

**United Nations Commission on the Status of Women
Fifty-eighth session
10 – 21 March 2014
New York**

INTERACTIVE EXPERT PANEL

Access and participation of women and girls in education, training, science and technology, including for the promotion of women's equal access to full employment and decent work

Focus: The transition of women from education to full employment and decent work, with a particular focus on employment in the areas of science, technology, engineering and mathematics.

Tuesday, March 18, 2014, 3.00 pm– 6.00 pm

Women in STEM: The UAE Experience*

by

**Ms. Lamyia N. Fawwaz
Executive Director, Public Affairs, Professor of Practice,
Masdar Institute of Science and Technology**

*The views expressed in this paper are those of the author and do not necessarily represent those of the United Nations.

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All over the world there is a debate on how to get women to increase their participation in the fields of science, technology, engineering and mathematics (STEM).

This is not just a matter of increasing diversity in STEM fields. Female participation in STEM fields is believed to be a key to greater female empowerment by involving women in what is undoubtedly one of the most critical and high-worth sectors of the future. How can any country hope to be competitive if half of its population is not given a chance to achieve its intellectual and economic potential? Educating and employing women in STEM can also lead to greater financial security for a family, as women in STEM earn an average of 33% more than their counterparts in other fields, [the US Economics & Statistics Administration reports](#)¹. In short, the micro and macro-level economic and social benefits of increased female participation in STEM are obvious. But how to achieve that is less so.

The Gulf region in particular has managed one notable success – we are seeing an increase in female STEM participation, instead of a contraction or stagnation. The reason for this is partially due to a lower starting point – in 2013 the World Bank’s reported titled “Opening Doors - Gender Equality and Development in the Middle East and North Africa [\(MENA\)](#)” said the female labor force overall in MENA was only 25%², far below the global average of 50%. But, speaking for the UAE, we also have had the benefit of ambitious and visionary leadership right from national inception, inspiring us to apply international best practices and lessons learnt to our policies.

UAE Founding Father, the late Sheikh Zayed bin Sultan Al Nahyan famously said: "Nothing could delight me more than to see the woman taking up her distinctive position in society ... Nothing should hinder her progress ... Like men, women deserve the right to occupy high positions according to their capabilities and qualifications." This belief was supported in law by the UAE Constitution that was adopted upon the country’s establishment in 1971, which protects the right of women to take part in the development of all areas of society. According to Article 14 of the UAE Constitution: “Equality, social justice, ensuring safety and security and equality of opportunity for all citizens, shall be the pillars of the Society.”

Guided by this strong vision of the importance and value of women, the UAE leadership has continued to support and facilitate the development of the nation’s women. A crucial part of this has been the focus on the provision of quality education and employment opportunities to the country’s women, who have been recognized as an asset equally as important as the nation’s men. From kindergarten all the way through high school, both boys’ and girls’ UAE government schools integrate mathematics and science in their curricula. And to ensure young women can continue their pursuit of educational excellence past high school, the UAE government has established seven dedicated women-only colleges.

Eff³orts have also been made to include female participation in the workforce with constitutional rights that safeguard equal pay for men and women, extensive paid maternity leave, and equal employee privileges. The UAE Federal Labor Law states that working women are entitled to 45 calendar days of maternity leave with full pay, provided they have at least one year of continuous

United Nations Commission on the Status of Women
Fifty-eighth session
10 – 21 March 2014
New York

service. A working woman also has the right to nurse her child for the 18 months after birth, and is entitled to two additional breaks per day for this purpose. The women's labor rights that are protected under UAE law follow the gender workforce equality best practices recommended by international bodies like the International Labour Organization, whose four conventions relating to women's rights are the Equal Remuneration Convention⁴, Discrimination (Employment and Occupation) Convention⁵, Workers with Family Responsibilities Convention⁶ and Maternity Protection Convention⁷.

These initiatives have contributed to the fact that now over 70% of the UAE's government university students are women⁸. Among post-graduates, UAE National women account for 62% in government universities and 43% in private universities, according to 2012 data from the Federal Authority for Government Human Resources. Compare that to the US, where in 2013 56.7% of all bachelor's degrees graduates and 59.9% of all master's degrees graduates were female⁹, data from the US Department of Education shows.

In 2011, Dr. Anwar Gargash, Minister of State for Foreign Affairs, told a forum organized by the Dubai Women Establishment that women made up 59% of the UAE National workforce, including positions in the fields of engineering and science. In the government sector, that number rises to 66%, with 30% of women in senior roles¹⁰, compared to the US where women occupy only 57% of government jobs¹¹.

