

**The Hindu Important News Articles & Editorial For UPSC CSE**

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—It's about quality—

China's Foreign Minister Wang Yi acknowledged positive strides in India-China relations following the Modi-Xi meeting in Kazan (October 2023). He emphasized mutual cooperation over rivalry, while reiterating that border disputes should not define bilateral ties.

## India, China made positive strides after Modi-Xi meet, says Foreign Minister Wang

**Press Trust of India**

BEIJING

A ballet between the elephant and the dragon contributing to each other's success is the "only right choice" for India-China relations, Foreign Minister Wang Yi said on Friday as he acknowledged positive strides in bilateral ties after the end of the military stand-off in eastern Ladakh.

There is every reason for us to support each other rather than undermine each other or undercut each other, he said at his annual press conference.

The successful meeting between President Xi Jinping and Prime Minister Narendra Modi in Kazan last October provided strategic guidance for the development of the bilateral ties, Mr. Wang said.

After that "both sides have earnestly followed through on the important



Wang Yi

common understandings of our leaders, strengthened exchanges and practical cooperation at all levels, and achieved a series of positive outcomes", he added.

In a reference to India stressing the importance of peace at borders for the development of relations, Mr. Wang reiterated China's repeated stand that the differences over the boundary or on other issues should not affect the bilateral ties.

"We should never allow bilateral relations to be defined by the boundary

question or specific differences to affect the overall picture of our bilateral ties," he said.

As important members of the Global South, China and India have the responsibility to take a lead in opposing hegemonism and power politics, he said in an apparent reference to the U.S. The two countries must not only safeguard legitimate rights and interests of respective countries but also uphold the basic norms governing international relations, he added.

"If China and India join hands, the prospect of greater democracy in international affairs and the stronger Global South will improve greatly," he said.

He said 2025 marks the 75th anniversary of China-India diplomatic relations. "China stands ready to forge a path forward and advance China-India relations on the track of stable development," he said.

### Key Highlights of Wang Yi's Statement:

#### 1. Improvement in Relations Post Military Stand-Off

- Both sides have taken steps to implement leaders' consensus after the Eastern Ladakh disengagement.
  - There is an increase in diplomatic engagement and practical cooperation.
- 2. China's Stand on the Border Issue**
- China asserts that border disputes should not define India-China relations.
  - India, however, maintains that peace at the border is essential for normal ties.
  - The disengagement process remains a work in progress with military and diplomatic negotiations continuing.
- 3. China's Position on Global Power Politics**
- China and India should oppose 'hegemonism and power politics' (implying U.S. influence).
  - He highlights India and China as leaders of the Global South, advocating for multipolarity in global governance.
- 4. Upcoming Milestone: 75 Years of Diplomatic Relations (2025)**
- China expresses willingness to work towards stable relations leading up to this anniversary.

### Key Issues in India-China Relations:

#### Border Dispute & Military Stand-Offs

- Eastern Ladakh Standoff (2020) led to strained ties and economic restrictions.
- Disengagement has seen progress but full de-escalation remains incomplete.
- Trust deficit persists due to repeated border violations.

#### Trade Relations & Economic Dependence

- India-China trade crossed \$136 billion in 2023, but India faces a trade deficit of \$101 billion.
- India is reducing dependence on China in critical sectors like electronics, telecom, and pharmaceuticals.

#### Strategic Rivalry & Indo-Pacific Security Concerns

- India's growing ties with QUAD (U.S., Japan, Australia) and China's expanding presence in South Asia create friction.
- China's Belt and Road Initiative (BRI) and its activities in Pakistan (CPEC), Nepal, and Sri Lanka raise concerns for India.

#### Geopolitical Cooperation & Multilateral Engagements

- India and China collaborate in BRICS, SCO, RIC (Russia-India-China), and G20 despite bilateral tensions.

- Both push for reforms in global governance and developing world representation.

