

Science – Technology – Innovation:

Closing the Gender Gap to Meet the SDGs

Expert Meeting

30 March 2017

Background Note

1. Introduction

The purpose of this background note is to provide a contextual framework for the UN Women, UNESCO and WIPO Initiative on *Science, Technology and Innovation: Closing the gender gap to meet the SDGs* and the Expert Meeting being held on 30 March 2017, at the World Intellectual Property Organization (WIPO) New York Office. The goal of this initiative is to bring diverse expert viewpoints to focus on “what progress is sought to be made in the participation of women and girls in the fields of science, technology and innovation by 2030, and plan backward to determine what steps need to be taken in the short and medium-term future for countries to achieve that goal.”¹

First, this note gives an overview of the 2030 Agenda for Sustainable Development (2030 Agenda), which provides the context of the Sustainable Development Goals (SDGs) and basis of this initiative. The overview will be followed by a brief introduction of the issue of gender equality in the fields of science, technology and innovation (STI) and with a focus on women’s economic empowerment, and the goals and targets that have been negotiated and set in the 2030 Agenda in this field. Finally, it will place this initiative in the context of those goals.

2. 2030 Agenda and SDGs

In 2015, the UN General Assembly adopted the 2030 Agenda² as a global sustainable development plan aimed at eradicating poverty in all forms around the world.³ The 2030 Agenda is supported by

¹ Concept Note, *UN Women, UNESCO and WIPO Initiative: Moving Forward on Gender Equality in the STI cycle for the SDGs* (2017).

² UN General Assembly resolution 70/1, Transforming our world: the 2030 Agenda for

17 SDGs that aim to broadly cover the sustainable development needs of all people in developing and developed countries alike, and to balance the “economic, social and environmental” dimensions of sustainable development.⁴ The SDGs are described as universal (in that they apply to all countries), interlinked and indivisible.



The SDGs provide a framework to assist countries to develop policies and mechanisms to achieve these goals: in order to ensure that the implementation of the SDGs is measurable and accountable, the UN member States agreed 169 targets that attach to the goals, and a series of indicators are being negotiated within the UN Statistical Commission to assist in monitoring progress. While the development of the targets and indicators is influenced by political as well as pragmatic considerations related to statistical capacities and the availability of data and methodologies at the global level, they are widely acknowledged to be less than complete in their measurement of the progress needed in some fields to attain the SDGs. The Appendix hereto sets out SDGs, targets and indicators that are particularly relevant to this initiative.

Sustainable Development, A/RES/70/1 (25 September 2015), available online: <http://undocs.org/A/RES/70/1> [RES 70/1]

³ *Ibid* at 1.

⁴ *Ibid*.

There is broad recognition that gender equality is fundamentally integral to the success of the majority of the SDGs.⁵ As such, there is a gender goal, SDG 5, but also the expectation that gender is mainstreamed throughout other SDGs. Sometimes this is made explicit in targets and indicators. Following are the targets and indicators for SDG 5:

SDG 5: Achieve gender equality and empower all women and girls

Targets

- 5.1 End all forms of discrimination against all women and girls everywhere
- 5.2 Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation
- 5.3 Eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation
- 5.4 Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate
- 5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life
- 5.6 Ensure universal access to sexual and reproductive health and reproductive rights as agreed in accordance with the Programme of Action of the International Conference on Population and Development and the Beijing Platform for Action and the outcome documents of their review conferences
- 5.A Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws
- 5.B Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women
- 5.C Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels

⁵ Based on the indicators for the targets. Some of the indicators measure sex data while others do not but are implicated, see Appendix, Table 1.

Indicators

- 5.1.1 Whether or not legal frameworks are in place to promote, enforce and monitor equality and non-discrimination on the basis of sex
- 5.2.1 Proportion of ever-partnered women and girls aged 15 years and older subjected to physical, sexual or psychological violence by a current or former intimate partner in the previous 12 months, by form of violence and by age
- 5.2.2 Proportion of women and girls aged 15 years and older subjected to sexual violence by persons other than an intimate partner in the previous 12 months, by age and place of occurrence
- 5.3.1 Proportion of women aged 20-24 years who were married or in a union before age 15 and before age 18
- 5.3.2 Proportion of girls and women aged 15-49 years who have undergone female genital mutilation/cutting, by age
- 5.4.1 Proportion of time spent on unpaid domestic and care work, by sex, age and location
- 5.5.1 Proportion of seats held by women in national parliaments and local governments
- 5.5.2 Proportion of women in managerial positions
- 5.6.1 Proportion of women aged 15-49 years who make their own informed decisions regarding sexual relations, contraceptive use and reproductive health care
- 5.6.2 Number of countries with laws and regulations that guarantee women aged 15-49 years access to sexual and reproductive health care, information and education
- 5.A.1 (a) Proportion of total agricultural population with ownership or secure rights over agricultural land, by sex; and (b) share of women among owners or rights-bearers of agricultural land, by type of tenure
- 5.A.2 Proportion of countries where the legal framework (including customary law) guarantees women's equal rights to land ownership and/or control
- 5.B.1 Proportion of individuals who own a mobile telephone, by sex
- 5.C.1 Proportion of countries with systems to track and make public allocations for gender equality and women's empowerment

