

Side Event: STEM - Expanding Opportunities for Women and Girls with Disabilities in  
Education and Employment

55<sup>th</sup> Session of the United Nations Commission on the Status of Women

23 February 2011

Location: UN National Lawn Building, Conference Room 4

Date and Time: 23 February 2011, 1:15pm-2:45pm

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Panelists

- **Akiko Ito**, Chief, Secretariat for the Convention on the Rights of Persons with Disabilities, United Nations Department of Economic and Social Affairs (DESA)
  - **Stephanie Ortoleva**, Esq., Senior Human Rights Legal Advisor, BlueLaw International, LLP, Visiting Scholar, University of Hawai'i (Spring 2012) and author of numerous articles on women's rights and disability rights including, "Right Now! Women with Disabilities Build Peace Post Conflict," Center for Women's Policy Studies, Barbara Waxman Fiduccia Papers April 2011; Inaccessible Justice: Persons with Disabilities and the Legal System, International Law Society of America, Journal of International and Comparative Law, Spring 2011; among others.
  - **Harilyn Rousso**, educator, psychotherapist, writer, filmmaker and advocate for disability rights, founder of the Networking Project for Disabled Women and Girls of the YWCA of New York City, author of Double Jeopardy and Producer of Positive Images: Portraits of Women with Disabilities.
  - **Linda P. Thurston**, Ph.D., Project Manager for Education and Careers in STEM for People with Disabilities, National Science Foundation and on leave from her position as Assistant Dean of the School of Education, Kansas State University.
  - **Ivonne Mosquera**, M.B.A., Program Manager for Information Systems, Dow Chemical, former U.S. National Science Foundation Fellow and the U.S. National Visually Impaired Female Triathlon Champion.
  - **Rangita de Silva de Alwis**, Director Human Rights Programs, Susan McGee Bailey Research Scholar, Wellesley Centers for Women, Wellesley College. She has published widely on gender, human rights and law reform and her recent work includes China's New Gender and Law Developments: Opportunities and Challenges to be published by the Yale Journal of Law and Feminism and A Review of Women's Human Rights Lawmaking in Eastern Europe and Central Asia to be published by the UNFPA.
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## Event Summary

Akiko Ito began by emphasizing the urgent need to better address and combat the barriers facing women and girls with disabilities. She emphasized that the UN Special Rapporteur on Disability has highlighted issues of concern to women and girls with disabilities as a priority for his work. Akiko noted the intersections of the Convention on the Rights of Persons with Disabilities (CRPD) and the Convention on the Elimination of all Forms of discrimination Against Women (CEDAW) and its ramifications for this issue and the importance of public and private partnerships. Akiko also referenced how the Convention on the Rights of the Child (CRC) has strong implications for this issue. Akiko then described how the Department of Economic and Social Affairs (DESA) has collaborated with governments, civil society organizations as well as development agencies to organize a number of events to promote the dialogue and discussion on advancing the inclusion of girls and women with disabilities in society and development. The specific events she mentioned included two events co-organized by DESA and civil society organizations during the high level ECOSOC ministerial meeting in July of last year. One was a panel discussion on the role of information and communication technologies in empowering women with disabilities and the second was an interactive panel discussion entitled “towards the equality for women and girls with disabilities,” both took place during the ECOSOC high level segment. Akiko also discussed how in October 2010, DESA in collaboration with Stephanie Ortoleva and with governments, organized another side event on the inclusion of women with disabilities in post-conflict reconstruction and peace building efforts, held in conjunction with the UN Security Council Session on the 10th Anniversary of Resolution 1325 on Women, Peace and Security. She also highlighted the urgent need to address the barriers facing women and girls with disabilities and the widespread gender discrimination in this area. She then introduced Stephanie Ortoleva as the moderator.

Stephanie Ortoleva made welcoming remarks and thanked the co-sponsoring Governments of Argentina, the Philippines and South Africa, the Department of Economic and Social Affairs, and the Global Partnership for Disability and Development (GPDD) for their gracious support of the panel and for their work in support of the rights of persons with disabilities.

Stephanie then gave some background to this issue. Globally, women make up three-fourths of persons with disabilities in low and middle income countries. Between 65% and 70% of these women live in rural areas. Estimates of the percentage of children with disabilities not attending school are extremely variable. However, in general, children with disabilities are less likely to start school and have lower rates of staying and being promoted in school than their peers without disabilities. The correlation between low educational outcomes and having a disability is often stronger than the correlations between low education outcome and other characteristics such as gender, rural residence or poverty. The limited statistics that are available indicate that although the literacy rate for adults with disabilities is 3%, only a meager 1% of women with disabilities are literate. Additionally, women with disabilities have fewer opportunities for vocational training. Only 25% of women with disabilities are in the workforce worldwide. Women with disabilities are twice as unlikely to find work as disabled men. 75% of women with disabilities worldwide and up to 100% in some developing countries are excluded from the workforce, although the majority contribute significantly to their families through

cooking, cleaning, and caring for children and relatives.

