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SKILL DEVELOPMENT INITIATIVES FOR INCLUSIVE SUSTAINABILITY IN INDIA: CHALLENGES AND OPPORTUNITIES

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Abstract

India stands at a pivotal moment in its demographic journey with more than 62% of its population within the working age group (15-59 years), and approximately 54%, under the age of 25 years. Yet, millions of youth presently outside the formal education and employment, there exists a significant opportunity to integrate them into the economic mainstream. Through appropriate investments in skilling, education, and job opportunities, India can transform this demographic trend into a strong driver for inclusive growth and innovation. To leverage this demographic dividend, Indian government has been implementing several skill development initiatives to equip its workforce with relevant skills and expertise. The Government of India has spent massive outlay on short-term skilling development programs such as PMKVY, DDUGKY, NAP etc. over the last decade, aiming to equip youth with market-relevant skills and address the unemployment challenge. India's skill reports for several years released by Wheebox in association with Confederation of Indian Industry (CII), AICTE and Association of Indian Universities (AIU) highlights the challenges in inclusive sustainability, such as a large portion of the workforce being in low-skill jobs and significant skill mismatches, which hinder sustainable and inclusive growth. The idea of Inclusive sustainability through skill development is becoming more significant by equipping a larger portion of the workforce with relevant skills by prioritizing social inclusion for marginalized groups and environmental responsibility through green skills training. In this context, this research paper aims to examine the need for inclusive sustainability through skill development and to explore the insights and opportunities due to these initiatives. It is observed that to achieve inclusive sustainability in skilling, India needs to implement policies that focus on comprehensive skill development and inclusivity to ensure quality job creation across all sectors. Further, it is essential to bridge the access gaps in education and scaling high-quality skilling to every region and social group for inclusive growth.

Key words: India, Youth, Skill India, PMKVY, DDUGKY, NAPS and Inclusive Sustainability

I. Introduction

In the dynamic landscape of India's expanding economy, a glaring weakness remains such as finding a more inclusive labour force. Despite the country's economic progress, informal employment remains dominant



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and around 80% of the India's workforce is employed in the informal sector (2021). Further gender disparities in labor force participation continue and the female labour force participation rate is only 41.7 per cent (as per PLFS data July 2023-June 2024) which is still half of the LFPR of men. The ability to generate a productive labour force relies on the availability of an appropriately skilled workforce. With respect to India the economic survey 2024-25 reveals that only 8.25% of the graduates are employed in roles matching their qualifications. This indicates consistent investments in skill development, along with promoting entrepreneurship.

India stands at a pivotal moment in its demographic journey with over 62% of its population within the working age group (15-59 years), and approximately 54%, under the age of 25 years. Yet, millions of youth presently outside the formal education and employment, there exists a significant opportunity to integrate them into the economic mainstream. Through appropriate investments in skilling, education, and job opportunities, India can transform this demographic trend into a strong driver for inclusive growth and innovation. To leverage this demographic dividend, Indian government has been implementing several skill development initiatives to equip its workforce with relevant skills and expertise. The Government of India has spent massive outlay on short-term skilling development programs such as Pradhan Mantri Kaushal Vikas Yojana (PMKVY), Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDUGKY), National Apprenticeship Promotion Scheme (NAPS) etc. over the last decade, aiming to equip youth with market-relevant skills and address the unemployment challenge. According to PLFS and Ministry of Labour and employment the unemployment rate for people aged 15 years and above has consistently declined from 6.0% in 2017-18 to 3.2% in 2023-24. A significant factor in the consistent decrease of unemployment rate could be substantial investment of Indian government on short term skill development training programmes which are linked with placement.

National Education Policy (NEP) 2020 highlights the significance of skill development and vocational education to ensure sustainable and inclusive growth of the country. NEP, 2020 intends to profoundly change the country's educational framework. The policy encourages inclusiveness, flexibility, and comprehensive growth in education. It emphasizes on cultivating 21st century skills such as critical thinking, creativity, and problem-solving. It emphasizes the significance of interdisciplinary learning opportunities, promoting research and innovation, and aligning curricula with global standards.