What this all shows is that in the UAE, when UAE National women have made the effort to seek education and employment, it has generally been at the higher end of the spectrum, pursuing advanced and technical educations for professional roles. The UAE government, aware of our women's drive and dedication, has more recently, been doing its utmost to facilitate their education and work in the STEM fields that not only can fulfil their personal and professional ambitions but will also give them a pivotal role in the country's ongoing knowledge economy transformation.

As a UAE National woman with an educational foundation in STEM, I can testify to the unwavering support the UAE government offers its young women pursuing technical studies. A decade ago I was one of a growing number of UAE National women given a government scholarship and support from the UAE Embassy when I travelled abroad to seek the best advanced education for my field. As I pursued my doctorate, I saw numerous young UAE National women defy stereotypes to study engineering and science in some of the US's most demanding universities. Today, as was then, many women from the UAE are eager to prove themselves as intellectual equals to men and recognize that STEM education and work to be the key to financial prosperity, professional satisfaction, societal commendation and self-actualization.

The UAE has also seen increased participation of women in helping guide the country's further progress, with 17% of ministers and 22.5% of the Federal National Council being female¹². Very recently Sheikh Mohammed bin Rashid, Vice President of the UAE and Ruler of Dubai, also

United Nations Commission on the Status of Women
Fifty-eighth session
10 – 21 March 2014
New York

announced the decision by the UAE Cabinet that makes it compulsory for corporations and government agencies to include women on their boards of directors. The UAE now joins the ranks of Norway, Italy, France, and Iceland as one of the few countries in the world that has such forward-thinking and empowering legislation.

It is no surprise then that the UAE was ranked 41st out of 187 ranked countries on the latest United Nations Development Programme's Gender Inequality Index, with Norway at 1st place, the United States at 3rd place¹³. It is also the highest ranked Middle Eastern country according to the Global Gender Gap Index 2012¹⁴.

Now, with technology and innovation playing an increasing role in our lives, the need for all progressive and competitive countries is to improve STEM-focused education and industry. To that end, here in the UAE, it is believed that women will play a significant role in growing the STEM capability of the nation – which is considered crucial for the country's targeted transition to a knowledge economy. As women account for over 70% of university graduates from the UAE's citizenry, it is obvious that increasing the country's overall STEM capacity will rely heavily on ensuring more of the country's female graduates focus their education on STEM-related disciplines.

The good news is that most women in the UAE already understand the importance and value of a STEM-focused education. A study by Dr. Georgeta Vidican, faculty at the Masdar Institute of Science and Technology in Abu Dhabi, found that more than 80% of the female students in the UAE strongly believe that studying science, technology and engineering was as good for women as it was for men, and that women can match men's capabilities as professionals in the three key sectors – science, technology and engineering¹⁵.

The study, titled "Expanding Women's Participation in Science, Technology and Engineering - the Case of the UAE", also found that employment expectations, family connections and support systems – including mentorship – play an important role in determining the educational and career path of women in the UAE. This shows that improving awareness of the government-protected rights of women in all industries including STEM, as well as the importance and prestige of STEM for the country's progress, and providing young women with career counseling and job placement, will help grow the UAE's overall STEM aptitude, and that of women in particular.

In recognition of the role family and society plays in motivating and supporting female participation in STEM, right from the start the Masdar Institute of Science and Technology to which I belong, reached out to the families of our potential students to allay their concerns and share information on the facilities and benefits of studying with us has helped in improving female enrollment. In the first few years of our operation, parents needed to be reassured that their daughters would be in a safe classroom setting, that their education would be valued, and that their daughters would be put on a path to success that they too can share in. But in just five years we have noticed a significant change in attitudes and perceptions, where no longer must our admissions staff allay the concerns of the families of female applicants. Ours is a rapidly

United Nations Commission on the Status of Women
Fifty-eighth session
10 – 21 March 2014
New York

evolving society, and already we see that the value of a technical education for a woman now goes without saying. Evidence of this is the fact that though we are a highly competitive specialized post-graduate research institute offering 8 Master's and a Doctorate degree program, among our UAE National students, females account for about 50%, which shows the ambition, ability and dedication of the UAE's young women.

