CSIR-National Institute of Science Communication and Policy Research, (CSIR-NIScPR)

"Initiatives for Women in S&T: A survey based study"

As per the United Nations, Gender equality is not only a fundamental human right but a necessary foundation for a peaceful, prosperous, and sustainable world. The UN's Sustainable Development Goal (SDG) # 5 addresses this crucial issue, setting specific targets and indicators to measure progress. While progress has been made e.g. more girls in school, less early marriage, and increased female representation in leadership, further initiatives are needed. SDG# 8 emphasizes decent work and economic growth, underscoring the necessity of ensuring equal opportunities for women in the workforce. This includes breaking down barriers in STEM fields and fostering an environment where women have equitable access to quality education and employment opportunities. Empowering women in these sectors drives economic sustainability and promotes inclusive growth that benefits societies at large. Additionally, SDG#10 highlights the significance of reducing inequalities within and among countries. To achieve this, addressing gender disparities becomes pivotal. Ensuring equal access to education, healthcare, and decision-making for women and girls worldwide is a cornerstone in narrowing these gaps.

METHODOLOGY

Primary
(2 questionnaires)

- Women in S&T- general profiles,
- Heads- Divisions, Organisations

General profile, Work environment, Career trajectories, challenges faced in professional advancement, etc.

Practices concerning gender-specific policies, initiatives, managerial empowerment, implementation of women-centric programmes, etc.

Secondary

- Initiatives
- Gender data (M/F proportion, Project Funding, emails, etc.)

Interviews

- EXPERTS

It has been argued quite often that Women in STEM face numerous challenges, often juggling personal and professional responsibilities while steering discriminatory policies and gender-blind structures. These hurdles hinder equal participation and retention of Women in STEM occupations. Addressing these obstacles is essential to achieving Sustainable Development Goal 5 on gender equality and ensuring women's full contribution to science and technology.

The rationale of the present study to "Evaluate the Initiatives and Support for Empowering Women in Science and Technology arises from a continuous debate globally on the dearth of women choosing careers in STEM.

The Objectives:

1. Evaluate the Government initiatives to promote gender parity and women's encouragement in STEM.
2. Gender auditing in Select S&T institutions.
3. Gender-wise audit of the research grants
4. Comparative analysis of #2 and #3 with CSIR.

