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# HOPE IN THE HORIZON

India's Youth and Global Futures

Anusha Kesarkar-Gavankar | Sauradeep Bag | Prithvi Gupta

Editors

Vol. 1





# **HOPE IN THE HORIZON**

India's Youth and Global Futures

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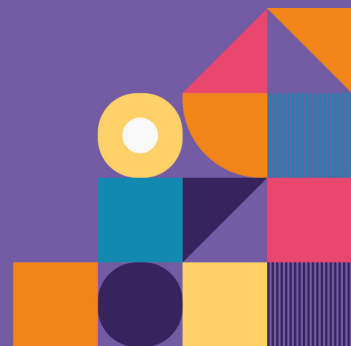
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# Editors' Note

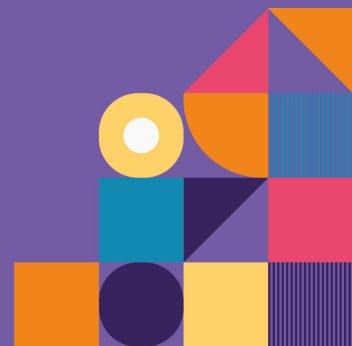
*Anusha Kesarkar-Gavankar,  
Sauradeep Bag and  
Prithvi Gupta*

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Over half of the world's population comprises young people. Their role in shaping global development is thus unparalleled, and the choices they make today will mould our collective future. As catalysts of change, their lofty aspirations, sense of optimism, and creative responses to the emerging 'glocal' challenges will help determine the trajectory of the world in the 21<sup>st</sup> century.

India has a particularly unique role to play at this juncture. It is not only the world's most populated country with 1.4 billion people, it is also one of the world's youngest nations, with an average age of 29, and more than 50 percent of the population are under 30. As India navigates the path to a ten-trillion-dollar economy, strewn with both enormous potential and immense challenges, the country's youth can influence local and global development agendas. That local agenda is called *Viksit Bharat 2047*: to become a fully developed nation by the centenary of independence.

Against this backdrop, ORF SPARK, ORF's flagship programme on youth engagement, is making a remarkable impact. Aimed at reaching out to both urban and rural youth, the programme seeks to help nurture an informed and engaged youth demographic through policy conversations in schools, colleges, and universities. The initiative aims to



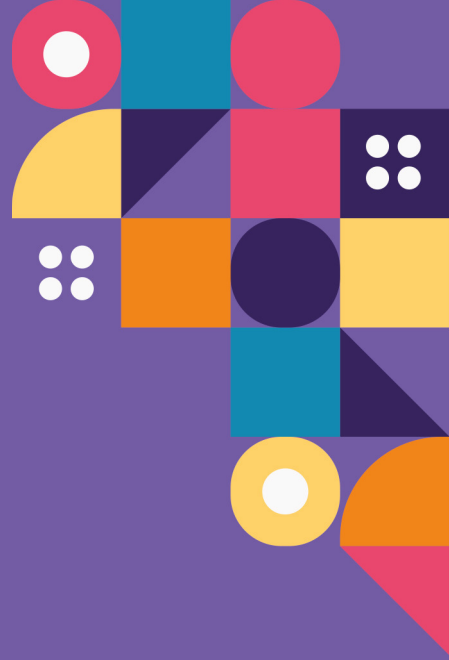
pique the minds of India's youth around critical challenges facing India and the world. The hope is to ignite meaningful responses and inspire young people to become agents of change towards building a fair and equitable world. Two years since its inception, ORF SPARK has already been implemented in a number of Indian cities, engaging with thousands of high school and college students through interactive workshops, lectures, debates, town halls, and youth parliaments, as well as creative platforms such as skits and podcasts.

The ORF SPARK Dialogue was held in Mumbai on 9 January 2024, in partnership with the Tata Institute of Social Sciences (TISS), supported by the Consulate General of Australia in Mumbai, Detox Group, Sigma University in Vadodara, and Kohinoor Education Trust's Schools of Management. "Hope in the Horizon: India's Youth and Global Futures" was a day-long conclave where participants agitated their aspirations and anxieties in shaping a future that is built for the greater common good. This anthology is an outcome of the Dialogue—it is a collection of essays authored by select participants and other invited contributors. It offers fresh insights and youth perspectives into some of the most crucial issues facing the world today.

The first section carries the theme, "Jobs for All: The Future of Work in the Fourth Industrial Revolution," and includes contributions from *Tanya Aggarwal*, *Sarah Farmer*, *Areasha Khan*, and *Jenna Stephenson*. They propose strategies to navigate the disruptions brought by the Fourth Industrial Revolution. The second section, "Contestations and Convergences: Rising to the Climate Challenge," features essays by *Berjis Driver and Sapni GK*, *Ravindra Utgikar and Sayali Thakare*, *Neetu Singh*, and *Dharmil Doshi*, who underscore the need for fostering climate-responsible lifestyles for a sustainable future. The final section, to which we have given the title, "Bridging Horizons: Challenges and Pathways for Social Innovation," collates pieces from *Mitali Nikore*, *Arya Pillai*, *Aparna Raj C*, *Priyanka Parle*, *Kanishk Gomes*, and *Saimaa Khan*. They deliberate on the increasing credence of a 'society-first' ethos, encouraging the youth to become social innovators.

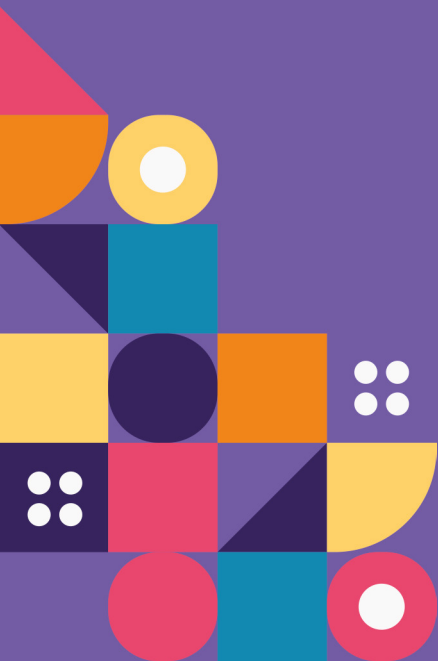
This compendium serves as both a source of inspiration and a call to action. It is our hope that these essays by young authors will provoke thought and inspire change for an equitable, inclusive, and sustainable world.





# I

## Jobs for All: The Future of Work in the Fourth Industrial Revolution



# Adapting to the AI Age: The Dynamics of the Gig Economy

*Tanya Aggarwal*

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The rise of the gig economy, driven by rapid technological progress, has led to notable transformations in the global workforce. The pace of technological advancement demands constant adaptation and learning as well as understanding how Artificial Intelligence (AI) will influence the future of work in the context of India's burgeoning economy and demographic dividend.

## Understanding the Gig Economy

The gig economy represents a shift in the labour market, characterised by short-term, freelance, or independent contract work. Unlike the traditional full-time employment model, individuals now engage in flexible, on-demand tasks, generating income through various "gigs". This shift disrupts the conventional employer-employee relationship, allowing workers and businesses enhanced flexibility, efficiency, and scalability. This transformation aligns with broader societal changes and reflects a shift in the understanding of work, responsibility, and meaningful engagement. Gigs have become a vital source of employment, especially in urban areas, where traditional job opportunities are becoming more competitive. They could also empower individuals from diverse backgrounds, such as students, homemakers, and retirees, to generate income. However, the gig economy is also marked by the lack of job security and limited access to social welfare benefits.



As of 2023, the global gig economy constituted roughly 12 percent of the global labour force. While developed countries still hold most of the demand for gig work, this demand is also rapidly escalating in developing nations. Low- and middle-income countries account for 40 percent<sup>2</sup> of the traffic to gig platforms, with increasing traffic from younger demographic cohorts.

The gig economy could provide a pathway to economic empowerment and self-sufficiency through flexible work opportunities and democratised access to employment that benefit marginalised groups, including minorities and women. Broadly, there are two types of gig workers:<sup>3</sup> platform workers and non-platform workers. Non-platform workers include home-based workers, such as tailors and tutors, and domestic workers, such as security guards, househelps, and cooks. Platform workers are individuals who primarily use digital applications to perform their work.

## India's Gig Economy

In India, the growth of the gig economy has been fuelled by the country's large labour force, young population, increased urbanisation, and tech-savvy demographic. As of June 2023,<sup>4</sup> India had 530.12 million urban internet users. The proliferation of smartphones and internet connectivity has led to a diverse range of skills and services being offered on platforms. In 2020-21,<sup>5</sup> an estimated 77 lakh workers actively engaged in gig work—a number that is expected to

increase to 2.35 crore workers by 2029-30. Gig workers are poised to become a more integral part of the economy, constituting 6.7 percent of the non-agricultural workforce or 4.1 percent of the total livelihood in India by the end of the decade.<sup>6</sup> In India, 88 percent<sup>7</sup> of gig workers rely on platform economy as their main source of income.

The digitalisation of gig work has enabled individuals to find and deliver freelance jobs with greater flexibility and accessibility. Platforms that connect freelancers to clients have simplified the process of securing work and managing projects remotely. The government has also taken measures to integrate digitalisation into the gig economy at both the national and state levels. For instance, in August 2021,<sup>8</sup> the Indian government launched the E-Shram portal<sup>9</sup>—a digital platform aimed at registering unorganised-sector workers, including those engaged in gig work, and providing them with access to various social security schemes and benefits, such as health insurance, pension, and maternity benefits. As of August 2023,<sup>10</sup> the platform had 29 crore registered workers.

At the state level, Rajasthan's gig work law, Rajasthan Platform Based Gig Workers (Registration and Welfare) Bill, 2023,<sup>11</sup> marks a progressive step towards formalising the sector. This legislation mandates the registration of gig workers, providing them with a digital ID that enables them to track their earnings across multiple platforms.

Such measures enhance transparency, accountability, and financial security for gig workers, ensuring that they receive fair compensation for their services, while also formalising and preparing workers for the digital era and its emerging technologies.

## **The Impact of AI and the Future of Gig Work**

AI is finding applications across sectors globally. For gig workers, AI offers numerous benefits that enhance their efficiency, productivity, and earning potential. Platforms like Upwork and Truelancer utilise AI-driven algorithms<sup>12</sup> to connect freelancers with relevant projects based on their skills, experience, and preferences. Additionally, AI-powered tools enable freelancers to automate repetitive tasks such as invoicing, scheduling, and project management. AI chatbots<sup>13</sup> support gig workers in customer service roles and can handle routine inquiries, provide instant support, and autonomously resolve simple issues. In creative industries, tools such as Adobe Sensei<sup>14</sup> have automated tasks such as image editing, content generation, and layout optimisation. AI is supporting gig workers by optimising task allocation and enhancing customer service. However, it also presents challenges. For instance, automation threatens to make certain jobs redundant, raising concerns about job security and income stability for gig workers.

India's gig economy is driven by technological innovation, economic opportunities, and evolving labour dynamics. The central and state governments are leveraging digitalisation to support gig workers. The Digital India initiative<sup>15</sup> aims to empower citizens through enhancing digital literacy, potentially increasing the number of platform gig workers. The technological revolution, including the introduction of AI, has offered unprecedented opportunities for efficiency, innovation, and scalability. However, these developments pose both benefits and challenges for gig workers. In the context of the benefits offered by emerging technologies, an important question is raised: How can these benefits be made accessible to everyone? One approach is to prioritise internet penetration and increasing smartphone usage. Additionally, promoting digital literacy is essential for effectively utilising these tools. Given India's substantial demographic dividend, envisioning the country as an AI-first nation is a plausible and impactful goal. Simultaneously, there must be measures to protect gig workers from the negative impacts of AI and automation. The government must implement protection laws and work with the private sector to harness a way to transform domestic gig workers into platform workers.

The implementation of the Code on Social Security 2020,<sup>16</sup> which mandates the provision of social security coverage

to gig workers, is a good start. The code aims to promote fairness and accountability within the gig economy ecosystem; however, inconsistent enforcement due to the changing nature of the freelance economy and the incorporation of digital innovation has been a challenge. Legislative frameworks and inclusive initiatives are crucial for ensuring the welfare and empowerment of gig workers. By embracing innovation, fostering collaboration, and upholding the rights of gig workers, India can realise the full potential of its gig economy, driving economic growth and social inclusion in the digital age.

While the rapid evolution of gig work and emerging technologies makes constructing frameworks in this area challenging, it does not negate the need for proactive measures to safeguard and support workers. Equity and inclusion are paramount, while ensuring that individuals recognise the benefits of emerging technologies. When it comes to safeguarding citizens, it is crucial to develop strategies that ensure employment and fair wages. In a world of rapid technological change, staying up to date is not just an option, it is a necessity.

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**Tanya Aggarwal** is a Research Assistant at ORF Mumbai.

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# The Future of Work: Insights from Australia and India

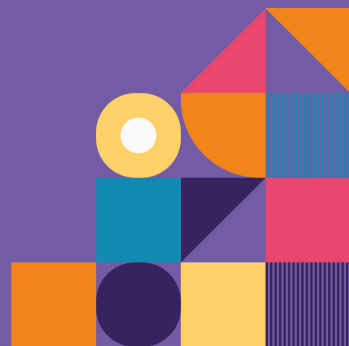
*Sarah Farmer*

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**Y**oung people, globally, may be reliant on technology, but there is also a degree of anxiety that follows discussions around this new wave of industrialisation.<sup>1</sup> Technology is changing social structures and job markets, and the global approach to wicked problems like poverty and climate change. However, for generations growing up in the 21<sup>st</sup> century, Artificial Intelligence (AI) and Web 3.0 are not 'revolutionary'. After all, the "Gen-Z" population<sup>2</sup> has only known a digitalised world, and public policy needs to better prepare them for the world that they are inheriting.

## The Future of Jobs

In Australia, the Australian Computer Society predicts that 2.7 million jobs are at risk of being made redundant by AI by 2035.<sup>3</sup> Experts are predicting a new 'class divide' that separates those with digital immunity from those at risk of digital replacement.<sup>4</sup> Yet, employment stress is not unique to Australia; in India, for example, the unemployability rate for youth remained stagnant between 54-53 percent in 2020-2021.<sup>5</sup> Furthermore, the World Economic Forum's 2023 report noted that, of 22 G20 countries, only six have seen negative growth in the employment of socially oriented jobs such as education and healthcare, with India's negative growth coming in second to Brazil.<sup>6</sup> The challenges to youth employability exceed technological



advancements. The conversation needs to recognise that the fourth industrial revolution is reinventing jobs rather than replacing them.

Faculties such as the arts, sociology, and psychology may become redundant in an age of unlimited access to information. This, however, presents an opportunity to redefine social sciences and other people-centred professions. Humans are relational beings, and one's quality of life is dependent on the ability to connect and relate to friends, family, and loved ones.<sup>7</sup> Consequently, growing reliance on AI and technology is redefining loneliness, as workplace environments are transformed to surround employees with digital machinery rather than colleagues. As such, the need for human care, support, and psychological investigation is only becoming increasingly important.

For example, the *American Psychological Journal* analysed different work environments across the world and found a correlation between the increased use of AI by employees and a heightened need for social affiliation.<sup>9</sup> This had both positive and negative consequences, with some employees being more willing to help others to receive social benefits; for others, increased incidence of AI in their work strongly corresponded with higher levels of alcohol consumption after work. This highlights the growing need for socially oriented jobs and programmes. The future of the global society should also be considered: for example, amid the rise in the population of older adults, AI could create new spaces for jobs in domains of elderly healthcare.<sup>10</sup>

The impact of technology on mental health is becoming increasingly documented to draw a direct correlation between mood fluctuations and an "overreliance on screens".<sup>11</sup> Mood-tracking technologies have highlighted concerns around mental well-being, particularly when a number of these behavioural patterns are thought to be caused by addiction to technology. Moreover, excessive exposure to screens, blue light, and fast-paced content has been found to "disrupt" the cognitive and socio-emotional development in children under the age of ten years.<sup>12</sup>

These studies, while useful in establishing healthy boundaries with technology, are insufficient and rapidly becoming dated in an evolving landscape. Technology is advancing at a far swifter rate than research can be conducted. Consequently, digital, emotional, and practical literacy skills are required to better prepare students and youth with the competency required for future workplaces.

## The Future of Education

What are the ways in which we can prepare young people for a highly unpredictable future?

Early Childhood Australia, a non-profit organisation that researches and advocates for early childhood well-being and care, recognised the importance of developing problem-solving skills among young children. Consequently, creative and inquisitive forms of play have been integrated into national curriculums for children as young as three years.



India's 2020 National Education Policy adopts a similar strategy, where skills are integrated into the curriculum based on psychological frameworks that correspond with the child's level of cognitive development.<sup>14</sup>

While these education schemes are integral for future generations in a radically advanced world, the pace at which AI is developing demands legislative attention to regulate the safety of its application. Studies have further called for the Indian government to enforce tighter regulations regarding the ownership and application of new AI technologies as part of preserving social cohesion.<sup>15</sup>

### The Value of Creativity

Beyond higher cognitive thinking and analytical skills, the creativity and ambitions of future generations should be developed. A 2019 literature review in Malaysia in the *International Advanced Research Journal in Science, Engineering and Technology* found creativity to be amongst the top employability skills for people entering science and research-based field work.<sup>16</sup> The study investigated the connections between psychology and creativity, and noted the relationality of creativity as a quality that requires "dialogue, interactions, and practices with others".<sup>17</sup> Inevitably, creating solutions to

issues and complex problems requires such forums for collaboration and relationship. In navigating the Fourth Industrial Revolution facilitating these forums of innovation will be vital in finding solutions to both legacy and emerging global challenges.

