 1 (2025): 44–54.

¹⁰ KPMG India, “Union Budget 2026.”

¹¹ Press Information Bureau, Government of India, “Ministry of Skill Development and Entrepreneurship (MSDE) and Microsoft Come Together to Launch ‘AI Careers for Women’ by Establishing 30 Centers of Excellence in Women Colleges Across Six States” (press release, April 22, 2025), <https://pib.gov.in/PressReleasePage.aspx?PRID=2123510>.

¹² “AI Careers for Women Initiative Announces Multi-Stakeholder Alliance to Advance Gender Inclusion in India’s AI Workforce,” *The Tribune*, February 27, 2026, <https://www.tribuneindia.com/news/advertorial-disclaimer/ai-careers-for-women-initiative-announces-multi-stakeholder-allianceto-advance-gender-inclusion-in-indias-ai-workforce>.

¹³ Jobs for Her Foundation, “HerShakti,” accessed 2026, <https://jobsforherfoundation.org>.

¹⁴ “UP Joins Hands with HCL’s GUVI to Upskill 5L Women in GenAI,” *Times of India*, accessed 2026, <https://timesofindia.indiatimes.com/city/lucknow/up-joins-hands-with-hcls-guvi-to-upskill-5l-women-in-genai/articleshow/113535022.cms>.

¹⁵ Ministry of Women and Child Development, “Around 2500 Women from Rural and Semi-Urban Trained under NCW’s ‘Yashoda AI’ Literacy Program Since May 2025” (press release, August 6, 2025), <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2153029®=48&lang=2>.

with digital public infrastructure to strengthen water governance and service delivery reflects the potential of women-led innovation to address the intersection of decent work, care burdens, and public goods deficits. NariRaksha.AI's continuous vulnerability detection system contributes to the broader goal of safe and secure digital work environments - a precondition of increasing relevance as women's economic activity shifts toward platform-based and digitally mediated forms of employment.¹⁶ Though the extent to which these tools were developed in direct consultation with their intended users varies.

The Growing Precarities of Women Data Workers

The rapid expansion of AI systems has generated a vast but often invisible workforce. Commonly described as "ghost workers," these workers perform tasks such as image labelling, transcription that enable AI systems to function effectively. AI systems remain dependent on human input across data and platform economies.¹⁷ In India, opportunities for AI and global data value chain microwork are mainly found in Tier-II and Tier-III cities, and 80 per cent of data annotators come from non-metro regions. Women are well-represented in entry-level roles that require minimal training.¹⁸ Since this work is typically structured as piece-rate or task-based microwork and classified as independent contracting, workers fall outside standard employer obligations meaning women workers bear the costs of internet connectivity, electricity, ergonomic strain, and occupational health impacts without institutional support or recourse.¹⁹

The psychological costs of content moderation work constitute the most acute dimension of this precarity. Research from the Data Workers' Inquiry documents that workers viewing hundreds of images and videos of violence, sexual abuse, and child exploitation daily report intrusive thoughts, sleep disturbance, emotional numbing, and lasting dissociative symptoms, its lead researcher Milagros Miceli characterises content moderation as occupationally comparable to any lethal industry in terms of risk.²⁰

The TIME investigation into OpenAI's use of Kenyan workers through the outsourcing firm Sama found that workers labelling graphic descriptions of child sexual abuse, bestiality, and torture described the work as torture; one worker reported recurring visions weeks after exposure.²¹ Recent investigations into women moderators in India found that many workers, particularly from Dalit, Adivasi, and economically marginalised communities, spend hours reviewing graphic material involving violence, pornography, and child exploitation to train AI systems, often with limited psychological support and under restrictive non-disclosure agreements.²²

3.3 Adoption of AI Tools among Women Microentrepreneurs and Rural Women Workers

Micro, small and medium enterprises (MSMEs), which contribute nearly 30 per cent of India's GDP, employ over 230 million people, and account for almost half of India's exports, are central to India's economic growth ambitions. Consumer-facing enterprises may benefit from AI-enabled digital marketing and customer engagement tools, while manufacturing firms may adopt AI-based prototyping²³ and workflow optimisation systems.²⁴ However, the AI transition for women-owned microenterprises is likely to differ significantly from that of larger SMEs. According to Udyam Registration and Udyam Assist data, women-owned MSMEs from weaker economic sections constitute approximately 6.5 per cent of all registered MSMEs. To enhance participation among historically marginalised groups, the Ministry of MSME's National SC-ST Hub (NSSH) scheme offers SC/ST women entrepreneurs capital subsidies for technology upgradation and capacity building, with over 24,000 women entrepreneurs reportedly benefiting from the programme since 2016. Women entrepreneurs in the MSME sector are primarily adopting basic and embedded AI tools such as chatbots, billing and invoicing systems, marketing automation, virtual assistants, predictive bookkeeping systems, and generative AI tools like OpenAI's ChatGPT for communication, sales, and business operations rather than bespoke AI systems.^{25,26} Limited digital literacy, low awareness, paper-based record systems,

¹⁶ Ministry of Electronics and Information Technology, "India AI Impact Summit 2026 Showcases Women-Led AI for Public Good and Digital Public Infrastructure" (press release, February 16, 2026), <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2228870®=48&lang=2>.

¹⁷ Uma Rani, Nora Gobel, and Rishabh Kumar Dhir, "Development of AI: Role of 'Invisible Workers' in the AI Value Chains," science-policy brief, Multistakeholder Forum on Science, Technology and Innovation for the SDGs, International Labour Organization, May 2024, https://sdgs.un.org/sites/default/files/2024-05/Rani%20Gobel%20Dhir_Development%20of%20AI.pdf.

¹⁸ Sarangi et al., *Decoded: Women and the Future of Digital Work in India*.

¹⁹ BehanBox, "Living in a Ghost World: The Data Workers Who Make the Internet Possible," October 10, 2025, <https://behanbox.com/2025/10/10/living-in-a-ghost-world-these-data-workers-make-the-internet-possible/>.

²⁰ Anuj Behal, "'In the End, You Feel Blank': India's Female Workers Watching Hours of Abusive Content to Train AI," *The Guardian*, February 5, 2026, <https://www.theguardian.com/global-development/2026/feb/05/in-the-end-you-feel-blank-indias-female-workers-watching-hours-of-abusive-content-to-train-ai>.

²¹ Billy Perrigo, "Exclusive: OpenAI Used Kenyan Workers on Less Than \$2 Per Hour to Make ChatGPT Less Toxic," *Time*, January 18, 2023, <https://time.com/6247678/openai-chatgpt-kenya-workers/>.

²² Behal, "'In the End, You Feel Blank'."

²³ The use of AI to rapidly generate, test, and iterate on product designs

²⁴ World Economic Forum, *Transforming Small Businesses: A Playbook for Sustainable and Inclusive Growth* (Geneva: WEF, 2025), https://reports.weforum.org/docs/WEF_Transforming_Small_Businesses_2025.pdf.

²⁵ S. Aiswarya and S. Sangeetha, "Augmenting Innovation: Artificial Intelligence Among Women Entrepreneurs," *Ramanujan International Journal of Business and Research* 8, no. 2 (2023): 40–49, <https://doi.org/10.51245/rijbrv8i2.2023.1366>.