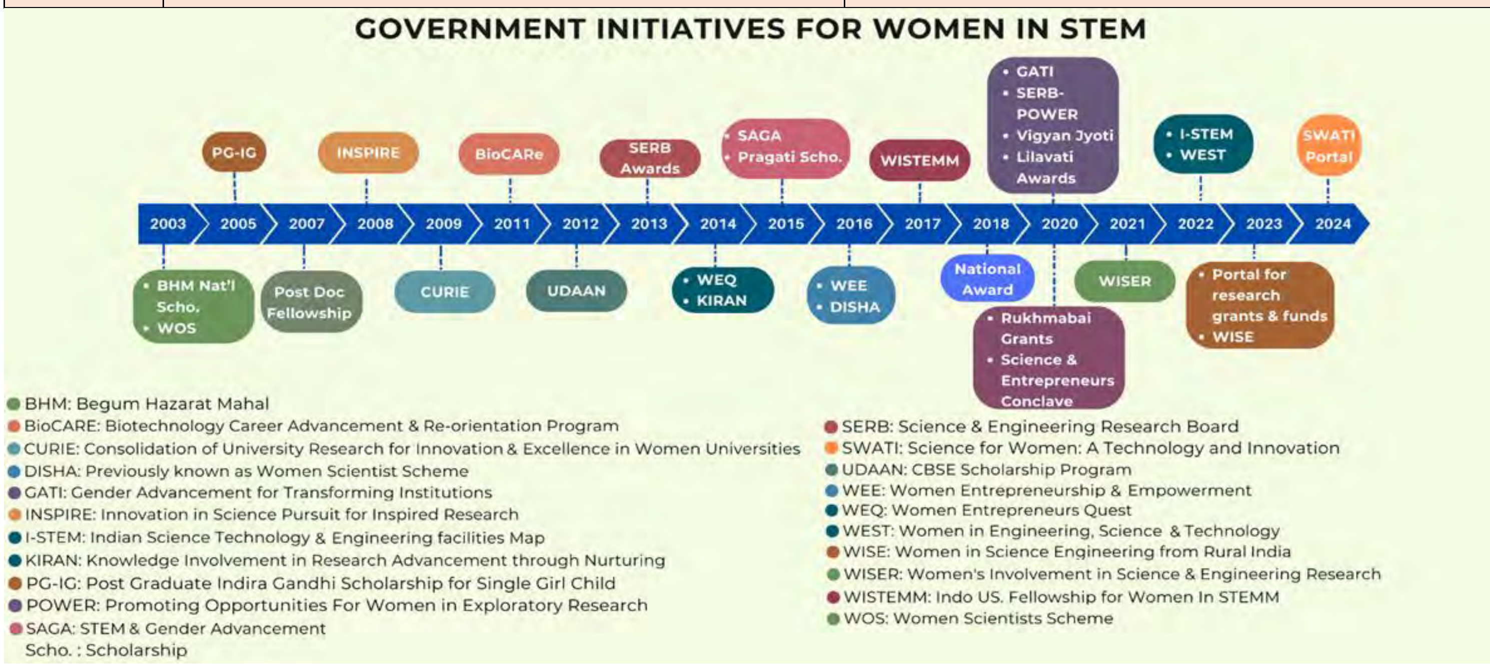
The Study

An earlier study conducted during 2021-22 on "Women in STEM: A CSIR Survey towards Gender Parity", discussed the meager depiction of women in leadership roles in CSIR. The report also made several policy recommendations to address the issue.

The present report is an extension of the above-mentioned earlier study. It focuses mainly on assessing the preparedness of government institutions/organizations of the Government of India for fostering a gender-balanced work environment within the Science and Technology (S&T) domain. This study has been undertaken to comprehensively understand and address the challenges hindering the advancement of women working in STEM fields. In the present study, we look at broader trends and initiatives in Government organisations in the country. These include the Department of Science and Technology (DST), the Department of Biotechnology (DBT), and the Department of Scientific and Industrial Research (DSIR). We have attempted to watch practices to enhance the contribution and empowerment of women in STEM.

Major findings: Secondary data source

	DST	DBT
Programmes	**SATHI, STUTI, SSTP, Patent Facility, PRP,** India-ASEAN S&T Cooperation, NIDHI-EIR, WEDP, Vigyan Jyoti, Vigyan Jyoti, Bilateral Research Projects, National Mission on Nano Science & Nano Technology, Innovation and Entrepreneurship Training, DISHA, Start-up Research Grant Flagship, WEDP, NEEV@75, SUNIL	Biotech-KISAN, Women Biotech Park, Hands-on training, Biotechnology-based, Biotech KISAN Mission,
Initiatives	WTP, WEST, KIRAN, WISTEMM, WEQ, S^{3}4ANB, CRRC, TIDE, SCSP&TSP	GARBH-Ini, BioNEST, UMMID, Innovations in Rice Farming Technologies initiative,
Fellowships	DST-STI Policy, CSRI, SATYAM, INSPIRE, INSPIRE Awards – MANAK, Swarna Jayanti, WISTEMM, Summer Research, VFP, ISRF, SERB Fellowship: National Postdoctoral Fellowship (NPDF) of SERB, SERB POWER, JC BOSE, Ramanujan, Abdul Kalam TIN, DST-CEFIPRA Women Post-Doctoral Fellowship, Indo-U.S. Fellowship for Women in STEMM, INSA Fellowships, Post-Doctoral Fellowship for Women	JRF, DBT-Research Associate, Janaki Ammal, Tata Innovation, DBT Ramalingaswami Re-entry, MK Bhan Young Researchers, Distinguished Biotechnology Research Professorship, S.Ramachandran-National Bioscience Fellowship for Career Development, Har Gobind Khorana - Innovative Young Biotechnologist, Khorana Fellowship, TWAS Fellowship, IITB-Monash Fellowship,
Schemes & Funding	WOS, SYST, S&T for Women Scheme, CURIE, Women Scientist Scheme, WISE-KIRAN, GATI, Mobility Scheme,	Women Scientist Scheme, Support for women-led start-ups, Collaboration with ALEAP
Awards & Recognition	SERB Women Excellence Award, National Women Bio scientist Award, Women in Science lectures by EMBO, Stree Shakti Science Samman Award, INAE Awards, NASI-DST Awards, TWAS-The Academy Of Sciences for The Developing World-CSIR Awards, CSIR Award For S&T Innovations for Rural Development.	National Women Bio scientist Award
Others	Women Scientists and Entrepreneurs' Conclave	DBT-funded study in Mizoram, Socio-Economic Empowerment of Rural Women, project on Gujjar and Bakarwal women empowerment, Sericulture projects, Pig farming.