### Way Forward:

- **Border Dispute Resolution:** Continue diplomatic and military talks for complete disengagement.
- **Economic Strategy:** Reduce trade dependence, focus on Make in India & supply chain diversification.
- **Regional Stability:** Balance China's influence in South Asia through infrastructure projects and strategic partnerships.
- **Global Engagement:** Work together in BRICS, G20, SCO while maintaining strategic autonomy in global politics.

### Conclusion:

While India-China relations have improved post the Modi-Xi meeting, fundamental border tensions and strategic rivalry persist. Balancing cooperation and competition will be key to ensuring regional stability and economic growth.

### UPSC Mains Practice Question

**Ques:** Critically analyze the recent developments in India-China relations post-Galwan. What steps should India take to balance cooperation and competition with China?(250 words)

The Supreme Court has acknowledged a petition highlighting the inhumane conditions faced by prisoners with disabilities, citing the cases of Professor G.N. Saibaba and Stan Swamy. The plea pointed out the absence of a legal framework under the Rights of Persons with Disabilities Act, 2016 to ensure reasonable accommodations in prisons.

## Plight of prisoners with disabilities needs attention: SC

Top court issues notice to Centre on plea that highlighted the trauma and inhumane conditions suffered by G.N. Saibaba and Stan Swamy

**Krishnadas Rajagopal**  
NEW DELHI

The Supreme Court on Friday said a petition highlighting the trauma and inhumane conditions suffered by Professor G.N. Saibaba and the elderly Stan Swamy raised a “serious” issue about the lack of disabled-friendly accommodation and facilities in prisons across the country.

A Bench of Justices Vikram Nath and Sandeep Mehta agreed with advocate Kaleeswaram Raj, representing petitioner Sathyan Nadavoor, that even the Persons with Disabilities Act of 2016 did not contain a legal framework to protect the rights of prisoners with disabilities and provide them “reasonable accommodation”.

Both judges said the specific issue had not been adjudicated by the top court and needed serious attention. The court issued formal notice to the Union government.

“The demise of Prof.



**Major drawback:** The Persons with Disabilities Act does not have a legal framework to protect the rights of prisoners, said the plea.

G.N. Saibaba, a scholar and human rights activist with disabilities, was directly attributable to his deteriorating health, exacerbated by prolonged incarceration and the inhumane conditions of his detention. Stan Swamy also struggled with disability due to Parkinson's syndrome and died while in prison. He was denied medical treatment and basic support,” the petition submitted.

“There are no provisions for disabled prisoners that provide for their specific needs. They are still housed in the same fa-

ilities as non-disabled inmates, thereby receiving similar treatment regardless of their specialised requirements. This vitiates the purpose of the Rights of Persons with Disabilities Act, 2016,” the petition noted.

The prison manuals of most States continue to lack mandatory provisions for ramps and other accessibility measures in prisons. This failure persists in matters of basic mobility within prison premises, in direct contravention of the statutory requirements set forth by the Act, it said.

### Key Issues Raised:

#### 1. Lack of Disabled-Friendly Prison Facilities:

- Prisons in India do not have separate provisions for disabled inmates.
- No mandatory accessibility measures like ramps, assistive devices, or specialized medical care.
- 2. **Legal Gaps in the Rights of Persons with Disabilities Act, 2016**
  - The Act does not explicitly cover the rights of prisoners with disabilities.
  - No clear framework for their protection, rehabilitation, or reasonable accommodations.
- 3. **Violation of Human Rights:**
  - The deaths of G.N. Saibaba and Stan Swamy highlight the consequences of neglecting the rights of disabled prisoners.
  - Denial of medical aid and lack of special provisions worsen their health conditions.

### Judicial Intervention:

- The Supreme Court has taken cognizance of the matter and issued notice to the Union government.
- The Court emphasized that the issue is serious and requires urgent policy intervention.

### Broader Implications:

- **Legal and Policy Reforms:** Need for amendments in the Prisons Act and Rights of Persons with Disabilities Act to include mandatory provisions for disabled inmates.
- **Prison Infrastructure:** Need for accessible jail facilities, trained medical staff, and rehabilitation programs.
- **Human Rights Perspective:** Aligning prison conditions with UN conventions on disability rights and fundamental rights under Articles 14, 19, and 21 of the Constitution.