²⁶ Rahul Kumar, Ruby Sharma, and Chetan Srivastava, "The Impact of Artificial Intelligence on Women Entrepreneurs Leading SMEs in Rural India," in *Sustainable Digital Transformation with AI in Finance and Entrepreneurial Ecosystems* (Nex Gen Publications, 2026), 106–18, https://www.researchgate.net/publication/399941115_THE_IMPACT_OF_ARTIFICIAL_INTELLIGENCE_ON_WOMEN_ENTREPRENEURS_LEADING_SMEs_IN_RURAL_INDIA.

affordability constraints, unstable internet access, and sociocultural barriers continue to shape uneven uptake, particularly among women entrepreneurs. Surveyed data from India though drawn from a limited sample - indicates that while awareness of AI among women entrepreneurs may be moderately high, actual adoption remains low, with one study finding that only 18 per cent of respondents had adopted AI tools despite 62 per cent reporting some awareness. Adoption was strongly associated with education levels, prior digital experience, membership in entrepreneur collectives, and access to training ecosystems.²⁷ At the community level, the Tata Group's AI Sakhi Immersion Programme, convened at the India AI Impact Summit 2026, brought together 1,553 women from six states - Jharkhand, Bihar, Odisha, Rajasthan, Gujarat, and Delhi NCR - across three cohorts namely traditional artisans, SHG members with basic digital literacy, and advanced digital entrepreneurs. Farmer.Chat, developed by Digital Green with support from OpenAI, was built for low-literacy and low-connectivity users through multilingual voice and image interfaces embedded within familiar platforms such as WhatsApp and Telegram. Women's Self-Help Groups and Farmer Producer Organisations were used as onboarding structures to build collective digital confidence, and by mid-2025, women constituted 40 per cent of the platform's user base.²⁸ Similarly, Unilever's Shakti programme integrated AI-enabled features such as voice-command ordering, predictive inventory management, and shelf-image recognition into the Shikhar app used by women micro-entrepreneurs, with reported increases in both household incomes and financial decision-making confidence.²⁹ These examples suggest that AI adoption among women-owned enterprises is more likely to succeed when tools are localised, embedded within trusted networks, designed for low-resource settings, and integrated into existing livelihood systems rather than introduced as standalone technological solutions.

3.4 Data Centres and the Burden of Unpaid Care Work

India's expanding AI and data-centre economy and its infrastructural demands may reproduce existing forms of gendered labour. As states such as Andhra Pradesh, Karnataka, and Telangana compete to host AI processing centres, concerns are emerging around the enormous electricity and water requirements of AI data centres, raising questions about India's "absorptive capacity" for large-scale AI expansion.³⁰ India's Economic Survey 2025–26³¹ cautioned that rapid expansion of AI data centres could place severe pressure on electricity grids and groundwater resources, noting that a single AI data centre may consume up to 20 lakh litres of water per day. A recent study by the Council on Energy, Environment and Water (2026)³² estimates that data centres in India already consume approximately 150 billion litres of water annually, with both electricity and water demand expected to more than double by 2030. The report further warns that many data-centre hubs are located in regions facing extreme heat and growing water stress, raising concerns about competition over local resources. In many low-income and rural contexts, declining or unreliable access to water directly increases the time women spend on unpaid domestic labour such as water collection, cooking, washing, and caregiving.³³ In India, the average time spent on unpaid household work per day by women is 294 minutes, as opposed to merely 27 minutes spent by men on the same.³⁴ The environmental footprint of AI infrastructure risks reproducing existing gender inequalities through intensified pressures on everyday social reproduction.

²⁷ Kumar, Sharma, and Srivastava, "Impact of Artificial Intelligence on Women Entrepreneurs Leading SMEs in Rural India."

²⁸ Digital Green, "Farmer.Chat," accessed 2026, <https://digitalgreen.org/>.

²⁹ Unilever, "How AI and Digital Tools Are Empowering Women Microentrepreneurs," 2025, <https://www.unilever.com/news/news-search/2025/how-ai-and-digital-tools-are-empowering-women-microentrepreneurs/>.

³⁰ Manoj Pant and M. Rahul, "Can India Power the AI Dream?," *The India Forum*, February 18, 2026, <https://www.theindiaforum.in/forum/can-india-power-ai-dream>.

³¹ Government of India, Ministry of Finance, *Economic Survey 2025–26*, chap. 14, <https://www.indiabudget.gov.in/economicsurvey/doc/eschapter/echap14.pdf>.

³² Council on Energy, Environment and Water, *How Is Data Centre Infrastructure in India Shaping Power and Water Use?* (New Delhi: CEEW, 2026), <https://www.ceew.in/publications/how-is-data-centre-infrastructure-in-india-shaping-power-and-water-use>.

³³ OECD, "Component 7," in *Enabling Women's Economic Empowerment* (Paris: OECD Publishing), https://www.oecd.org/en/publications/enabling-women-s-economic-empowerment_ec90d1b1-en/full-report/component-7.html.

³⁴ Athary Janiso, Prakash Kumar Shukla, and Bheemeshwar Reddy A., "What Explains Gender Gap in Unpaid Household and Care Work in India?," arXiv preprint, arXiv:2106.15376 (2021), <https://arxiv.org/abs/2106.15376>.

3.5 Growing Digitalisation Amongst Frontline Workers

The rapid integration of digital tools into public service delivery has produced varying outcomes for frontline care workers across India. While select pilots demonstrate the potential of AI to improve service quality, implementation has frequently imposed additional burdens on workers, particularly women, without corresponding investment in their working conditions, training, or compensation. Some promising use-cases in recent months are the launch of the Shiksha Saathi programme in Maharashtra. It is a WhatsApp-based multilingual AI assistant developed in collaboration with OpenAI and Rocket Learning, being deployed at scale to support Anganwadi Workers.³⁵ The tool provides guidance on developmental milestones, curriculum-aligned early learning practices, and strategies for fostering positive learning environments. In Gadchiroli district, the Udyog Yantra application monitors meal nutrition, temperature, and quantity while tracking student BMI indicators for early malnutrition detection. Within months of deployment, malnutrition rates in the pilot area dropped to 9 per cent.³⁶ However, certain tools have been experienced as instruments of surveillance rather than support. In Haryana, ASHA workers were required to install MDM360 Shield, an application that tracked their location and logged their movements throughout the working day. In June 2021, more than 20,000 ASHAs refused to use their phones in protest, leading to the application's withdrawal.³⁷ In Chhatrapati Sambhajnagar, Maharashtra, the Hajeri attendance application continues to require multiple daily check-ins with location verification, despite worker objections.³⁸ In regions such as Meghalaya, poor connectivity in remote areas has rendered digital tools effectively non-functional, meaning the promise of AI-enabled service delivery has not been realised in practice.³⁹

³⁵ "CM Devendra Fadnavis Launches AI Tools and Signs AI Agreements for Implementation in Maharashtra," *Times of India*, accessed 2026, <https://timesofindia.indiatimes.com/city/mumbai/cm-devendra-fadnavis-launches-ai-tools-and-signs-ai-agreements-for-implementation-in-maharashtra/articleshow/128613569.cms>.

³⁶ NITI Aayog, Frontier Tech Hub, "AI Takes on Malnutrition: Ensuring Safer, Healthier Meals for School Children," accessed August 2026, <https://frontiertech.niti.gov.in/story/ai-takes-on-malnutrition-ensuring-safer-healthier-meals-for-school-children/>.

