



## AI and Gender Equality

This editorial is based on [“Is AI industry gender-blind?”](#) which was published in the Hindu on 10/02/2023. It talks about the Gender biases in AI and Steps need to be taken to push for equality.

**For Prelims:** Artificial Intelligence, Carbon Emissions, International Day of Women and Girls in Science, G20 presidency, Nari Shakti, World Economic Forum’s Global Gender Gap Report 2022, STEM, Facial Recognition, KIRAN Scheme, India’s National Strategy for AI

**For Mains:** Gender Inequality in AI Industry, Transparency & Accountability

**Artificial Intelligence (AI)** is penetrating in every walk of life, fundamentally changing the way we associate, work and think. AI can transform societies and improve the quality of life of people through predictive, personalised and optimised solutions, improving their health, [reducing carbon emissions](#), enhancing resilience against disasters among others.

But **AI can also threaten privacy with invasive applications**, disrupt [human rights](#), and fuel inequality. However, the **impact of AI on societies largely depends on the motives and minds behind the technology**.

So, it is imperative to have equitable participation of diverse people, especially women, to make AI holistic and beneficial for everyone. The [8<sup>th</sup> International Day of Women and Girls in Science \(11<sup>th</sup> February\)](#) presents an opportunity to reflect on the gender trends and participation of women in the AI industry.

With the [G20 presidency](#) and spotlight on [Nari Shakti](#), **India is best positioned to drive international cooperation** and shape the global policy on advancing gender equality in AI.

### What is the Status of Women in the AI Industry?

- As per the [World Economic Forum’s Global Gender Gap Report 2022](#), **women make up only 22% of the AI workforce**.
  - This not **only limits the diversity of perspectives and experiences** that are shaping the future of AI, but also **perpetuates the gender pay gap and limits career growth**.
- **43% of [Science, Technology, Engineering and Mathematics \(STEM\)](#) graduates produced in India are women** which is higher than most advanced economies.
  - However, a lot more needs to be done on the work front, **as only 14% of STEM jobs in India go to women**.
  - Additionally, **81% of women in STEM face gender bias** during performance evaluations during their career.
- **Tech giants like Google and Facebook have only 10-15% AI specialists** as women and this disparity exists in research as well.

- A study published by **Nesta** found that **only 13.83% of AI research publications are authored by women.**
  - Studies suggest that **biased AI systems can exacerbate existing gaps in the workforce** and even harm under-represented communities.

## What are the Challenges with Women Representation in AI?

- **Lack of Diversity in the Tech Industry:**
  - There has long been a **lack of gender balance and diversity** in the tech industry, and this is no exception when it comes to AI.
  - There is an **underrepresentation of women in technical roles, particularly in leadership positions**, which results in homogeneous perspectives and a lack of diversity in decision-making.
- **Bias in AI systems:**
  - AI systems that are designed without considering the experiences and needs of diverse populations can perpetuate discrimination and inequality.
  - **Example:**
    - AI chatbots that take commands from customers are already reinforcing unfair gender stereotypes with their gendered names and voices.
    - **Facial recognition algorithms have shown a higher error rate for identifying women** and people of colour, which is a direct result of the biased training data.
    - Gender-blind AI designs are **leading to unfair credit scoring of women.** Biased AI-recruiting tools have automatically filtered-out job applications from women.
- **Stereotyping and Gender Bias in the Workplace:**
  - Women in AI may face gender bias and stereotyping in the workplace, which can impact their career progression and limit their opportunities for advancement.
  - This can also contribute to a lack of women in leadership positions in AI.
- **Work-Life Balance Challenges:**
  - Women may **face additional challenges in achieving a work-life balance**, particularly in demanding technical fields like AI, which can impact their career progression and participation in the industry.

## What are the Related Steps taken?

- **KIRAN Scheme:**
  - launched in 2014-15, it **provides opportunities for women scientists** in moving up the academic and administrative ladder.
- **India's National Strategy for AI:**
  - It focuses on **inclusiveness, and promotes the idea of #AIFORALL.**
  - Under this programme, **Telangana aims to train 1,00,000 students, with a focus on girls** from vulnerable backgrounds on AI and Data Science and has already trained more than 5,000 girls.
  - Additionally, rural women in Telangana are also being trained and employed in three rural data annotation centres in the State.
  - The government also promoted **We-Hub**, an incubator for women entrepreneurs in Hyderabad that has trained more than 700 girls aged 13 to 17 in Data Science and AI.

## What can be done to Increase the Representation of Women?

- **Role of Private Sector:**
  - To address the gender disparity in AI, it is important to **change mindsets, accelerate efforts and investments to create opportunities** for women and girls.
  - Private sector **should act fast by promoting leadership positions for women** in AI, having equal number of women participating in panel discussions, ending gender pay gap, providing mentorship and networking opportunities, prioritising recruitments of young women from diverse backgrounds in AI roles, invest in entrepreneurship and research led

by women in AI, promoting AI competencies among girls and women, and facilitating women from multidisciplinary backgrounds to participate in the AI revolution.

