WFEO / FMOI

United Nations Educational, Scientific and Cultural Organization

World Engineering Day

TITLE: Developing Stem Capacities of Women In Africa-Sustainable Development Goals In Focus

THEME: Empowering Women in STEM is Essential for Achieving the UN SDGs

A joint presentation with:

International Science Council

International Network of Women in Engineering and Sciences

&

World Federation of Engineering Organisations-Committee of Women in Engineering

United Nations -Commission on the Status of Women NGOCWW65 parallel Event

on : 20th MARCH 2021

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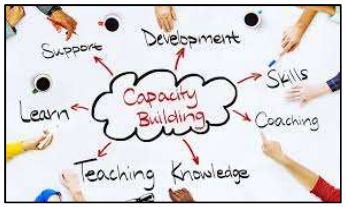
World Federation of Engineering Organisations – Women in Engineering Committee

- Represents female engineers from different world regions and countries and various fields of technology & engineering.
- Partners with UNESCO, ISC, INWES, FAEO and female Professional Engineering Institutions all over the world, growing networks & collaborations, policy implementation & advocacy.

- Thematic Areas of WIE

Engineering Strategic Indicators



Engineering Workforce Capacity building- to encourage female engineering leadership

Engineering Workforce Capacity building- to increase diversity and inclusivity

Engineering Gender lens and the SDGs

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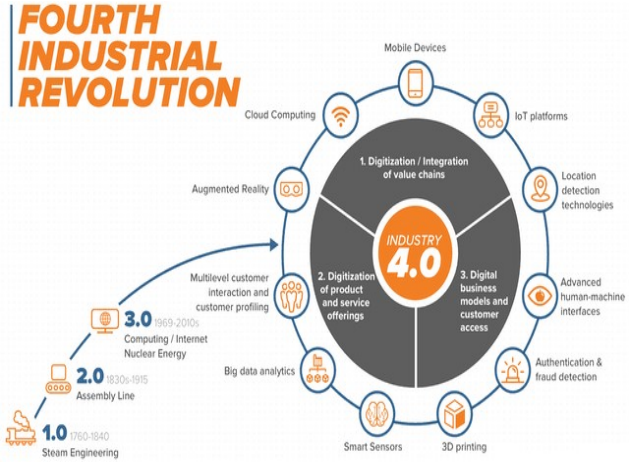
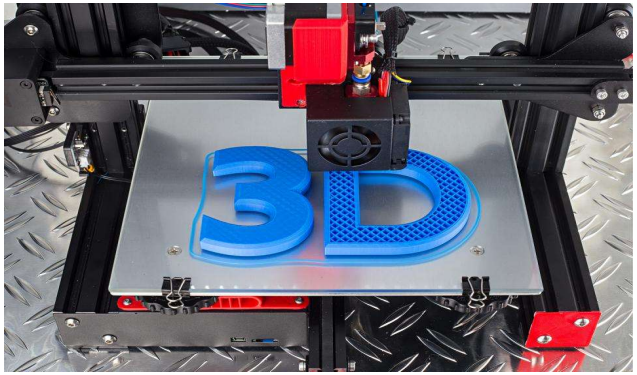
DEVELOPMENT in AFRICA -4TH Industrial Revolution

- Women scientists have a critical role to play in Africa's development, including pushing the envelope on gender equality (Bonfield, 2021)

- With the 4th Industrial revolution, artificial intelligence, big data, robotics, IoT, 3D printing, genetic engineering, quantum computing, and other technologies are the drivers of development and sustainability.





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Under-representation of STEM WOMEN IN AFRICA

