



International Day of Women and Girls in Science

For Prelims: [International Day of Women and Girls in Science \(IDWGS\)](#), [Science Technology Engineering and Mathematics \(STEM\)](#), Department of Science and Technology, Vigyan Jyoti Programme, GATI program.

For Mains: Representation of Women in Science and Associated Government Initiatives.

Source: [PIB](#)

Why in News?

The year 2025 marks the **10th anniversary** of the [International Day of Women and Girls in Science \(IDWGS\)](#), observed annually on **11th February**.

- This day promotes the full and **equal participation of women and girls in Science, Technology, Engineering and Mathematics (STEM)**.

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 STEM (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 women to set foot on American soil from India**.



Kamala Sohonie (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.



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.



Anna Mani (1918-2001)

- First woman to join the **Meteorological department**.



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

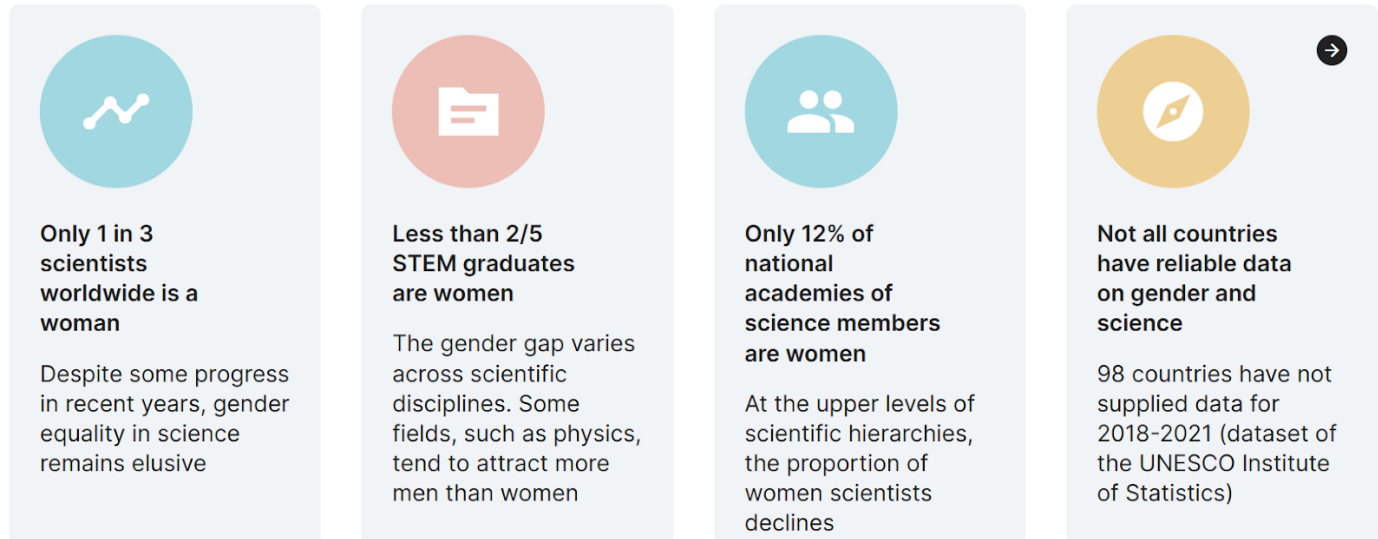


What is the Status of Women in STEM?

▪ Global Scenario:

- **Women in STEM:** According to **UN data**, globally, women remain underrepresented in **STEM education and careers**, constituting only **35% of STEM graduates**.
- Between **1901 and 2024**, only **26 out of 650 Nobel laureates** in **Physics, Chemistry, and Physiology or Medicine** have been women.