Gender representations:

Headships: No woman was appointed as DST secretary. More than half of the divisions of DST are headed by women while 2 of the 17 autonomous institutes headed by women currently. Two of nine secretaries in DBT have been women. More than half of the divisions of DBT are being headed by women while 3 of the 16 autonomous institutes are headed by women.

S&T workforce: DBT has a good gender parity Index in the ministry and autonomous institutions than DST ministry and institutions although most of them have female representation above national average.

Funding patterns of projects:

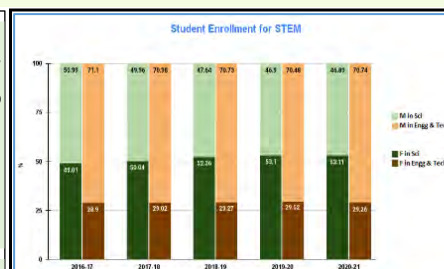
Funding of projects by both DST and DBT depict gender imbalance in the PIs, with male PIs outnumbering their female counterparts by a more than 3:1 ratio.

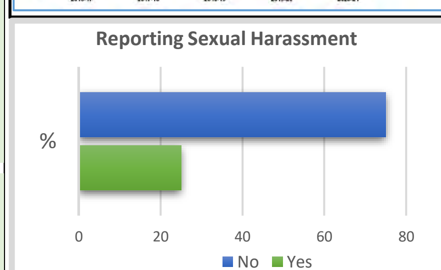
Percentage of fund allocation to male PIs by DST has been higher compared to that by DBT.

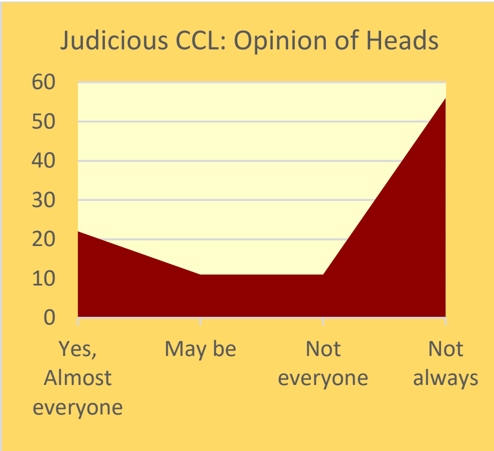
% of females receiving INSPIRE Fellowships are about two-thirds over the past few years, indicating a positive step toward achieving gender parity in the coming years.