³⁷ "ASHA Workers in Haryana Reject Govt Tracking App over Surveillance Fears," *NewsClick*, June 16, 2021, <https://www.newsclick.in/ASHA-workers-haryana-reject-govt-tracking-app-surveillance-fears>.

³⁸ Reshmi Chakraborty, "India's Digital Health Push Is Overworking Its Front-Line Women," *New Lines Magazine*, March 31, 2026, <https://newlinesmag.com/reportage/indias-digital-health-push-is-overworking-its-front-line-women/>.

³⁹ Sreerupa, "Is Digitalisation a Double-Edged Sword for Workers in India's Public Healthcare System?," *Ideas for India*, January 2025, <https://www.ideasforindia.in/topics/productivity-innovation/is-digitalisation-a-double-edged-sword-for-workers-in-indias-public-healthcare-system>.



CHAPTER FOUR

CLIMATE CHANGE, WOMEN'S UNPAID WORK, AND WOMEN'S LIVELIHOODS

Climate change reshapes women's work in India through a set of interlinked channels: rising heat and water stress in the household, declining returns in climate-sensitive sectors, distress-driven migration, and uneven access to the emerging green economy. What appears in macro datasets as a productivity loss or a yield decline is, at the household scale, an intensification of labour — much of it unpaid, much of it gendered, and much of it absorbed by women without entering any recognised account of the climate cost. This chapter argues that any serious treatment of women's livelihoods in a warming India must begin from the unpaid economy of social reproduction, where climatic stress is first absorbed before it travels outward into paid work, sectoral livelihoods, migration, and the green transition.

4.1 Climate Change as a Care Multiplier

Climate stress raises both the direct labour of care — tending to children, the elderly, and the sick whose bodies are most vulnerable to heat, vector-borne disease, and post-disaster illness — and the indirect labour that sustains the household: collecting water, gathering fuel, securing food, and managing the home environment under scarcity. The absorbing surface for this stress is already substantial: in the Time Use Survey 2024, women aged 15–59 who took part in unpaid domestic services spent an average of 305 minutes a day on them, and women participating in caregiving spent 140 minutes a day against 74 minutes for men; among all participants aged six and above, women spent 289 minutes a day on unpaid domestic services compared with 88 minutes for men.¹ These numbers describe not the climate impact itself but the gendered structure on

which climate shocks act. In rural areas, erratic monsoons and groundwater depletion lengthen the daily distance to functioning water and extend the search for cooking fuel; in urban areas, the dominant register is cumulative heat — women working from poorly ventilated homes, queuing for tanker water, providing care in settlements without shade or cooling. Acute events compound both, driving spikes in care work through injury, displacement, disease, and the loss of caregiving infrastructure. Yet while the Time Use Survey captures the scale of this unpaid economy, no Indian data system currently tracks how it responds to climatic stress. Building this linkage — connecting time-use data with climate variables — would give policy the signal it currently lacks, and India's strong Time Use Survey foundation makes this feasible.

4.2 Non-recognition of Unpaid Work in Climate Finance and Adaptation Planning

If unpaid care labour absorbs a substantial share of the climate burden, the next question is how the architectures designed to address climate risk can be brought to see this absorption. India's climate policy framework — the National Action Plan on Climate Change and the State Action Plans — recognises women as a vulnerable group across its missions, an important foundation. The opportunity now is to build on this recognition: to move from viewing women primarily as those affected by climate change to viewing them as workers whose unpaid and paid labour is being reshaped by it, and to translate that recognition into specific interventions on unpaid work, an area the current framework does not yet reach.

¹ Ministry of Statistics and Programme Implementation, National Statistical Office, *Time Use Survey (TUS), January–December 2024* (New Delhi: MoSPI, 25 February 2025), <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2106113>.

4.3 Crowding Out: How Unpaid Burdens Squeeze Women's Paid Work

The unpaid economy does not sit apart from the paid one. When climate stress raises the load of care and household labour, it crowds out women's capacity for paid work — not by pushing them out of the labour force, but by squeezing what they can do into the most marginal forms of employment: low-paid, irregular, close to home, and easily interrupted. This squeeze is sharpened by a thin public care infrastructure — under-resourced anganwadis, negligible elder care, crèche coverage reaching only a fraction of working mothers — so that when climate shocks add to the household's care load, the labour transfers internally, often onto adolescent girls pulled out of school. In rural areas, it is compounded by male outmigration from drought-prone and flood-affected regions such as Marathwada, Bundelkhand, and the Sundarbans:² women left behind take on a larger share of farm labour, livestock care, and household management while continuing to perform the bulk of unpaid domestic work. The “feminisation of agriculture” is in part a feminisation of an unrecognised double burden, carried without proportionate gains in land titles, credit, or extension services. In urban India, women in informal work curtail their working day when care demands rise and lose income when climate events disrupt mobility or work-site access. The empirical literature is consistent with this pattern: Afridi, Mahajan, and Sangwan find that droughts reduce women's workdays in agriculture by significantly more than men's, because women are far less able to diversify into non-farm work or to migrate in response to the shock.³ The Lancet Countdown 2025 estimates 247 billion potential labour-hours lost in India in 2024 to heat exposure, 66 per cent of them in agriculture⁴— losses that fall disproportionately on women, given that roughly three-quarters of employed rural women work in agriculture⁵ while holding only about 13.96 per cent of operational landholdings.⁶

4.4 Heat as a Defining Condition

Climate change disrupts women's work through many channels, but heat warrants particular attention because it has become a constant rather than an episodic condition, and it falls hardest on women in informal and marginalised employment who have neither regulated workspaces nor the option of a break without income loss. In urban informal work, the HeatWatch–TISS study of garment workers in Tamil Nadu and Delhi-NCR — a sample that was overwhelmingly female — found that 87 per cent had experienced heat-related illness in the previous year, that 78 per cent skip breaks for fear of missing production targets, and that 78.3 per cent find it difficult to get permission to use a toilet during working hours.⁷ In rural informal work, IWWAGE's research with women in dryland geographies documents women performing the most physically demanding agricultural tasks — transplanting, weeding, harvesting — under direct sun, with shade, drinking water, and rest routinely absent at the worksite.⁸ Compounding both is the near-universal absence of women-friendly infrastructure: lacking toilets and safe sanitation, women routinely restrict their water intake during the working day, producing a self-reinforcing cycle of dehydration, urinary and reproductive health complications, and reduced productivity — all absorbed by the worker, none addressed by the employer. The deeper cost across these settings is a deepening of women's time poverty, as paid work, unpaid care, and the additional labour produced by climate stress compete for the same hours.

4.5 Paid Care Work and Frontline Workers

The largely female frontline workforce of ASHAs, anganwadi workers, and ANMs is at once the public response to women's care needs and a labour force whose own conditions are profoundly shaped by climate change. HeatWatch's survey of 86 ASHA workers in Haryana found that only 37.2 per cent reported constant access to drinking water on their rounds, that 83.7 per cent were outdoors during the hottest hours of the day, and that around 80 per cent faced increased out-of-pocket expenses in summer on food,

² For the Sundarbans, see ActionAid, *Invisible Women: A Gender Analysis of Climate-Induced Migration in South Asia* (Johannesburg: ActionAid International, 2021), <https://actionaid.org/publications/2021/invisible-women-gender-analysis-climate-induced-migration-south-asia>; for Bundelkhand, see “Gender Transformative Impacts from Watershed Interventions: Insights from a Mixed-Methods Study in the Bundelkhand Region of India,” <https://www.researchgate.net/publication/339729317>; for Marathwada, see Ritu Bharadwaj et al., *Women Paying the Cost of the Climate Crisis with Their Wombs: Quantifying Loss and Damage Faced by Women Battling Drought, Debt and Migration* (London: IIED, March 2024), <https://www.iied.org/22281iied>.