Universities, high schools, and workplaces alike are responsible for creating hubs and opportunities for an open marketplace of ideas to thrive. This approach would allow young people to consider the circumstances of people who lack the same levels of access to technology or finances. Equipping generations with the dynamic-thinking skills required in the Fourth Industrial Revolution. Includes an increase in the exchange of skilled workers and students, both internationally and domestically. Collaboration among individuals from different ethnicities and economic backgrounds yields an unparalleled richness of knowledge, which is vital for renovating the marketplace of ideas to keep pace with technological advancements.

Fostering ambition from a young age has never been more important. The aim is for the future generations to not only survive the new age but to thrive and continue to contribute to the betterment of their society and the world.

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**Sarah Farmer** is a Global Studies and Law student at the University of Monash in Melbourne, Australia.

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# Industrial Revolution 4.0 and the Promise of ‘Jobs for All’

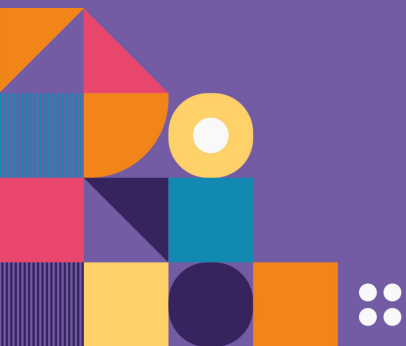
*Areesha Khan*

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The Fourth Industrial Revolution (4IR) offers immense opportunities for developing countries; however, it is subject to global capital flows and the demand for cheap labour. This article examines the 4IR in the context of India and discusses the role of information and communication technology in the country's infrastructure, policies, and future potential.

An Industrial Revolution (IR) is a change in economic and social organisations due to rapid technological advancements. With industries entering India in the late-nineteenth and early-twentieth centuries, under the imperial capitalism of the British Empire, the Indian economy was not part of the first and the second IRs of the eighteenth and nineteenth centuries, which were driven by the use of cheap supplies and trade of food, labour, and primary products from colonies.

Following the first and second IRs in Europe and North America, domestic labour became unionised on the factory shop floor and thus more expensive. The third industrial revolution, driven by information and communications technology (ICT), enabled the relocation of supply chains to places where labour was cheaper; therefore, parts of the supply chain where the elasticity of labour substitution for capital was low were relocated to developing countries.



Each IR resulted in some countries benefiting over others. 4IR allowed countries like China to move up the value chain through technological advances guided by a consistent policy plan, investments in research and development, institutions and industrial policies, manufacturing capabilities, and centrality to global supply chains. Consequently, China has established itself as a market lead in solar, wind, and electric vehicle technology exports.<sup>1</sup>

As India enters the semiconductor supply chain and engages in trade in green technology, it remains to be seen how the country can position itself in the context of 4IR.

### **Jobs in India**

During the third and fourth IRs, ICT enabled the creation of a global network and reduced coordination costs. Companies in the developed world could outsource their manufacturing and services to developing countries, which enabled remote work through ICT monitoring.

After liberalisation, India, unlike China, did not see a rise in manufacturing jobs. The lack of manufacturing infrastructure in India led to increased jobs in the service sector through business process outsourcing. Companies in the Global North outsourced their customer support staff to third-party companies in India. Similarly, information technology, human resources, finance and accounting, supply chain and logistics, content

moderation and data entry, marketing and sales, healthcare, and legal services and processes were outsourced to India to serve customers in the company's home country. As of 2021-22, the service sector contributed to over 50 percent of India's GDP.<sup>2</sup> Jobs in this sector, however, are disproportionate, employing only around 25 percent of the total labour force.<sup>3</sup> This discrepancy has led to India experiencing 'jobless growth' since liberalisation.

These trends are being reinforced in 4IR, with the economy and society being transformed into a technology-embedded community where the exchange of media, culture, labour, food, and services takes place through "cyber-physical systems".<sup>4</sup> Digital India has further led to the expansion of the country's digital consumer base.

Communication and software technologies have also become more sophisticated, equipped with the ability to store user activity and perform specific tasks for users. Data from user activity is used to train Artificial Intelligence (AI); the larger the database of a company, the more competitive their AI models will be. This data can also assist in machine learning, neural networks, and natural language processing.

The question is where such data comes from. Users generate data through the use of service platforms. In India and elsewhere in the developing world, gig workers provide services such as data entry, image labelling, click work, creating

and moderating online content, food and goods delivery, and driving. This phenomenon suggests that Silicon Valley is creating an underclass of workers in the Global South.<sup>5</sup>

According to the International Labour Organisation's (ILO) *World Economic and Social Outlook 2021* report on the digital economy, the demand for digital work primarily originates from Australia, Canada, Germany, the UK, the US, and Northern Ireland, and developing countries, particularly India, perform a large proportion of this work.<sup>6</sup> However, over time, India has seen an increase in entrepreneurial platforms such as Ola, Urban Company, and Zomato, which have engaged people in work at home and abroad.

### **The Current Situation in India and the Future**

The mismatch between India's growth and employment generation has led to rising inequality.<sup>7</sup> This mismatch has been attributed to India not following the modernisation path of structural transformation and transitioning directly from agriculture to services.<sup>8</sup> Where higher-skilled services became globally tradable and attracted remunerations at par with workers in the developed world, non-tradable and low-skilled local services remained static and poorly paid. Low-skill tradable services like data labelling and click work are also poorly paid.

As of 2024, the unemployment rate in India is 8.7 percent, with higher

unemployment rates among graduates.<sup>9</sup> ILO research suggests that Indian graduates with professional degrees are performing low-skilled online platform work like freelancing and microtasking.<sup>10</sup> The rise in employment is primarily reported to be among self-employed persons<sup>11</sup> and gig workers. According to a NITI Aayog report, the gig economy is set to boom, from 77 lakhs in 2021-22 to 2.35 crores in 2029-30.<sup>12</sup> As of 2021, 47 percent of employment generation is in medium-skilled jobs, 22 percent in high-skilled jobs, and 31 percent in low-skilled jobs.<sup>13</sup> This disproportionate distribution is expected to create further polarisation, with an increase in low-skilled and high-skilled jobs and a decline in medium-skilled jobs.

### **The Way Forward**

Some economists like Santosh Mehrotra<sup>14</sup> and R. Nagaraj<sup>15</sup> suggest that India needs to focus on manufacturing and having a strategic industrial policy to create jobs, push urbanisation, and eradicate poverty. In their book, *Breaking the Mould*, Raghuram Rajan and Rohit Lamba<sup>16</sup> argued for a development focused on services and service-embedded manufacturing, emphasising the value of a service-oriented knowledge economy. To achieve this aim, they suggest, India needs to divert its focus from subsidised manufacturing to the provision of public and private services in education and healthcare for citizens, thus enabling a creative economy.<sup>17</sup> According to the authors, subsidising manufacturing lies on the lower end of the value chain,

and India does not gain substantial knowledge or technology from these heavy subsidies. Instead, the country should focus on investing in research and development and better quality higher education to produce higher-end services.

This, however, will be conditional on the capacities of the state to invest in relevant infrastructure and human capital or to regulate capital, as well as the concentration of digital capital firms in the Global North who have access to cheap labour in the Global South. Along with democratised access to technology, strong safety nets with sustainable business practices based on local cooperation, coordination, and innovation

can allow knowledge and technology to be improved within the 4IR ecosystem in India.

## Conclusion

In the era of 4IR, with new technologies offering a variety of opportunities, there is a risk of aggravating existing economic and social fault lines, which necessitates consideration from academics, policymakers, civil society groups, entrepreneurs, and communities. Policy consistency and better institutions and infrastructure are needed to ensure the creation of jobs for all while reducing inequalities, in line with the country's ambition to become a leader in 4IR.

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**Areasha Khan's** research interest lies at the intersection of economy and society.

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# Breaking the Cycle of Global Inequality in the Fourth Industrial Revolution

*Jenna Stephenson*

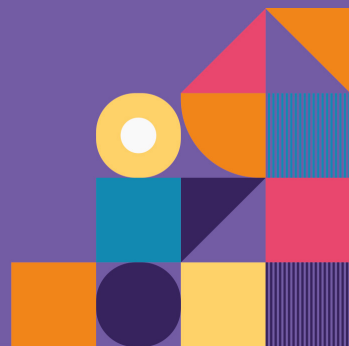
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With the world moving into the Fourth Industrial Revolution, it is a pivotal moment for world leaders aiming to take advantage of emerging technologies to enrich the lives of their citizens. In the Global North, while there are concerns about job displacement, politicians and industry leaders remain optimistic about the impact of new technologies on their economies.

In countries of the Global South, however, there is a danger that the rising tide will not lift all boats. In previous industrial revolutions, the wealthy countries reaped the benefits and solidified their global dominance, while developing countries were relegated to providing cheap materials and labour with little benefit, if at all. To prevent the Fourth Industrial Revolution from exacerbating global inequality, governments in both developed and developing countries need to make concerted efforts to move equity concerns to the centrestage of policymaking.

## Exploitation in the Gig Economy

The growth of the gig economy is impacting the global workforce, with companies like Uber and DoorDash using online platforms to hire workers as temporary contractors instead of employees, which allows the companies to cut down overhead and labour costs.<sup>1</sup> While lawmakers have begun crafting



regulations like the Worker Flexibility and Choice Act in the United States (US) and the Platform Work Directive in the European Union (EU) to protect gig workers and make companies more accountable to their workforce, developing economies may lag in enforcing such protections.<sup>2,3</sup>

Richard Heeks<sup>a</sup> refers to technological advancements that harm vulnerable users as “adverse digital incorporation”.<sup>4</sup> In the late-20<sup>th</sup> and early-21<sup>st</sup> centuries, digital inequality often meant unequal access to technology. As technology becomes more accessible, digital inequality begins to stem from biased systems that allow Western companies to extract value from workers abroad through the internet. Platforms that link gig workers to employers are a prime example of technology that entrenches inequality by the very nature of its design. Because gig workers are not legally considered to be employees of a company, they are not entitled to the same protections as employees, such as healthcare and severance pay. Unlike in a traditional workplace, workers who use gig platforms are spread across vast geographical distances and have little interaction with each other, which also makes it difficult for them to organise and demand improved conditions.<sup>5</sup>

The rise of the gig economy represents a significant shift in the nature of work, which disadvantages workers in favour of large corporations. Workers from developing countries are unable to reap any benefits, especially when profits from gig work flow offshore to companies headquartered in countries of the Global North. If the gig economy is allowed to continue in its current state, governments in the Global South will be unable to take advantage of their workforce and its inclusion in the Fourth Industrial Revolution.

### **AI's Dark Side**

The rise of gig work platforms has contributed to low-skill, low-paying jobs that form the backbone of the Artificial Intelligence (AI) revolution. Training AI models requires a large amount of data, which needs to be labelled by humans before it can be fed into the neural networks. This work can be performed remotely, and tech companies often use platforms like Amazon's Mechanical Turk to hire workers from places where wages are cheapest. While the work is readily available and often pays more than other locally available jobs, it demands long hours to perform competitive tasks.<sup>7</sup>

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<sup>a</sup> A researcher at the University of Manchester's Centre for Digital Development.

Both AI and the gig economy are notoriously volatile because companies require different kinds of content labelling for different projects. Employers are also quick to withdraw task offers when cheaper labour becomes available,<sup>8</sup> which leads to former content labellers being left without a source of income. Additionally, content labelling does not offer transferable skills that would allow workers to transition to remote roles in the tech industry that may offer higher pay. Further, because they are not considered employees of the companies they work for, employers lack the incentive to provide training programmes that would allow for the workers' upward mobility.

The outsourcing of content labelling is not a novel issue. Platforms like Facebook have been criticised for their treatment of moderation teams, which spend each day looking at violent and graphic content, with little psychological support from employers, if they do give any.<sup>9</sup> The same kind of content moderation is a key component of commercially viable AI platforms like ChatGPT, where training sets need to include examples of inappropriate content so that the AI knows what not to reproduce for users.<sup>10</sup> While content moderation is a necessary part of the digital ecosystem, it is disproportionately performed by underpaid workers in developing countries, with few considerations for their mental and financial well-being. Strong regulations are necessary to ensure that corporations that use and operate gig work platforms act

in the best interests of offshore workers and not just domestic shareholders.

## Future-Focused Solutions

Many workers end up in low-paying jobs in the gig economy because they lack the foundations to find full-time jobs in the tech industry. While regulating the gig economy is a necessary short-term solution, developing countries need to re-orient their economies in order to prepare their populations for long-term success.

The first step to technological equity is education. This could be challenging, especially when technical universities and leading technology firms are concentrated in the Global North. However, countries in the Global South can increase their technical skills through partnerships with tech companies and international organisations. For instance, in 2021, Nigeria partnered with Microsoft to improve the country's digital readiness; the strategies included a training programme that aimed to reach five million Nigerian citizens in three years.<sup>11</sup> Other countries like Bangladesh are engaging in joint efforts with the United Nations to invest in training centres for women entrepreneurs in rural areas.<sup>12</sup> Successful implementation requires maximising the input from local populations as well as from potential employers to provide optimal training for future jobs.

Another key component in harnessing technological advances is building

adequate digital infrastructure. Countries must invest in affordable, reliable internet connectivity, as internet access is a prerequisite for practical digital education and unlocks employment networks that would otherwise be unattainable. In addition to basic internet access, developing countries must reinvigorate their physical technological infrastructure. New technologies like AI require immense computing power, which demands large server facilities and massive amounts of electricity.<sup>13</sup> In order to stay competitive, governments need to ensure that their electrical grids are capable of meeting this increased demand.

Finally, developing countries need to exert a proportionate influence on the governance of emerging technologies. Without representation at all levels of AI legislation, there is no check on Western governments and corporate lobbyists, who seek to build institutions that favour themselves over prioritising the best interests of nations in the Global South. It is critical that developing countries assert themselves in governmental initiatives such as the Global Partnership on Artificial Intelligence (GPAI) and the United Nations Interregional Crime and Justice Research Institute (UNICRI) Centre for AI and Robotics, as well as industry organisations like the Institute of Electrical and Electronics Engineers (IEEE). Historically, a lack of resources

has disadvantaged developing nations at the negotiating table. One way to overcome this is to foster partnerships among Global South nations that would enable the sharing of resources and present a united front at broader institutional debates. The BRICS member countries recently announced plans to form an AI study group, which could be a starting point for greater collaboration on emerging technologies across the developing world.<sup>14</sup> An equitable economy needs to start with the ability of developing countries to advocate for themselves and in their own best interests.

The rapid development of new technologies as part of the Fourth Industrial Revolution has the potential to improve lives across the global economy. However, there is also a possibility that these technologies will reproduce existing patterns of global inequality, concentrating benefits in the Global North while leaving behind the Global South. There are already signs that the digital economy is heading in this direction, especially in the 'Wild West' of the gig economy. It will not be easy, but with concerted efforts aimed at education, investment, and inclusion, developing nations can harness the kinetic energy of innovation to break the cycle of inequality and build a better future.

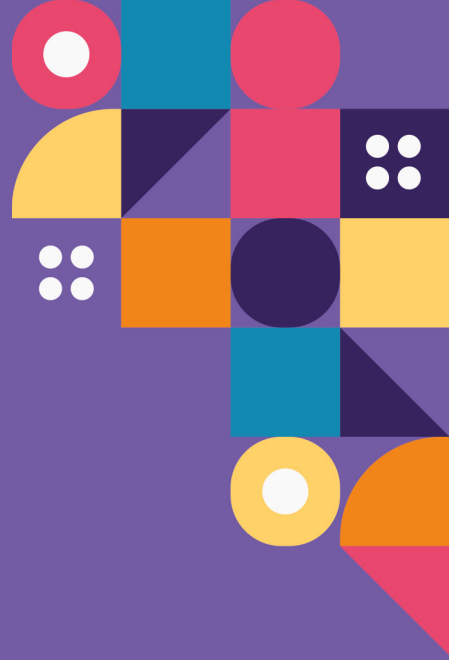
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# II

## Contestations and Convergences: Rising to the Climate Challenge



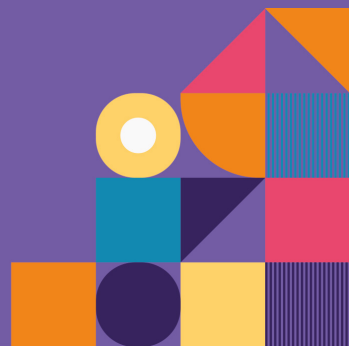
# Harnessing the Power of Data for Urban Climate Resilience

*Berjis Driver and Sapni G K*

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Cities contribute to 67-72 percent of total global greenhouse gas (GHG) emissions;<sup>1</sup> they are also leading agents of impact in the global climate action discourse as well as in achieving countries' Nationally Determined Contributions (NDCs). This is evident in the long-term climate planning and voluntary actions undertaken by over 13,000 cities and 200 regions globally.<sup>2</sup> By 2050, 70 percent of the global population<sup>3</sup> are expected to reside in cities, with the majority of this growth concentrated in Global South regions.<sup>4</sup> The creation of low-emission infrastructure and the need to increase the resilience of human settlements to climate change impacts, as specified in the outcomes of the first global stocktake,<sup>5</sup> present both challenges and opportunities, particularly in the urban Indian context.