Stephanie noted that the priority theme for the 55<sup>th</sup> Session of the Commission on the Status of Women is “access and participation of women and girls to education, training, science and technology, including for the promotion of women’s equal access to full employment and decent work.” Girls with disabilities have the lowest education participation rates in the world and knowledge of STEM subjects is especially deficient. Women with disabilities have low employment rates, as compared with men with and without disabilities and women without disabilities. Women with disabilities often live in economic poverty. Therefore, any discussion of gender and STEM must include women and girls with disabilities. Throughout the world, science and technology fields are dramatically expanding and this is true in developed countries as well as in developing countries these skills and knowledge could provide significant employment opportunities for girls and women with disabilities. Additionally, because of the important role that knowledge of quantitative math skills and science plays in everyday life, skills in this field could have a dramatic impact on the daily lives and independence of girls and women with disabilities. STEM education affords women and girls with disabilities the opportunity to pursue further education and future employment in these fields as well as providing them with the skills to perform daily financial and household tasks, or work through participation in microfinance programs. Exposure to these educational STEM subjects has been shown to develop confidence among girls and increase the possibility that they will continue their education and pursue careers.

Stephanie indicated that the purpose of this panel is to provide information and resources to encourage the Commission on the Status of Women to adopt general Conclusions and Resolutions which ensure the inclusion of women and girls with disabilities. She then encouraged both NGOs and Missions participating in this CSW session to advocate for the inclusion of women and girls with disabilities in the outcomes of the Commission.

Next, Stephanie described the two papers that she handed out during the discussion; the first one was her working draft paper on women and girls with disabilities which she will complete in the near future, and the second paper was her line edits for the draft conclusions that were prepared for the 55<sup>th</sup> session of the Commission on the Status of Women. (Note that some of these recommendations made it into the Final Conclusions adopted by the 55<sup>th</sup> Session of the Commission on the Status of Women.)

Stephanie then invited delegates from the sponsors to make remarks.

The delegate from the Philippines, Ma. Victoria V. Cardnona of the Commission on Human Rights of the Philippines, made a statement concerning the importance of training in science and technology. She stated that women with disabilities deal with unique challenges, and the lack of standards on how to address these challenges has presented problems. She then stated the important contributions of the partnership between the Philippines and Tanzania in promoting the recently-adopted UN resolution on realizing the millennium development goals towards 2015 and beyond.

The delegate from South Africa, Mrs. Hendrieta Bogopane-Zulu, the Deputy Minister of Public Works, opened by stating that South Africa is making a lot of progress in terms of disability rights in their Constitution. She stated that disabled girls present a real challenge to South Africa. She discussed how South Africans prefer all-inclusive education, and then discussed her personal experience of the benefits of an all-inclusive education system. She has a visual disability, as do two of her children. She discussed how going through an all-inclusive education system made her daughter a better person because she was surrounded by both those with disabilities and those without disabilities. She then went on to state that the ratification of the Convention on the Rights of Persons with Disabilities is a beginning, but it does not tell the government where to begin to achieve these goals. She claimed that figuring out where to start is something all of us need to do together with our governments, and that the budgets need to be adapted to include how to implement these resolutions, since implementation remains one of the biggest challenges.

Stephanie then turned the floor over to Harilyn Rousso as the first panelist to present.

Harilyn Rousso began by stating that in the majority of research and policies related to STEM, women and girls with disabilities are virtually invisible. She stated that the vast majority of women and girls with disabilities live in developing nations. Despite the trends towards all inclusive education, disabled students felt their math and science classes were still segregated. Reportedly, children of color and lower incomes had the least interest in science and math class. Children with disabilities performed worse than those without disabilities and girls were performing worse than boys. She also stated that students with disabilities make up only 1% of doctoral students and that this results in low percentages of persons with disabilities working in STEM fields. She said that the percentage of people with disabilities in the STEM work fields increases with age because, as people age, they develop disabilities, and often these disabilities are not reported. She also highlighted the point that gender stereotypes compound disability stereotypes, meaning that discrimination against women and girls with disabilities is a double bind, and this leads to erroneous statements such as “women with disabilities can’t do math and science.” Additionally, she discussed barriers to inclusion, citing transportation barriers, architectural barriers, and safety issues that make it difficult for girls with disabilities to attend the after school and community programs where the majority of these science programs are taught. According to Harilyn, women with disabilities in STEM fields are not very visible, and teaching strategies that focus on speed and competition may discourage the participation of women and girls with disabilities. She concluded with the importance of increasing the involvement of women and girls with disabilities in STEM fields since STEM courses are critical filters that stream women and girls to higher education and career paths which they need to survive and succeed and also because STEM fields need women and girls with disabilities because a diverse student body makes a great contribution to the workforce, and diverse perspectives lead to advancements in science and technology that benefit persons with disabilities and the community as a whole.