### Conclusion:

The Supreme Court's intervention could lead to structural reforms in India's prison system, ensuring humane treatment of prisoners with disabilities. A comprehensive policy framework is needed to uphold their dignity and fundamental rights.

### UPSC Mains Practice Question

**Ques :**The condition of prisoners in India remains a human rights concern. Critically analyze the need for prison reforms with special reference to prisoners with disabilities. (250 words)

Women's accessibility and safety in public spaces remain **major socio-political concerns** in India. The **Women, Peace, and Security Index 2023 ranked India 128 out of 177 countries**, highlighting persistent challenges in gender equality and mobility. Addressing these barriers is **crucial for women's social and economic empowerment**.

### Key Challenges Faced by Women in Public Spaces:

#### 1. Gendered Spatial Control & Societal Restrictions

- Women's movement is often **regulated by patriarchal norms**, restricting access to public areas.
- **Public spaces are gendered**, where women are expected to occupy private/domestic spaces.
- **Data Insights (NFHS-4, 2015-16):**
  - **54% of women** can visit markets alone.
  - **50% can access healthcare independently.**
  - **48% can travel outside their village/community unaccompanied.**

#### 2. Limited Participation in Workforce & Economic Activities

- **Labour Force Participation Rate (LFPR) for women (2023-24): 35.6%** (still low).
- Most women use public spaces **only for functional needs (work, education, healthcare)**, not for **leisure or recreation**.
- **Presence in curated spaces (malls, cafes) is higher** due to perceived safety.

#### 3. Threat of Gender-Based Violence & Social Stigma

- **Public spaces are often unsafe**, reinforcing the need for **constant vigilance and self-regulation** by women.
- Women's presence in **streets, footpaths, and open areas is often restricted due to fear of harassment**.
- **Victim-blaming culture** discourages women from asserting their right to public spaces.
- **Low conviction rates** for gender-based crimes **increase impunity for offenders**.

### Reclaiming Public Spaces: A Shift in Perspective

#### Beyond Necessity: Leisure & Autonomy

- Inspired by *Why Loiter?* (Phadke, Ranade, Khan, 2011), women's participation in public spaces should not be limited to necessity but should include **leisure and freedom of movement**.
- **Women should be able to "just exist" in public spaces**, without urgency or restriction.

#### Breaking the Cycle of Fear & Restriction

- The **perceived need for protection leads to reduced autonomy**, restricting women's participation in public life.
- Instead of avoiding public spaces, women should **actively reclaim them through increased presence and participation**.

### Equal Risk, Unequal Vulnerability

- **Men also face street violence**, but their mobility is **not restricted by patriarchal norms**.
- **Women must normalize their presence in public spaces** to challenge societal expectations.

### Policy Recommendations for Inclusive Public Spaces:

#### Urban Planning & Infrastructure Changes

- **Better street lighting** to improve visibility and security.
- **Safe & accessible public toilets** to facilitate women's mobility.
- **Street furniture (benches, seating areas)** to encourage women's leisure activities.
- **More recreational areas** designed with women's participation in mind.

#### Legal Reforms & Stronger Law Enforcement

- **Stricter punishment for gender-based crimes** in public spaces.
- **Higher conviction rates** to deter repeat offenders.
- **End victim-blaming narratives**; shift focus on perpetrators.

#### Community & Social Interventions

- **Public awareness campaigns** to challenge patriarchal norms restricting women's mobility.
- **Encouraging women's visibility in non-traditional public spaces** (streets, transport hubs, parks).
- **Men's role in ensuring safer public spaces** by actively opposing gender-based harassment.

### Way Forward:

For **true gender equality**, women's right to public spaces must be recognized and normalized. Transforming public spaces **from fear zones to freedom zones** is essential for **women's empowerment, economic participation, and social inclusion**.