India is estimated to have become the most populous country in the world in April 2023<sup>6</sup> and is projected to reach a 50-percent urbanisation rate by 2050.<sup>7</sup> Prima facie, the enabling ecosystem for achieving the NDCs from a cities' perspective is being steered by the National Sustainable Urban Habitat Mission<sup>8</sup> and various initiatives by sub-national and local governments. However, long-standing dilemmas confront the legal, spatial, and governance frameworks in Indian cities, including inadequate



municipal finance for implementing development plans; the lack of political will to implement these plans; little or no attention to statutory micro-planning; the need to reform municipal acts, strengthen public consultations processes for urban policies and plans, and enable intergovernmental coordination; and the 'decentralisation charade',<sup>9</sup> which is evident from the slow implementation of the 74<sup>th</sup> Constitution Amendment Act.

The impact of these challenges on public institutions complicates the task of implementing and financing adaptation and mitigation projects at the city scale. Furthermore, as of 2021, 65 percent of 7,993 urban settlements in India lacked master plans<sup>10</sup> even as 80 percent of the total national population already reside in districts vulnerable to extreme hydro-met disasters.<sup>11</sup> Therefore, improving the quality of and creating "climate-proof" urban infrastructure and services would require multidisciplinary approaches and interventions. Of these, leveraging data remains a frontrunner.

Big data, thick data, and open data play crucial roles in advancing urban sustainability agendas. The benefits of harnessing data from an urban climate-action perspective includes enhanced access to finance and investments for green infrastructure, public accountability through transparency, fostering partnerships and peer-learning between cities and governments globally through

data and best-practice sharing, and effective identification of environmental risks for enhancing urban planning measures. Publicly funded research, helmed by academic institutions that can provide research and innovation hubs, can contribute to ethical development and the use of technology to create evidence-based responses to climate change challenges in urban areas.

In the Indian context, promising strides for harnessing the power of urban data through digital technologies have been made since the advent of the Smart Cities Mission.<sup>12</sup> The national-level Urban Outcomes Framework<sup>13</sup> and its Data Maturity Assessment Framework<sup>14</sup> subset, steered by the Ministry of Housing and Urban Affairs (MoHUA) and the National Institute of Urban Affairs (NIUA), demonstrate the value of high-quality, granular data for enabling evidence-based policymaking. As a recurring exercise, the Urban Outcomes Framework seeks to democratise data by making it accessible to a larger urban stakeholder pool involving those within the government, academic institutions, citizenry, and industry.<sup>15</sup> The Data Maturity Assessment Framework, meanwhile, facilitates harnessing the potential of urban data to bolster decision-making, enhance efficiency, and foster increased collaboration and innovation within the urban ecosystem.<sup>16</sup> It does so by focusing on the preparedness of cities in two key aspects: 'data as process'



and 'data for achieving outcome'. It also provides a set of comprehensive indicators to assess these aspects.<sup>17</sup> The India Urban Data Exchange platform is an open-source interface for data providers and users (including urban local governments) which facilitates the sharing and access of datasets related to cities, urban governance, and urban service delivery.<sup>18</sup> The recent Assessment and Monitoring Platform for Liveable, Inclusive, and Future-ready Urban India<sup>19</sup> enables previously unexplored interventions through open data and sharing.

Recognising the need for sustainable and climate change responsive urban planning, in 2020, NIUA launched the Climate Smart Cities Assessment Framework self-assessment tool<sup>20</sup> (another subset of the Urban Outcomes Framework) for cities. The framework has since been adopted by 220+ cities (including the 100+ smart cities) across India and contributes to a valuable pool of sector-specific data to propel climate action as part of current and future policies, programmes, and projects. It is argued that the 100+ smart cities may have an advantage in terms of data-collection processes relevant to the Climate Smart Cities Assessment Framework indicators through their Integrated Command and Control Centers (ICCCs).

In addition to these developments, strengthening the ecosystem would involve ideating for three inter-related, emerging complexities:

- The first is the entry of AI, which implies that urban datasets will only become more diverse in the future and that stakeholders would seek to explore untapped potential in terms of effective service management, enhancing citizen productivity, and optimising business profitability. However, balancing urban data access, privacy concerns, and monetary benefits remains largely uncharted territory in terms of policy responses.
- The second complexity is linked to municipal revenue collection. The Central Goods and Services Tax (GST) subsumed important revenue sources of urban local governments, such as OCTROI, other entry taxes like local body tax (LBT) entertainment taxes, and advertisement taxes.<sup>21</sup> As the GST Constitutional Amendment Act does not account for the exchequer loss (associated with GST implementation) of local governments,<sup>22</sup> and given the absence of strong property tax collection reforms (which constitutes the bulk source of revenue collection for urban local governments), local level leadership could arguably probe the 'monetisation' of urban data as a means of revenue collection. Notwithstanding the provisions and institutional arrangements related to the City Data Policy,<sup>23</sup> an overarching legal-ethical framework would still be required—one that can balance access and profit by comprehensively

focusing on stakeholder concerns.<sup>24</sup> The framework could address not only the broad concerns of data users (cost-restrictive access), providers (intellectual property rights), and subjects (rights of data subjects), but also data sharing, its free flow between systems, trust and cooperation, as well as an environment to foster data innovation.<sup>25</sup> Given the nascent stage of the urban data ecosystem, the timing of such an overarching framework would be important.

- The third challenge relates to formulating effective climate action strategies. Ensuring that dynamic data collection and quality are sustained would be essential for guiding urban local governments in effectively implementing project-based interventions for mitigation and adaptation. It would further involve building the capacities of departmental personnel for the effective and ethical utilisation of such data. This can be facilitated through skill development programmes, partnerships with technical research institutions, the use of tools to enhance data processing and analysis to support decision-making capabilities, as well as cross-departmental data sharing and collaboration.

As data points pertinent to climate action interventions differ by sector

and jurisdiction (district-level, regional-level, ward-level, state-level), the public institutions from which this data would be sourced vary, which highlights the need for a more effective standardisation of datasets. Standardisation is critical because there is no assurance that urban missions and programmes will run in perpetuity. Therefore, the regional scale of urban planning may offer merit, given the expansive geographic area that regional plans cover, which account for surrounding villages, growth nodes, and natural ecosystems, all of which would otherwise fall beyond the purview of city-scale climate action plans (CAPs). Additionally, as CAPs are non-statutory, any changes or misalignments in state and local level leadership can have implications for ongoing and proposed activities which, in turn, can be counterproductive for citizens and biodiversity. Therefore, ensuring that such plans and strategies are sustainable and effectively leverage data (streamlined at the regional level) would require legal intervention and involve the use of concerned clauses in statutory state-level regional and town planning acts. Alternatively, they can be amended or their scope expanded to consider these aspects. Presently, however, the procedures surrounding formulating CAPs are consultancy-based and can fare better with stronger participatory mechanisms in place from inception to execution.

As the urban data ecosystem continues to evolve, with technological advancements, the need for equally adaptive policy and governance responses that are based in inclusivity, transparency, and equity is clear. As climate tipping points are being reached faster than previously anticipated, there is uncertainty

about the intensity of climate change impacts. In the context of Indian cities, the resilience-building process would benefit from furthering advancements in the urban data ecosystem such that the proposed actions ensure that no one is left behind.

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*The views expressed in this article are solely those of the authors and do not reflect those of the institutions mentioned.*

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# Bioeconomy: A Sustainable Solution for a Balanced Future

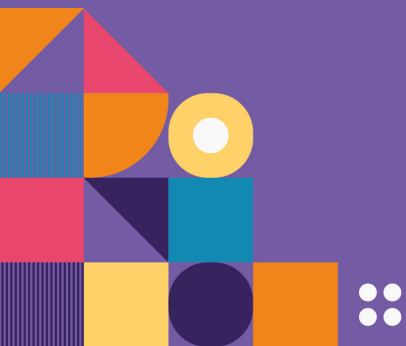
*Ravindra Utgikar and  
Sayali Thakare*

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**R**elentless urbanisation often has a heavy environmental cost, arising from activities such as the consumption of fossil resources to fuel industrialisation and infrastructure development. The resulting surge in greenhouse gas emissions is one of the biggest contributors to climate change, which leads to frequent extreme weather events such as floods, droughts, and heatwaves. Such events pose an existential threat to human life, infrastructure, and economic stability. In this context, this article explores bioeconomy as a potential solution for securing a sustainable future.

## **The Threat of Unsustainable Practices**

A recent report by the World Economic Forum (WEF) identifies extreme weather events and critical changes to Earth's systems as the top long-term risks to humanity.<sup>1</sup> The urgency of the situation is further underscored by the United Nations Environment Programme (UNEP) COP28 report, which warns that exceeding the 1.5°C warming threshold is becoming increasingly likely and could have devastating consequences.<sup>2</sup> The overdependence on fossil fuels is a significant contributor to these factors. The International Energy Agency's *World Energy Outlook 2023* highlights that fossil fuels comprise over 81 percent of the global energy mix, accounting for over 73 percent of human-caused greenhouse gas emissions.



Transitioning to cleaner and greener energy sources is imperative. To achieve this transition, exploring alternative, low-carbon energy sources is crucial. The COP28 UAE consensus includes an unprecedented reference to transitioning away from all fossil fuels in energy systems “in a just, orderly, and equitable manner”.<sup>4</sup> Participating nations were urged to triple their renewable power and double their energy efficiency by 2030 to reach net-zero emissions by 2050. Renewable energy sources such as bio-energy, solar, wind, and hydropower will play an important role in achieving this goal.<sup>5</sup>

Bioeconomy has emerged as a promising solution to facilitate sustainable development. Bioeconomy is defined as a knowledge-based system that utilises renewable natural resources such as biomass for the production of energy, materials, and services. India’s abundant sunlight, land resources, and agriculture can be leveraged to this end. The annual biomass availability in India is estimated to be around 750 million metric tonnes (MMT), with an additional surplus biomass availability of approximately 230 MMT per year.<sup>6</sup> The installed capacity for biomass production in the country has shown steady growth, achieving 10 gigawatts (GW) by FY22, marking a compound annual growth rate (CAGR) of 4 percent. Bio-based products developed from renewable agricultural resources are environmentally friendly and less toxic compared to their fossil-based counterparts.

## Biofuels for Sustainable Mobility

The transportation sector is one of the largest contributors (around 20 percent) of greenhouse gas emissions.<sup>7</sup> If left unchecked, greenhouse gas emissions from transportation could increase by as much as 60 percent by 2050.<sup>8</sup> Aviation, which is a ‘hard-to-abate’ sector, generates approximately one billion tonnes of greenhouse gas emissions per year, accounting for around 2-3 percent of total global emissions.<sup>9</sup> As part of sustainable climate action, it is critical to decarbonise transportation by adopting cleaner and greener low-carbon alternatives to fossil-based fuels, such as biofuels.

Biofuels are a crucial socio-economic and environmental enabler. Various types of biofuels, such as ethanol, sustainable aviation fuel, biodiesel, and marine biofuel, are gaining prominence for their renewable and low-carbon characteristics. Biofuels are distinguished by their carbohydrate composition and, when blended with gasoline, serve as effective oxygenating agents, facilitating complete combustion. This results in significantly lower carbon emissions and minimum particulate matter, making a pivotal contribution to environmental conservation. Biofuels also play a transformative role in bolstering rural economies. Farmers benefit by gaining an additional revenue stream through the sale of agricultural residues. Biofuel plants in the vicinity of farmlands contribute to employment creation and entrepreneurship opportunities for rural

households. The establishment of a farm-to-wheel value chain amplifies the impact of biofuels on carbon intensity reduction.

### **Decarbonising Mobility with Ethanol**

A number of factors contribute to ethanol usage as a biofuel:

- **Renewable:** Ethanol is produced from biomass, a renewable resource that can be replenished through sustainable farming practices.
- **Gasoline blending:** Ethanol can be blended with gasoline in various ratios (e.g., E10 for 10 percent ethanol) in existing vehicle infrastructure, facilitating a gradual transition away from fossil fuels.
- **Oxygenating agent:** Ethanol acts as an oxygenating agent when blended with gasoline, promoting cleaner and more complete combustion, thereby reducing harmful tailpipe emissions.

### **Ethanol: Feedstock and Its Impact on Carbon Footprint**

Ethanol production methods are categorised based on the type of feedstock used, with each method impacting its carbon footprint.

- First-generation (1G) ethanol is derived from sugary or starchy crops like corn or sugarcane. While offering a lower carbon footprint compared to gasoline, it is categorised as low-carbon ethanol. Studies indicate that

sugary feedstock-based ethanol has life-cycle emissions of approximately 34-50 grams of CO<sub>2</sub> equivalent per megajoule (gCO<sub>2</sub>e/MJ). Typical well-to-wheel emissions, i.e., comprising all emissions related to fuel production, processing, distribution, and use of gasoline, amount to ~94 gCO<sub>2</sub>e/MJ. This translates to a 50-63 percent reduction in greenhouse gas emissions compared to gasoline.

- Second-generation (2G) ethanol, on the other hand, utilises lignocellulosic biomass as feedstock. This includes non-food sources like agricultural and forestry residues. Due to its feedstock, 2G ethanol achieves an ultra-low carbon footprint. Studies suggest that 2G ethanol derived from rice straw has life-cycle emissions of ~17 gCO<sub>2</sub>e/MJ, resulting in an ~81 percent reduction in GHG emissions compared to gasoline. This decrease highlights the potential of 2G ethanol as a biofuel with a significantly lower environmental impact.

This distinction explains how the choice of feedstock plays a crucial role in overall carbon-footprint reduction. While 1G ethanol has a positive environmental impact, 2G technology unlocks a greater potential for sustainable biofuel production.

### **IOCL's 2G Ethanol Biorefinery<sup>10</sup>**

In August 2022, India's Prime Minister Narendra Modi unveiled Asia's first 2G ethanol biorefinery at the Indian Oil



Corporation Limited's (IOCL) Panipat complex in Haryana. The biorefinery deploys Praj's proprietary 2G technology for the production of ethanol using rice straw as feedstock. The biorefinery is capable of processing two lakh tonnes of rice straw annually to generate around three crore litres of ethanol, which could benefit more than one lakh farmers and create around 1,500 jobs for the rural youth. Importantly, it aims to address pollution from stubble burning by eliminating around 320,000 MT of CO<sub>2</sub> every year, which is equivalent to replacing nearly 63,000 cars on the road annually. The indigenous production of ethanol is also estimated to result in foreign exchange savings worth INR 55-60 crores every year on imported crude oil. This project will help achieve 20 percent ethanol blending and is aligned with the idea of Atmanirbhar Bharat and the Make in India initiative.

## Bioplastics

The environmental crisis is exacerbated by uncontrolled plastic usage. Global plastic production has skyrocketed, reaching a staggering 400.3 million tonnes annually by 2022.<sup>11</sup> However, less than 10 percent of this plastic is recycled, with the remainder ending up in landfills or polluting ecosystems, threatening wildlife and human health.<sup>12</sup>

Bioplastics, being biodegradable and compostable, offer a sustainable solution to plastics sourced from petrochemicals.

Bioplastics are produced through the biochemical and thermochemical processing of bio-based feedstock. Examples include polylactic acid (PLA) and polyhydroxyalkanoates (PHA), as well as thermoplastic starch (TPS) and cellulose, which offer functionality advantages for diverse applications. Although their use is increasing, as of 2022, bioplastics constituted less than 1 percent of the annual 400.3 million tonnes of plastic produced.<sup>13</sup> However, global bioplastics production is expected to reach 6.3 million tonnes by 2027—up from 2.2 million tonnes in 2022.<sup>14</sup> South-East Asia is the current hub for bioplastics production due to low production costs and a favourable ecosystem. India, with its cost-effective production environment, government support, and abundant resources, has the potential to be a market leader in bioplastics.

## Policy Recommendations for Biofuels and Bioplastics

Supportive policy frameworks are required to unlock the full potential of the bioeconomy. For biofuels, policies like the National Biofuel Policy<sup>15</sup> have already been successfully implemented in India. Beginning from a 5-percent ethanol blending programme in five states in 2003, in 2022, India achieved the target of 10 percent ethanol blending (E10) six months ahead of time.<sup>16</sup> The earlier target of 2030 for E20 has been advanced to 2025.<sup>17</sup>

## Boosting 2G Ethanol in India

- **Increased viability gap funding:** Extending the PM Jeevan Yojana for “bolt-on” models (bagasse used with 1G plants) will help augment capacity building.
- **Differential pricing:** Devising policy that rewards low-carbon ethanol production using 2G feedstocks.
- **Assured off-take and export:** Guaranteed purchase by fuel retailers and streamlining of exports will attract project developers to invest in the sector.
- **Life-cycle analysis (LCA) and carbon credits:** Introducing and defining a clear framework for computation of LCA based on different feedstocks can facilitate carbon trading mechanisms.