³ Farzana Afridi, Kanika Mahajan, and Nikita Sangwan, “The Gendered Effects of Droughts: Production Shocks and Labor Response in Agriculture,” *Labour Economics* 78 (2022): 102227, <https://doi.org/10.1016/j.labeco.2022.102227>.

⁴ Lancet Countdown, *The 2025 Report of the Lancet Countdown on Health and Climate Change: India Data Sheet* (London: Lancet Countdown, 29 October 2025), https://lancetcountdown.org/wp-content/uploads/2025/10/India_Lancet-Countdown_2025_Data-Sheet-2.pdf.

⁵ Ministry of Statistics and Programme Implementation, National Statistical Office, *Periodic Labour Force Survey (PLFS) Annual Report, July 2023–June 2024* (New Delhi: MoSPI, September 2024), https://mospi.gov.in/sites/default/files/press_release/Press_note_AR_PLFS_2023_24_22092024.pdf. PLFS 2023–24 records 76.9 per cent of rural women workers in agriculture.

⁶ Government of India, Ministry of Agriculture and Farmers Welfare, *Agriculture Census 2015–16: All India Report on Number and Area of Operational Holdings* (New Delhi, 2019), https://www.fao.org/fileadmin/templates/ess/ess_test_folder/World_Census_Agriculture/WCA_2020/WCA_2020_new_doc/IND_REP_ENG_2015_2016.pdf. Women held 13.96 per cent of operational holdings and operated 11.72 per cent of the area.

⁷ HeatWatch and Tata Institute of Social Sciences, *Breaking Point: Heat and the Garment Floor* (New Delhi: HeatWatch, February 2026), <https://www.heatwatch.in/blogs/new-report-breaking-point-heat-and-the-garment-floor>. Based on a survey of 115 workers in Tamil Nadu and Delhi-NCR, 47 in-depth interviews, a focus group discussion with home-based workers in Delhi-NCR, and case studies across 15 garment and textile units in Tamil Nadu, Delhi-NCR, and Gujarat.

⁸ IWWAGE, field research with women agricultural workers in dryland geographies (internal report, unpublished).

⁹ HeatWatch, survey of 86 ASHA workers in Haryana, reported in “Extreme Heat in India Is Threatening Frontline Health Workers and Vaccination Coverage,” Gavi, VaccinesWork, <https://www.gavi.org/vaccineswork/extreme-heat-india-threatening-frontline-health-workers-and-vaccination-coverage>.

water, electricity, and heat-related medical costs, even as incentive-based earnings fell against the heat.⁹ Their workload rises with heat-related illness and dengue; in monsoon months water-borne disease climbs further and flooded roads disrupt door-to-door work. Because pay is tied to performance rather than hours, a break for rest or hydration is a direct income loss. The frontline case shows how far climate stress reaches: even work convened by public programmes remains exposed, and extending occupational protections — water, shade, rest provisions, and recognition as workers — to frontline cadres would both protect these women and strengthen the services they deliver. Climate stress bears equally on the emerging gig and platform sector — projected to rise from 7.7 million workers in 2020–21 to 23.5 million by 2029–30¹⁰ — where women concentrate in platform-mediated domestic work, beauty, and care services and must keep rendering services through extreme heat to avoid algorithmic penalties, while their classification as independent contractors means neither platform nor client is bound to absorb the cost when heat curtails their capacity.

4.6 Forest Dependent and Natural-Resource Livelihoods

Climate stress also reaches women's livelihoods through the natural-resource sectors. Roughly 275 million rural people in India depend on forests for at least part of their subsistence and livelihood,¹¹ with women constituting a substantial share of those in non-timber forest produce collection, processing, and trade — mahua, tendu, and sal seeds among them — in Adivasi-majority belts of central and eastern India. Erratic rainfall and rising temperatures are shifting the phenology of flowering and fruiting, forest fires are damaging the resource base, and range shifts force women to walk further for productive collection days.

The Compensatory Afforestation Fund Management and Planning Authority is among the few mechanisms positioned to channel climate-related expenditure into these landscapes, and its plantation programmes need to be designed to support rather than displace women's NTFP-dependent livelihoods. Routing these funds through community forest rights structures, and recognising women's labour in forest stewardship, would let this architecture deliver more for the women who depend on these landscapes.

In fisheries and aquaculture, women account for approximately 50 per cent of the workforce once post-harvest activities such as sorting, drying, processing,

and trading are counted.¹² Sea-level rise, cyclone intensification, and marine heatwaves disrupt catch volumes and timing, and it is women who carry the income loss when less catch reaches shore and drying grounds are taken by erosion or construction. Around Pulicat Lake in Tamil Nadu, the customary padu system allocates fishing rights only to married men of the dominant fishing caste, leaving women confined to drying and vending and without rights of their own,¹³ even as the shoreline space on which drying depends is progressively built over.¹⁴ Women fish workers along the eastern and southern coasts have voiced the need for schemes such as the Pradhan Mantri Matsya Sampada Yojana to extend recognition beyond the boat owner to the women who process and sell the catch.

4.7 Climate-induced Distress Migration

The Internal Displacement Monitoring Centre recorded 5.4 million disaster displacements within India in 2024 — the country's highest figure since 2012, including 2.4 million triggered by the Assam monsoon floods.¹⁵ The migration response is gendered: social costs, cultural constraints, and care responsibilities raise the barriers women face, so that men's migration tends to be proactive and women's reactive.¹⁶ This migration shapes not only where women live but the work they can access: arriving with limited formal education and skill recognition, migrant women enter domestic work, construction, brick kilns, garment piece-work, and waste picking — almost all below the minimum wage and without social security. Care arrangements at destination are negligible: women bring young children to unsafe worksites, leave them with older siblings who drop out of school, or leave them alone. This trajectory may grow.

► MGNREGA had mandated worksite childcare and its demand-based design could expand in years of climate distress; the Viksit Bharat–Guarantee for Rozgar and Ajeevika Mission (Gramin) Act, 2025, which replaces it, shifts the scheme to normative funding, and while its effects remain to be seen, the structural conditions above are unlikely to ease. In source regions, displacement pressure raises the incidence of child marriage as a coping strategy,¹⁷ and research in the Beed sugarcane belt documents women migrant cane-cutters undergoing hysterectomies to avoid menstruation-related work losses under contractor systems that fine absence during drought-thinned harvests.¹⁸ Migration in this register is not adaptation; it is what happens when adaptation has failed upstream.

¹⁰ NITI Aayog, *India's Booming Gig and Platform Economy* (New Delhi: NITI Aayog, June 2022), https://www.niti.gov.in/sites/default/files/2022-06/25th_June_Final_Report_27062022.pdf.

¹¹ World Bank estimate, cited in Centre for Science and Environment, "Forest in India," <https://www.cseindia.org/forest-in-india-7691>.