STI underpins the entirety of the SDGs, and women's role in their implementation will be critical. Some of the goals make explicit provision for issues of gender equality. For example, the goal on climate change (SDG13) includes a target on raising capacity for effective climate change-related planning and management, with a focus on women (and other groups).

The UN member States are committed to strive to achieve the goals set by the SDGs by 2030. Two levels of follow-up and review accompany this process of implementation: at the national and regional levels, a self-assessment is conducted by governments, while at the global level, the annual UN High Level Political Forum (HLPF) acts as the principle organ for follow-up and review of progress under the 2030 Agenda, based on voluntary reporting by governments and statistical information provided by countries and the UN system.

Each year the HLPF assesses a cluster of SDGs.⁶ In 2017, the HLPF will review six goals including SDG 5 (gender equality) and SDG 9 (industry, innovation and infrastructure). The initiative launched by UN Women, UNESCO and WIPO on gender equality, science, technology and innovation and the SDGs is designed to take advantage of the unique focus on these two goals in 2017.

3. Gender, STI, entrepreneurship and the SDGs

Science, technology and innovation are key components of economic and social development and are widely acknowledged to be an important public policy consideration for both developing and developed countries.⁷ At the same time, the emphasis on equality and 'leaving no-one behind' that underpins the SDGs means that the inclusion and empowerment of women in the field of STI is also fundamental. The underrepresentation of women in STI sectors needs to be examined from 1) the STEM education of girls in school and tertiary education, to 2) the participation of women as innovators and creators, to 3) women's participation in the workforce, including as technological entrepreneurs, and 4) leadership and decision-making. This cycle will guide discussions on gender equality in the STI sectors and in support of the SDGs.⁸

⁶ RES 70/1, *supra* note 3 at 11.

⁷ The UN System Task Team on the Post-2015 UN Development Agenda, "Science, Technology and Innovation for Sustainable Development in the Global Partnership for Development Beyond 2015" at 3, online: <http://www.un.org/en/development/desa/policy/untaskteam_undf/thinkpieces/28_thinkpiece_science.pdf>

⁸ For past considerations of the issues of women and girls and education and employment in STI, please see Commission on the Status of Women Sessions from [2011](#) (Agreed conclusions and background reports/documentation) and [2013](#) (review theme).

Addressing gender equality in the STIs for the SDGs is particularly significant because the contribution of girls and women in STI is instrumental for achieving a majority of the SDGs and targets, as women represent not only half of the population⁹ but contribute greatly to their communities.¹⁰ It is also significant because there are a number of driving forces that impact the attainment of gender equality in the STIs. Studies have shown that women who are involved in STI fields leave at disproportionately higher rates than men at different stages of the STI cycle for a number of different social, cultural and institutional factors¹¹ resulting in an effect known as the “leaky pipeline.”¹²

Factors that contribute to the rate of women entering or eventually leaving STIs include: access to and quality of education; opportunities in the job market; stereotypes; lack of role models, mentorship and sponsorship; women with disabilities; and work place culture and work life balance, including being primarily responsible for family care.¹³ The leaky pipeline phenomenon occurs in various areas of the cycle, from education to entrepreneurship.¹⁴

4. UN Women, UNESCO and WIPO Initiative: Moving forward on gender equality in the STI sectors for the SDGs

The purpose of this inter-agency initiative is to identify and elaborate practical strategies that could be used by countries and the UN system to reach the goals set by the SDGs in the field of women and girls in STI and particularly for their economic empowerment. The deliverables should assist governments, the private sector and other institutions to develop and implement policies and plans over the period from now to 2030, with a view to achieve gender parity in the STIs with a particular focus on entrepreneurship for the SDGs in line with the goals set by the 2030 Agenda.

⁹ UNESCO, “Gender and Science”, online:<<http://www.unesco.org/new/en/natural-sciences/priority-areas/gender-and-science/>>; UNWOMEN, “Women and Sustainable Development Goals” online: <<http://www.unwomen.org/en/news/in-focus/women-and-the-sdgs>>.

