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Empowering Women in STEM: Viet Nam's Journey Towards Innovation and Equality

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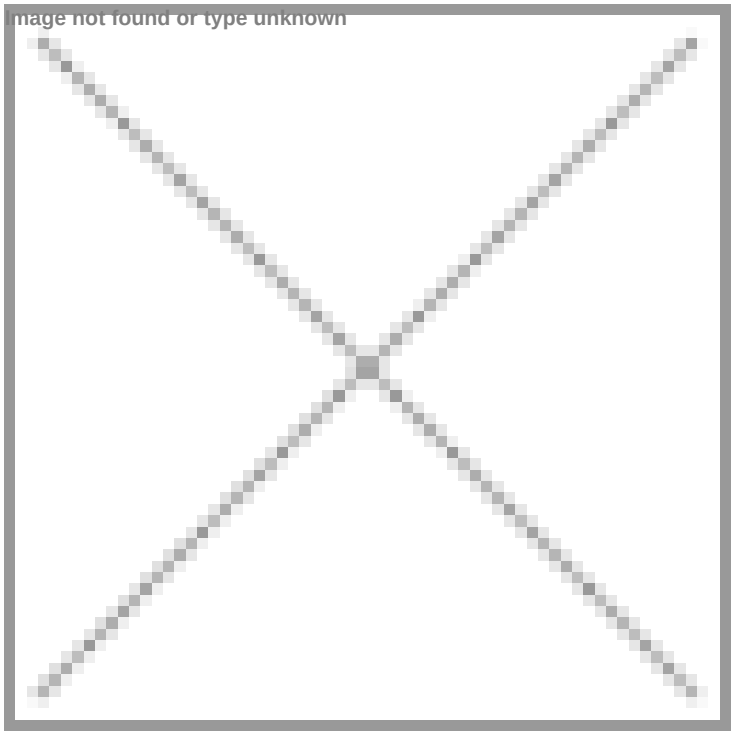
2025 marks the 10th anniversary of the International Day of Women and Girls in Science (IDWGS) (observed on February 11) and the 30th anniversary of the Beijing Declaration and Platform for Action, two significant milestones in the global effort to promote gender equality and women's empowerment. Recognising the importance of gender inclusivity, Viet Nam has taken major policy steps to empower female researchers and entrepreneurs. By investing in education, policy reforms, and celebrating the achievements of women scientists, the country is setting a global example for inclusive development.



This year marks the 10th anniversary of the International Day of Women in STEM, highlighting a decade of progress in closing gender disparities in science, technology, engineering, and mathematics (STEM). While there have been significant global advancements, women remain under-represented in STEM, particularly in leadership roles and high-tech industries.

Despite making up 49.7 per cent of the global population, according to UNESCO, only 28 per cent of researchers worldwide are women, with even lower numbers in leadership positions and emerging sectors like AI and biotechnology. In Asia, the gender gap is even more pronounced. India, for example, reports that only 14 per cent of STEM academic positions are held by women, according to IWWAGE report

One key challenge is the "leaky pipeline" phenomenon, where women leave STEM careers at higher rates due to cultural biases, workplace inequities, and family responsibilities. This issue is not just about representation but also economic loss. According to the Asian Development Bank, gender gaps in STEM cost the Asia-Pacific region an estimated $42 billion

annually, slowing economic growth and innovation. Furthermore, homogeneous teams in fields like biotechnology and pharmaceuticals risk overlooking solutions that address diverse populations, limiting breakthroughs in precision medicine and public health.

According to a McKinsey Global Institute report it is estimated that achieving gender parity in STEM could boost global GDP by $12 trillion by 2030, reinforcing the urgency of inclusive policies to increase women representation in STEM sectors, both in quantity and quality.

Despite these challenges, Viet Nam stands out as a regional leader in women's participation in STEM. According to the Ministry of Science and Technology, Vietnamese women make up 47 per cent of the country's Research and Development (R&D) workforce—significantly higher than the global average. However, this strong participation has yet to translate into proportional leadership roles, as only 26 per cent of research projects are led by women. This disparity highlights the need for targeted efforts to ensure greater representation of women in decision-making positions within STEM fields.

Recognising the importance of gender inclusivity, Viet Nam has taken major policy steps to empower female researchers and entrepreneurs. Resolution 57 (December 2024) and the National Assembly's Science & Technology Policy (February 2025) aim to foster gender equality in STEM leadership and research. These policies complement the National Strategy for Science, Technology, and Innovation (STI) Development for 2030, which prioritises expanding women's participation in technology, research, and leadership. With these frameworks, Viet Nam is positioning women at the centre of its goal to become a high-income, innovation-driven economy by 2045.