¹² Nikita Gopal and P. S. Ananthan, "India: Do Women Fish?," Yemaya, International Collective in Support of Fishworkers, <https://icsf.net/yemaya/india-do-women-fish/>.

¹³ "Asia / India," Yemaya, International Collective in Support of Fishworkers, <https://icsf.net/yemaya/asia-india-10/>; see also the studies of Pulicat's fishing communities published by Madras Christian College, <https://mcc.edu.in/wp-content/uploads/2021/07/Final.pdf> and <https://mcc.edu.in/wp-content/uploads/2021/07/Madhana-Rekha-UGC-Care-Journal.pdf>.

¹⁴ "Micro Livelihoods Connected to Fishing at Pulicat Face an Uncertain Future," *Citizen Matters*, <https://citizenmatters.in/fishing-community-livelihoods-pulicat-lake-climate-change-environment/>; IFMR LEAD, "In the Heart of Pulicat," <https://stories.ifmrlead.org/in-the-heart-of-pulicat/>.

¹⁵ Internal Displacement Monitoring Centre, "India" country profile, <https://www.internal-displacement.org/countries/india/>.

¹⁶ Intergovernmental Panel on Climate Change, *Climate Change 2022: Impacts, Adaptation and Vulnerability*, Sixth Assessment Report, Working Group II, chap. 7 (Cambridge: Cambridge University Press, 2022), <https://www.ipcc.ch/report/ar6/wg2/chapter/chapter-7/>.

4.8 Women as Climate Adaptation Agents

Across rural India, women have long been the primary producers of household and community resilience — through seed saving, water harvesting, kitchen gardens, and common-pool resource management. A number of NGO-led efforts have begun working with women to support adaptation and involve them in community resilience decisions, though these remain partial and scattered relative to the scale of climate impact. The Self-Employed Women's Association's parametric heat insurance has scaled from 21,000 women across five districts of Gujarat in 2023 to more than 225,000 women in 2025, expanding from three to eight states, with the Mahila Housing Trust extending cover to a further 26,800 women in Ahmedabad, Surat, and Vadodara in 2024.¹⁹ Elsewhere, the Deccan Development Society's millet and seed sovereignty work, watershed programmes bringing women into water user associations, and SHG federations under the National Rural Livelihoods Mission have become de facto vehicles through which climate adaptation reaches the village level. But the recognition that follows from being seen as adaptation agents is partial: it acknowledges women's contribution without compensating it. Arora-Jonsson cautions that framing women as "virtuous environmental subjects" can serve to extract more from them without addressing the structural conditions that make their adaptive labour necessary.²⁰ Women's adaptive capacity is real and worth recognising; the recognition must not become a substitute for changing the underlying conditions.

4.9 The Green Transition and Women's Work

CEEW estimates India's green economy could create up to 48 million full-time-equivalent jobs by 2047.²¹ The first structural problem is that women are concentrated in sectors — apparel, textiles, leather, food — where green jobs are not being created at scale, while infrastructure, transport, construction, and manufacturing, which absorb the bulk of green capital, remain heavily male. Where women are present in climate-aligned sectors, the gap inside is wide: the CEEW–NRDC survey of India's renewable energy sector finds that women make up only 11 per cent of the workforce in solar and wind deployment and manufacturing, and that 61 per cent of the women employed are in non-technical roles such as human resources, accounting, and administration.²²

A just transition that takes gender seriously would need to do five things at once. It would have to bring women's existing climate-affected work — in agriculture, fisheries, forest-dependent livelihoods, the care economy, and the urban informal sector — into the architecture of climate finance and adaptation planning, rather than treating climate policy as a matter of renewable energy capacity alone. It would have to invest in care infrastructure as a climate adaptation measure: anganwadi services, crèches, elder care, and primary health centres directly determine whether women can continue to work as climate stress intensifies. It would have to recognise women's adaptive labour formally — in heat insurance, in disaster relief eligibility, in social protection floors — rather than treating it as an unwaged externality. It would have to make the pipeline into the green economy actively gender-responsive, through targeted skilling, hiring practices, and procurement requirements that prioritise women-owned and women-employing enterprises. And it would have to move the burden of climate exposure off the woman worker and onto the employer, contractor, or platform that benefits from her labour — through enforceable occupational protections against heat, paid rest during extreme weather, hydration and shaded space at worksites, and recognition of climate-induced wage loss as a compensable harm.

4.10 The Policy Landscape

The policy architecture governing women's climate-affected work has expanded considerably in recent years. The task ahead is to align it more closely with the way women's work is actually performed — unpaid, informal, and climate-exposed — so that this expansion reaches women in their occupational settings.

Labour Codes 2025. The four Labour Codes came into effect on 21 November 2025 and are, in principle, a landmark for informal and women workers: a national floor wage, statutory minimum wage entitlement extended to all categories of workers, and social security extended to gig and platform workers for the first time.²³ Building on this foundation, the next step is the recognition of climate exposure as an occupational hazard: extending provisions for extreme-weather days — rest, hydration, wage protection — would carry the Codes' promise to the workers most exposed to a warming climate.

¹⁷ "India's Female Cane Cutters Face Child Marriage and Hysterectomy," Pulitzer Center, <https://pulitzercenter.org/stories/indias-female-cane-cutters-face-child-marriage-and-hysterectomy>; UNFPA East and Southern Africa Regional Office, *Child Marriage and Environmental Crises: An Evidence Brief* (UNFPA), https://esa.unfpa.org/sites/default/files/pub-pdf/child_marriage_and_environmental_crises_an_evidence_brief_final.pdf.

¹⁸ Ritu Bharadwaj et al., *Women Paying the Cost of the Climate Crisis with Their Wombs: Quantifying Loss and Damage Faced by Women Battling Drought, Debt and Migration* (London: IIED, March 2024), <https://www.iied.org/22281iied>.

¹⁹ Anaar Kara and Sarah Rotman Parker, *Confronting the Climate and Health Nexus: Lessons from Self-Employed Women's Association (SEWA)* (Washington, DC: CGAP, May 2026), <https://www.cgap.org/research/publication/confronting-climate-and-health-nexus-lessons-self-employed-womens-association>. For the Mahila Housing Trust coverage, see "India's Heat Insurance Plans Look Promising, But Resilience Needs More Than Payouts," *UpBeat*, <https://writetoupbeat.substack.com/p/indias-heat-insurance-plans-look>.

²⁰ Seema Arora-Jonsson, "Virtue and Vulnerability: Discourses on Women, Gender and Climate Change," *Global Environmental Change* 21, no. 2 (2011): 744–51.

²¹ Council on Energy, Environment and Water, *Building a Green Economy for Viksit Bharat* (New Delhi: CEEW, November 2025), <https://www.ceew.in/press-releases/india%E2%80%99s-green-economy-could-attract-usd-41-trillion-investments-2047-create-48>.

²² Almeida et al., *Driving Energy Transition: Workforce, Skills, and Gender in India's Renewable Energy Sector* (New Delhi: CEEW–NRDC, June 2026), https://www.nrdcindia.org/pdf/Driving-Energy-Transition_2026_Web-Optimised.pdf.

