India's Skill Development Landscape

This editorial is based on "How skilling initiatives will drive economy, bridge gender gap" which was published in Livemint on 23/07/2024. The article highlights India's critical need to bridge the unemployment-employability gap to achieve 'Viksit Bharat' by 2047, emphasizing substantial investments in education, employment, and skilling initiatives as outlined in the Union Budget 2024-25.

For Prelims: Skill India Mission, Pradhan Mantri Kaushal Vikas Yojana, SANKALP Scheme, TEJAS Skilling Project ,India Skills Report 2024, Periodic Labour Force Survey (PLFS) 2022-23, Gig economy, IndiaAI Mission, Space economy, 3D printing

For Mains: Emerging Sectors where India can Prioritize Skilling Efforts, Major Issues Related to India's Skilling Efforts.

India stands at a critical juncture in its economic journey, with immense potential for growth but facing a significant challenge in **bridging the unemployment-employability gap.** As the world's fifth-largest economy, India's vision for '**Viksit Bharat' by 2047** hinges on effectively skilling its youth to meet the demands of a rapidly evolving job market. The recent Union Budget 2024-25 has highlighted this priority, allocating substantial funds for education, employment, and skilling initiatives. However, the task ahead is daunting, with nearly **73% of workers aged 15-59 years lacking any formal or informal vocational training.**

To harness India's demographic dividend and **fuel economic growth,** a multi-pronged approach is essential. This includes bolstering institutional support, strengthening industry-academia connections, and leveraging innovative financing solutions like impact bonds. As India navigates this crucial phase, the **success of its skill development effort**s will play a pivotal role in shaping the nation's future and realizing its economic potential.

Which Emerging Sectors Should India Prioritize for Skilling Efforts?

- **Renewable Energy and Green Technologies**: The renewable energy sector stands at the forefront of India's sustainable development agenda, **driven by the ambitious target of 500 GW capacity by 2030.**
    - It promises to create over **3.5 million jobs,** demanding a workforce skilled in solar, wind, and energy storage technologies.
- **Artificial Intelligence and Machine Learning**: India's AI market, projected to reach **USD 7.8 billion by 2025,** is reshaping industries and creating new paradigms of work.
    - This digital transformation necessitates a workforce adept in data analytics, **algorithm development, and machine learning.**
    - The **IndiaAI Mission** is a commendable start, but the dynamic nature of AI demands continuous upskilling and reskilling.

- Internet of Things **and Smart Cities**: The convergence of **IoT and smart city initiatives** is driving India towards a more connected, efficient future.
    - With the IoT market set to reach **USD 9.28 billion by 2025** and **plans for 100 smart cities**, the demand for skills in IoT programming, data security, and integrated urban planning is soaring.
    - The Smart Cities Mission has catalyzed this growth, but there's a pressing need for multidisciplinary skill development programs.
- **Electric Vehicles and Sustainable Mobility**: India's ambitious goal of **30%** electric vehicles **by 2030** is set to revolutionize the automotive sector, potentially creating 10 million direct jobs.
    - This transition demands an expertised **workforce in battery technology, charging infrastructure, and autonomous systems.**
- **Biotechnology and Pharmaceutical Sciences:** India's biotech industry, projected to reach **USD 150 billion by 2025**, stands at the cusp of a major breakthrough.
    - The Covid-19 pandemic has underscored the critical need for a skilled workforce in **genomics, bioinformatics, and vaccine development.**
    - While the Department of Biotechnology has launched collaborative programs with industry partners, the sector demands a more robust skill development ecosystem.
- **Space Technology and Satellite Communications:** India's space economy, set to touch **USD 13 billion by 2025,** is entering a new era with the opening up of the sector to private players.
    - This expansion creates a demand for skills in **satellite design, space debris management, and reusable space assets.**
- **Cybersecurity:** With India facing over **18 million** cyber-attacks **in Q1 2022 alone**, the importance of cybersecurity cannot be overstated.
    - Therefore, India urgently needs professionals skilled in **ethical hacking, network security, and cyber forensics. .**
- **3D Printing and Additive Manufacturing:**The India 3D printing market is anticipated to grow at a high **CAGR of 20.3% from 2023 to 2030.**
    - It is set to revolutionize manufacturing processes across industries. This emerging field demands expertise in **Computer-aided design (CAD) modeling, material science, and quality control** for additive manufacturing.
- **Quantum Computing:** India's commitment to quantum technologies, evidenced by the **₹8,000 crore allocation** to the **National Mission on Quantum Technologies** and **Applications,** signals a major push into this cutting-edge field.
    - The sector demands highly specialized skills in quantum algorithms, cryptography, and error correction.