### UPSC Mains Practice Question

**Ques** :How does gendered spatial control impact women's mobility and participation in public spaces in India? Discuss with examples.(250 words)



India, despite being the largest producer and exporter of spices, holds only 0.7% share in the global seasoning market compared to China (12%) and the U.S. (11%). The World Spice Organisation (WSO) has highlighted the need for value addition and diversification into nutraceutical and pharmaceutical applications to enhance exports and meet the \$10 billion target by 2030 set by the Spices Board of India.

## Boost value addition in spices to achieve \$10-bn export target by 2030: WSO

**Mini Tejaswi**  
BENGALURU

Regardless of being the largest producer and exporter of diverse varieties of spices in the world, India's share in the global seasoning market, pegged at \$14 billion in 2024, is only a paltry 0.7%, against China's 12% and U.S.'s 11%, said Ramkumar Menon, chairman, The World Spice Organisation (WSO).

India currently exports 1.5 million tonne of spices of all kinds worth \$4.5 billion, commanding a quarter of the global spice market valued at \$20 billion.

Mr. Menon said currently only 48% of India's spice exports were value-added products while the remaining bulk hits the markets as culinary whole spices.

To achieve the Spices Board of India's export target of \$10 billion by 2030, the country's share in value-added spices should rise up to 70%, he opined.

"Seasoning is a huge market. Despite India being the largest producer and exporter of spices, our current share in seasoning is really low, and we have a huge opportunity to grow in this segment," he said.

Mr. Menon further said, it was also critical for the Indian spice sector to explore the nutraceutical and pharmaceutical value of spices in a big way.

### 'Tap nutraceuticals'

"We should explore the nutraceutical and pharmaceutical scope of our spices in a major way. This is another way of value adding by finding newer ways of useful consumption for our spices. Several spices



**Spice it up:** Only 48% of spice exports were value-added products while the rest hit the market as culinary whole spices. THE HINDU

are already being used by Ayurveda and other schools of medicine," he pointed out.

Mr. Menon added that some 85% of the spices grown in India are consumed domestically. Although India leads the world in spice production, Vietnam, Indonesia, Brazil and China are also active players in the global spice markets. Africa has also entered spice production in recent years.

### Emerging producers

On the importance of increasing spice production within the country, he observed that other than the traditional spice-growing States in the country, the North Eastern region, Odisha and Jharkhand were emerging as sizable producers of various spices.

"India has 15 different agro-climatic zones and this helps us grow a wide variety of spices, almost in all States," he said.

"Export possibilities are huge. To cash in on this, we have to first increase our production. We also have to find ways to bring down cost of production and increase focus on qual-

ity and scale our share in value added spices," he added.

WSO, a platform that unites all stakeholders in the spice industry comprising farmers, processors, academics, and end-users, is working closely with several farmer producer organisations (FPOs) to boost production, exports and value addition. FPOs are sensitised on safety, quality and sustainability in spice cultivation by training farmers on quality control issues and teaching them the importance of growing spices while limiting pesticide use.

### Pest management

Spice farmers are also trained in integrated pest management, water management and hygiene practices around handling, processing and packaging.

He also emphasised on the need for developing high-yielding and climate-resistant varieties of spices in the country, adding organisations such as Indian Council of Agricultural Research and National Research Centre on Seed Spices have been already working on these fronts.

## Key Issues and Challenges:

- 1. Low Value Addition in Exports**
  - Only 48% of exported spices are value-added, while the rest are raw whole spices.
  - Value addition (such as spice blends, extracts, oils, and nutraceutical applications) enhances competitiveness and profitability.
- 2. Global Competition**
  - Vietnam, Indonesia, Brazil, and China are major players in the global spice market.
  - Africa is emerging as a new producer, intensifying competition.
- 3. Need for Diversification into Nutraceutical and Pharmaceutical Markets**
  - Spices have medicinal properties used in Ayurveda and modern pharmaceuticals.
  - Expanding into nutraceuticals can increase market demand and revenue.
- 4. Production and Cost Challenges**
  - High cost of production reduces competitiveness.
  - Need to develop high-yielding and climate-resistant varieties of spices.
  - Integrated pest and water management is essential for sustainable cultivation.
- 5. Regional Expansion for Production**
  - Traditional spice-growing States dominate production.
  - Northeast India, Odisha, and Jharkhand are emerging as new spice hubs.