NEP 2020 emphasizes the importance of offering vocational exposure and skills to every student in schools, aiming to help them become good, successful, innovative, adaptable, and productive human beings in today's rapidly changing world. It is anticipated that the dignity of labour will be highlighted focusing on the significance of various professions related to Indian arts and craftsmanship, and enhancing vocational skills will



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align closely with the development of academic or additional skills. Skill education in India is on the cusp of this transition in India's Education landscape. The NEP 2020 highlights skill-oriented education and training through internship-integrated and practical learning to enhance students' readiness for the industry and their hands-on skills, thereby closing the divide between academia and industry. NEP 2020 has outlined the importance of skill development. Integrating and implementing skilling in education will mitigate poverty, harness demographic advantages, empower disadvantaged groups socio-economically, foster economic growth, alleviate social issues, and promote economic inclusion

The government of India launched skill India Mission in 2015 with an aim to equip the millions of young Indians with the necessary skills to succeed in a rapidly evolving job market. The Skill India Mission is executed through initiatives like PMKVY, DDUGKY, NAPS and several others to address employability gaps in the country and trained millions of the youth and enhanced their employment opportunities during the last one decade. The concept of Inclusive sustainability through skill development is becoming more significant by equipping a larger portion of the workforce with relevant skills by prioritizing social inclusion for marginalized groups and environmental responsibility through green skills training. In this context, this research paper aims to examine the need for inclusive sustainability through skill development and to explore the insights and opportunities due to these initiatives.

II. Need for Inclusive Sustainability through Skill Development

Inclusive sustainable development in India requires skill development to bridge skills gaps, create quality jobs, and ensure no one is left behind. By equipping a larger portion of the workforce with relevant skills, India can achieve economic growth while prioritizing social inclusion for marginalized groups and environmental responsibility through green skills training. A large segment of India's labor force, especially within the informal sector, does not possess the essential skills required for contemporary employment. This leads to unemployment and underemployment. Training in vocational and technical skills enhance individual competence and productivity, leading to access to better-paying and more secure jobs, which is a key component of sustainable development. India's young population offers a demographic dividend that could turn into a "disaster" if the youth lack skills. Skill development ensures this large population contributes to sustainable growth rather than becoming a burden.



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Inclusive skill development focuses on marginalized communities including women and people with disabilities, to ensure equitable access to opportunities and reduce social and economic disparities. Integrating sustainability into training programs is crucial. This includes training for green jobs, such as those in the electric vehicle sector, and promoting environmental consciousness in everyday work practices. Skill development also aligns with sustainable development goals such SDG 1 (No Poverty) by enhancing income levels through better employment, SDG 4 (Quality education) by integrating technical and vocational training with formal education, SDG 5 (Gender Equality) through increasing women's workforce participation and financial independence, SDG 8 (Decent work and economic growth) by boosting productivity and creating opportunities for work and SDG 10 (reduced inequalities) by helping in reduction of disparities through providing access to skills for undeserved communities.

India's skill reports for several years released by Wheebox in association with Confederation of Indian Industry (CII), AICTE and Association of Indian Universities (AIU) highlights the challenges in inclusive sustainability, such as a large portion of the workforce being in low-skill jobs and significant skill mismatches, which hinder sustainable and inclusive growth. However, there are opportunities through initiatives like upskilling for the green economy (e.g., electric vehicles, waste management) and leveraging digital and hybrid learning to bridge skill gaps and improve access, aiming for more resilient and equitable development.

III. Challenges for Inclusive Sustainability

Low Skill Levels and Mismatches: Approximately 88% of India's workforce is in low-competency jobs, and there is a significant mismatch where graduates are often under employed in lower-skill roles. The economic survey 2024-25 reveals that 53% of graduates and 36% of postgraduates are employed in lower-skill jobs, which reflects the inefficiency of India's education-to-employment system and the persistent mismatch between available jobs and workers' skills.

Regional and Income Inequality: Skill inequality is evident regionally, as some states have a significantly larger proportion of low-skilled workers, leading to wage disparities across different skill levels. Skill levels vary greatly among states, with some places like Chandigarh having a high percentage of workers in top skill categories, while others states like Bihar and Jharkhand lag significantly.