Stephanie next talked about the importance of mentoring for women and girls with disabilities, highlighting Harilyn's contributions to such work. She then introduced Linda Thurston as the next presenter.

Linda Thurston opened by stating that science needs women with disabilities and women with disabilities need science because to solve the social and scientific problems facing the world, we need all the brain power we can get. She then stated that the average median income in the United States was \$35,745 but if a woman was a biochemist or physicist, her salary would be 3 times that amount at \$82,840 since they make about \$40 per hour. Linda went on to discuss her work with the National Science Foundation (NSF), which is an independent federal agency of the United States government and her work to discover innovations to help prepare the future STEM workforce. Linda then discussed programs at the NSF designed to increase involvement for women and persons with disabilities in STEM fields. She discussed NSF's disability program, entitled Research in Disabilities Education (RDE), which focuses on investigating effective practices for transitioning students with disabilities across critical academic junctures and retaining students in undergraduate and graduate STEM degree programs. Next, she described the Research on Gender in Science and Engineering (GSE) program which understands that individuals with disabilities and women and girls have a very important role in the future workforce for STEM. She noted that GSE faces problems with respect to the stereotype of who can be a scientist. Lastly, Linda stated that the goal of NSF's ADVANCE program is to increase the representation and advancement of women in academic science and engineering careers in order to diversify the workforce. ADVANCE encourages institutions of higher learning and the STEM community at large to address various aspects of the STEM academic culture and institutional structure that may differentially affect women faculty and academic administrators.

Linda then went on to discuss the two issues related to access and success in STEM education careers for women and girls with disabilities. The two issues are the social construction of disability and the stereotype of who is a scientist. The social construction of disability, which does not view disability as an impairment, a problem with the person, but rather as problems with the accessibility of the environment. For example, a building without ramps is inaccessible to a student who uses a wheelchair, and a school without Braille printers in a library makes it difficult for a student with a visual disability to learn effectively. In terms of the stereotype of who is a scientist, Linda noted that there are many misconceptions about how people with physical or learning disabilities cannot succeed in STEM fields, and therefore are usually deterred from entering these fields at an early age by parents, educators and others. These stereotypes are compounded by gender stereotypes for women and girls with disabilities. Linda then stated three things that can be done to help women and girls with disabilities become more involved with STEM. First, we can work to ensure that STEM is available and accessible for all, and noted that several U.S. Government agencies are providing funding to individuals who want to go into STEM, thus making learning accessible. For example, one program is funding a virtual space for high school and college students with disabilities who are interested in STEM where they can interact with teachers and mentors or an engineering program for assistive

technologies for students with disabilities.<sup>1</sup> Second, she asserted that the stereotypes need to be eliminated. She cited the WAMC radio show<sup>2</sup> which focuses on women scientists with disabilities and www2, which is the wide web for women, so women can mentor other women in STEM and education. Third, she stated that information that is already known can be used to teach women and girls with disabilities about what works effectively and provide support to these women and girls, such as, the simple use of technology to keep girls interested in STEM. For example, we know that when students are mentored or taught by someone with similar disabilities, self-concept as a scientist is improved. She then reiterated how crucial it is to have women with disabilities in STEM fields to increase brain power.

Stephanie then discussed how the attitudes of women and girls with disabilities need to be changed since many have succumbed to the misguided stereotype that they cannot do math. She introduced Ivonne Mosquera as the next presenter.