Building on Dr. Vidican's findings on the importance of female mentorship, Masdar Institute recognizes and utilizes the crucial role mentors play in helping develop the UAE's female STEM professionals. The benefit young women receive by seeing successful women in STEM, and receiving firsthand their advice and encouragement, cannot be underplayed. To this end we work to ensure there is a strong female presence in our faculty and higher management and regularly organize talks from successful and notable UAE Nationals through our Lecture Series. Our Career Services and Alumni Relations Office is also in the process of setting up a program where our female alumni are given the chance to mentor and guide the next group of female students, to inspire them and share their experiences.

After maximizing UAE female enrollment in our Master's and Doctorate programs, the next step is to make sure these young female STEM graduates are able to utilize their education within STEM fields. During the course of our students' studies, we arrange internships in attractive high-tech companies to not only provide real-world experience to complement laboratory and classroom lessons, but also to show students the exciting professional work they can do in their field when they graduate. These internships also serve to introduce potential employers to our upcoming cadre of graduates, to establish relationships that can result in job offers and collaboration and help get alumni's 'foot in the door' of desirable companies, so to speak. A significant portion of our internship participants go on to receive job offers and employment at companies where they were interns.

The Career Services and Alumni Relations Office also works to help find our students the best jobs for their qualifications. It does this by arranging recruitment events and career days and inviting attractive industry players to visit our campus and meet our students. We maintain a database of employers who have positions that would be of interest to our students and alumni and give our students career guidance, job interview workshops and help in how to write their resumes and applications. This has helped our alumni – male and female – find work in the likes of Microsoft, PricewaterhouseCoopers, GE, Siemens, and the International Renewable Energy Agency, among other notable entities. Of our total number Master's program alumni, 56% are employed, 43% have gone on for further doctorate studies, and 1% are studying for another Master's degree. Among UAE Nationals in particular, the cumulative alumni stats shows that 60% are employed graduates and 40% studying for their PhD.

It is our hope and belief that as the current generation of young Emirati women complete their STEM-focused education and enter the workforce, their professional satisfaction and success will help inspire more young women to study science, technology, engineering and mathematics. And in the coming 5-10 years, as the high-tech industries and innovative start-ups being set up in

United Nations Commission on the Status of Women
Fifty-eighth session
10 – 21 March 2014
New York

the UAE today begin to flourish, we are confident even more women will see the value of STEM studies and work.

In the meanwhile, it is the job of all of us to be supportive of our young women, and give them all the opportunities they need to reach their potential. It is the UAE's ambition to be an example not only to the Gulf and MENA regions, but also to the wider world, showing how the talent, dedication and drive of women can be channeled to achieve mutual benefits for all. With the benefit of continuing UAE government support, constitutional protections, and strategic economic inclusion targets, more and more women in the UAE will be able 'take their distinctive position in society' as was the dream of our Founding Father; a position that is educated, enabled and empowered.

¹ <http://www.esa.doc.gov/sites/default/files/reports/documents/womeninstemagaptoinnovation8311.pdf>

² <https://openknowledge.worldbank.org/bitstream/handle/10986/12552/751810PUB0EPI002060130Opening0doors.pdf?sequence=1>

³ <http://www.ilo.org/ilolex/cgi-lex/convde.pl?C100>

⁴ <http://www.ilo.org/ilolex/cgi-lex/convde.pl?C111>

⁵ <http://www.ilo.org/ilolex/cgi-lex/convde.pl?C156>

⁶ <http://www.ilo.org/ilolex/cgi-lex/convde.pl?C183>

⁷ http://lib.ohchr.org/HRBodies/UPR/Documents/Session3/AE/UPR_UAE_ANNEX3_E.pdf

⁸ http://nces.ed.gov/programs/digest/d12/tables/dt12_283.asp?utm_source=Carnegie+Foundation+Mailing+List&utm_campaign=1e690a0d8a-CARNEGIE_CONNECTIONS_RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_c9dfe44995-1e690a0d8a-23568305

⁹ http://lib.ohchr.org/HRBodies/UPR/Documents/Session3/AE/UPR_UAE_ANNEX3_E.pdf

¹⁰ <http://www.businessweek.com/articles/2012-03-29/women-suffer-most-when-government-cuts-jobs>

¹¹ <http://www.dwe.gov.ae/stat.aspx>

¹² <https://data.undp.org/dataset/Table-4-Gender-Inequality-Index/pq34-nwq7>

¹³ http://www3.weforum.org/docs/WEF_GenderGap_Report_2012.pdf

¹⁴ http://www.academia.edu/3396532/EXPANDING_WOMENS_PARTICIPATION_IN_SCIENCE_TECHNOLOGY_AND_ENGINEERING_THE_CASE_OF_THE_UNITED_ARAB_EMIRATES