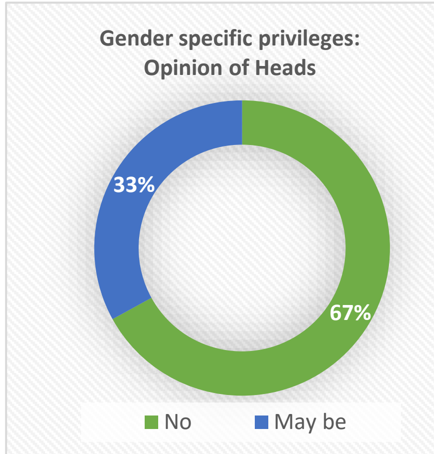
Student enrolments:

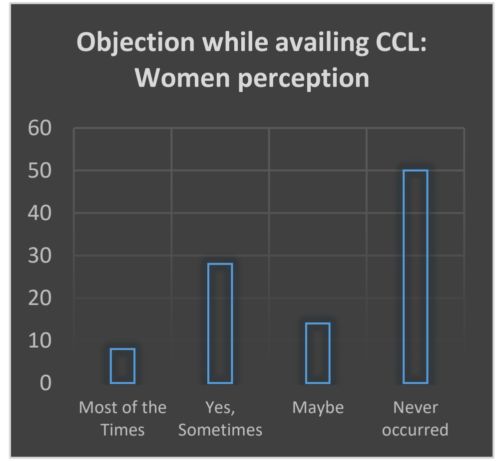
Female student enrolment in Science increased from 49.01% in 2016-17, to 53.11% in 2020-21 and that in Engineering from 28.9%, to 29.26% during the same period (as per AISHE data).