▪ **Boosting Skills Development Programmes:**

- Governments and educational institutions **can play a crucial role by investing and executing programmes that boost the participation of women in AI** such as skills development programmes in AI designed for women, scholarships, research grants, and internships.
- Additionally, the **media can help raise awareness and promote the positive representation of women in AI.**

▪ **Driving International Cooperation:**

- International cooperation is crucial for promoting gender diversity and representation in the field of Artificial Intelligence (AI).
- Some ways in which such cooperation can be facilitated:
  - Creating awareness about the importance of gender diversity in AI
  - Encouraging international collaboration between organizations, research institutions, and universities working in the field of AI
  - Sharing resources such as educational materials, data sets, and research findings
  - Building networks of individuals and organizations working in the field of AI
  - Providing support to women who are pursuing careers in AI

▪ **Facilitating Role in Non-Technical Roles:**

- Women can definitely enter into non-technical roles in the field of AI such as project management, business development, marketing, ethics, governance and sales in the AI industry.
- These roles often require strong communication and organizational skills, as well as the ability to understand and explain complex technical concepts to non-technical stakeholders.
- Women bring diverse perspectives and experiences to the table and can make valuable contributions to the field of AI in these non-technical roles.

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# International Day for Women and Girls in Science



## ABOUT

- Celebrated every year on February 11 since 2015
- Observed by the United Nation to promote the full and equal access and participation of women in Science, Technology, Engineering and Mathematics (STEM) fields.

## THEME 2023

- Innovate. Demonstrate. Elevate. Advance. Sustain (I.D.E.A.S.)

## STATUS OF WOMEN PARTICIPATION IN THE SCIENCE SECTOR

- According to the All India Survey on Higher Education 2020-2021, number of science researchers in India has doubled from 30,000 in 2014 to over 60,000 in 2022.
- Women's participation is the highest in biotechnology at 40% and medicine at 35%.

## INITIATIVES TAKEN FOR WOMEN IN SCIENCE

- **Gender Advancement for Transforming Institutions (GATI):**
  - To develop a comprehensive Charter and a framework for assessing Gender Equality in STEM.
- **Vigyan Jyoti Scheme:**
  - To create a level-playing field for the meritorious girls in high school to pursue STEM in their higher education.
- **Indo-US Fellowship for Women in STEMM (WISTEMM) program:**
  - Women scientists can work in research labs in the US.
- **Consolidation of University Research for Innovation and Excellence in Women Universities (CURIE) Programme:**
  - Improving R&D infrastructure and establishing state-of-the-art research facilities in order to create excellence in S&T in women universities.

## Women who Shaped India's Scientific History



**Anandibai Gopalrao Joshi (1865-1887)**

- First Indian female to study and graduate with a degree in western medicines from the United States.
- Believed to be the first woman to set foot on American soil from India.



**Kamala Sohanie (1911-1998)**

- First Indian woman to receive a PhD in a scientific discipline.
- Discovered the enzyme "Cytochrome C" (helps in energy synthesis).



**Kadambini Ganguly (1861-1923)**

- Becomes India's first female doctor & practitioner of western medicine in the whole South Asia.



**Anna Mani (1918-2001)**

- First woman to join the Meteorological department.



**Bibha Chowdhary (1913-1991)**

- First woman high energy physicist of India and the first woman scientist at the TFIR.
- IAU honoured her by naming a white yellow dwarf star after her name.



**Kamal Ranadive (1917-2001)**

- Established India's first tissue culture research laboratory at the Indian Research Centre in Mumbai.



**Edavaleth Kakkat Janaki Ammal (1897-1984)**

- Made significant contributions to genetics, evolution, phytogeography and ethnobotany.
- First director of the Central Botanical laboratory at Allahabad.



**Sanghamitra Bandyopadhyay**

- She has been conferred the Padma Shri in 2022.
- She is the first woman director of the Indian Statistical Institute.



**Debala Mitra (1925-2003)**

- First Indian archaeologist served as Director General of the Archaeological Survey of India.
- Explored and excavated several Buddhist sites.



**Ms. Sujatha Ramdorai**

- She was awarded the Padma Shri award in 2023.
- She became the first Indian to win the prestigious ICTP Ramanujan Prize in 2006.
- She was also awarded the Shanti Swarup Bhatnagar Award, the highest honour in scientific fields by the Indian Government in 2004.
- She is also the recipient of the 2020 Krieger-Nelson Prize for her exceptional contributions to mathematics research



### **Drishti Mains Question**

How is the AI industry addressing and promoting gender equality in terms of representation, opportunities and ethical considerations?

## **UPSC Civil Services Examination, Previous Year Questions (PYQs)**

### **Mains**

**Q.** “The emergence of the Fourth Industrial Revolution (Digital Revolution) has initiated e-Governance as an integral part of government”. Discuss. **(2020)**

PDF Reference URL: <https://www.drishtias.com/printpdf/ai-and-gender-equality>