## Way Forward & Policy Interventions:

### Increase Value Addition:

- Promote spice processing industries to move beyond raw exports.
- Encourage spice oil, oleoresin, and seasoning production for global markets.

### Enhance Research & Development:

- Invest in high-yielding and climate-resistant spice varieties.
- Leverage research from **ICAR and National Research Centre on Seed Spices**.

### Strengthen Farmer Producer Organizations (FPOs):

- Train farmers in quality control, organic farming, and sustainable cultivation.
- Implement pesticide control measures for global acceptance.

### Boost Branding and Global Market Penetration:

## Daily News Analysis

- Promote Indian Geographical Indication (GI) tagged spices like Malabar Black Pepper, Mizo Chilli, and Alleppey Green Cardamom.
- Strengthen export partnerships and ensure compliance with global standards.

### Conclusion:

To achieve the \$10 billion spice export target, India must shift from raw spice exports to value-added products, expand into nutraceuticals and pharmaceuticals, and enhance sustainable farming practices. Leveraging R&D, farmer training, and market expansion will be crucial to positioning India as a global leader in the spice industry.

### UPSC Mains Practice Question

**Ques:**Evaluate the role of Farmer Producer Organizations (FPOs) in enhancing agricultural exports. How can they help in the spice sector?(250 words)

### In News : World Spice Organisation (WSO)

The Chairman of the World Spice Organisation (WSO) recently stated that India holds a meager 0.7% share in the global seasoning market, valued at \$14 billion in 2024, compared to China's 12% and the U.S.A.'s 11%.



#### About World Spice Organisation

- It is a not-for-profit organisation established in 2011 in Kochi, Kerala, the spice capital of India.
- It is registered under the Travancore Cochin Literary, Scientific, and Charitable Societies Act, 1956.
- Objective: Facilitating the spice industry in dealing with issues of "Food Safety & Sustainability".
- WSO seeks to achieve its objectives by involving all its stakeholders—the general public, the industry, academia, and the end-users.
- WSO undertakes social responsibility projects beneficial for the industry.
- WSO is involved in initiatives promoting sustainability and biodiversity in collaboration with prominent national and international organizations like Spices Board India, Indian Institute of Spice Research (IISR), Rainforest Alliance, GIZ (Germany), and IDH - The Sustainable Trade Initiative (Netherlands).
- WSO also interacts with global spice associations like the American Spice Trade Association (ASTA), European Spice Association (ESA), International Pepper Community (IPC), etc to resolve issues facing the spice industry.
- WSO takes part in the various national and international standard-setting processes pertaining to spices, such as FSSAI, BIS, ISO, and Codex, in order to ensure that the interests of the industry are considered while setting the standards.
- It is the technical partner of the All India Spices Exporters Forum (AISEF).

# An equitable future for women in science, in India

**W**omen in science navigate a minefield of challenges that often start early. Educational barriers, such as limited access to quality schools and gendered societal norms, can discourage girls from pursuing science, technology, engineering, and mathematics (STEM). For those who persist and are fortunate to get past these early hurdles, cultural expectations frequently demand that they prioritise family over careers, severely jeopardising professional growth. Gender stereotypes further restrict opportunities, affecting hiring, promotions and funding. Harassment and discrimination in academic settings add another dimension of hostility that push many women out of the field.

## A study of STEM scientists

Globally, as well as in India, we see similar patterns. A study of STEM scientists across 38 countries reveals higher attrition rates for women, driven by non-inclusive workplaces, work-life balance struggles, and limited access to high-impact research.