What are the Recent Government Initiatives Related to Skill Development?

- Skill India Mission
    - Pradhan Mantri Kaushal Vikas Yojana
- SANKALP Scheme
- TEJAS Skilling Project
- Model Skill Loan Scheme to be revised to facilitate loans up to ₹7.5 lakh with government-backed guarantees, benefiting 25,000 students annually. (**Union Budget 2024-25)**

Why are India's Skilling Efforts not Translating into Improved Employment Outcomes?

- **Structural Economic Constraints:** India's economy is characterized by a **large informal sector (around 85-90%)** and a predominance of **micro, small, and medium enterprises (MSMEs).**
    - Many MSMEs lack the resources or incentives to invest in formal skill training resulting in the fact that only **4.4% of the young workforce is formally skilled** (Economic Survey 2023-24), preferring on-the-job learning.
    - The informal nature of much employment also means that **formal certifications often do not translate into wage premiums or job security,** reducing the perceived value of skill development programs.

- **Demographic and Geographic Disparities**: The India Skills Report 2024 revealed that employability varies significantly across states.
    - Urban centers demand **high-end tech skills,** while rural areas need more basic and traditional skill sets.
    - **This disparity is not adequately addressed in current skilling models**. Moreover, **internal migration patterns complicate skill mapping and delivery,** as skills acquired in one region may not be relevant in another.
- **Technological Disruption and Skill Obsolescence:** The rapid pace of technological change, particularly in areas like **AI, machine learning, and automation**, is rendering **many traditional skills obsolete faster than the education system can adapt.**
    - According to the **World Economic Forum's 2020** "Future of Jobs Report", half of all employees will **need to be reskilled by 2025** due to increased technology adoption
    - This creates a **perpetual catch-up game in skill development.** The challenge is not just to teach new skills but to **instill a mindset of continuous learning** and adaptability, which current programs often fail to address.
- **Misalignment with Higher Education System:** There's a significant **disconnect between the higher education system and vocational training.**
    - As per the Periodic Labour Force Survey (PLFS) 2022-23, **only 4.4% of youth aged 15-29 years** received formal vocational/technical training.
    - The **lack of integration between academic degrees and vocational qualifications** creates a dichotomy that devalues skill-based learning.
- **Inadequate Focus on Emerging Gig Economy**: The rise of the gig economy and platform-based work (potential to serve up to **90 million jobs**) is changing the nature of employment, requiring a different set of skills including **self-management, digital literacy, and entrepreneurship.**
    - Current skilling programs are still **largely oriented towards traditional employment models** and fail to adequately prepare workers for this new paradigm.
- **Evaluation Model Limitations:** The current funding models for skill development often prioritize **short-term outputs (number of people trained**) over long-term outcomes (**sustainable employment, career progression)**.
    - Economic Survey 2022-23 revealed that **1.1 crore people were trained under** PMKVY 2.0 **but only 21.4 lakh got placed.**
    - This creates perverse incentives that compromise the quality and relevance of training.
- **Challenges in Recognition of Prior Learning (RPL)**: While RPL has been introduced to recognize informal skills, its implementation faces challenges.
    - The assessment processes are often **not sophisticated enough to accurately capture and certify skills** acquired through informal channels, leading to undervaluation of existing skill sets.

What Measures can be Adopted to Revamp India’s Skilling Efforts?