Further, the introduction of policies for flex fuel vehicles and electric vehicles can help diversify the available sustainable solutions. The hard-to-abate aviation sector accounts for ~3 percent of total greenhouse gas emissions and is expected to grow. However, global mandates such as the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) guidelines<sup>18</sup> and the International Civil Aviation Organization’s (ICAO) goal to achieve net-zero in international aviation by 2050 have necessitated the use of sustainable aviation fuel (SAF).<sup>19</sup> A national policy to develop industry ecosystem and mandate

the use of SAF in Indian skies will help achieve these objectives. Viability gap funding, additional subsidies, and funding for research and development (R&D) can be implemented in the policy framework. For bioplastics, promoting innovation in biodegradable materials and establishing robust collection and composting infrastructure are critical. Policymakers can also consider introducing and implementing bans or restrictions on single-use plastics and introducing eco-taxes on conventional plastics to encourage a shift towards bioplastics. Strict policy measures to prevent greenwashing and fake imitates should also be introduced.

## Bio-Based Solutions and Global Commitments

The escalating challenges of climate change and environmental degradation necessitate a paradigm shift towards sustainable solutions. Mainstreaming bioeconomy is fast gaining acceptance as a sustainable climate action. By propagating a bioeconomy that functions on the circularity principle will help strike a balance between people, planet, and profit. Initiatives like the IOCL’s 2G ethanol biorefinery demonstrate that the adoption of bio-based technologies not only mitigates carbon emissions but also revitalises rural economies and addresses pressing environmental issues. In the Global Energy Transition Index released by the WEF on 19 June

2024,<sup>20</sup> India ranked 63<sup>rd</sup> out of 120 countries surveyed, improving from its 67<sup>th</sup> position in the previous year. This upward trajectory highlights India's growing commitment to sustainable energy solutions, including bioeconomy practices.

However, the bioeconomy's full potential can only be realised through the implementation of supportive policy frameworks. Policies that incentivise the adoption of biofuels and foster innovation in bioplastics can help pave the way for a sustainable future.

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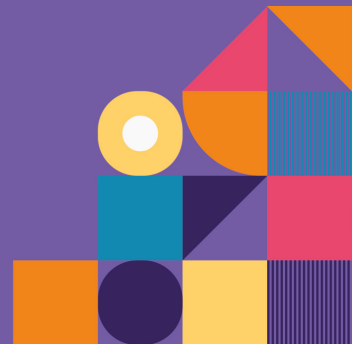
# Traditional Water Conservation for Climate Resilience: Learnings from India

*Neetu Singh*

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As the impacts of climate change intensify, there arises a critical need to reimagine existing water resource management strategies. Since 2000, flood-related catastrophes have increased by 134 percent compared to the preceding two decades, while the frequency of droughts has increased by 29 percent.<sup>1</sup> Traditional water conservation measures (WCMs) are some of the many strategies that can be used to manage the impacts of climate change. Traditional WCMs in India, including rainwater harvesting and efficient irrigation, can offer a sustainable solution to contemporary challenges such as groundwater scarcity and increased flood events.<sup>2</sup> These techniques are guided by India's diverse ecological and cultural heritage and can aid in the effective management of water resources in alignment with the Sustainable Development Goals (SDGs)<sup>3</sup> and the recommendations of the Intergovernmental Panel on Climate Change (IPCC).<sup>4</sup>

Through sustainable and culturally rooted practice, traditional WCMs in India enhance water security, support biodiversity, and empower local communities. By enhancing water retention and management, the WCMs directly support SDG 6 (Clean water and sanitation). Climate-induced alterations in the hydrological cycle lead to more frequent and intense droughts and



floods, which affect the quality and availability of freshwater and result in rapid groundwater withdrawal. Effective water management through traditional practices ensures a more resilient water supply.<sup>5</sup> With irregular rainfall patterns and extended drought periods impacting agricultural yields, traditional WCMs can improve agricultural productivity. By ensuring a more reliable water supply for irrigation, these practices support sustainable agriculture, which is essential for food security in a rapidly changing climate, thus addressing SDG 2 (Zero hunger).

In addition to their environmental benefits, traditional WCMs foster community involvement and empower local populations, aligning with SDG 11 (Sustainable cities and communities). Communities that implement and maintain WCMs are more resilient to climate-induced water stresses.<sup>6</sup> This community-based approach promotes local ownership and enhances the adaptive capacity of communities to face climate-change impacts, directly contributing to SDG 13 (Climate action). Well-managed water resources providing equitable access to water can reduce reliance on energy-intensive water supply methods. Many traditional water management practices also involve preserving natural landscapes such as wetlands, which act as carbon sinks to help combat climate change.<sup>7</sup>

## Traditional WCMs in India

The array of traditional WCMs in India, including *bhandaras* (check dams), *khet talavs* (farm ponds), *tankas* (rainwater harvesting tanks), *kulhs* (small water channels), and *eris* (small reservoirs), have been integral to ensuring water security across regions.<sup>8</sup> The traditional WCMs adapt to local climatic conditions, demonstrating India's ancient wisdom in sustainable water management. However, despite their effectiveness, traditional WCMs have yet to be adopted extensively. Urbanisation and development have led to the neglect of these traditional systems. There is also a lack of awareness and technical knowledge about the construction and maintenance of these methods.

The successful continuation of traditional WCMs through the *johads* in Alwar, Rajasthan, serves as a compelling example of climate resilience in action. The restoration of *johads* in the region revitalised an effective WCM and could serve as a successful case study model that can be replicated in other parts of India.<sup>9</sup> These structures have strengthened local water security and helped communities adapt to fluctuating water availability, which is also a key concern highlighted by the IPCC.<sup>10</sup> The success story of the *johads* illustrates how traditional water management systems, when adequately supported and modernised, can offer

practical, sustainable solutions, prevent soil erosion, support biodiversity, and maintain ecological balance.

## **Community Involvement and Sustainable Management**

Traditional WCMs are often small-scale, decentralised, and built using local materials and knowledge, thus blending seamlessly with the natural environment. They also encourage community participation and ownership. In rural India, where these methods have been passed on through generations, local communities play a vital role in their construction, maintenance, and management. The participatory approach can empower communities and ensure that water management solutions are tailored to meet local needs, leading to higher efficiency and sustainability.<sup>11</sup> The participatory approach aligns with the SDGs' focus on building sustainable and resilient communities, empowering local populations, and ensuring inclusive participation in managing natural resources. Leveraging traditional WCMs can allow India to create water management strategies that effectively address the current challenges posed by climate change and are sustainable in the long term. These practices build climate resilience at the grassroots, helping communities adapt to changing rainfall patterns, reducing the risk of floods and droughts, and ensuring a reliable water supply.

Integrating traditional WCMs with modern scientific knowledge and technologies

is a vital strategy for enhancing the efficiency and resilience of these old practices. Modern scientific techniques such as Geographic Information Systems (GIS) and remote sensing can contribute to identifying the most effective locations and determining the design of these conservation structures, thereby maximising their water harvesting and storage capabilities. Climate modelling technologies can also be integrated with traditional practices to anticipate and prepare for future climatic scenarios.<sup>12</sup> Predictive models can provide valuable insights into potential changes in rainfall patterns, temperature, and other climatic factors, enabling communities to proactively adapt their water conservation strategies. This foresight is crucial in areas that are prone to droughts or floods, which are likely to be exacerbated by climate change.

Modern technology can also be used to complement traditional methods by developing efficient water distribution and irrigation systems. Integrating drip irrigation and other water-efficient techniques with traditional water storage methods can ensure the optimal use of conserved water, particularly in arid and semi-arid regions. This synergy between traditional wisdom and modern science is in line with IPCC recommendations and essential for scaling traditional WCMs across various regions of India. The diverse climatic zones of the country—i.e., from wet and humid coastal areas to dry and arid deserts—require adaptive and localised water conservation strategies. Tailoring traditional WCMs to

incorporate modern technology can allow these methods to be effectively applied in different regions, addressing specific local needs and climatic conditions.

### **Government Initiatives and Policy Integration**

The Indian government's initiatives, such as the Jal Jeevan Mission and Atal Bhujal Yojana, which focus on revitalising and integrating traditional WCMs, have made progress in sustainable water resource management.<sup>13</sup> These programmes demonstrate a growing recognition of the value of indigenous practices in addressing contemporary water challenges. For these initiatives to be truly effective and sustainable, however, they must be part of a broader, more holistic policy framework that involves local stakeholders. This framework should integrate cross-sectoral collaboration, community participation,

scientific research, and technological innovation while ensuring equitable access and inclusion. By doing so, these programmes can effectively contribute to achieving the SDGs and adhering to IPCC recommendations, paving the way for a more sustainable and water-secure future.

Traditional WCMs in India offer a viable and sustainable solution to water management challenges, in alignment with the SDGs and the IPCC recommendations. By adopting these time-tested methods and integrating them with modern technologies and community participation, India can enhance water security, support sustainable agriculture, and build resilient communities. The revitalisation of these traditional systems represents a strategic step towards a sustainable water future, harmonising environmental imperatives with socio-economic development goals.

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# Green Credits in Corporate Social Responsibility

*Dharmil Doshi*

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India's net-zero ambitions<sup>1</sup> have prompted private-sector engagement beyond the typical Corporate Social Responsibility (CSR) mandates. India is augmenting its regulatory regime to encourage private participation in traditional environmental conservation efforts. As a part of its 'LiFE – Lifestyle for Environment' mission, India notified<sup>2</sup> the first of its kind 'Green Credit Programme' in October 2023. The programme prompts voluntary action to engage all stakeholders, especially corporate entities, towards environmental conservation initiatives. The Green Credit framework, in its initial stages, includes the Green Credit Rules, 2023<sup>3</sup> (GC Rules), which supplements the recent carbon credit trading scheme.<sup>4</sup>

With the potential for financial as well environmental returns, environmental markets have gained momentum, as exhibited by the upward trends in the carbon credits market, which is projected to reach US\$250 billion by 2030.<sup>5</sup> These markets can be a centrepiece of sustainable development by incentivising recurring participation which, in turn, prompts market innovations. In this context, India needs to augment its regulatory framework for green credits to garner the attention of global markets.



## Green Credits and Their Interplay with Carbon Credits

A green credit is a singular incentive unit that is designated to a categorised environmental effort. Green credits can be considered as “reward points” for specific environmental contributions. These points can be verified and traded on a centralised platform, akin to a stock exchange.

Green credits use tangible and verifiable activities, such as afforestation, to incentivise adaptation efforts to complement the mitigation goals achieved by carbon credits. A green-credit-generating activity may also result in carbon reduction; therefore, the same activity may result in simultaneous carbon credits.<sup>a</sup>

While carbon credits are well crystallised and globally traded, green credits are not expected to become an internationally exchanged commodity, instead being restricted to their respective domestic trading platforms. There is considerable potential if green credits can be converted to carbon credits;<sup>6</sup> however, the current direction drifts away from such an approach.

## Oversight

The Green Credit Programme categorises green credits into eight broad groups: tree plantations; water harvesting; sustainable agriculture; waste management; air pollution reduction; mangrove conservation and restoration; ecomark label development; and sustainable building and infrastructure.<sup>7</sup> The programme is envisioned to unfold in a phased manner, with the initial focus on afforestation and water conservation activities. The Indian Council of Forest Research and Education (ICFRE) is the designated Administrator<sup>8</sup> that will curate the accreditation mechanisms and calculation methodologies for green credits. The administrator may constitute a technical committee to curate detailed recommendations concerning the fungibility and equivalence of green credits and streamline the procedures for quantifying green credits, coupled with its reporting and verification for each categoric environmental activity.

Further, a steering committee has been set up as the body for granting final approvals for the implementation of the programme as well as providing guidelines for measurement, reporting, and verification.<sup>9</sup> The committee is also

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<sup>a</sup> Carbon credits are internationally traded derivatives, wherein one credit is equivalent to one tonne of CO<sub>2</sub> removal or avoidance.

empowered to make recommendations to the Central Government concerning the scope of activities under the banner of the programme and increasing participation within the designated activities.

## Issuance and Methodologies

The GC Rules recommend the establishment of a Green Credit Registry as a one-stop solution for all information concerning the issuance, verification status, holding and transfer of green credits. Subsequently, a centralised trading platform will be created and managed by a designated entity. Stakeholders would have access to a knowledge and data platform wherein the progress and reporting of each categorised activity can be traced.

Projects eligible for green credit generation must be registered with the ICFRE. The ICFRE will engage dedicated agencies for verification and approval.<sup>10</sup> The designated agency will verify the compliance of an activity in consonance with the prescribed methodology and submit its report to the ICFRE. After verification and approval, green credits will be recorded in the registry and be deemed eligible for trading on the impending platform. These green credits will be solely attributed to the programme and cannot be exchanged as a commodity in the market, to restrict its use for commercial purposes. For instance, the initial methodology<sup>11</sup> for tree plantations was released in February 2024, outlining a standardised proposal

of afforestation on identified land parcels to be allotted by ICFRE upon application. An applicant must specify the operationalisation of the plantations and pay the necessary costs, which will prompt the concerned State Forest Department to carry out the plantations within two years, after which ICFRE will verify and issue the green credits.

## Challenges in the Green Credit Programme's Commencement

- **Fungibility and quantification:** There is little clarity on how credits will be measured and quantified for different activities in the initial stages, before the exchange platform becomes sophisticated. Market players may hesitate to indulge in green credits when the benefits are not linear, owing to difficulties in establishing fungibility. Aggregating credits from different activities will remain a challenge for the exchange platforms.
- **Regulatory conundrum:** Ordinarily, the Securities and Exchange Board of India (SEBI) would hold jurisdiction over carbon-credits trading, as carbon credits are viewed as goods in light of commodity derivatives under the Securities Contracts (Regulation) Act, 1956.<sup>12</sup> Moreover, under the Carbon Credit Trading Scheme 2023, the Central Electricity Regulatory Commission (CERC) is authorised<sup>13</sup> to settle disputes. The GC Rules, on the other hand, designate the Administrator to take preventive and curative actions to ensure the interests of market participants.

Owing to the voluntary nature of the programme, there is substantial risk<sup>14</sup> of greenwashing.<sup>15</sup> The current framework is moot when it comes to dispute resolution and corresponding regulators.<sup>16</sup>

- **CSR alignment:** For the Green Credit Programme to be successful, it will need to be scaled significantly.<sup>17</sup> CSR monitoring mechanisms are expected to extend to green credit endeavours. Further, it is likely that market forces will determine the value of green credits; therefore, it is necessary that benefits are enhanced to increase participation. However, at this stage, it is unclear how a civilian may be incentivised to contribute to green credits in consonance with broader CSR commitments.
- **Standardisations for accrediting green credits:** Quantifying the efficacy of conservation efforts poses a technical challenge. For instance, large-scale plantations may not provide the desired outcomes<sup>18</sup> as the initial methodology does not specify a detailed impact assessment. On the other hand, standardisations are in place for carbon verifications within various sectors, which encourages market participation. There is also an absence of reporting or maintenance requirements in the plantation methodology, which isolates applicants from the actual plantation process.
- **Streamlining methodologies:** With sole dependence on statutory authorities such as the Forest Department, high monitoring and

evaluation costs can disrupt projects. Therefore, the responsible authorities need to factor in such costs at the outset and provide applicants with clear budget allocations during the generation process. Further, flexible coordination amongst State and Central authorities would be required to execute methodologies at the local level. Land review and encumbrances also remain uncertain, as does adaptation in the stipulated plantation period.

## Way Forward

While green credits are promising, unclear benefits for stakeholders may cause bottlenecks in the realisation of green credit activities. To bridge knowledge gaps,<sup>20</sup> the nature of green credits as financial instruments must be specified to ensure that multiple regulators are not involved. Additionally, scientifically driven criteria for measuring efforts like afforestation must be integrated in future methodologies, which can lead to sector-specific standardisations for green-credit-generating activities and provide clarity to market players regarding their risk assessments. Further, enabling funds and blended finance mechanisms towards such projects will ensure that applicants have access to identifiable timelines while considering activity proposals. The programme must also align with broader CSR frameworks, including sustainability-reporting mandates for listed entities. The conversion of green credits into carbon credits must also be explored in the long run in order to include

international markets and examine areas in which credits can be exported and traded. Finally, India must inculcate green credits at the global stage, through its Nationally Determined Contributions (NDCs).

The Green Credit Programme holds potential if it is able to either enhance carbon-credit market outcomes for Indian

stakeholders or replicate the success of carbon-credit markets at an independent, domestic scale. The success in the initial stages of the programme can pave the way for recurring financial and environmental returns on India's green projects and ensure that India emerges as a key innovator in emerging environmental markets.

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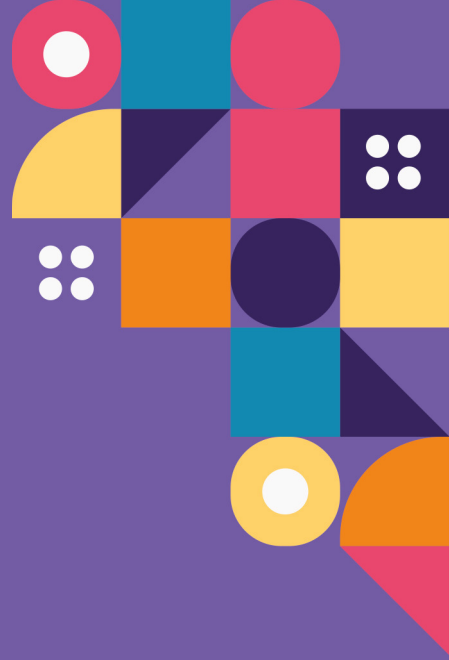
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# III

## Bridging Horizons: Challenges and Pathways for Social Innovation



# Nurturing a New Class of Young Women Social Innovators in India

*Mitali Nikore*

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India's young women are more educated and healthier, with higher aspirations than ever before, creating an untapped opportunity for social innovation. Currently, nearly 35 percent of India's women (i.e., 240 million) are under the age of 24.<sup>1</sup> These women are entering a new era of economic growth and socio-economic development in the country with higher levels of educational enrolment, better health outcomes, and stronger aspirations.