¹⁰ Sylvia Ann Hewlett, Melinda Marshall, and Laura Sherbin, “How Women Drive Innovation and Growth” *Harvard Business Review* (August 23 2013), online: <<https://hbr.org/2013/08/how-women-drive-innovation-and>>.

¹¹ Sophia Huyer and Gunnar Westholm, *Gender Indicators in Science, Engineering and Technology: An Information Toolkit* (Paris: UNESCO Publishing, 2007) at 13.

¹² Background Paper, “Women’s and Girls’ Access to and Participation in Science and Technology” prepared by United National Educational, Scientific and Cultural Organization (UNESCO) Doc No EGM/2010/BP.2 (September 2010) at 3 online: <<http://www.uis.unesco.org/ScienceTechnology/Documents/unesco-egm-science-tech-gender-2010-en.pdf>>.

¹³ *Ibid* at 6-10.

¹⁴ As an example of gender parity in a developed country, in Canada women represented “29.6% of individuals with a post-secondary STEM credential and 26.9% of those employed in a STEM-intensive occupation” in 2011 Council of Canadian Academies, “Some Assembly Required: STEM Skills and Canada’s Economic Productivity” The Expert Panel on STEM Skills for Future (Ottawa: Council of Canadian Academies, 2015) at xvi, Executive Summary.

Appendix

Relevant SDGs, targets, and indicators

Following are the SDGs that address the cycle of education – R&D / Innovation – Decent Work – Leadership and Influence, as well as gender and innovation.

Goal	Target	Indicator
Education	4.2 By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education	4.2.1 Percentage of children under 5 years of age who are developmentally on track in health, learning and psychosocial wellbeing. Disaggregations: sex, location, wealth (and others where data are available) 4.2.2 Participation rate in organized learning (one year before the official primary entry age)
	4.3 By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university	4.3.1 Participation rate of youth and adults in formal and non-formal education and training in the last 12 months
	4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship	4.4.1 Percentage of youth/adults with information and communications technology (ICT) skills by type of skill
	4.5 By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples	4.5.1 Parity indices (female/male, rural/urban, bottom/top wealth quintile and others such as disability status, indigenous people and conflict-affected as data become available) for all

	<p>and children in vulnerable situations</p> <p>4.6 By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy</p> <p>4.b By 2020, substantially expand globally the number of scholarships available to developing countries, in particular least developed countries, small island developing States and African countries, for enrolment in higher education, including vocational training and information and communications technology, technical, engineering and scientific programmes, in developed countries and other developing countries</p>	<p>indicators on this list that can be disaggregated</p> <p>4.6.1 Percentage of population in a given age group achieving at least a fixed level of proficiency in functional (a) literacy and (b) numeracy skills. Disaggregations: sex, location, wealth (and others where data are available)</p> <p>4.b.1 Volume of official development assistance flows for scholarships by sector and type of study</p>
Gender	<p>5.1 End all forms of discrimination against all women and girls everywhere</p> <p>5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life</p> <p>5.A Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and</p>	<p>5.1.1 Whether or not legal frameworks are in place to promote, enforce and monitor equality and non-discrimination on the basis of sex</p> <p>5.5.1 Proportion of seats held by women in national parliaments and local governments</p> <p>5.5.2 Proportion of women in managerial positions</p>

	<p>natural resources, in accordance with national laws</p> <p>5.b Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women</p> <p>5.c Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels</p>	<p>5.b.1 Proportion of individuals who own a mobile telephone, by sex</p> <p>5.c.1 Percentage of countries with systems to track and make public allocations for gender equality and women's empowerment</p>
Decent Work and Economic Growth	<p>8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors</p> <p>8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services</p>	<p>8.2.1 Annual growth rate of real GDP per employed person</p> <p>8.3.1 Share of informal employment in non-agriculture employment, by sex</p>
Industry, Innovation and Infrastructure	<p>9.2 Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries</p> <p>9.5 Enhance scientific research,</p>	<p>9.2.1 Manufacturing value added as a proportion of GDP and per capita</p> <p>9.2.2 Manufacturing employment as a proportion of total employment</p> <p>9.5.1 Research and</p>

	<p>upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending</p> <p>9.b Support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities</p>	<p>development expenditure as a proportion of GDP</p> <p>9.5.2 Researchers (in full-time equivalent) per million inhabitants</p> <p>9.b.1 Proportion of medium and high-tech industry value added in total value added</p>
Partnerships for the Goals	<p>17.8 Fully operationalize the technology bank and science, technology and innovation capacity-building mechanism for least developed countries by 2017 and enhance the use of enabling technology, in particular information and communications technology</p>	<p>17.8.1 Proportion of individuals using the Internet</p>