These barriers slow career progression and reduce access to senior roles and professional networks, increasing dropout rates. The postdoc-to-faculty transition is especially challenging for women, with familial responsibilities, low confidence, and a lack of female role models cited as key factors, as highlighted by research from the National Institutes of Health.

These barriers compel us to consider why it is vital to prioritise the retention of women in science. Diverse teams drive creativity and innovation, leading to breakthroughs by integrating multiple perspectives. More women in science also results in role models for future generations, inspiring girls to pursue STEM. Promoting equity ensures that women can contribute fully to scientific progress, enriching society with a more inclusive workforce.

This conversation has progressed little over the centuries. The “Matilda Effect” – named after 19th-century feminist Matilda Joselyn Gage – describes the tendency to downplay or overshadow women’s scientific contributions in favour of their male colleagues, highlighting the



**Anita Shet**

is Professor of International Health at the Johns Hopkins Bloomberg School of Public Health



**Kamini Walia**

is a Senior Scientist at the Indian Council of Medical Research

With India continuing to push the boundaries of scientific and technological advancement, it must ensure the full inclusion of women in this journey

historic struggle for proper recognition of women’s innovations. Nearly 200 years later, gender inequity in STEM persists. Jacob Clark Blickenstaff’s “leaky pipeline” metaphor describes women dropping out of STEM due to biased pedagogy, a lack of role models, and hostile workplaces. Critiqued as somewhat simplistic, this model does not consider systemic power dynamics. A more recent “Chutes and Ladders” model focuses on broader structural and environmental barriers, highlighting how mentorship, access to hidden knowledge, and career disruptions disproportionately hinder women, minorities, and marginalised groups, emphasising the need to address inequities within academic systems.

## A survey across India

Examining these concepts is particularly valuable in the context of India, where conservative attitudes abound. In an extensive survey across 98 institutions across India conducted in 2020-21, the proportion of women faculty members across all the fields was a mere 17%, ranging from 23% in biology to 8% in engineering. The proportion was even lower within higher-ranked institutions, with dwindling ratios within senior career faculty. The data showed that women scientists were vastly under-represented at conferences and often overlooked in career-enhancing activities.

Addressing these challenges demands a reimagined approach that embraces diverse career paths and involves policymakers, institutions, and the scientific community in fostering inclusivity, particularly for underrepresented and economically disadvantaged women. Approaches vary based on the timing of intervention. Early intervention, engaging parents, educators, and the broader social environment, is key to lasting impact.

We propose three key recommendations to improve the retention of women in STEM at the early- and mid-career levels. First, institutional changes such as flexible work options, affordable childcare, and policies supporting work-family integration are essential. Second, public

recognition of both triumphs and obstacles is crucial. Showcasing successful women in science challenges stereotypes, inspires the next generation, and reinforces the need for greater visibility and representation. At the same time, calling out setbacks, as exemplified by BiasWatchIndia, can drive incremental progress by exposing gender inequities in academia. Finally, a nuanced approach across career stages is crucial, eliminating age restrictions on grants, fostering mentorship networks, supporting career re-entry after a break for family or personal reasons, and amplifying senior women’s voices in leadership and decision-making.

## Interventions

The Indian government has taken significant steps to advance gender equity in science and technology. The Department of Science and

Technology (DST) launched the Gender Advancement for Transforming Institutions (GATI) pilot in 2020 to foster an inclusive environment for women and gender-diverse individuals in STEM, supporting participation-boosting initiatives such as the Women in Science and Engineering-Knowledge

Involvement in Research Advancement through Nurturing, or WISE-KIRAN, and the Women Scientists Scheme (WOS) programmes. Noteworthy efforts include the Department of Biotechnology’s Biotechnology Career Advancement and Re-orientation (BioCARE) programme, which supports women scientists returning to research after career breaks.

Additionally, the Indian Council of Medical Research spearheads several programmes promoting women’s health and training for women scientists. While these initiatives reflect progress, they must scale into broader reforms to ensure that women scientists are recognised, empowered, and valued.