India has achieved gender parity at the primary, secondary, and tertiary levels, with 104 girls enrolled in tertiary education for every 100 boys.<sup>2</sup> Moreover, India has the highest number of STEM graduates globally, almost half of whom are women.<sup>3</sup> In 2021-22, women constituted nearly 30 percent of graduates and post-graduates in engineering and 53 percent in the sciences.<sup>4</sup>

Young women and girls aged 15-24 years are also experiencing significant improvements in health outcomes. The proportion of young women using hygienic menstrual products increased from 58 percent in 2015-16 to 77 percent in 2019-21.<sup>5</sup> There was also progress in reducing adolescent fertility rates and child marriage rates in this period.

An increasing number of young women are expressing a preference to marry at later ages and to participate in the workforce. According to the Teenage



Girls Survey 2018, 73 percent of teenage girls aspired for marriage after the age of 21 and 75 percent aspired to work after the completion of their studies.<sup>6</sup> Nikore Associates, a youth-led think tank,<sup>a</sup> undertook consultations during May 2020-May 2022 with over 100 community-based organisations, social enterprises, and academics focusing on gender equality. Nearly all stakeholders observed an increase in the number of young women who aspire to obtain economically viable skills, reinforced by family support to obtain higher education and skill training. A large section of these young women also wanted to work in their communities to improve the standard of living, especially for women and children.

Despite these developments, gendered social norms and the lack of gender-sensitive infrastructure continue to constrain aspiring young women social innovators. Social innovation is a slow process. Young women in India experience significant time poverty due to gender gaps in domestic and care work. Nearly 86 percent of young women in the 15-29 years age group perform domestic work and 40 percent undertake care work for household members, compared to 24 percent and 11 percent of young men, respectively.<sup>7</sup> Young women and teenage girls are often entrusted with household work and care for younger siblings, especially when

older women in the household participate in the workforce. This results in lesser time for learning, skill development, and employment-related activities for young women, creating barriers to participation in the social innovation sector.

Social innovation requires mobility to travel and understand various social contexts and challenges. However, women's mobility is constrained by safety concerns and social norms across India, with young women's mobility more constrained than that of older women. In 2019-21, a low 26 percent of women in the 15-19 years age group were able to visit nearby markets, health facilities, and places outside their villages and communities, compared to 40 percent in the 25-29 years age group and 55 percent in the 40-49 years age group.<sup>8</sup> World Bank research shows that young women are at a higher risk of sexual harassment than older women, with rates of harassment in public spaces being as high as 90 percent in some cities. Moreover, sexual harassment has severe negative impacts on the mental health and confidence of young women.<sup>9</sup>

Therefore, young women aspiring to become social innovators may not even be able to achieve the first stage: that of stepping out of their homes. Those who manage to start may find their operations limited to local areas and their own communities. They may not

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<sup>a</sup> The author is founder and chief economist at Nikore Associates.

be able to secure funding to scale up, and their innovations may not reach communities beyond their districts.

Social innovation also requires communication and outreach, which in turn necessitates the use of social media, mass media, and technology platforms to communicate ideas, plans, and best practices to a wide demographic. However, in India, women are 15 percent less likely to own a mobile phone and 33 percent less likely to use mobile internet services than men. In 2020, 25 percent of the total adult female population owned a smartphone versus 41 percent of adult men.<sup>10</sup> Additionally, young women are least likely to possess a smartphone of their own. This gendered digital divide is compounded for young women, whose online activity is largely monitored by male and older female family members, thereby limiting their participation as social innovators.<sup>11</sup>

Social innovators need to be leaders and negotiators who are able to challenge established social norms and age-old practices while building consensus around new solutions. In order to do this, young women need role models, particularly other women, who can offer guidance and advice based on their experiences to help the young women navigate challenges and obstacles. In recent years, there has been an increase in the number of women aspiring to establish social enterprises, especially in rural areas.<sup>12,13</sup> Despite this, there are few women leaders in social innovation. Studies estimate that only about 25

percent of social enterprises in India in 2016 were women-led.<sup>14</sup> This paucity of role models limits the ability of women social innovators to scale up their solutions.

The question, then, is how India can channel the energy, skills, and aspirations of its 240 million young women to create a new class of social innovators. First, there is a need to improve access to sponsorship and mentorship opportunities. Young women aspiring to become social innovators require guidance from leaders in the social innovation space so that they can share experiences and practical, on-ground, demand-driven solutions. For example, Kudumbashree, which began in 1997 as part of the Kerala State Poverty Eradication Mission, is today one of the largest women-led communities in the world, with over 250,000 neighborhood-level women-led enterprises and 400,000 women members across Kerala. The Kudumbashree Community Development Society exemplifies how mentorship from senior, approachable, and local role models can help young women lead their own social enterprises, solving for community-level challenges in areas such as healthcare, education, and livelihood generation.<sup>15</sup>

Second, governments should consider introducing financial incentives for professional incubators to ensure the representation of young women social innovators in their cohorts. For instance, central and state governments may offer tax-based or additional grants

to incubators. This could contribute to incubators relying on government financing as well as philanthropic or corporate social responsibility (CSR) financing.

Third, governments can consider introducing additional financial incentives for skill-training institutes for young women social innovators as part of the PM Kaushal Vikas Yojana 4.0 programme.<sup>16</sup> Governments can also direct these institutes to partner with private-sector CSR financing, community-based organisations, and other stakeholders to offer additional support for young women social innovators' training, such as by providing transport and creche facilities.

Fourth, government agencies at the city level, such as municipal and public transport authorities, can involve young women in planning processes to enhance their safety and introduce gender-inclusive public transport services. For instance, young women can lead community-level safety audits across cities to inform authorities about dark spots, low visibility zones, and unsafe spaces. Young women can also lead community consultations in planning urban public transport services, highlighting key routes taken by women and girls that are underserved and identifying timings during which services are unavailable.

Fifth, industry associations can be provided financial support by state and central governments to hold career fairs and networking events for young women social innovators to improve market access and make them aware of new business opportunities. These networking events can also be key to enhancing access to finance for young women social innovators, who are often the least preferred borrower by banks. Mann Deshi Foundation, a network of women-led social enterprises in Maharashtra, is a strong example of how access to finance through innovative products helps social innovators upscale their business.<sup>17</sup> During the COVID-19 lockdown, the foundation introduced low-interest smartphone loans, after consultations with its women partners, enabling over 80 percent women to buy their own smartphones and transition to digital platforms for business. This helped them expand their markets and networks and even unlock fintech financing for their enterprises.

Most importantly, community leaders, be it local members of the legislative assembly or Members of Parliament, need to support young women social innovators to ensure their safety and help them navigate political and economic challenges that may arise as they advocate for reforms.

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**Mitali Nikore** is founder and chief economist of Nikore Associates.

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# Promoting the Social Integration and Public Participation of Persons with Disabilities

*Aarya Pillai*

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Until the 1970s, research rarely shed light on the societal integration of persons with disabilities (PWDs), nor was there enough attention on the need to introduce special education to mainstream discourses.<sup>1</sup> Over the years, two schools of thought have emerged regarding the quality of life of disabled persons. The first views disability as an individual challenge which can be solved by means of self-help services.<sup>a,2</sup> The other perspective considers disability as a social problem and calls for the creation of support systems that can address the inclusion and public participation of disabled persons.<sup>b,3</sup>

According to the 2011 Census of India, 2.21 percent of the country's population have some form of disability.<sup>4</sup> However, the true population of PWDs is considered to be higher.<sup>5</sup> In the landmark *Jeeja Ghosh vs. Union of India* (2016) judgement,<sup>6</sup> the Supreme Court noted that PWDs often face barriers across fields, which hamper their right to lead a full life. It attributed the scarcity in documentation of the number and well-being of PWDs in the country to the general apathy that the community faces.

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<sup>a</sup> For instance, Milofsky (1980) stated that de-institutionalisation would aid PWDs and their families in realising self-help opportunities.

<sup>b</sup> According to the social model of disability, disability is not the result of functional limitations stemming from impairments but of external barriers that hinder people's participation in society. See Mike Oliver and Colin Barnes, "Disability Studies, Disabled People and the Struggle for Inclusion," *British Journal of Sociology of Education* 31, no. 5 (2010): 547–60.



Accessibility and inclusion are vital issues that the country needs to tackle. To be sure, there are cities in different parts of the world that have achieved progress in promoting the well-being of PWDs in their territories. Singapore and Sydney,<sup>7</sup> for example, have incorporated accessibility in urban planning through features such as Singapore's mass rapid transport (MRT)<sup>8</sup> and innovations such as the Legible Sydney Wayfinding System,<sup>9</sup> which highlight that accessibility and inclusion for PWDs can be seamlessly achieved.

This essay adopts the social model of disability<sup>10</sup> and calls for a combination of self-help and community-based approaches to boost accessibility and inclusion, with a focus on children and early education. It suggests a redesign of the educational framework and of social spaces in order to empower PWDs to make sound decisions to achieve self-sufficiency and bolster their social engagement, providing them with employment opportunities and enabling their integration in public spaces.

### **Inclusive Mechanisms in Education**

The needs of children are integral to addressing the debate of inclusion of PWDs. While the social model of disability propagates the need for an inclusive classroom that accommodates diversity, it has rarely been adopted to bring about changes in education.<sup>11</sup>

The Salamanca Statement and Framework for Action on Special Needs Education (1994)<sup>12</sup> highlights the importance of inclusive education for maintaining human dignity and allowing people to exercise their fundamental human rights. Evidence from nations that have inclusive education systems, such as Italy, Portugal, and Norway,<sup>13</sup> indicates that children and youth with disabilities are best integrated via inclusive schools in their community.<sup>14</sup> Thus, there needs to be a greater push for schools in developing nations like India to move children with disabilities to the mainstream of education.

Redesigning early childhood education programmes to accommodate more children with disabilities is crucial for empowering them at an early age; children without disabilities must also be imbibed with the value of integrating persons with disabilities in their social groups. Educational material needs to be made accessible, such as through making textbooks available in Braille and providing resources that will make sign language education accessible for deaf students. A policy on similar lines was implemented in 2023, when South Africa made sign language an official medium of communication in schools for the deaf.<sup>15</sup> Implementing mandatory sign language classes for all students throughout primary schooling would further empower those who are hearing impaired and eliminate communication



barriers. This could be a significant step towards integrating PWDs in society.

While pushing for an increased number of children with special needs in the classroom, it is vital that the teacher-student ratio is reduced. This would allow each student to learn at their own pace and prevent the over-stimulation of children with disabilities. It would also aid in the implementation of a more flexible curriculum with a child-centred pedagogy.

A flexible curriculum could also promote the voluntary participation of children with special needs as they will no longer be required to study via traditional methods that may be unsuitable for their capabilities. This approach should be complemented with holistic testing measures such as oral exams and one-on-one informal conversation-based assessments that can further augment a child's interest in education. A child-centred pedagogy has been shown to lower drop-out levels and repetitions and increase average levels of achievement, including among children with special needs.<sup>16</sup>

The Wisconsin Project<sup>17</sup> showed that PWDs can be empowered through education and training; however, this alone is insufficient and has to be complemented by commitment and skill in teaching. This highlights that including more children with disabilities in the classroom can succeed only if teachers and other students are counselled

to create a welcoming environment. Teachers must be trained to address the needs of all children in the classroom. Schools must also mandatorily have special needs educators proportionate to the number of special needs students.

In the Indian context, governments and policy frameworks need to aim towards the inclusion of children with disabilities from vulnerable and socially disadvantaged groups such as Scheduled Castes (SCs), Scheduled Tribes (STs), Other Backward Classes (OBCs), and minority religions. The Economically Weaker Section (EWS) of the population should also be incorporated. The inclusion of girls and women with disabilities should also be prioritised, as their needs intersect between the multiple social and physical disadvantages they face.

## **Empowerment Through Employment**

The public sector is an appealing employment option for PWDs due to rules on reservations, increased levels of job security, and additional benefits. Increasing community exposure to disabled people through seminars and speaker sessions where the guests are public servants who are also PWDs from various backgrounds can empower others within the community to sit for public service examination. This can help increase their participation in decision-making mechanisms and in other societal aspects as well.

Corporations and government agencies can also harness the potential of PWDs through specialised internships and training programmes that utilise their capabilities and make them employable members of the workforce. Diversity and inclusion committees in companies must also focus on such individuals during recruitment. An example of the integration and promotion of accessibility in workplaces is Microsoft's Ability Hacks programme,<sup>18</sup> which is an "annual one-week Hackathon that brings together employees from across the company to hack solutions to some of the world's biggest challenges."

### The Way Forward

The challenges faced by PWDs are compounded by social norms that highlight their impairments rather than enhancing their potential. Inclusive education that also focuses on employability is key to integrating PWDs in society. However, it must be accompanied by dedicated efforts aimed at changing social perceptions. Local

governments must specifically push for the inclusion of PWDs from marginalised communities, as their disadvantages are multilayered and render them even more vulnerable. The emphasis on local is important, as the penetration of public policy is more successful at local levels. Redesigning social spaces to eliminate barriers, both communicative and societal,<sup>19</sup> is vital to providing an inclusive environment for all. The process of eliminating barriers requires equally dedicated efforts in rural and urban areas and in spheres such as public transport, where accessibility is scarce.<sup>20</sup>

There needs to be increased research focusing on PWDs, as this is the primary way to ensure their visibility in government agencies and policymaking platforms. The integration of PWDs can be best achieved by finding a balance between inclusion and catering to their needs. Concerted societal efforts can thus be instrumental towards empowering PWDs, allowing them the dignity that they deserve and the capacity to fulfil their potential in life.

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# Corporate-Driven Social Change: A Pathway to Equitable and Inclusive Societies

*Aparna Raj C*

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The incorporation of Section 135 in the Companies Act, 2013, was a turning point<sup>1</sup> for corporate social responsibility (CSR) in India.<sup>2</sup> The legislative mandate, at that time the first of its kind globally,<sup>3,4</sup> compelled all corporations operating in India to contribute towards socially beneficial areas outlined in Schedule VII of the Act. All companies with a net worth of at least INR 5 billion (approx. US\$60 million), a turnover of INR 10 billion (US\$120 million) or more, or a net profit of INR 50 million (US\$600,000) or more in any financial year were directed to spend 2 percent of their average profit on CSR.

Since the Act's implementation on 1 April 2014, businesses have primarily focused on ensuring compliance to circumvent potential legal consequences. The CSR Cell of the Ministry of Corporate Affairs is the regulatory body responsible for overseeing CSR activities across the country.<sup>a</sup> Indian businesses were initially expected to inject more than INR 100 billion into the economy by implementing this mandate.<sup>5</sup> The ministry introduced the MCA21 registry

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<sup>a</sup> The author is a researcher who interned with the Director of the CSR Cell at the Ministry of Corporate Affairs (MCA), Government of India. The data and details stated include her fieldnotes, observations and interviews collected during her engagement with the Ministry. As stated by the officials in MCA, the CSR Cell's presence and the clause on 'comply or explain' ensured that corporates adhered to the mandate and spent the required percentage of funds on CSR activities.



to monitor the CSR filings of companies and ensure compliance. This information is made available to the public through the national CSR portal.<sup>6</sup>

### Mandatory CSR Expenditure (2014–Present)

Data from the CSR portal shows a substantial increase in CSR expenditure from the first financial year of implementation (2014–15) to the latest available data (2021–22). The expenditure rose from approximately INR 100 billion in 2014–15 to INR 260 billion in 2021–22, marking a 160-percent growth over seven years. Education is the primary recipient of CSR funds, with over INR 570 billion spent on the sector. Healthcare

follows closely, with an expenditure of INR 470 billion.

While education held the top spot until the pandemic, healthcare witnessed a surge in 2020–21 and 2021–22 due to substantial funds directed towards COVID-19 relief efforts.<sup>7</sup> Of the total CSR expenditure in India over eight years, 37.4 percent of the funds were spent on education, followed by 30.5 percent on healthcare. The remaining sectors, such as rural development, environmental sustainability, socio-economic infrastructure, and technology incubators, shared the remaining 32 percent. Table 1 summarises the sectoral CSR expenditure from 2014–15 to 2020–21.

