

Trends of Employment through Green Jobs

Introduction

Green jobs are shaping the future of work under the impact of technological changes and climate action. According to the World Economic Forum's Future of Jobs Report 2025, technological drivers like digital access and AI, along with green transitions, are rapidly changing workforce demands. By 2030, 39% of today's job skills may become outdated, requiring more analytical thinking, flexibility, and resilience. The concept of a green economy, which gained global recognition during the 2012 United Nations "Rio+20" summit, has since become a cornerstone of discussions on ecological sustainability and inclusive growth. Defined by low carbon emissions, resource efficiency, and social inclusion, a green economy aims to harmonize economic progress with environmental stewardship.

Government Plans

India's G20 presidency also had come at a time when global leaders are facing the impact of multiple interconnected crises. India's emphasis on LiFE (Lifestyle for Environment) Mission focused on sustainable living, "Panchamrit", the government's five-step plan to achieve net-zero emissions. Together, these trends have the potential to help India unlock \$1 trillion in value by 2030 and \$15 trillion by 2070 in its pursuit to be a climate positive economy. (2023, *Gearing up the Indian Workforce for a Green Economy: Mapping Skills Landscape for Green Jobs in India.*)

India is at the forefront of this global green transition, strategically leveraging its demographic dividend and progressive policy framework to drive sustainable economic growth. With a large, youthful workforce, India is uniquely positioned to capitalize on the emerging opportunities in the green economy. Recognizing the immense potential of the green economy, India has been actively promoting renewable energy, sustainable industrial practices, and environmental conservation. Notably, the renewable energy sector alone has generated over 111,000 jobs in the past decade, and with India's ambitious goal of achieving 500 GW of non-fossil fuel capacity by 2030, millions of additional green jobs are expected to emerge in solar, wind, and hydrogen energy industries. (2023, *Gearing up the Indian Workforce for a Green Economy: Mapping Skills Landscape for Green Jobs in India.*)

The Indian government has launched several initiatives to boost growth in renewable energy sectors. In solar energy, policies like the JNNSM, Solar Park Scheme, and the PLI Scheme are driving rapid expansion, with significant investments in domestic manufacturing. For wind energy, the National Wind-Solar Hybrid Policy and tariff exemptions for turbine parts are supporting growth. In bioenergy, India surpassed its target of 10 GW of biomass capacity, and the Waste to Wealth initiative aims to set up 200 biogas plants. Green hydrogen is gaining momentum with initiatives like the National Green Hydrogen Mission and significant private sector investments, positioning it as a key focus of clean energy growth. (2023, Annual Report, MoEFCC)

Status (Achievements)

Notably, the renewable energy sector alone has generated over 1.02 million jobs in 2023 year, and with India's ambitious goal of achieving 500 GW of non-fossil fuel capacity by 2030, millions of additional green jobs are expected to emerge in solar, wind, and hydrogen energy industries. Renewable Energy, Waste Management, Electric Vehicles, Sustainable Textiles, and Green Construction will drive green growth in India and host the highest number of green jobs, especially in urban and peri-urban areas. (2024, PIB)

India is the fourth-highest contributor to renewable energy globally and has set ambitious targets to generate 50% of cumulative electricity requirements from renewables by 2030. While the entire renewable energy sector is experiencing rapid growth, solar energy, wind energy, and bioenergy are the major drivers. In addition, the emphasis on green hydrogen will grow in the coming years, as evidenced in the 2023 Union Budget. (2023, Union Budget, PIB)

India has set a target to achieve net zero carbon emissions by 2070, with its installed capacity of 169 GW in renewable energy as of February 2023. In 2022, renewable energy investment reached a milestone by matching fossil fuels at \$1.1 trillion for the first time. Moreover a growing number of companies worldwide are prioritising climate mitigation, which is evident through the adoption of mandatory reporting on Environmental, Social, and Corporate Governance (ESG). (2023, PIB)

The renewable energy sector in India is experiencing significant growth across multiple potential sectors. Solar energy remains a key driver, with an 18-fold increase in installed capacity, rising from 2.63 GW in 2014 to 49.3 GW in 2021. Solar energy now accounts for 60% of the government's 2030 energy target. Wind energy also plays a crucial role, with India ranking fourth globally in total wind installed capacity at 41.9 GW as of 2022. This is expected to grow by 50% by 2025, with an additional 20.2 GW from projects set to restart after the pandemic. The bioenergy sector, particularly biofuels, is seeing significant growth, driven by India's vast agricultural resources, with 750 million tonnes of biomass available annually, alongside strong policy support. Lastly, green hydrogen is emerging as an essential part of India's clean energy transition, as it is expected to help the country achieve its 2030 greenhouse gas emissions targets and decarbonize industries such as steel production. (2023, *Gearing up the Indian Workforce for a Green Economy: Mapping Skills Landscape for Green Jobs in India.*)

The traditional internal combustion engine (ICE) vehicles sector is shifting to electric vehicles (EVs), which is expected to create 10 million direct jobs and 50 million indirect jobs by 2030. In the textiles and apparel sector, there is a move towards more sustainable practices, including sustainable cotton production, organic cotton exports, and recycled claimed cotton (RCS) initiatives, alongside the adoption of the Global Organic Cotton Standard (GOTS). This transition is expected to affect 45 million textile workers in India, with growth in high-value segments like fabric construction, apparel making, and the management of end-of-life materials. The construction sector is also shifting to a green construction model, which is projected to generate 11 million jobs, particularly in sustainable construction materials and the management of end-of-life processes. (2023, *Gearing up the Indian Workforce for a Green Economy: Mapping Skills Landscape for Green Jobs in India.*)

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Future Perspective

With India emerging as one of the world leaders, it has the potential to create 35 million green jobs by 2047. It is estimated that the renewable energy sector would house 3.4 million jobs by 2030. The main sectors which are leading this growth are renewable sector comprising of solar energy sector, wind energy sector, Bioenergy (biofuels) and green hydrogen sectors. In terms of job growth, solar energy is projected to host 3.26 million jobs by 2050 followed by wind energy, which is expected to support 0.18 million jobs by 2030. Moreover, the bioenergy and green hydrogen sectors are predicted to create 0.27 million and 0.6 million green jobs by 2030, respectively. (2023, *Gearing up the Indian Workforce for a Green Economy: Mapping Skills Landscape for Green Jobs in India.*)

Reference:

- 1) Skill Council for Green Jobs (SCGJ) and Sattva Consulting (May, 2023). *Gearing up the Indian Workforce for a Green Economy: Mapping Skills Landscape for Green Jobs in India.*
<https://sscjj.in/wp-content/uploads/2023/05/Skills-Landscape-for-Green-Jobs-Report.pdf>
- 2) Ministry of Environment, Forest and Climate Change. (2023). *Annual Report 2022-2023.*
<https://moef.gov.in/wp-content/uploads/2023/05/Annual-Report-English-2022-23.pdf>
- 3) PIB, 2023. <https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=1961797>
- 4) PIB, 2023, Union Budget. <https://www.pib.gov.in/PressReleasePage.aspx?PRID=1901622>
- 5) PIB, 2024. <https://static.pib.gov.in/WriteReadData/specificdocs/documents/2024/oct/doc2024104408301.pdf>