- **Demand-Driven Skill Mapping and Forecasting**: Implement a **robust, real-time labor market information system** that uses big data analytics to forecast skill demands. This system should:
    - Collaborate with **industry associations** to gather **granular, sector-specific data.**
    - Utilize **AI algorithms** to analyze job postings, industry reports, and economic indicators.
    - Produce quarterly skill demand forecasts at national, state, and district levels.
    - **Singapore's SkillsFuture initiative** uses such a system to guide its national skills strategy and can be a role model for India.
- **Modular and Stackable Skill Certifications:** Introduce a system of **modular**, stackable certifications that allow learners to build skills incrementally:
    - Break down complex skill sets into smaller, certifiable modules.
    - Allow learners to **accumulate credits over time,** leading to higher qualifications. Ensure each module has immediate market value.
    - This approach can **increase participation by making skill acquisition more flexible and accessible.**
- **Integration of Vocational Education in Mainstream Schooling:** Embed vocational courses in the school curriculum from the secondary level:
    - Introduce **vocational subjects as electives from 8th grade onwards.**
    - Develop a **credit transfer system between vocational and academic streams.**

    - Ensure vocational teachers have both industry experience and pedagogical training.
    - **Germany's dual education system**, which combines apprenticeships with vocational schooling, could serve as a model.
- **Industry-Led Skill Centers of Excellence:** Establish **sector-specific Skill Centers of Excellence** in partnership with leading companies:
    - These centers should be **run by industry consortiums** with government support.
    - They must Focus on high-end, future-ready skills in emerging sectors.
- **Gig Economy Preparedness Initiative**: Launch a dedicated program to prepare workers for the gig economy:
    - Develop courses on **digital platforms, self-management, and financial literacy.**
    - Create a **gig work registry** to formalize and **promote gig worker's social security**.
    - Partner with platform companies to **co-design relevant skill modules.**
- **Revamped Apprenticeship Model:** Overhaul the apprenticeship system to make it more attractive for both employers and apprentices:
    - Offer **tax incentives to companies** based on the number and quality of apprenticeships.
- **Green Skills Integration Program**: Integrate green skills across all relevant skill development programs:
    - Develop a '**green skills' add-on module** for each sector-specific course.
    - Create specialized courses for emerging green jobs (e.g., **solar panel technicians, waste management specialists).**
    - Partner with environmental organizations for curriculum development and internships.
- **Rural Entrepreneurship through Skill Enhancement (RESE):** Transform Common Service Centers (CSCs) into **Digital Seva Skill Hubs.**
    - Provide training in both traditional and modern skills relevant to rural economies.
    - Offer **mentorship, microfinancing, and market linkage support.**
- **Train the Trainer Excellence Program:** Establish a comprehensive program to develop high-quality skill trainers with:
    - **Mandatory industry internships** for all trainers.
    - **Regular refresher courses** to keep trainers updated with industry trends.
    - **Performance-based incentives** for trainers linked to student outcomes.
- **Integrating Skill Development with MGNREGA**: Enhancing MGNREGA by incorporating skill development components
    - Offer skill training as part of the 100 days of guaranteed employment.
    - Focus on **skills relevant to rural development and local industries.**
    - Provide additional incentives for acquiring new skills through this program.

Drishti Mains Question:

Examine why India's skilling efforts are not translating into improved employment outcomes and suggest measures to bridge this gap.

UPSC Civil Services Examination Previous Year Question (PYQ)

Prelims

Q. With reference to Pradhan Mantri Kaushal Vikas Yojana, consider the following statements: (2018)

1. It is the flagship scheme of the Ministry of Labour and Employment.
2. It, among other things, will also impart training in soft skills, entrepreneurship, and financial and digital literacy.
3. It aims to align the competencies of the unregulated workforce of the country to the National Skill Qualification Framework.

Which of the statements given above is/are correct?

(a) 1 and 3 only
(b) 2 only

(c) 2 and 3 only
(d) 1, 2 and 3

Ans: (c)

Mains

Q. “Demographic Dividend in India will remain only theoretical unless our manpower becomes more educated, aware, skilled and creative.” What measures have been taken by the government to enhance the capacity of our population to be more productive and employable? **(2016)**