**Table 1. Sectoral CSR Expenditure in India (2014–15 to 2020–21)**

Sector	CSR Spent in FY (in INR billion)*							Aggregate CSR Spent (in INR billion) <sup>#</sup>
	2014–15	2015–16	2016–17	2017–18	2018–19	2019–20	2020–21	
Education	32.46	50.61	57.95	75.68	83.14	99.39	88.02	487.25
Healthcare	25.26	46.33	37.13	42.7	55.48	68.41	92.76	368.06
Rural Development	10.59	13.76	15.73	17.24	24.34	23.01	18.51	123.18
Environmental Sustainability	8.54	9.71	13.26	16.6	17.05	18.05	13.37	96.58
Central Government Funds	6.25	9.11	7.87	7.99	11.57	17.91	34.91	95.61

Socio-Economic Inequality	2.96	3.68	5.8	6.5	7.14	8	6.96	41.03
NEC/Not Mentioned	1.17	1.19	3.06	3.95	2.26	9.34	4.93	25.91
Art and Culture	13.38	10.51	4.37	0.15	0.88	5.03	2.03	36.36
Technology Incubator	0.05	0.26	0.25	0.17	0.32	0.54	0.63	2.22
Total CSR Spent	100.66	145.17	145.42	170.99	202.18	249.66	262.11	1276.19

\* Source: Data from the national CSR portal ([www.csr.gov.in](http://www.csr.gov.in))

# Based on the author's calculations of the portal data as of 31 August 2023.

## Multi-Stakeholder Involvement Through CSR

Analysing CSR expenditure across different sectors reveals that multi-stakeholder projects, which involve collaboration with local administrations and beneficiaries, yield sustainable long-term results. These projects benefit citizens at the bottom of the pyramid while fostering a self-sustaining implementation pattern. For example, the Thalassemia Bal Sewa Yojana (TBSY) by Coal India Limited<sup>8</sup> is a CSR initiative that mirrors the Union Health Ministry's project to treat thalassemia-affected children from underprivileged families. TBSY has enabled children from poor families to receive free treatment in various hospitals nationwide using CSR

funds. The high cost of bone marrow transplants and related procedures for thalassemia (around INR 2.5 million) has been the biggest barrier for beneficiaries. To deal with this, Coal India Limited, along with the Union Health Ministry and implementing hospitals,<sup>9</sup> provide treatment to the beneficiaries. The collaboration involves an arrangement where the treatment costs (reduced to INR 1 million) are directly transferred to the hospitals. Recently, the project expanded to include aplastic anaemia, demonstrating the scalability of social welfare through multi-stakeholder collaborations.

<sup>b</sup> These include AIIMS, New Delhi; CMC, Vellore and Ludhiana; Kokilaben Dhirubhai Ambani Hospital, Mumbai; PGIMER, Chandigarh; Rajiv Gandhi Cancer Institute, New Delhi; SGPGI, Lucknow; Narayana Hrudayalaya, Bangalore; and Tata Medical Centre, Kolkata.

One noteworthy example demonstrating the multidimensional advantages of corporate–state collaboration is seen in the housing projects undertaken by the Kudumbashree workers in Kerala following the 2018 floods. These projects were part of an initiative by the State Poverty Eradication Mission of the Kerala government aimed at empowering women. Under the initiative, all-female construction groups built houses for those who had lost their homes in the floods. The local administration identified eligible beneficiaries among the flood victims. These beneficiaries were eligible for houses funded through CSR funds. Corporations funded the housing programme undertaken through the Pradhan Mantri Awas Yojana (PMAY) – Urban. The administration also identified beneficiaries below the poverty line with land ownership. They oversaw the construction of houses according to pre-approved floor plans and plinth areas. CSR funds primarily funded the purchase of raw materials and construction. The local administration monitored and evaluated the construction by the Kudumbashree groups.

### **Collaborative CSR: Synergies and Mutual Benefits**

The aforementioned examples of collaborative social responsibility activities demonstrate the potential of CSR to enhance the quality of life of those at the bottom of the economic pyramid.

For example, according to the National Health Mission, India has over 100,000 million children affected by thalassemia and more than 40 million carriers of the beta thalassemia trait.<sup>9</sup> The only practical and known solution—bone marrow treatment for thalassemia and sickle cell anaemia like haemoglobinopathies (genetic disorders and problems of the haemoglobin in the red blood cells)<sup>10</sup>—requires continuous treatment and thus has a steep financial cost<sup>11</sup> that is unaffordable for the poor. According to available data, around 100,000 patients across the country die before they reach the age of 20 due to lack of access to treatment.<sup>12</sup> Therefore, collaborations between corporations and hospitals using CSR funds to treat needy patients could act as a transformative mechanism to improve access to equitable healthcare.

The Kudumbashree flood relief reconstruction project is multifaceted, providing housing facilities and improved living conditions to the poor. Women play a key role in the construction process as both implementors and participants. The project enhances living conditions for beneficiaries and fosters self-awareness and financial independence among women workers. As part of the data collection process and field research, this author interacted with members of the women’s construction groups. These interactions revealed their sense of pride and recognition of self-worth as they engaged in tasks typically assigned



to males. The respondents viewed their participation in the construction groups<sup>c</sup> as a status symbol, which helped narrow gender gaps in the construction sector and broader society. They also mentioned that they received increased respect and their opinions were given more value in discussions.

### **CSR: A Prospective Tool**

CSR holds great potential in a demographically and socially diverse country like India. If strategically planned and implemented, CSR activities can help mitigate financial and social inequalities. Positive social transformations can be encouraged by collaboration between various entities such as the government, non-government organisations, and civil society. These partnerships highlight the strategic alignment of corporate interests with broader societal goals, contributing to a more inclusive and fair society. The investigation of multi-stakeholder cooperation underlines the strategic importance of CSR initiatives

that promote inclusion, skill development, and equitable access to resources.

Targeted policy interventions are necessary, as corporate initiatives, though significant, are most effective when complemented by supportive policies and structural changes. Policies can include a corporate funding element, such as in the treatment of conditions like thalassemia and aplastic anaemia. This leads to sustainable practices and impact investments across sectors. Involving a government or third-party collaborator in a project reduces the cost of monitoring and evaluation for corporations. Meanwhile, the collaborator benefits economically, without bureaucratic delays in fund approvals and transfers. Therefore, corporate–public partnerships are indispensable in catalysing positive societal transformations. By fostering collaboration, focusing on targeted policies, and advocating for marginalised communities, businesses can help create a more inclusive and equitable society.

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<sup>c</sup> The field research was conducted as part of a study on women's participation in CSR implementation with local administration. The author spoke to women who were part of the construction groups and recorded their responses as field notes.

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# Public Financial Management for Gendered Outcomes: The Case of Menstrual Health and Hygiene

*Priyanka Parle*

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The commitment of states towards achieving gender equality as part of the 2030 Agenda for Sustainable Development received a renewed boost during the G20 Summit in New Delhi in September 2023, with a marked shift in the discourse from women's development to 'women-led' development. It is more important now than ever before that governments act on the gender commitments<sup>a</sup> made as part of the Delhi Declaration,<sup>1</sup> especially in the aftermath of the COVID-19 pandemic, which has had a disproportionate impact on women and girls.<sup>2</sup>

This article uses the Public Financial Management (PFM)<sup>b</sup> lens to emphasise the role of governments in achieving gender-related outcomes. While proposing an outcomes-based budgeting (OBB) framework, it focuses on the menstrual health and hygiene (MHH) area to demonstrate how such a framework could be put to use against the backdrop of the release of the draft National Menstrual Hygiene Policy, 2023.<sup>3</sup>

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<sup>a</sup> The states committed to greater economic and social empowerment of women alongside enhanced food security, nutrition, and overall well-being.

<sup>b</sup> According to the International Monetary Fund, PFM can be defined in terms of laws, institutions, systems, and processes essential for governments to implement fiscal policy. The PFM lens is linked to how governments raise and manage public resources to ensure public service delivery.



## The OBB Framework in Achieving MHH Outcomes

The efforts of multiple actors, including the union and state governments in India,<sup>c</sup> have led to a 20-percent increase in the use of hygienic protection methods<sup>d</sup> during menstruation among women aged 15-24 years, from 58 percent in 2015-16 to 78 percent in 2019-21.<sup>4,5</sup> During the same period, the use of sanitary napkins or the same group increased from 42 percent to 64 percent.<sup>6,7</sup> However, women with no schooling (44 percent), those from rural areas (73 percent), and those from the poorest households (54 percent) were found less likely to use a hygienic method of protection during menstruation compared to women with 12 or more years of schooling (90 percent), from urban areas (90 percent) and the wealthiest households (95 percent).<sup>8</sup> Thus, targeted efforts are required to improve the access and affordability of safe and hygienic menstrual products, to raise awareness

regarding healthy menstrual practices, and to shape the attitudes of boys and men around menstruation.

Given the multifaceted nature of challenges in the MHH area, the proposed OBB framework is particularly relevant because it links policy outputs derived from policy objectives to both fiscal and non-fiscal inputs across the budgetary cycle and considers extraneous factors in realising the desired MHH outcomes<sup>9</sup> (Figure 1). The OBB framework is based on the performance-based budgeting approach that has been adopted by governments worldwide, including the Government of India in 2005-06, to improve the efficiency of government spending.<sup>10</sup> It uses the central PFM tenets of allocative and technical efficiency<sup>e</sup> to help governments maximise the efficiency and effectiveness of spending towards achieving the desired impact—in this case, that of improved overall health, well-being, and empowerment of girls and women.

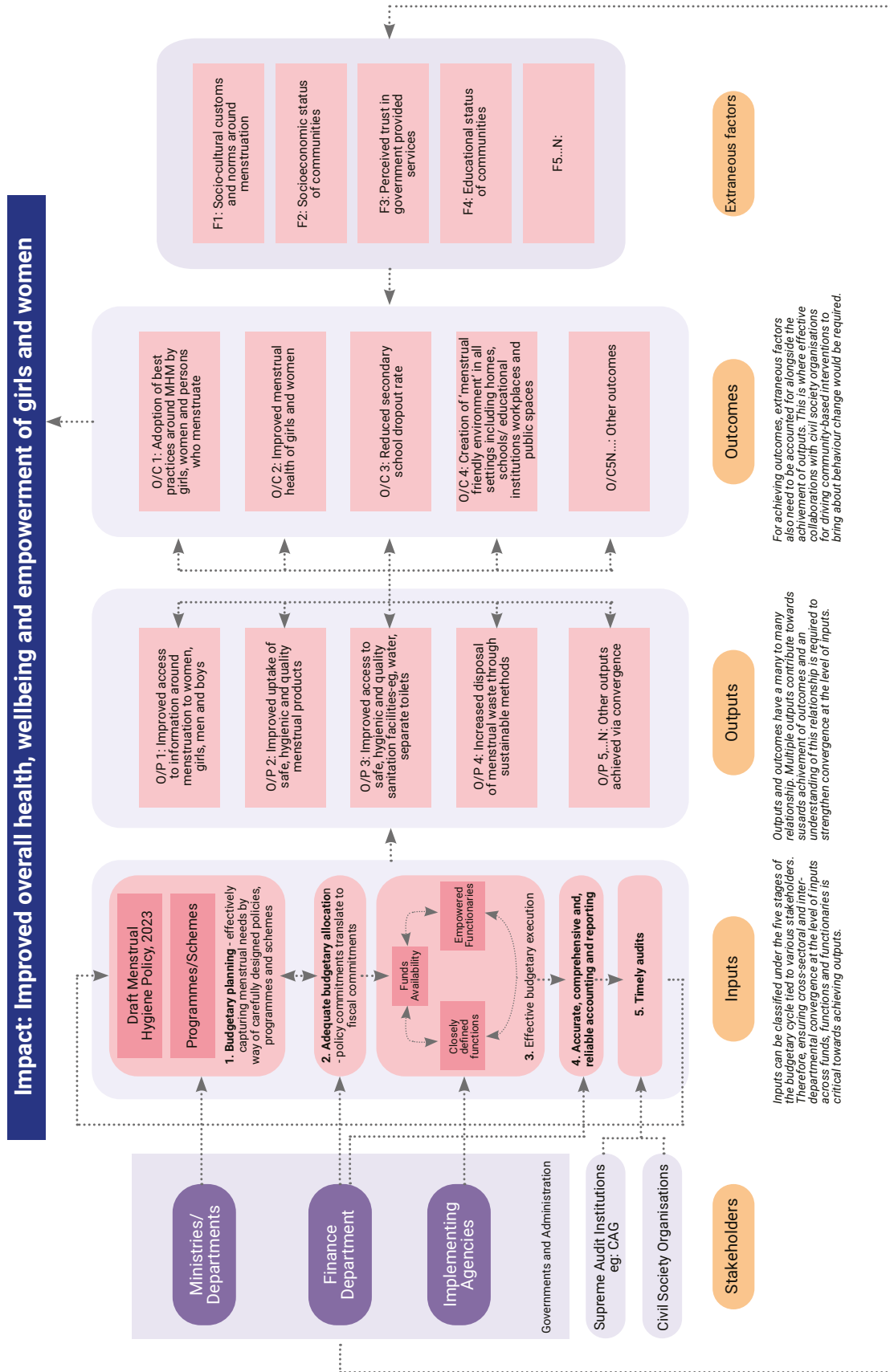
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<sup>c</sup> Maharashtra's 'Asmita Yojana', Rajasthan's 'Udaan', Andhra Pradesh's 'Swechha', Kerala's 'She Pad', Odisha's 'Khusi', Chhattisgarh's 'Suchita', and Sikkim's 'Bahini'.

<sup>d</sup> Hygienic methods of protection are defined as locally prepared napkins, sanitary napkins, tampons, and menstrual cups, as per the National Family Health Survey (NFHS-5), 2019-21.

<sup>e</sup> Allocation of sufficient funds by states to areas of strategic priority (allocative efficiency) and utilisation of these resources efficiently to derive the maximum value for money spent (technical efficiency), together with ensuring sustainability in spending (fiscal discipline), are key to sound PFM.

Figure 1: The Outcomes-Based Budgeting Framework



Source: Author's own

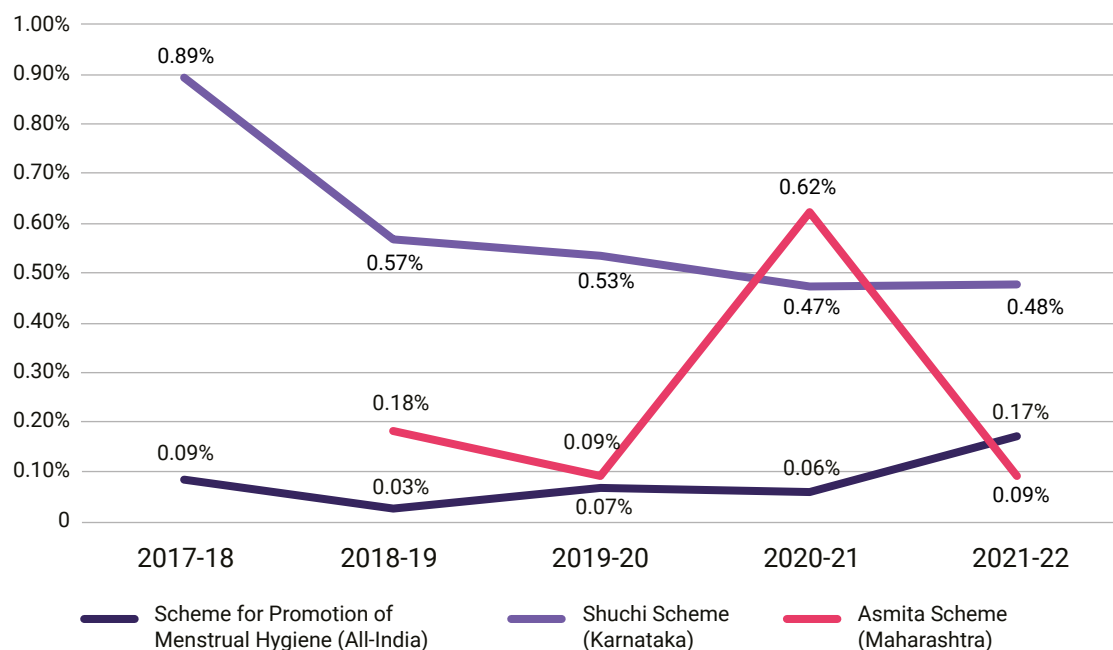
### Maximising the efficiency of spending

- **Prioritising MHH in budgets and identifying localised needs-based avenues for investment**

The three MHH schemes analysed—the Scheme for Promotion of Menstrual Hygiene (Government of India), Shuchi Yojana (Government of Karnataka), and Asmita Yojana (Government of Maharashtra)—constitute less than 1 percent of the

Department of Health’s total budget. Their budgetary shares have also fluctuated over five years (Figure 2). This merits careful consideration regarding the sufficiency and stability of budgetary allocations<sup>f</sup> towards ensuring timely, high-quality, and sustained service delivery in supplying menstruation products and sanitation facilities towards attaining the menstrual health outcomes as envisioned in the draft policy.