Ivonne Mosquera began by saying that it is key for all of us to think about the importance of women with disabilities as the United States has led the way for human rights, but the business case for all nations is clear, women with disabilities possess creativity, perseverance, and ingenuity. Including women and girls with disabilities is a crucial component of the United States in maintaining a competitive advantage in our global economy. Problem solving skills, adaptability and team work are all integral skills needed to succeed that individuals with disabilities possess. Helping people with disabilities sparks ideas for new technology and for assistive technology. For example, a camera/computer, often on a cell phone, that speaks to you and can read you a menu at a restaurant, affords greater independence. Many people with disabilities live in rural communities and STEM can provide opportunities in such communities as well as in urban environments. Opportunities need to be created to allow women with disabilities to be involved in STEM and in environments with other women and girls with disabilities. Access to mentors and having strong role models is crucial for the success of women and girls with disabilities in the STEM fields. Ivonne then discussed a few programs that strive to afford women and girls with disabilities exposure to STEM fields. For example, TechGirlz<sup>3</sup> is a program that allows young women who are deaf to be involved in hands on technology. She advocates that by teaching, by exposure, and by believing in oneself, will bring your company and country to a better place. Other programs include: SCI-VIS,<sup>4</sup> which makes space camp accessible to students with visual impairments; Entry Point!,<sup>5</sup> which opens doors and launches women into STEM education programs and careers; MIND Alliance,<sup>6</sup> which is dedicated to helping minority students with disabilities succeed in STEM; and also, DO-IT and Access STEM,<sup>7</sup> which seek to improve transitions to STEM education and careers.

Research and tracking of students with disabilities at the University of Washington, continues to show that programs like DO-IT increase the participants' perceptions of career options, particularly for girls. Additionally, between 2002 and 2007, there was a 14% increase in

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<sup>1</sup> For more information, please visit: <http://www.tsbvi.edu/space/>.

<sup>2</sup> Audio broadcasts of the radio shows are available at <http://womeninscience.org/part.php?partID=5>.

<sup>3</sup> For more information, please visit: <http://techgirlz.org/>.

<sup>4</sup> For more information, please visit: <http://www.tsbvi.edu/space/>.

<sup>5</sup> For more information, please visit: <http://ehrweb.aaas.org/entrypoint/>.

<sup>6</sup> For more information, please visit: <http://www.mystem.org/home/index.aspx>.

<sup>7</sup> For more information, please visit: <http://www.washington.edu/doi/Stem/>.

undergraduate degrees and a 120% increase in graduate degrees in STEM for students with disabilities, compared to 7% and 6% for others. Similarly, STEM majors increased 89% for undergraduate and 82% for undergraduate students with disabilities, compared to 16% and 7% respectively for others.

Stephanie then introduced Rangita de Alwis de Silva as the next presenter.

Rangita de Alwis de Silva began by saying she was here to provide concrete recommendations and to push the boundaries of STEM. She claimed that stereotypes, prejudices and biases are stark impediments for women and girls with disabilities to access STEM and that the CRPD and the CEDAW address some of these barriers to pry open the doors that are shut for women and girls with disabilities. The question arises: how do you close the gap? Since patriarchy and paternalism is so inherent in these areas of STEM, it is important to bring a gender lens to eliminate this barrier. Historically, it was male politicians who drafted laws and policies about STEM. We need to look to broaden entry points with the CEDAW and the CRPD, when addressing historic stereotyping.

She then stated a few examples of nations looking to reach out to persons with disabilities in joining the workforce. There is an Indian law that states 3% of vacancies in government jobs should be reserved for persons with disabilities, but this is rarely applied to STEM fields, and so the quota should be expanded to include STEM fields. Transformation does not happen unless it is catalyzed. There is a Spanish Legislative Decree that reduces by 50% the social security contribution to those who provide training to disabled workers, but very rarely is it extended to STEM fields. New Zealand calls for employers employing few persons with disabilities to pay a levy to the government, and Rangita advocated that these levies should be used to increase involvement of girls and women with disabilities in STEM fields. Thailand provides for tax incentives whereby private enterprises are entitled to a 50% tax reduction for hiring persons with disabilities, and Rangita advocated for broadening this approach to include women and girls with disabilities in the areas of STEM. She advocated for creating pipelines to dismantle stereotypes, to ensure that there is a critical mass of women and girls with disabilities in the pipeline and suggested that one way to accomplish that is to review the entire legal system to look at areas and gaps in the legal system that create barriers. For example, she stated that the New Zealand disability law explicitly “calls for the government to address outdated concepts for persons with disabilities, concepts that are no longer appropriate or acceptable.” She discussed why the private-public partnerships are so important and how we need to create national action plans for women and girls with disabilities to enter STEM fields. She also said that we need to revise textbooks to include women with disabilities in pictures, as a picture is worth a thousand words. She said we need a charge to recreate the whole STEM workforce, to include all women and girls and indeed women and girls with disabilities as well. Lastly, Rangita discussed the importance of collaborating with other women in STEM areas to forge alliances and to maximize the use of technology to do so.

Following these presentations, the panelists entertained questions from the audience.