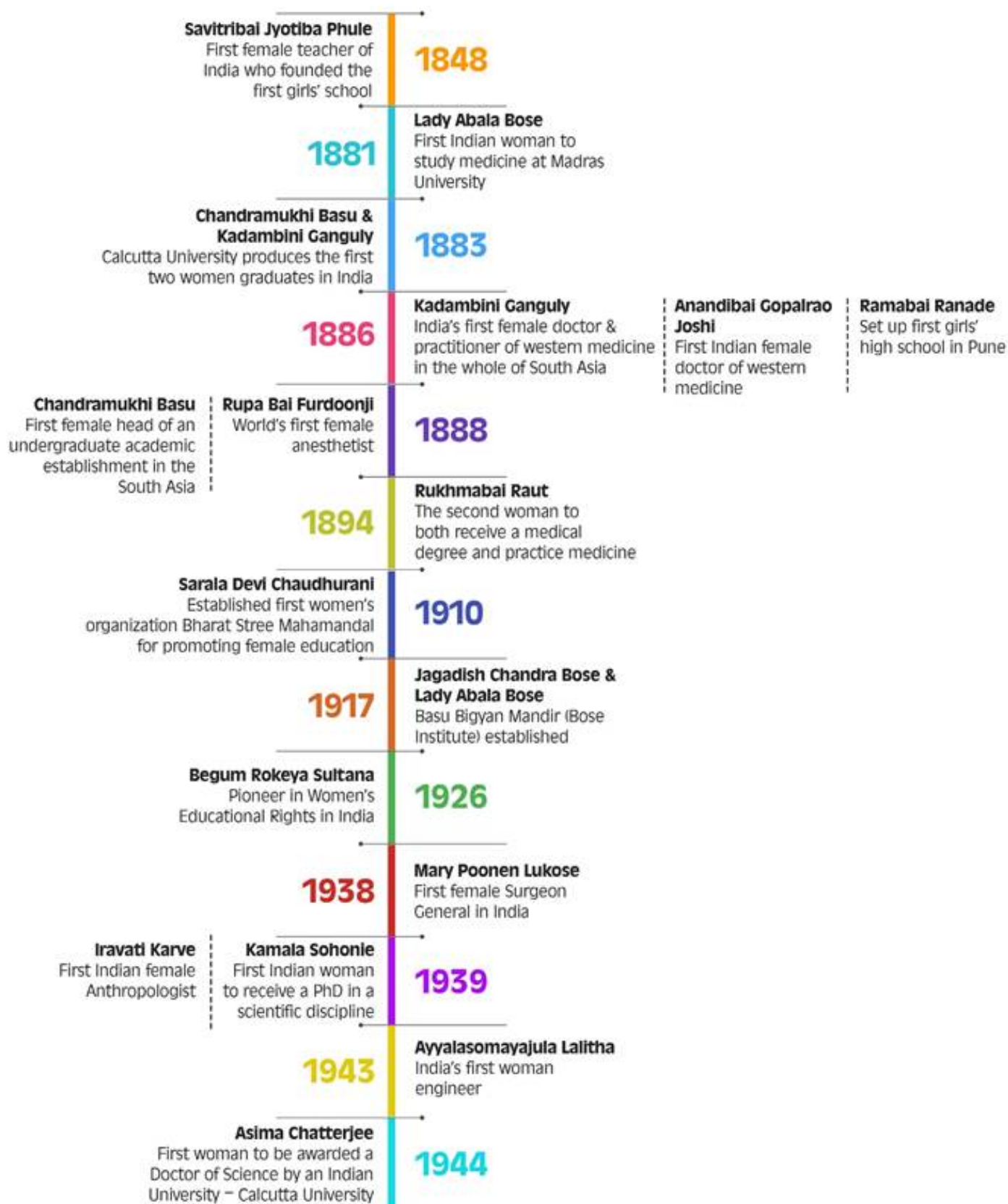
Facts & figures



▪ Indian Scenario:


- **Women in Research:** Government data presented in **Lok Sabha (2024)** shows women comprise only **18.6% of the scientific workforce**.
- **STEM Enrolment:** Women constitute **43% of STEM students** in higher education.
- **Declining Representation:** Their presence significantly drops at **higher research levels** and **leadership positions** in scientific institutions.

Milestones of Women in Indian Science



What are India's Initiatives Related to STEM?