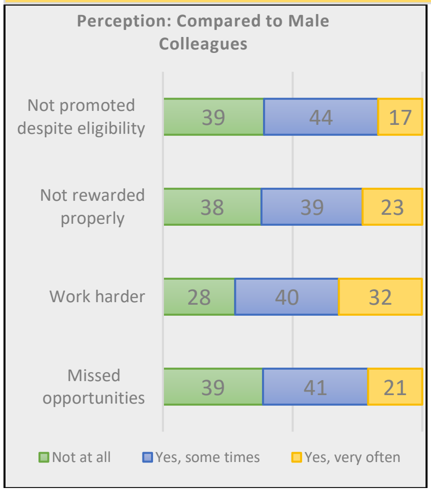


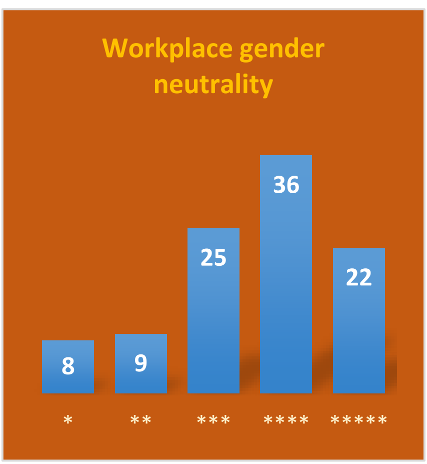


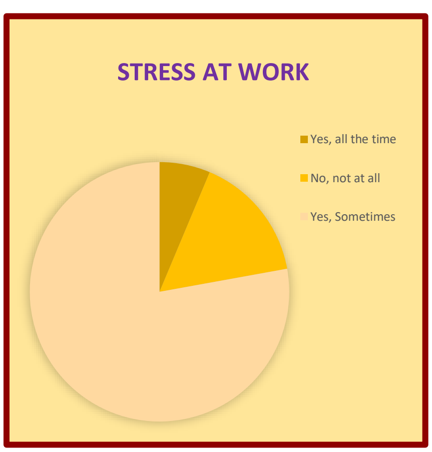










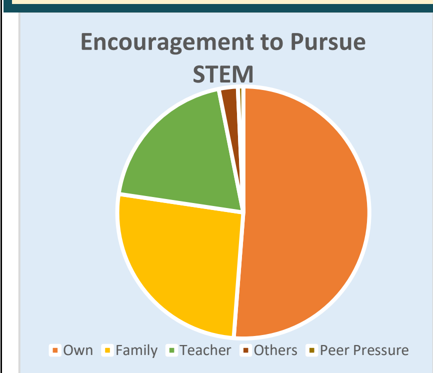


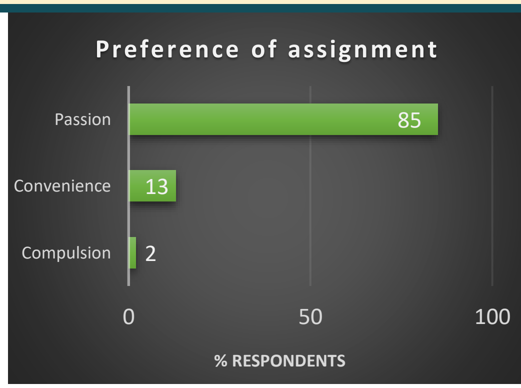
Major findings: Primary Survey

- 9% of women experienced sexual harassment in the workplace, of which only 25% reported it.
- Respondents majorly indicated that their profession allows them to utilize their skills & abilities effectively.
- One in four respondents rate their institutions on gender inclusivity based on their experiences as ‘average’; another 17% feel that concerted efforts to address disparities and promote inclusivity are required.
- There is a positive sentiment towards their job or assignment.
- Despite eligibility 44% were ‘sometimes overlooked’ for promotion, while 39% ‘did not feel so’.
- A significant portion of respondents were ‘sometimes not being properly rewarded compared to their male colleagues’, with 23% ‘experiencing this very often’.
- Only 28% stated they did not feel the need to work harder than male colleagues to prove parity.
- 41% of respondents ‘sometimes missed out on grants due to less networking or awareness compared to their male colleagues,
- Three-fourths of the women had no compulsion to quit their previous jobs for any reason.
- A significant number of women working in STEM may face challenges in accessing childcare support within their organizations.
- Diverse source for child care support: organization provides daycare for only 36% of respondents; Other than daycare, the most common being from husbands (29%), house-help (28%), parents (25%), and in-laws (18%).
- Role as caregivers: more than four-fifths were required to take care of old parents, in-laws, or siblings.
- Three-fourths have stress ‘Sometimes’ at work.
- Access to Stress management programs for only 24% respondents.
- Experience while traveling to other places for official work including accommodation arrangements, procuring travel grants or commuting was a ‘very good’ or ‘good’ experience for the majority of the respondents.
- Feeding facility at the workplace available to 14% only.
- 42% of the respondents availed of the CCL, their experience in getting it sanctioned has been ‘good always’ for most of them.
- Male colleagues’ attitudes towards women availing CCL are diverse.
- More than half of the heads felt that not everyone in their organization avail the facility of CCL judiciously. Most of them sanction the CCL applications ‘most of the time’ without questioning.
- Four-fifths received support from their families during their Ph.D. studies.
- 27% were not aware of the various government schemes encouraging women in STEM.
- About half of the women have not availed of the various schemes meant for women in S&T.
- 87% of respondents ‘highly recommend’ other women to opt for a career in STEM.

Policy Recommendations

- Recalibration/inclusive policies are required.
- Increase in the budget for better outreach is required.
- Outreach can be initiated through programmes like Maan ki baat, etc. for awareness.
- Not just the number but also the role of women should be enhanced!
- Academic age should be relaxed for women at entry levels to careers.
- Exposure Visit to Nordic and other countries to understand gender equality.
- Recalibrating the system.
- Initiation of an Equal Responsibility Program.
- Flexi time/work-from-home options for women to be available.
- Creation of/Providing facilities for working mothers like feeding rooms and daycare near institutions.
- Collaboration for creating common facilities between States, Union governments, institutions, and organisations.
- Financial and spatial viability challenges for small organisations.
- Prevention and efficient punitive actions ensuring a safe environment for women at work.
- Exit interviews should be made mandatory for women leaving the organisations to know the circumstances in which they want to quit so that the organisation can take appropriate steps.
- Workshops on Role and Responsibility at the Organisation level, Work-life Balance training programs, Leadership Roles, etc.





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This policy bulletin is a product of the CSIR-NIScPR report on "Initiatives for Empowering Women in Science & Technology: A critical evaluation". The report is based on a secondary data followed by a primary survey between July–October 2023. S&T women from all the autonomous institutes under DST, DBT and DSIR participated in the survey. The report has been evaluated by two experts in the field and their comments incorporated into the report for quality enhancement.