**Figure 2: Share of Budgetary Allocation Towards Menstrual Hygiene Schemes in Total Health Budgets**



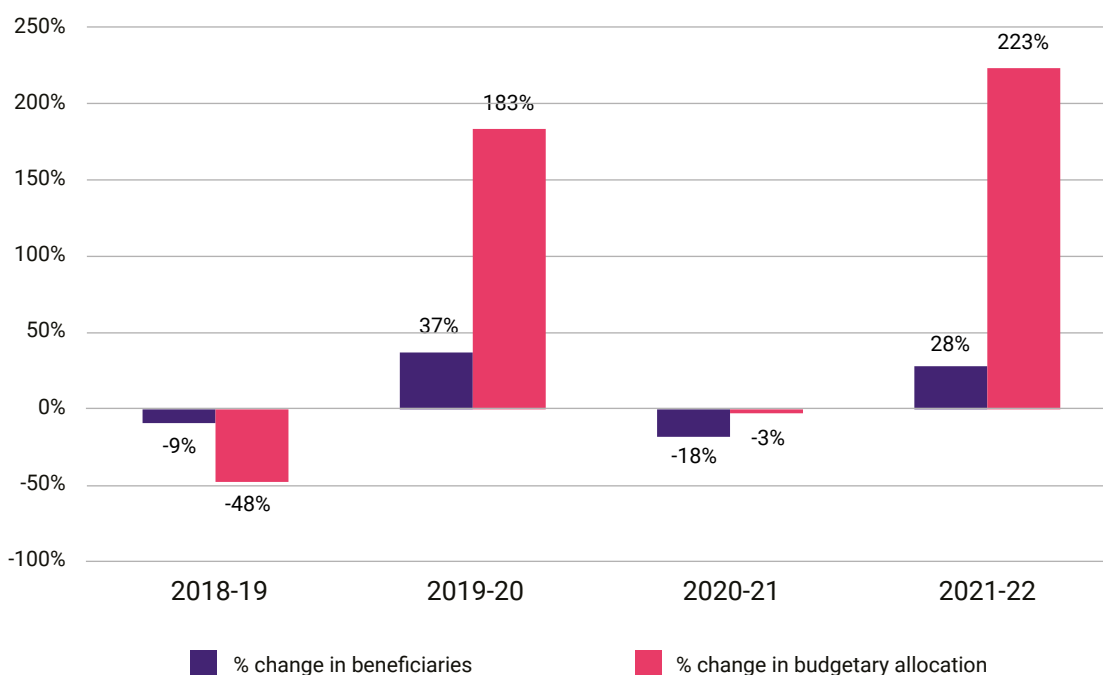
Source: Lok Sabha and the Detailed Demand for Grants<sup>11,12,13</sup>

<sup>f</sup> Typically, fiscal policy constraints, lower capacity to raise own revenues or fluctuating revenues, increasing committed expenditures, and/or unforeseen contingencies constrain sufficient funds allocation by governments. Similarly, as highlighted in consecutive Finance Commission reports, vertical fiscal imbalance constrains greater fiscal commitment from state governments towards social sector responsibilities.

Moreover, the change in the budgetary allocation under the Scheme for Promotion of Menstrual Hygiene is not proportional to the change in the number of adolescents who availed of the scheme benefits, indicating potential challenges in budgetary estimation and planning at the level of state governments (Figure 3). Thus, along with prioritising MHH in overall budgets, dedicated efforts are required within line departments to accurately plan and estimate programme- and scheme-specific

budgets to align them with policy outputs and outcomes. For instance, the Departments of Women and Child Development, Health, Water and Sanitation, School Education, and Rural Development and Panchayat Raj could collaborate to ensure gender-disaggregated data availability, use, and sharing in standardised formats<sup>9</sup> to aid data-driven decision-making. Similarly, the technical capacity of personnel involved in the budgetary estimation would need to be improved.

**Figure 3: Scheme for Promotion of Menstrual Hygiene: % Change in Budgetary Allocation and Scheme Beneficiaries**



Source: Lok Sabha<sup>14</sup>

<sup>9</sup> Both financial (for instance, need for scheme funds disaggregated by sub-schemes and components or projects thereof) and non-financial (for instance, number of beneficiaries disaggregated by age group, educational background, and caste group).

Alongside increased budgetary allocation, state governments must identify localised needs-based avenues for investments, given that healthcare in India is a state subject and that there is a marked inter-state variation<sup>h</sup> in customs and practices around menstruation. A localised action plan must be developed and aligned with the national action plan, as proposed in the draft policy, including baseline assessments and a social and behaviour change principles-based information, education, and communication (IEC) strategy delivered in local languages.

- **Efficient utilisation of funds allocated towards MHH programmes and schemes**

Union and state governments allocate less than 1 percent of the health budget to MHH schemes. The sub-

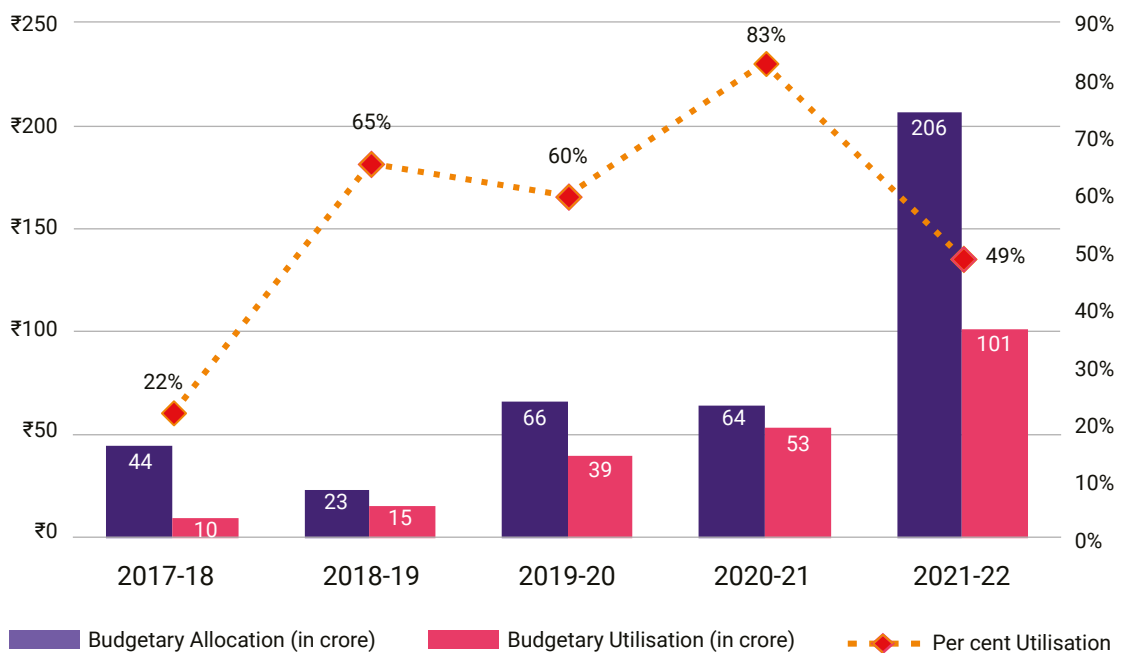
optimal utilisation of allocated funds compounds this problem. In FY 2017-18, less than one-fourth of the allocated funds were spent on the Scheme for Promotion of Menstrual Hygiene. Despite improvement in the utilisation of funds in subsequent years, the utilisation percentage dropped to 49 percent in FY 2021-22 (Figure 4). The Shuchi scheme of the Karnataka government saw a steep decline in utilisation of funds, from close to 100 percent in FY 2017-18 to 21 percent in 2019-20, followed by an increase to 100 percent in FY 2021-22, which raises concerns about scheme implementation (Figure 5).

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<sup>h</sup> Bihar (59 percent), Madhya Pradesh (61 percent), and Meghalaya (65 percent) have the lowest percentage of women using hygienic methods of menstrual protection, below the national average of 78 percent.

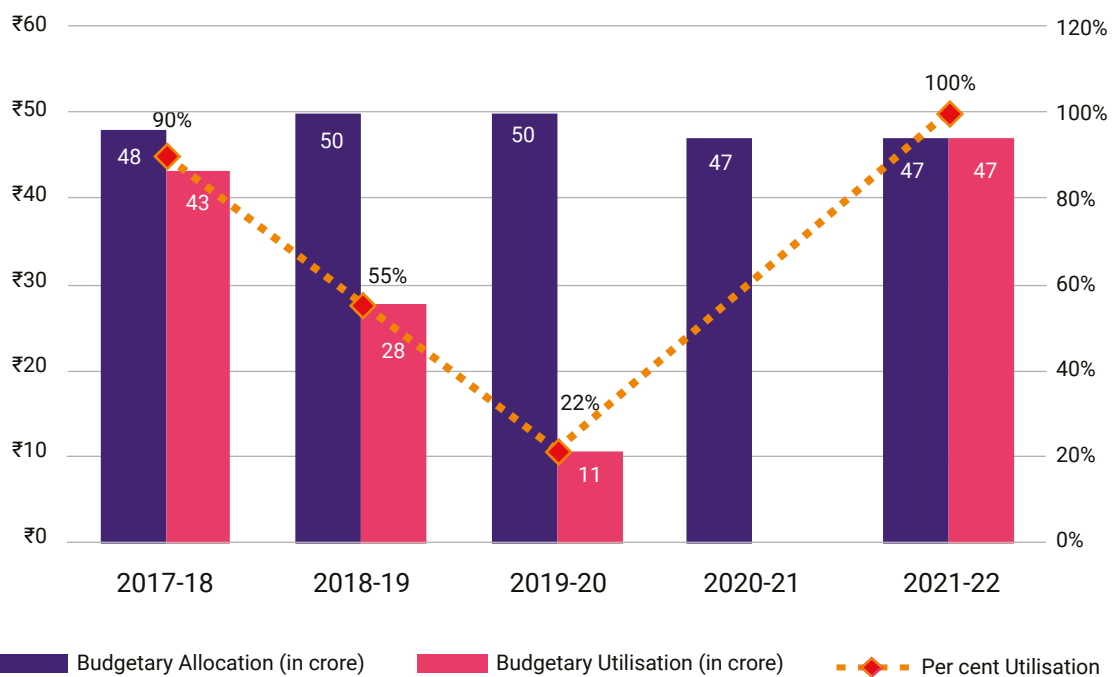


**Figure 4: Budgetary Allocation vs. Utilisation of Scheme for Promotion of Menstrual Hygiene**



Source: Lok Sabha<sup>15</sup> and Rajya Sabha<sup>16</sup>

**Figure 5: Budgetary Allocation vs. Utilisation for the Shuchi Scheme**



Source: Department of Health and Family Welfare, Government of Karnataka<sup>17</sup>

<sup>i</sup> Actuals for FY 2020-21 were not reported for Shuchi scheme in the budget/detailed demand for grants.

Typically, sub-optimal utilisation of funds is the result of multiple factors such as incremental budgeting, lack of absorptive capacity, and technical capacity constraints at the level of implementing agencies, delayed fund releases, and challenges in procurements. Moreover, empowered functionaries with clearly assigned roles and responsibilities are essential to ensure the optimal utilisation of available funds towards achieving desired policy outputs. For example, frontliners such as ASHAs, Anganwadi workers, and school teachers responsible for spreading awareness regarding MHH or the distribution of sanitary products must be adequately trained, assigned specific responsibilities, and appropriately compensated for effective service delivery.

- **Sound accounting and reporting for improved transparency of budgets and data-driven decision-making**

Most ongoing efforts of the union government to improve MHH are not dedicated schemes but components under umbrella schemes and programmes. The allocation and utilisation data of such scheme/s and their sub-components are typically not reported separately in the budgets, thus limiting effective oversight. For instance, since the Scheme for the

Promotion of Menstrual Hygiene under the National Health Mission is implemented through State Programme Implementation Plans (PIPs), its budgetary allocation and utilisation cannot be traced in the health ministry's Detailed Demand for Grants (DDGs). Similarly, the actual budgetary utilisation for Maharashtra's Asmita scheme was not reported in the state DDGs between FY 2019-20 and FY 2021-22. Therefore, alongside prioritising MHH scheme/s in budgets and strengthening their execution, there is a need for accurate, comprehensive, and reliable accounting and reporting of fiscal data for improved budget transparency. Additionally, the availability and use of outputs and outcomes-focused data for effective monitoring and budgetary planning would aid in achieving the objectives outlined in the draft policy.

- **Timely performance audits for effective oversight**

While CAG performance audit reports<sup>j</sup> for flagship MHH scheme/s and initiatives could not be found, independent findings have flagged gaps in implementation. In Maharashtra, for instance, complaints of discomfort with the sanitary napkins supplied under the

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<sup>j</sup> The performance audits conducted by the CAG examine whether schemes/programmes are being implemented efficiently and effectively by concerned agencies and whether taxpayers have received value for money. These help in constructively promoting economical, effective, and efficient governance.

Asmita scheme were reported by women and girls, leading to poor scheme uptake. However, the state government incorporated the feedback to revise the specifications concerning napkin size and soaking capacity during procurement. This illustrates the importance of timely audits as a critical link between the implementation and reporting stages of the budgetary cycle and the planning and allocation stages to nudge action on behalf of governments and foster citizens' trust in government services. Collaborations with civil society can further strengthen these efforts.

### **Maximising the effectiveness of spending**

The spending on MHH would be effective if it leads to desired outcomes and impact over time. Outcomes share a one-to-many relationship with outputs—that is, attaining one outcome is mainly related to realising multiple outputs. For instance, increased awareness amongst adolescents, coupled with access to affordable, safe products and hygienic sanitation facilities would be essential in realising the outcome of improved MHH or higher school attendance for adolescents. Interdepartmental coordination across policy inputs is critical to the realisation of multiple outputs (Figure 1).

Outcomes also depend on extraneous factors such as socio-cultural norms, levels of education, socio-economic status of communities, and perceived trust in government services (Figure 1). Therefore, trust-based collaborations among governments and non-profit and for-profit organisations to drive community-based interventions would nudge positive social and behavioural change. For instance, partnering with start-ups and businesses to procure sustainable sanitary waste disposal products and services for government schools and institutions could change sanitary waste disposal behaviours while aiding in the achievement of disposal-related outcomes.

### **The Way Forward**

As governments continue to strengthen their commitment towards addressing MHH challenges,<sup>21</sup> increased efforts are required across the budgetary lifecycle to maximise the efficiency and effectiveness of spending to realise value for taxpayers' money. The draft policy by the union government is a step in the right direction towards realising MHH outcomes. However, as suggested by the OBB framework, both the union and the state governments must do the following:

- Ensure adequate budgetary allocation towards MHH and cater to localised needs to realise the draft policy's outcomes.

- Ensure efficient fund utilisation through timely fund releases, empower functionaries with clearly assigned functions, foster inter-departmental coordination, and collaborate with civil society organisations and communities.
- Facilitate accurate, comprehensive, and reliable accounting and reporting of fiscal and non-fiscal data to aid data-driven decision-making.
- Undertake timely audits to provide critical feedback during budgetary planning and allocation.

Adopting such a framework towards designing and implementing gender-responsive policies would be essential to achieving the overall health and well-being of girls and women and realising the women-led development agenda.

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*The views and opinions expressed in this article are solely those of the author and do not reflect those of the affiliated institution.*

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# The Post-Pandemic Gig Economy: Opportunities for All?

*Kanishk Gomes*

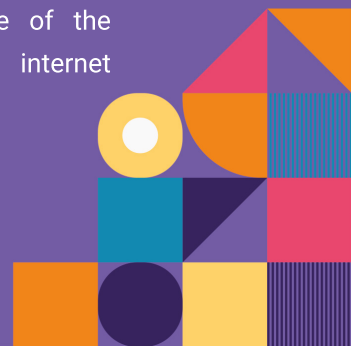
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At the brink of the Fourth Industrial Revolution, India's digital economy is expanding rapidly. From 2011 to 2019, India's digitalisation rate increased annually by 11 percent, mirroring China's growth.<sup>1</sup> As of 2022, India's digital economy is valued at US\$175 billion,<sup>2</sup> with forecasts predicting an increase to US\$1 trillion<sup>3</sup> by 2030. This represents an estimated 600-percent growth. As the world's most populous country and an emerging economic powerhouse, India's strategic approach to digital economy growth can influence global digital trends.

However, this rapid expansion of the digital sector comes with a challenge: the amplification of existing socioeconomic disparities. This concern is particularly severe in India, where wealth distribution is highly unequal—approximately 99 percent of the population own less than 60 percent of the total wealth. This situation highlights the risk of creating a 'digital precariat', a class of digitally marginalised individuals who, despite living in a technologically advancing society, remain economically and socially insecure. India must bridge these inequities to foster a balanced and inclusive digital revolution.

## The Gig Economy

India's youth population under 35, exceeding 800 million, have entered a new digital era aided by some of the most affordable 4G and 5G internet



services worldwide.<sup>5</sup> This shift has notably expanded the scope of gig work. The COVID-19 pandemic has influenced this trend, pushing organisations towards flexible work arrangements and creating substantial opportunities for gig workers across various sectors. Moreover, the pandemic has stimulated demand for delivery-related services, particularly in urban areas, largely met by gig workers (also called platform workers). This change reflects a shift in the employment landscape. It is estimated that nearly eight million gig workers were active in the Indian economy in 2020–21,<sup>6</sup> a number predicted to triple to 23.5 million in 2029–30.<sup>7</sup> Gig work, characterised by low entry barriers, mainly attracts youths into flexible, low-skill roles and absorbs a notable proportion of active labour.

As gig work becomes more prevalent, the challenge is to integrate these workers into the formal economy. Unlike traditional employment, gig work often lacks job security, standardised wages, and social safety nets, including insurance and pension provisions. As India advances, its digital transformation should be more about crafting sustainable frameworks that empower the workforce while harnessing technological innovation.

### **Corporate Orientation and Domestic Policy**

Technology corporations are at the forefront of adopting the gig economy model, with nearly 60 percent intending to maintain or expand their reliance on gig workers.<sup>8</sup> This highlights a shift in employment practices, where traditional full-time positions are increasingly

being supplemented or replaced by flexible, project-based engagements. In the gig economy, the term ‘worker’ often indicates a departure from the conventional ‘employee’ status. This distinction is crucial as it defines the responsibilities of companies and the rights of workers. In sectors like on-demand food delivery, transportation, and multi-service provision, companies often function as ‘aggregators’ rather than traditional employers. They act as intermediaries, providing platforms that connect consumers with individual service providers, known as ‘partners’. This setup allows companies to circumvent typical employer–employee obligations, affecting the protections and benefits available to workers.