- [National Initiative for Developing and Harnessing Innovations](#)
- [Vigyan Jyoti](#)
- [Gender Advancement for Transforming Institutions \(GATI\)](#)
- [WISE-KIRAN Scheme](#)



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DEPARTMENT OF
SCIENCE & TECHNOLOGY

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आज़ादी का
अमृत महोत्सव

THREE NEW PROGRAMMES ANNOUNCED UNDER
Women in Science & Engineering (WISE)-KIRAN
SCHEME TO INCREASE THE PARTICIPATION OF
WOMEN IN SCIENCE

 INDUSTRIAL RESEARCH FELLOWSHIP FOR WOMEN: Brings opportunity for young women researchers to work in the industry for short & long duration	 OVERSEAS FELLOWSHIP FOR WOMEN: Provides exposure to research scholars and young women scientists to upgrade their skills in various countries	 SENIOR WOMEN SCIENTIST'S FELLOWSHIP: Brings dignity to senior women scientists who are performing well in research but are not in regular employment due to various circumstances
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- **BioCARE Fellowship:**
 - It **supports women scientists in biotechnology and allied fields** to build successful research careers.
- **Technology Business Incubators (TBIs) at Women's Universities**
 - **TBIs** have been established at **IGDTUW (Delhi), SPMVV (Tirupati), and iTBI at DTU** to promote **women-led innovation and gender inclusivity** in entrepreneurship.

What are the Challenges Related to Women in STEM?

- **Workforce Dropout & Societal Barriers:** Women in STEM face **career discontinuity** due to **caregiving responsibilities, rigid work policies, and re-entry challenges**. **Cultural stereotypes** further discourage their participation, widening the gender gap in science.
- **Workplace Barriers:** **Gender biases**, lack of mentorship, and **underrepresentation in decision-making roles** restrict career growth. Women face lower access to **research funding and leadership positions**.
- **Institutional Barriers:** **Lack of gender-sensitive policies** such as **maternity benefits, flexible work arrangements** and **limited gender data access** hinder women's retention and equity in STEM.

Way Forward

- **Gender-Inclusive Policies:** Implement **gender-sensitive hiring, leadership quotas, and research grants** for women scientists. Promote **flexible work policies** and **family support programs** in scientific institutions.
- **Leadership & Mentorship:** Establish mentorship networks and **encourage women in leadership roles** in academia, research, and policymaking.
- **Workplace Equity:** Implement **transparent evaluation and promotion systems** to ensure equal pay and recognition for women.
- **Women Entrepreneurship:** Strengthen **NIDHI, BioCARE, and Technology Business Incubators (TBIs)** to support **women-led startups** in science and technology.
- **Global Collaboration:** Adopt successful models from countries with **higher women representation in STEM**, ensuring **global partnerships and exchange programs** for women researchers.

Drishti Mains Question:

Q. Examine the factors hindering women's participation and empowerment in STEM fields in India. Propose effective policy interventions to promote gender-inclusive growth in science and technology.

UPSC Civil Services Examination Previous Year Question (PYQ)

Prelims

Q. Which of the following gives 'Global Gender Gap Index' ranking to the countries of the world? (2017)

- (a) World Economic Forum
- (b) UN Human Rights Council
- (c) UN Women
- (d) World Health Organization

Ans: (a)

Q. Two of the schemes launched by the Government of India for Women's development are Swadhar and Swayam Siddha. As regards the difference between them, consider the following statements: (2010)

1. Swayam Siddha is meant for those in difficult circumstances such as women survivors of natural disasters or terrorism, women prisoners released from jails, mentally challenged women etc., whereas Swadhar is meant for holistic empowerment of women through Self Help Groups.
2. Swayam Siddha is implemented through Local Self Government bodies or reputed Voluntary Organizations whereas Swadhar is implemented through the ICDS units set up in the states.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Ans: (d)

Mains

Q.1 “Empowering women is the key to control population growth”. Discuss. (2019)

Q.2 Discuss the positive and negative effects of globalization on women in India? (2015)

Q.3 Male membership needs to be encouraged in order to make women’s organization free from gender bias. Comment. (2013)

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