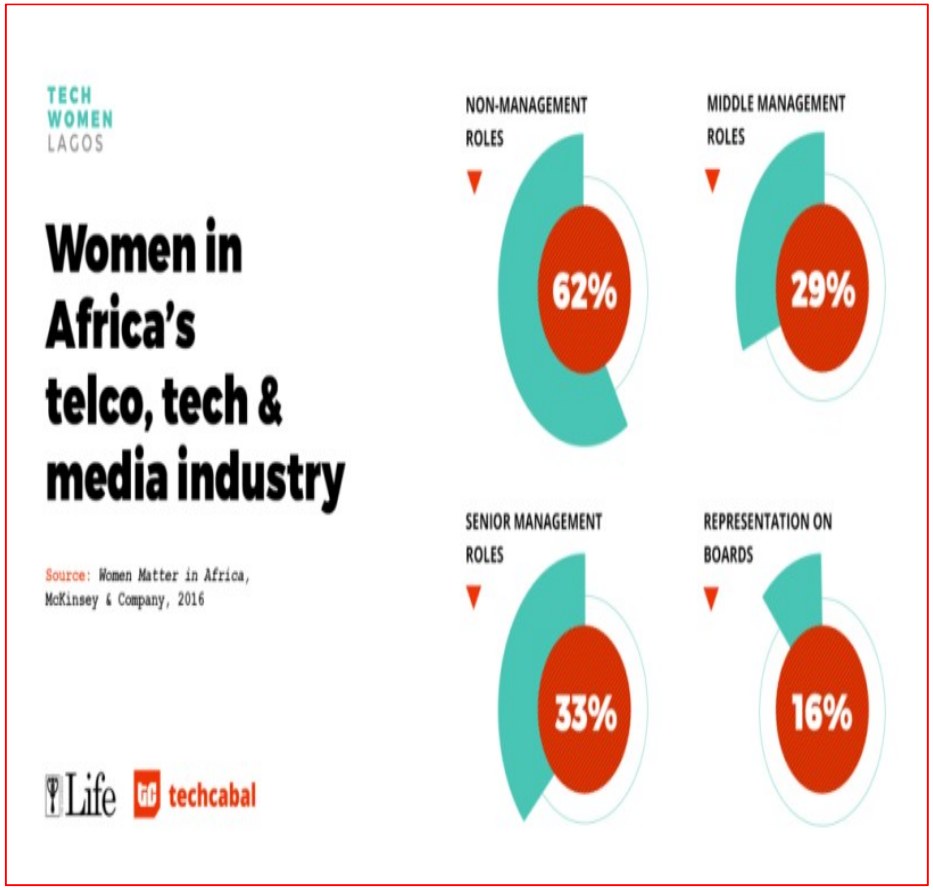
- While female underrepresentation has been a longstanding issue for engineering, the need to harness women's considerable potential only grows more acute with the increasing pace of technological advancement. (Engineering UK, 2019)
- The under-representation gets even worse in the case of African women compared to the rest of the world. (Muller, 2003).
- For Africa to meet up with the SDGs in 2030, the under-representation of females in STEM Education must be seen as a SOCIAL, POLITICAL AND ECONOMIC imperative.

Country	% of female researchers	
Namibia 2010	43.7	TOP 5
South Africa 2012	43.7	
Mauritius 2012	41.9	
Cabo Verde 2011	39.8	
Madagascar 2011	35.8	
Ghana 2010	18.3	BOTTOM 5
Mali 2011	16	
Burundi 2011	14.5	
Ethiopia 2013	13.3	
Togo 2012	10.2	

Source: UNESCO Science Report: Towards 2030 (2015),

Under-representation shows up as DISPARITY IN THE TECH INDUSTRY

- Numerous initiatives have increased the numbers at the bottom of the FEMALE STEM ladder BUT
- Fewer women as one moves from non-management roles to senior management roles. Only three out of ten senior managers in the telecoms, media and technology industry in Africa are women, (2016 report McKinsey & Company.)



Growing Initiatives to improve Female STEM Capacity

- Govt Policies –By individual countries & African Union Gender Policy is to achieve an African society founded on democracy and gender equality. (African Union, 2008)

- Initiatives-lobbying and advocacy activities by Female Professional organisations & Non-profits/ UNESCO STEM and Gender Advancement (SAGA), Gender Summit Africa platform.
- …But the gender imbalances remain at upper levels. Why?

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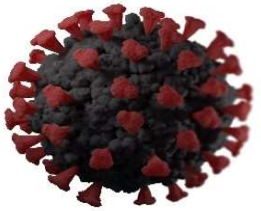
Barriers -Leading to exclusion of females

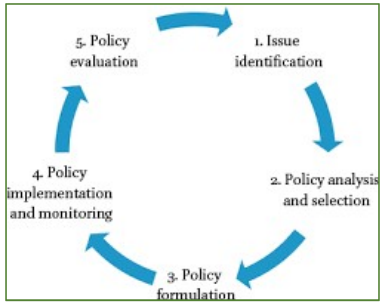
- Persistent barriers:- Societal /Deep Prejudices, Institutional (e.g. gender pay gaps, workplace conditions). Policy related barriers- lack of cohesive framework. More recent barriers now include Covid 19 pandemic, recent waves of terrorism and kidnapping. *34M children out of school in SSA*. (UNESCO Institute for Statistics, 2020*).*
- *What does the future hold?*
- The result is that increasingly, girls are excluded thereby exacerbating inequalities and of course, the contributions of half the population is missing from the concepts, designs and outputs of STEM products.