Vietnamese women have played a pivotal role in advancing STEM both nationally and globally, demonstrating expertise in fields such as nanotechnology, biomedical research, artificial intelligence, and environmental science. Several distinguished scientists have led groundbreaking innovations, including:

- Associate Professor Ho Thi Thanh Van – A leading researcher in fuel cell technology, contributing significantly to sustainable energy solutions.
- Dr Tran Ha Lien Phuong – A biomedical engineer recognised with the L'Oréal-UNESCO Women in Science Award for her pioneering work in nano-drug delivery for cancer treatment.
- Professor Dr Nguyen Th? Kim Thanh – A nanotechnology expert awarded the Rosalind Franklin Medal in the UK for her groundbreaking research in biomedical nanomaterials.
- Professor Dr Le Minh Thang – Head of the Department of Organic and Petrochemical Technology at Hanoi University of Science and Technology, developed an affordable catalytic converter that transforms exhaust gases into harmless components and received the Kovalevskaya Prize in 2022.
- Associate Professor Nguyen Minh Tan – Director of the Institute for R&D of Natural Products (INAPRO-HUST), invented Juice Evaporation Technology (JEVA) and was honoured with the Best Innovation Award in the first Hitachi Global Foundation Asia Innovation Award in 2020. In 2025, she will be awarded the Kovalevskaya Prize.
- Dr Le Thai Ha – Recognised among the top 100,000 most influential scientists worldwide, she has published over 70 research papers in leading international journals across energy economics, environmental economics, and applied economics.

And there are many more. These women exemplify Vietnam's growing influence in STEM, driving scientific advancements that contribute to both national progress and global innovation.

Viet Nam has demonstrated a strong commitment to STEM education, beginning with the General Education Sector Development Program (2017), which integrated STEM principles into all levels of education. While a formal National Program on STEM Education has yet to be established, several key initiatives are already driving progress:

- Women in STEM Leadership Program (?à N?ng, 2016) – A mentorship initiative that supports female STEM students, equipping them with the skills needed for careers in high-tech industries.
- ASEAN-UK SAGE & British Council Scholarships (2024) – Five Vietnamese women were awarded fully funded master's degrees in STEM fields in the UK, enhancing Vietnam's representation in the global STEM landscape.
- STEM Teacher Training Program (B?c Ninh, 2024) – A pilot initiative focused on increasing gender inclusivity among female STEM educators, fostering supportive learning environments for young girls.

These initiatives are empowering women with the skills and opportunities necessary to thrive in emerging industries such as artificial intelligence, semiconductors, and clean energy, positioning Viet Nam as a leader in STEM innovation.

Viet Nam has made remarkable progress, increasing female university enrollment in STEM from 30 per cent to 54.6 per cent between 2006 and 2020. However, challenges persist, especially in career advancement, research funding, and STEM leadership. The key challenges include:

- Limited access to career information – Many young women lack awareness of STEM career opportunities.
- Gender biases in STEM culture – Societal expectations often discourage women from pursuing careers in science and technology.
- Lack of mentorship and professional networks – Fewer female mentors in STEM limit opportunities for young women.

To overcome these barriers, Viet Nam must take a holistic and multi-faceted approach that includes:

- Expanding STEM career guidance – Implement national awareness programmes targeting girls aged 6-14.
- Increasing funding for women-led research – Ensure equal access to government research grants for female scientists.
- Strengthening industry-academia collaboration – Encourage private sector partnerships to provide mentorship and internships for female students.
- Promoting women in STEM leadership – Establish women-focused scholarships and training programs at science universities.

Viet Nam's commitment to gender equality in STEM is not only fostering innovation but also driving economic growth. By investing in education, policy reforms, and celebrating the achievements of women scientists, the country is setting a global example for inclusive development.

As Viet Nam continues its transition toward a high-income, technology-driven economy by 2045, empowering women in STEM will be critical for sustaining innovation, competitiveness, and national progress. Bridging the gender gap in STEM is not just an imperative but a pre-condition for the country's economic development. With its strong policy framework and growing participation of women in science and technology, Viet Nam offers a compelling model for other nations striving for gender equality in STEM and stands ready to strengthen international cooperation towards this goal.

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