As India continues to push the boundaries of scientific and technological advancement, the full inclusion of women in this journey is not only a matter of fairness but also an example of true progress that can set a powerful example for the world to emulate.



**GS Paper 01 Social Issues**

**UPSC Mains Practice Question: Discuss the challenges faced by women in STEM careers in India. Suggest measures to enhance their participation.”**

## Context :

Women in STEM (Science, Technology, Engineering, and Mathematics) face educational, cultural, and systemic barriers that hinder their participation and career growth. Despite India's scientific advancements, gender disparity in STEM remains a pressing issue.

## Key Challenges Faced by Women in STEM:

- 1. Early Educational Barriers & Societal Norms**
  - Limited access to quality STEM education in rural areas.
  - Gender norms discourage girls from pursuing science-related careers.
  - Lack of encouragement from families, educators, and peers.
- 2. Workplace Challenges & Gender Stereotypes**
  - Women face hiring and promotion biases, limiting their career progression.
  - Underrepresentation in leadership roles affects decision-making influence.
  - Women scientists are often overlooked for funding and research opportunities.
- 3. Harassment & Discrimination**
  - Hostile work environments deter retention.
  - Women face implicit bias in academia and research institutions.
- 4. Work-Life Balance & Career Breaks**
  - Pressure to prioritize family over careers leads to career stagnation.
  - Limited support for maternity leave and childcare.
  - Postdoc-to-faculty transition remains difficult due to lack of mentorship and support.

## Gender Disparity in STEM: Data Insights

### Study of STEM Scientists Across 38 Countries

- **Higher attrition rates for women** due to non-inclusive work environments.
- Work-life balance and limited access to **high-impact research opportunities** hinder career progression.

### India-Specific Data (2020-21 Survey, 98 Institutions)

- **Only 17% of faculty members** were women across STEM fields.
- **Disparity by discipline:**
  - **23% in Biology**
  - **8% in Engineering**
- **Women's representation lower in top-ranked institutions** and senior faculty positions.

### Key Theoretical Frameworks on Gender Inequality in STEM:

- **Matilda Effect:** Women's contributions to science are often downplayed or overshadowed by male colleagues.
- **Leaky Pipeline:** Women drop out of STEM due to biased pedagogy, lack of role models, and workplace discrimination.
- **Chutes and Ladders Model:** Systemic barriers (mentorship gaps, career disruptions, hidden knowledge) disproportionately hinder women's progress in STEM careers.

### Policy & Institutional Interventions for Women in STEM:

#### Government Initiatives for Gender Equity in Science

1. **GATI (Gender Advancement for Transforming Institutions) – 2020**
  - Fosters inclusive work environments in STEM.
2. **WISE-KIRAN (Women in Science and Engineering-Knowledge Involvement in Research Advancement through Nurturing)**
  - Supports women's participation in STEM research.
3. **Women Scientists Scheme (WOS)**
  - Funds research projects led by women scientists.
4. **BioCARE (Biotechnology Career Advancement and Re-orientation Programme)**
  - Helps women scientists resume research after career breaks.
5. **ICMR's Women-Focused Programmes**
  - Supports women's health research and training for women scientists.

### Recommendations for Strengthening Women's Participation in STEM:

#### Institutional Support & Policy Reforms

- Flexible work options, affordable childcare, and family-supportive policies.
- Addressing gender bias in hiring, promotions, and funding.

#### Enhancing Visibility & Role Models

- Recognition of women scientists' achievements.
- Showcasing success stories to challenge stereotypes.
- Tracking gender disparities through initiatives like BiasWatchIndia.

#### Mentorship & Career Progression Support

- Strong mentorship networks for women in STEM.
- Eliminating age restrictions on research grants.
- Support for career re-entry post-maternity or personal breaks.
- Encouraging women's leadership in decision-making bodies.

### **Way Forward:**

India's scientific growth must be inclusive, ensuring that women scientists are recognized, supported, and empowered. This is not just a matter of gender equality, but also essential for innovation and national progress.

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