From MGNREGA to VB-G RAM G. In December 2025, the VB-G RAM G Act received presidential assent, and from 1 July 2026 it succeeded MGNREGA — for two decades the single largest instrument through which women’s paid work and climate adaptation intersected. The Act raises the statutory guarantee from 100 to 125 days per household per year and moves the scheme from a Central Sector to a Centrally Sponsored footing with 60:40 Centre–state cost sharing.²⁴ The transition also shifts funding from demand-based to normative allocation, and this raises an important design consideration for climate resilience: the scheme’s value as a safety net for rural women — who accounted for close to 58 per cent of person-days in 2024–25, drawn by its wage parity between women and men²⁵ — lay in its demand-responsive character, under which work could expand when drought or flood collapsed local livelihoods. Ensuring that the new allocation model preserves this responsiveness will be significant. Workers’ organisations have also raised concerns about biometric and Aadhaar-linked authentication requirements under the new framework, which bear hardest on workers facing documentation or connectivity constraints — among whom women are over-represented.²⁶

Heat Action Plans. Heat Action Plans, now adopted across many states and cities, have built a vital foundation in preventing heat-related illness and mortality. Reviews suggest the next generation of plans could go further for women workers: differentiating women by occupation and social location rather than treating them as a single category, and extending from awareness campaigns into work conditions and income protection.

The Care Economy. Two progressive measures have made a real difference to women’s care-time burden — the Jal Jeevan Mission and the Pradhan Mantri Ujjwala Yojana — and recognising them explicitly as climate adaptation would allow them to be designed, financed, and tracked against the climate stress they help women absorb. For direct childcare, India has the architecture in ICDS and Palna, but persistent under-utilisation of allocated funds has limited what it delivers; better funding, coverage, and operating hours aligned with women’s working day would let these schemes do significantly more.

Women as Climate Action Agents in Policy. Schemes such as Namo Drone Didi and Nari Shakti se Jal Shakti position women as agents of climate action and are worth building on. The policy task ahead is less the invention of new schemes than the alignment of the existing architecture — labour codes, employment guarantees, heat plans, care provisioning, and climate finance — around the work women actually do.

²³ Government of India, Ministry of Labour and Employment, notification bringing the four Labour Codes into effect on 21 November 2025; see “Four Labour Codes Come into Force,” DD News, <https://ddnews.gov.in/en/centre-implements-four-labour-codes-overhauling-29-existing-laws/>.

²⁴ Viksit Bharat–Guarantee for Rozgar and Aajeevika Mission (Gramin) Act, 2025, assented 21 December 2025 and in force from 1 July 2026; see “VB-G RAM G Bill 2025: Transforming Rural Employment under Viksit Bharat 2047,” VisionIAS, <https://visionias.in/blog/current-affairs/vb-g-ram-g-bill-2025-transforming-rural-employment-under-viksit-bharat-2047>; Press Information Bureau, “Commencement of the VB-G RAM G Act, 2025,” <https://www.pib.gov.in/PressNoteDetails.aspx?Noteld=158510&ModuleId=3>.

²⁵ “How MGNREGA’s Repeal Will Hit Women Farmers Harder,” *BehanBox*, 7 January 2026, citing MGNREGS data for 2024–25, <https://behanbox.com/2026/01/07/how-mgnregas-repeal-will-hit-women-farmers-harder/>.

²⁶ NREGA Sangharsh Morcha, statement of 17 June 2026, reported in “125-Day Employment Guarantee under VB-GRAMG Act Lacks Funding, Feasibility,” *The South First*, <https://thesouthfirst.com/beyond-south/125-day-employment-guarantee-under-vb-gramg-act-lacks-funding-feasibility-nrega-sangharsh-morcha/>.



CHAPTER FIVE

MENSTRUAL AND MENOPAUSAL HEALTH AT WORK

Women typically menstruate for nearly three decades, from attaining puberty to undergoing menopause, a period that coincides with their most productive years in education, the labour market and caregiving.¹ The menopausal transition follows, typically beginning earlier in India than in high-income countries. The mean age at menopause for Indian women is around 46.6 years, compared to 51 years in industrialised countries.² Perimenopause can precede this by anywhere from a few months to a decade, bringing with it a barrage of symptoms, including hot flushes, brain fog, sleep disruption, and mood changes, that are only now beginning to attract serious attention.³ Workplace policies and occupational health frameworks have largely overlooked these concerns.

Despite gradual improvements in menstrual health outcomes, significant gaps remain. The National Family Health Survey 2026 reports an increase in the use of hygienic menstrual protection from 77.6 per cent in 2019–22 to 79.2 per cent in 2022–23. However, there is a 15.7-percentage-point urban–rural gap, indicating that nearly one in four rural women aged 15–24 still lacks access to hygienic menstrual protection.⁴ These disparities have significant implications for women’s educational attainment, workforce participation, and financial security. Girls who lack affordable access to menstrual hygiene products often miss school or drop out during menstruation, disrupting their education. Over time, these educational setbacks reduce employment opportunities, increase economic dependence, and weaken long-term financial security.⁵

Understanding health concerns in working women’s lives, therefore, demands a lens that recognises both menstruation and menopause as requiring support throughout working women’s lives.

5.1 The Debate on Menstrual Leave

One of the more contested policy conversations is around menstrual leave. The provision is a meaningful step. It acknowledges that women face distinct challenges related to their bodies and health, and affirms their right to address them.

In March 2026, the Supreme Court refused to entertain a writ petition seeking a nationwide menstrual leave policy for working women and female students, observing that “no one would give them jobs” if such a provision were made mandatory, and that it would unintentionally reinforce gender stereotypes.⁶ The bench specifically warned that a mandatory policy could lead employers to perceive women as less reliable or costlier to hire, especially in competitive sectors.

The state of Karnataka’s 2025 decision to grant all formal-sector women one paid menstrual leave day per month joined Bihar, Odisha, Kerala, and Sikkim in offering state-level provisions. The state has 60 lakh women in its workforce. In urban areas, 4.5 lakh work in garment factories under highly restrictive conditions, with long shifts and minimal breaks, while many more in construction, domestic service, sanitation, street vending, or gig roles are largely outside the policy’s reach. In rural areas, around 80,000 women are active MGNREGA job card holders. For all of them, menstrual management already involves a set of difficult trade-offs: whether a toilet is nearby, whether a break is permitted, whether taking a day off means losing a day’s income.⁷

A discretionary menstrual leave pilot at the Krishnanagar Police District in West Bengal, offers some grounded evidence of what implementation actually looks like. Women police personnel on field duty had no reliable

¹ R. Maithreyi, “The Menstrual Leave Debate and the Silence Around Women’s Health in India,” *The India Forum*, December 17, 2025, <https://www.theindiaforum.in/health/menstrual-leave-debate-and-silence-around-womens-health-india>

² Jang Bahadur Prasad, Naresh Kumar Tyagi, and Pradyuman Verma, “Age at Menopause in India: A Systematic Review,” *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 15, no. 1 (2021): 373–77, <https://doi.org/10.1016/j.dsx.2021.01.013>

³ Johanna Kausto, “Menopause in Working Life,” *Scandinavian Journal of Work, Environment & Health* 51, no. 6 (2025): 455–57, <https://www.sjweh.fi/article/4258>