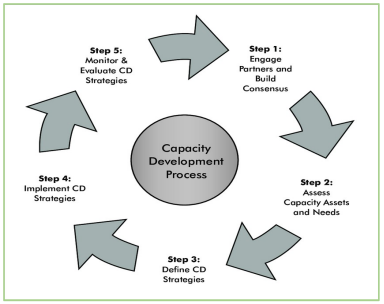


Breaking the Barriers…

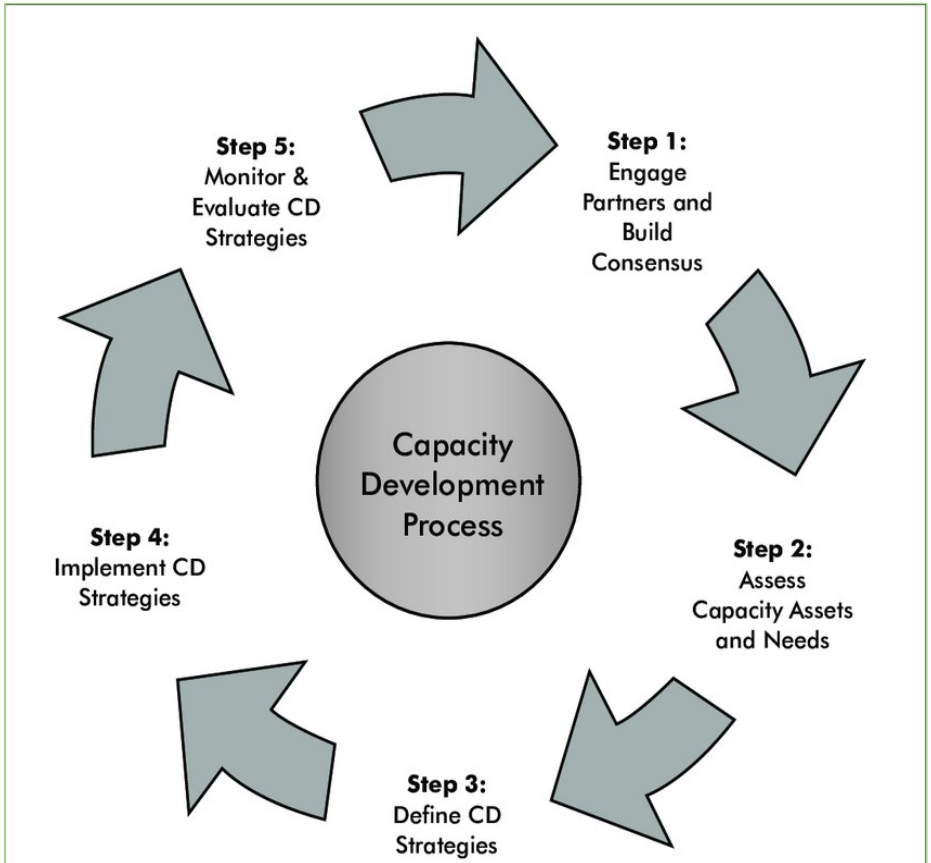
- “The multiple systemic and structural barriers that have historically prevented under-represented groups, notably women, from accessing the engineering sector must be removed as a matter of urgency’’ (UNESCO Report 2021)

- The barriers can usually be removed/reduced via:
  Capacity Building Policy Making





Broad Review of Capacity Development Process



Capacity development steps, (UNDP 2007)

- Could lack of standardized data be a deterrent to the success of some the Capacity Building initiatives ? The assessment of Assets and Needs are both highly critical information (to aid the strategizing of CD Step 2).

- Could lack of standardized data distort the monitoring and evaluation of strategies and sharing of impact and effectiveness of interventions? (Measured Impact of CD-Step 5)

Lack of standardized data reduces impact of CD initiatives

- Lack of basic data & weak statistical systems is recognized as detrimental to CD efforts and reduces impact of such initiatives on country or regional basis. (OECD, 2017)

- ‘’…..focusing on project-based data and working in silos, we compete with national statistical offices for scarce financial resources and other support and therefore limit their ability to develop robust national statistics to advance sustainable development.’’ (*Utoikamanu et al, 2019)*

Where is the Data ?

- Data for women progressing to engineering careers and becoming professionally registered are not available at a global level (Bonfield ,Tull 2021)

- The System of Environmental-Economic Accounting (SEEA), an arm of the UN and includes engineering dependent issues BUT does not include data for engineering and engineering disaggregated data.

Data is important- Bridge the Data Divide

https://twitter.com/OECDdev/status/921025911214039041/photo/1

Recommendations

Sex disaggregated data in engineering

- Collaborative Accurate and standardized statistics on existing gender disparities
- Development of Gender metrics to support gender policies and programmes for Africa
- More effective monitoring and evaluation of existing and new strategies and impact using metrics
- Policy formulation, coherence and convergence across countries leading to social and legislative changes to reduce gender disparities in engineering and tech

Sustainable impactful , robust and focused Capacity building initiatives - addressing the Gender Gap in Tech more effectively

Data to form basis of more effective Capacity Building Initiatives and sustainable development

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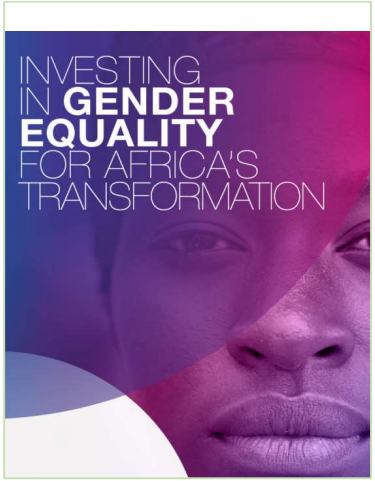
Conclusion

- The lack of standardized gendered data in the STEM arena, across Africa particularly, is often an excuse for inaction because of the dearth of scientific information to support the call to action.
- Funding the **collection and analysis of disaggregated gender data**, is expected to improve Capacity Development outcomes across engineering and other STEM professions.
- Africa needs to deliberately build capacity, for the STEM female, with the use of reliable data, in order to accelerate the journey to a *sustainable future*, where ''no one is left behind''.



- Thank you for listening

Sources

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