Informal Sector Dominance: The prevalence of informal labor market and precarious job conditions in the private sector continue to limit the creation of more sustainable and inclusive employment opportunities.



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As per the IMF, the informal sector continues to employ more than 80% of India's workforce, but it remains largely excluded from policy benefits like social security, job stability, and formal contracts. The informal sector contributes about 45% to India's total GDP, highlighting its crucial role in the economy. While formalization efforts are underway, they have been limited, leaving informal workers vulnerable to low wages and job insecurity. Additionally, the growing gig workforce, which now includes approximately 12 million workers as of fiscal year 2024–25, faces similar challenges.

Limited Formal Vocational Training: The access to formal technical and vocational education and training (TVET) is low with only about 4.5% of the workforce receiving formal training (compared to 80% to 96% in Japan and South Korea), often not aligned with modern industry needs.

IV. Opportunities for Inclusive Sustainability

Green Skill Development Initiatives: There is a growing need for skills in sectors like electric vehicles (EVs), renewable energy, and waste management to achieve sustainability goals and create new jobs. Realizing the demand for employment opportunities in Green jobs in the future and build a sustainable future ready work force, the Government of India and several state governments have taken following initiatives to impart skill training for the youth.

Green Skill Development Programme (GSDP), launched by the Ministry of Environment, Forest and Climate Change (MoEF&CC) under the Skill India Mission. It aims to equip youth with environmentally relevant skills for employment and self-employment in the environment and forest sectors. The training areas identified are includes modules on biodiversity conservation, wildlife handling, eco-tourism, and sustainable agriculture, among others.

Surya Mitra Skill Development programme implemented by National Institute of Solar Energy (NISE), Ministry of New and Renewable Energy, Government of India, to develop the skills in the growing Solar Energy Power Project's installation, operation & maintenance in India and abroad. By 27th November 2025 about 57,371 candidates were trained and about 26967 candidates were placed.

In the EV Sector, the Automotive Skill Development Council and NSDC work to bridge the gap between the growing demand for skilled personnel and the available workforce in the rapidly evolving EV sector. The states like Maharashtra, Karnataka, and Tamil Nadu, as pioneering states in EV adoption, have established



specialized training centers and partnered with academic institutions to develop courses centered around EV technologies.

Andhra Pradesh has set an ambitious target of creating 3 lakh green energy jobs over the next five years, and this model can be replicated by other states to drive employment in renewable energy sectors, such as solar, wind, and energy efficiency. By fostering a green workforce, India can contribute to sustainable development and create long-term employment opportunities aligned with global environmental goals

Hybrid and Digital Learning: Digital platforms and hybrid learning models can equalize access to education and skilling, enabling more individuals to acquire new competencies without relocation and helping to bridge geographical and social divides. By integrating digital technology with training will assist in generating jobs, minimizing urban migration, and harnessing the untapped potential of rural India.

Private Sector Partnerships: Private sector initiatives significantly contributes by creating business models that foster employability and align with national skills missions, providing lessons for wider implementation.

Through PPPs, the government can partner with private enterprises to implement skill development initiatives, establish vocational training centers, and create job opportunities in sectors such as infrastructure, manufacturing, and services. The Initiatives like the Skill India Mission and PMKVY benefit from private sector expertise, ensuring that the training provided aligns with industry needs and enhances employability. PPPs can also foster entrepreneurship by supporting small businesses and startups, ultimately leading to job creation and economic development.

Sustainability Integration: Adopting sustainable practices like lowering emissions, enhancing energy efficiency and waste management is becoming crucial for industries, driving the need for a skilled workforce in these areas.

V. Conclusion

Skill development is crucial in creating sustainable livelihoods and driving national progress. It contributes to structural transformation and results in labour productivity and inclusive growth. To achieve inclusive sustainability in skilling, India needs to implement policies that focus on comprehensive skill development and inclusivity to ensure quality job creation across all sectors. Further, it is essential to bridge the access gaps in education and scaling high-quality skilling to every region and social group for inclusive growth. Adding to this updating curricula and aligning learning outcomes with industry needs, particularly in high-demand areas like digital and green technologies, is necessary to reduce skill mismatch.



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