⁴ International Institute for Population Sciences (IIPS), *National Family Health Survey (NFHS-6), 2023–24: India and State/UT Fact Sheets* (Mumbai: IIPS, 2026), [https://www.nfhs.iips.in/nfhsuser/assets/National%20Family%20Health%20Survey%20\(NFHS-6\)%202023-2024%20Fact%20Sheets.pdf](https://www.nfhs.iips.in/nfhsuser/assets/National%20Family%20Health%20Survey%20(NFHS-6)%202023-2024%20Fact%20Sheets.pdf)

⁵ World Bank, “Missed Opportunities: The High Cost of Not Educating Girls,” July 11, 2018, <https://www.worldbank.org/en/topic/education/publication/missed-opportunities-the-high-cost-of-not-educating-girls>

⁶ Aishwarya Iyer, “‘Women Will Not Be Hired,’ Supreme Court Rejects Plea Seeking Mandatory Menstrual Leave,” *LawBeat*, March 13, 2026, <https://lawbeat.in/top-stories/women-will-not-be-hired-supreme-court-rejects-plea-seeking-mandatory-menstrual-leave-1572073>

⁷ R. Maithreyi, “The Menstrual Leave Debate.”

access to toilets, sanitary products, or medical support, and some faced institutional pushback for requesting toilet breaks too frequently while on duty. When the policy was introduced, women could avail of it through lighter-duty scheduling, rotating work calendars, or remote work, and were trusted to manage their own leave registers rather than navigate a formal application process. Even then, some women constables chose not to record the leave at all, staying home instead with informal permission, unwilling to have their absence officially marked for fear of being mocked.⁸

5.2 Occupational Health Hazards are New Bodily Precarities vis a vis Menstruation and Menopause

Emerging research identifies the specific occupations in which menstrual and menopausal health deteriorates. Shift work and unpredictable schedules raise the likelihood of menstrual disorders, dysmenorrhea (painful menstruation), and early menopause by disrupting circadian rhythms (sleep-wake cycles). Prolonged exposure to extreme heat, a condition that bears directly on agricultural and construction workers and is increasingly relevant for gig workers in Indian cities, has documented effects on menstrual function over time. In agriculture and manufacturing, chemical exposures, including pesticides and heavy metals, interfere with the endocrine system, with downstream consequences for menstruation. Heavy manual labour places sustained strain on the pelvic floor, with associated reproductive complications.⁹ A 2025 systematic review of health challenges faced by informal women workers in India concluded that these compounding physical, chemical, and psychosocial risks remain largely invisible within both health and labour policy frameworks.¹⁰

The **UNICEF** and **WHO** Joint Monitoring Programme (2025), drawing on data from 70 countries, found that adolescent girls and women in low-income countries and in rural areas, were more likely to rely on reusable menstrual materials, and that those using reusable materials were less likely to have access to clean water. Even access to private changing spaces varied across countries, with rural areas consistently disadvantaged relative to urban settings.¹¹ A **WaterAid India** study of female waste pickers across 13 communities found that **17.6%** had no sanitation access whatsoever, **37.3%** experienced work disruptions because of menstruation, **63.7%** were unable to change their menstrual absorbents during the working day, and over **60%** had toilets situated far from their worksites. Women in these occupations work at significant distances from home, rely on public sanitation infrastructure, and depend on whether employers choose to comply with occupational health regulations that are limited in scope and inconsistently enforced.¹³

The lack of safe, private, and functional toilet facilities across factories, construction sites, markets, and gig platforms increase vulnerability to urogenital infections¹⁴ and, for menopausal women managing heavy bleeding or incontinence¹⁵, adds considerably to the burden of daily working life.

The absence of basic provisions also leads some women to turn down certain informal gigs where menstrual management would not be feasible, producing income losses with downstream effects on food, housing and health.¹⁶

⁸ "Is India Ready for Menstrual Leave? SC Judgment Triggers Nationwide Debate," *The Week*, March 30, 2026,

<https://www.theweek.in/news/health/2026/03/30/is-india-ready-for-menstrual-leave-sc-judgment-triggers-nationwide-debate.html>

⁹ Arundati Muralidharan, Aditi Vyas, Sharati Roy, and Vidhi Singh, *Menstrual and Menopausal Health at Work in India* (IWWAGE, February 2026), <https://iwwage.org/wp-content/uploads/2026/03/Policy-brief-Menstrual-and-Menopausal-Health-at-Work-in-India.pdf>

¹⁰ Ankit Sheth et al., "Systematic Review of Health Challenges Experienced by Indian Women Engaged in Informal Labor," SSRN, May 9, 2025, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5246536

¹¹ WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene, *Progress on Household Drinking Water, Sanitation and Hygiene 2000–2024: Special Focus on Inequalities* (2025), <https://washdata.org/reports/jmp-2025-wash-households>

¹² Hemalatha Patil, "The Seen and Unseen: Waste Picker Women and Menstrual Health Management," *Saamuhika Shakti*, WaterAid India, <https://www.saamuhikashakti.org/post/the-seen-and-unseen-waste-picker-women-and-menstrual-health-management>

¹³ Aneysa Roy, "Period Poverty and Public Policy: Challenges and Solutions," *Social and Political Research Foundation*, July 23, 2024, <https://sprf.in/period-poverty-and-public-policy-challenges-and-solutions/>

¹⁴ National Institute of Diabetes and Digestive and Kidney Diseases, "Bladder Control Problems (Urinary Incontinence): Definition & Facts," *National Institutes of Health*, <https://www.niddk.nih.gov/health-information/urologic-diseases/bladder-control-problems/all-content>

¹⁵ National Institute of Diabetes and Digestive and Kidney Diseases, "Bladder Control Problems (Urinary Incontinence): Definition & Facts."

¹⁶ Aneysa Roy, "Period Poverty and Public Policy."

The expansion of platform-based gig work has also introduced a new dimension: gig work typically requires continuous travel, algorithmic monitoring, and sustained availability - conditions that make access to adequate restrooms highly unpredictable. A 2025 study¹⁷ with 527 gig workers in the United States of America found that 15 per cent reported consistent difficulty finding restrooms while working. This group showed significantly higher rates of harmful coping behaviours, including deliberately restricting fluid intake and postponing urination, along with more severe lower urinary tract symptoms and a worsening of urinary health since beginning gig work.

5.3 Shifting Focus on Menopausal Health Transitions

The scale of menstrual and menopausal health challenges in India is significant but incompletely documented. Research on menopausal health in workplaces is even thinner. Most Indian studies have focused primarily on adolescent girls and menstrual health management, leaving almost entirely undocumented how the menopausal transition affects women's participation, productivity, and well-being at work, particularly in informal sectors.¹⁸

Existing 'menopause at work' policies, introduced by individual organisations are unlikely to reach women in casual or informal jobs. The type of work a woman does also shapes which menopausal symptoms are the most burdensome: those in higher-status roles tend to experience vasomotor symptoms such as hot flushes and night sweats as their primary concern, while women in casual or manual work are more likely to name musculoskeletal pain as their dominant complaint.¹⁹

More women in India are now living through menopause as life expectancy rises. At the same time, the average age of menopause is declining, particularly in rural areas where surgical menopause following hysterectomy for fibroids or heavy bleeding is a significant contributing factor. In the sugarcane belt of Maharashtra, thousands of women have undergone hysterectomies, often in their twenties and early thirties and frequently without fully informed consent, to stop menstruating and avoid losing wages during the harvest season.²⁰

Low income, low education, rural living, female sterilization, and lack of insurance coverage are all associated with premature menopause. This pattern reflects constrained access to healthcare: limited income and lack of insurance coverage often make hysterectomy, as seen among sugarcane workers in Maharashtra, a more accessible option than sustained medical management of conditions such as fibroids or heavy bleeding, while lower educational attainment reduces health literacy and delays care-seeking, further raising the risk of early surgical menopause. **The women most exposed to early menopause, in other words, are the same women least likely to have any occupational health support during the transition.** Without data on how unmanaged menstrual and menopausal health affects productivity, absenteeism, presenteeism, and workforce turnover in India's informal sector, it is difficult to build the case for policy action. Evidence from high-income contexts is telling: menopause-related disruptions are estimated to cost employers £1.5 billion annually in the UK and \$12 billion in Japan, while research from Norway and Sweden documented large and persistent declines in employment and earnings following menopause, more pronounced among women from lower socioeconomic groups. Even when an economic case has been made, workplace policies have lagged.