At the higher end of the skill spectrum, the absence of additional benefits often becomes less important. The flexibility and potential earnings attract a segment of highly skilled professionals<sup>9</sup> who often receive compensation comparable to their full-time peers. This group, however, constitutes only about 22 percent of the gig workforce.<sup>10</sup> For many, especially in lower-skilled positions, the lack of additional benefits such as health insurance or retirement savings is a significant disadvantage. In response to the needs of gig workers, India introduced the Code on Social Security (CSS) in 2020. This legislation broadened the scope of social security measures for gig workers. These provisions include coverage for life and disability, accident insurance, health and maternity benefits, old-age protection, and the establishment of a Social Security Fund.<sup>11</sup> Aggregators support this fund with contributions of



1–2 percent of their annual turnover.<sup>12</sup> Despite these strong provisions on paper, however, implementation is poor.

To be sure, more tangible progress is already evident at the state level. A notable example is the Rajasthan Platform-Based Gig Workers (Registration and Welfare) Act of 2003, also known as the RGW Act. This legislation allocates a

corpus of INR 200 crore for gigs and establishes a welfare board tasked with empowering these workers.<sup>13</sup> The RGW Act demonstrates a more proactive approach at the state level, serving as a model that could be replicated or adapted by other states to deal with the specific needs of gig workers in their jurisdictions.

**Table 1. The Code on Social Security (2020) and the Rajasthan Gig Workers Act (2023)**

Feature	CSS (2020)	RGW Act (2023)
<b>Jurisdiction</b>	National	State of Rajasthan
<b>Coverage</b>	Gig workers (defined as those working on aggregator platforms) in various sectors and all over the country	Gig workers (definition aligned with Code on Social Security) in Rajasthan
<b>Social Security Provisions</b>	Life and disability coverage, accident insurance, health and maternity benefits, and old-age protection	Coverage as proposed by CSS, and the establishment of a welfare board
<b>Financial Support and Funding</b>	Social Security Fund to be set up with contributions from aggregators	Allocation of INR 200 crore to a fund for gig workers
<b>Issues</b>	Limited implementation and enforcement, with slow progress	Though steps such as a tripartite board, with the platforms, workers, and the state, are positive measures, it is unlikely that many states will follow suit due to political parties fundamentally differing on how to approach the matter.

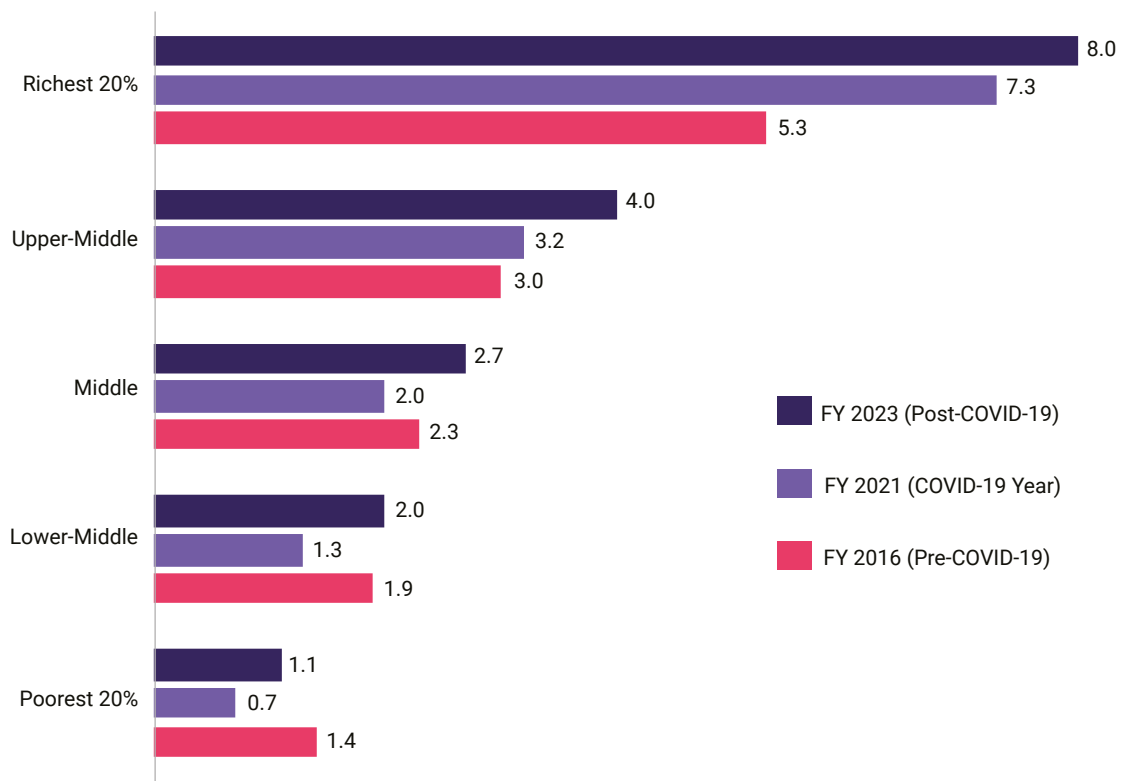
Source: PRS India<sup>14</sup> and Esya Centre<sup>15</sup>

## Understanding the Root Problems

A confluence of factors is creating challenges for young people involved in gig work. First, the stagnation of real wages coupled with the escalating cost of urban living creates a financial predicament. According to data from the People's Research on India's Consumer Economy, the household income for the poorest quintile fell by 21.4 percent in recent years, while the income for the wealthiest 20 percent increased by 50 percent.<sup>16,17</sup> Additionally, the net financial savings of households declined from 7.2 percent of India's GDP in 2021–22 to only 5.1 percent in 2022–23.<sup>18</sup> This indicates a real cost-of-living crisis in India's urban areas, where the cost of living has outpaced wage growth. The

average monthly income of gig workers in India is around INR 18,000. Some 71 percent of these workers are the primary earners for their families, often with little room for savings and therefore experiencing financial insecurity.<sup>19</sup> In comparison, in a country like the United States, while 36 percent of all workers participate in the gig economy<sup>20</sup> (either as a primary or secondary form of income), only 44 percent reported gig work as their primary source of income, which is nearly 40 percent less than India. Almost all of India's gig workers operate in urban areas (Bengaluru, Mumbai, Delhi, Hyderabad, and Chennai), where expenditures on basic necessities are steadily rising.<sup>21</sup>

**Figure 1. Impact of COVID-19 on Indian Household Incomes Across Wealth Quintiles (in INR lakh/year)**



Sources: PRICE's ICE 360° Survey 2016,<sup>22</sup> 2021,<sup>23</sup> and 2023<sup>24</sup>

Second, the lack of a comprehensive social security system in India worsens existing inequalities. The country's social security system and safety net framework is still evolving, leaving many, especially those involved in informal or gig work, without essential protections and benefits. The shortage of dignified, decent, and secure employment opportunities in urban areas is another key factor. The Indian job market is fiercely competitive, particularly in cities, and often fails to meet the aspirations and expectations of the youth regarding job quality and security.

According to Periodic Labour Force Survey data from June 2023, the quality of employment has not improved since 2017, with monthly incomes stagnating amid consistent inflation.<sup>25</sup> These overlapping vulnerabilities compel many young Indians, especially those in urban areas, to work long hours and take on multiple gigs.

Additionally, studies have shown that gig workers face not only economic instability but also psychological problems due to the persistent pressure of their work.<sup>26</sup> A combination of these factors can

lead to low intrinsic motivation and little job satisfaction.<sup>27</sup> Finally, the gig economy's reliance on digital platforms introduces a degree of algorithmic control and surveillance over workers, which could potentially lead to overwork and exploitation.<sup>28</sup>

## Recommendations

To deal with the challenges, policy frameworks should consider the following:

- Projections indicate a rise to 2.35 crore gig workers in the next five years.<sup>29</sup> It is crucial for policies to keep pace with this growth. The integration of gig workers into national social security and legal provisions is required. Policies should ensure that these workers receive equitable benefits and protections such as sick leave, healthcare access, insurance, and support during irregular work. To create a social safety net and hold platforms accountable for worker well-being, a first step is to prevent the misclassification of workers. The United States Department of Labor has already taken such a step.<sup>30</sup>
- An increase in the workforce must also reflect diversity. Women and those with disabilities need better representation among gig workers. This requires a strategic push from platform companies to incorporate inclusivity into their operational ethos and processes, creating a more

equitable work environment. Moving beyond tokenistic gestures (such as providing female delivery partners the choice to wear kurtas<sup>31</sup>), it is time to provide substantial alternatives such as fair remuneration and effective feedback mechanisms.

- It is essential to establish incentives that encourage gig workers to progress towards more stable and fulfilling career trajectories. This could be achieved through a twofold approach: facilitating access to finance to empower them to launch their own ventures, and investing in their professional development to enable upward mobility within their careers.

Implementing these recommendations comes with certain challenges. These include financing the social safety nets and enforcing the propositions. Funding hurdles can be overcome through levies contributed by platforms, based on their revenues. Difficulties in enforcement can be resolved by encouraging self-reporting among the gig platforms and establishing easily accessible redressal mechanisms for the workers. The way forward requires policymakers to engage with platform companies, worker representatives, and other stakeholders. Transparent deliberations can help build consensus and emphasise the long-term economic benefits of a stable and protected gig workforce.

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# The Potential of Podcasts as Channels of Global Cultural Exchange

*Saimaa Khan*

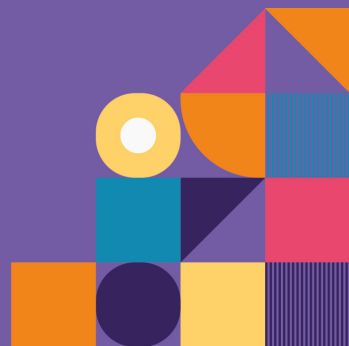
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Technology is reshaping industries around the world, and this is true for the podcast industry as well. The growing popularity of podcasts as a means of entertainment and information sharing has revolutionised radio broadcasting. While traditional radio broadcasting has long been a mainstay in media, podcasting offers a new platform for storytelling and has emerged as a force in the creative economy.

One of the reasons for the popularity of podcasts is that they offer a level of accessibility and convenience that traditional radio broadcasting cannot match. Listeners can access podcasts on various devices, such as smartphones, tablets, and computers, and download episodes for offline and flexible listening. Additionally, podcasts are pre-recorded, which gives them a longer shelf life than radio shows,<sup>1</sup> which are broadcast live on a pre-set schedule and therefore cannot be accessed after they have aired.

## India's Podcast Industry

India has a rapidly growing podcast market<sup>2</sup> and the third largest<sup>3</sup> listener base globally, just behind the United States (US) and China. This number is expected to rise to 17.61 million by 2023.<sup>4</sup>



The medium has gained popularity over a very short period of time due to its distinctiveness, investment from large companies like Spotify, and involvement from celebrity creators. Although podcasts have been in the Indian market for several years, it was only during the COVID-19 pandemic that they witnessed a surge in popularity.

Another reason for their increasing popularity is the wide variety<sup>5</sup> of content and choice they offer compared to traditional radio broadcasting. There are podcasts on a variety of topics, from news, music, education, and sports, to comedy and niche topics such as crime and paranormal activity. This diversity means that there could be a podcast for everyone, regardless of interests and background, and anywhere they are. On the other hand, radio is a local medium and is more limited in its reach, often only heard by people within a specific geographical area.

### **Amplifying Voices and Inspiring Change**

The rise of podcasts has also had an impact on the creative economy. Podcasts provide a platform for new voices and talent while also helping

established content creators reach new audiences. This is especially important for marginalised communities which have been underrepresented in traditional media. Podcasts offer these communities the opportunity to tell their stories and share their perspectives with a global audience, which is further enabled by increasing smartphone penetration and internet connectivity.

Podcasts are also used to promote social change and as a tool for education.<sup>6</sup> This can be done by co-financing a podcast series—for example, one titled “Global Development Insights”, which features interviews with experts, policymakers, and grassroots leaders regarding issues like climate change, digital inclusion, and gender equality. Such podcasts provide listeners with insights and perspectives from around the world and inspire action towards achieving the Sustainable Development Goals.

There are several podcasts that educate listeners about social issues<sup>7</sup> such as free speech, caste discrimination, gender inequality, mental health,<sup>a</sup> environmental conservation,<sup>b</sup> and censorship, and provide a space for discussion and debate. In an increasingly polarised online world, podcasts offer a way to engage

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<sup>a</sup> Examples include the “Zindagi Matters” podcast hosted by psychiatrist Dr. Preeti Sundaram, which covers a wide range of issues and includes stories of resilience and recovery, along with practical advice from experts.

<sup>b</sup> For example, the “Everything Environment by Mongabay India”, which focuses on critical environmental issues like climate change, biodiversity loss, pollution, and sustainable future through discussions with experts and activists.



in nuanced and thoughtful discussions that account for diverse perspectives and showcase India's innovation to a global audience.

### **Recommendations for Fostering a Vibrant Podcast Ecosystem in India**

Despite its many advantages, podcasting has challenges that need to be addressed, such as the lack of clear and standardised monetisation models; difficulties in maintaining high-quality content to attract global audiences; issues related to intellectual property rights, such as copyright infringement and unauthorised use of copyrighted material; and a lack of standardised measurement metrics and industry-wide data collection and reporting standards, which makes it difficult for advertisers, sponsors, and content creators to accurately measure and assess the reach and impact of podcasts.

India's podcast industry is flourishing but there is room for growth. Podcasts can be transformed from a unidirectional to a two-way medium by enhancing the current regulatory landscape, which lacks specific governance rules, to ensure that creators follow the content and copyrights laws of various platforms. For instance, Spotify, upon entering India, faced regulatory hurdles related to music licensing and content censorship. Consequently, it entered partnerships with local music labels and artists,

ensuring regulatory compliance while offering a diverse range of content to Indian listeners.<sup>8</sup>

While traditional advertising is a key player, podcasting can also benefit from additional revenue streams such as sponsorships, partnerships, live events, merchandise sales, and premium content offerings, which can help generate sustainable revenue and foster long-term financial stability for the podcast. In 2022, podcast advertising revenue in the US reached US\$1.8 billion<sup>9</sup>—a 26 percent increase from the previous year.

A crucial hurdle for podcast creators, especially niche and independent creators, is getting their content discovered by potential listeners. Podcast platforms can improve discoverability by optimising their search algorithms and recommendation systems to provide increased visibility for niche and independent podcasts and expand their audience reach. Spotify's recommendation algorithms have helped users discover new podcasts, increasing its reach to over 345 million active monthly users.<sup>10</sup>

Podcasts can also be introduced to a new audience by prioritising accessibility. Services like transcriptions and closed captions allow people with hearing impairments to access content. Additionally, translations can bridge language gaps and make podcasts enjoyable for non-native speakers. Offering a variety of audio formats

and ensuring smooth playback across devices and platforms can also ensure that everyone is able to access and enjoy podcasts regardless of technical limitations.

The podcasting world can flourish by fostering collaboration and partnership among creators across borders and creating a global podcasting community to reach new audiences, share insights, collaborate, and learn from each other. Organisations like the Podcast Professionals Association<sup>11</sup> have facilitated collaboration and networking among podcasters by providing resources and support to connect with each other. Establishing similar organisations across the world can further strengthen podcasting communities, opening the door for greater innovation and collaboration.

Keeping listeners engaged is key to a podcast's success. One way to achieve this is by incorporating interactive elements in episodes, such as polls, quizzes, and listener feedback, to encourage audience engagement. In addition, social media platforms and online forums can be utilised to facilitate discussions around podcast content. This can also help build a community of listeners and encourage them to

interact with the podcast.<sup>c</sup> Spotify<sup>12</sup> has also introduced a polls feature in the app, which allows listeners to answer questions posed by podcast hosts during the show and is aimed at increasing listener engagement.

Podcasts can also use traditional media outlets to expand their audience and engagement. Collaborations between podcast platforms and newspapers, magazines, and online publications can increase the existing audience base of podcasts and cross-promote podcast content. Media outlets can integrate podcasts into their digital platforms, curate podcast recommendations, and provide podcast coverage to increase awareness and engagement. For instance, *The Guardian*<sup>13</sup> provides podcast recommendations on their website and through their newsletters to help readers discover podcasts that are aligned with their interests. Similar initiatives can be undertaken by Indian newspapers and magazines, which can help increase the popularity of both the newspaper and the podcast.

The government can also support the podcasting industry through implementing policies and initiatives that foster innovation, education, and training to produce high-quality content and by

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<sup>c</sup> For example, podcasts like "The Rewatchables" by Bill Simmons and Chris Ryan, "No Stupid Questions" by Freakonomics, and "Armchair Expert" by Dax Shepard often incorporate polls, quizzes, and question-and-answer sessions within the episodes, which serve to create a direct line of communication between the podcast and its audience.

providing funding opportunities without financial constraints to both established and emerging creators to produce high-value content.

As the podcasting industry continues to evolve, it is likely to become an increasingly important player in the media landscape, offering listeners and creators with new opportunities for global

connection, learning, and entertainment. By implementing these recommendations, India can foster a vibrant and sustainable podcast ecosystem, empowering new voices, driving positive social change, promoting cultural exchange, and lowering the barriers between nations through the power of storytelling and audio engagement.

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## Endnotes

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