¹⁷ Chisholm et al., "Toileting and Bladder Health in the Gig Economy," *Neurourology and Urodynamics* (2025), <https://pmc.ncbi.nlm.nih.gov/articles/PMC12319512/>

¹⁸ Arundati Muralidharan et al., *Menstrual and Menopausal Health at Work in India*.

¹⁹ Heather Yoeli, Jane Macnaughton, and Sarah McLusky, "Menopausal Symptoms and Work: A Narrative Review of Women's Experiences in Casual, Informal, or Precarious Jobs," *Maturitas* 150 (2021): 14–21, <https://pmc.ncbi.nlm.nih.gov/articles/PMC7611109/>

²⁰ "Outrage as Sugar Cane Workers in India Still Being 'Pushed' into Having Hysterectomies," *The Guardian*, June 12, 2025, <https://www.theguardian.com/global-development/2025/jun/12/outrage-as-sugar-cane-workers-in-india-still-being-pushed-into-having-hysterectomies>

²¹ Arundati Muralidharan et al., *Menstrual and Menopausal Health at Work in India*.

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पथ-प्रजनन स्वास्थ्य
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CONCLUSION

The years 2024 and 2025 will be remembered as a period when several long-running debates about women's work in India began to move some through legislative reform, some through statistical revelation, and some through the growing visibility of forces that policy had until recently been able to treat as marginal. This report has examined those movements across five terrains: female labour force participation and the quality of employment; digitalisation and the platform economy; artificial intelligence and its workforce implications; climate change and its reshaping of women's paid and unpaid labour; and menstrual and menopausal health as workplace concerns. What emerges, when the chapters are read together, is a picture of a moment in which recognition has expanded significantly and in which translating that recognition into protection is now the frontier.

Female labour force participation has risen substantially, the PLFS 2025 figure of 40% for women aged 15 and above marks a significant shift from 23.3% in 2017-18. Yet the drivers of this rise, as Chapter 2 documents, are concentrated in self-employment, which now accounts for 70.7% of rural women's employment, with real earnings stagnant and rural self-employed women earning around 37% of what men earn. The headline points to a labour market opening up to women; the composition points to how much of this work remains in forms with limited protection, making the quality of employment, as much as its quantity, the task ahead. The Labour Codes 2025, coming into effect after five years of delay, extend social protection to categories of workers who had previously sat outside it, including, for the first time, platform and gig workers and a wave of state legislation from Rajasthan to Telangana has begun building dedicated welfare architecture for them. This is genuine expansion. But as Chapter 3 shows, the frameworks that now recognise these workers have not yet caught up with the conditions under which women do this work: the algorithmic pressures, the conditional flexibility, and the compounded vulnerabilities of those in home-based domestic and care-related services. Chapter 4 traces a parallel pattern in artificial intelligence: women's occupations face almost double the generative-AI exposure of men's, and over five times the exposure at the highest risk tier, even as India's AI ecosystem produces new employment for women from women-led ventures to the annotators and moderators of the

"ghost workforce" and as digital tools reach frontline workers sometimes as support and sometimes as surveillance. Chapter 5 shows climate change as another terrain on which this translation is under way: climate policy recognises women as vulnerable, a foundation on which specific interventions on unpaid work, and on the informal paid work in which women carry climate costs, can now be built. Chapter 6 makes a related move on menstrual and menopausal health: state-level policy on menstrual leave has advanced meaningfully, while the workplaces of over 90% of India's female workforce — informal, unregulated, often without basic sanitation are yet to be reached by these policy advances.

Read together, the chapters trace a recurring pattern: women are increasingly named in India's policy architecture as vulnerable, as workers, as agents of adaptation, as beneficiaries of skilling schemes and the opportunity now is to carry this naming into the specific conditions of the work they perform. Bridging recognition and protection is where much of this report's evidence points. The years ahead offer several directions in which this bridge can be built.

The first is the substantive implementation of the legislative architecture that now exists. The Labour Codes, the state-level gig worker legislation, and the schemes covering childcare, safety, and skilling all exist on paper. Translating them into changes at the worksite through inspection, grievance redressal, welfare fund disbursement, algorithmic transparency, and independent monitoring is the task ahead. This is particularly urgent for the workers the existing architecture reaches least: home-based workers, domestic workers, informal care workers, and frontline government-mediated workers whose employment status has never been clearly resolved.

The second is investment in care infrastructure, treated as economic infrastructure rather than welfare. The evidence across Chapters 2 and 5 converges: care provisioning determines whether women can enter, sustain, and improve their engagement with paid work. The institutional foundations exist including ICDS, the Palna scheme, and the caregiver training announced in the Union Budget 2026-27 but operationalisation lags far behind approval: as of early 2025, barely 3,000 crèches were functional nationwide against more than 11,000

approved, serving roughly 52,000 children in a country with tens of millions of working mothers. Closing the gap between sanctioned architecture and delivered service is among the highest-return investments available for women's economic participation.

The third is the design of digital and green transitions to be actively gender-responsive from the outset. Chapter 4's evidence on AI exposure and Chapter 5's evidence on the green transition point to the same risk: without deliberate design, new economic transitions will reproduce existing labour hierarchies. Women hold less than 15% of renewable energy jobs and receive only 15% of green skill training; AI infrastructure decisions are being made without reference to gendered water and energy access; and algorithmic systems shape women's earnings and visibility with limited transparency. Translating this recognition into design principles that shape sectoral policy from the beginning, rather than at the point of retrofit, is the difference between transitions that include women and transitions that pass them by.

The fourth is data systems that can see what current systems cannot. The PLFS module on disaster-induced migration was discontinued after 2020-21. No Indian data system tracks how unpaid work responds to climatic stress. Menstrual and menopausal health impacts on productivity and workforce turnover in the informal sector remain almost entirely undocumented. Building the evidence base to make the invisible visible including sex-disaggregated data across the domains this report has examined is the precondition for policy that responds to what women workers actually experience.

And the fifth, running through all four, is a shift in how women workers are seen: not as beneficiaries to be enrolled in schemes, or as vulnerable populations to be protected, but as workers whose labour; paid and unpaid, formal and informal, recognised and unrecognised sustains the economy and absorbs its most substantial shocks. The recognition has begun to exist. A truly Viksit Bharat can only be realised when every woman has the opportunity to engage in decent, dignified and rewarding work, with equal voice, agency and recognition in shaping India's economic future.





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