WORLD FEDERATION OF ENGINEERING ORGANIZATIONS
FÉDÉRATION MONDIALE DES ORGANISATIONS D'INGÉNIEURS

UN STI Forum 5-6 May 2022
Roundtable: Science and technology futures and scenarios for the SDGs and beyond: what is possible and what does it take? (6 May 2:10 – 2:55 pm, EDT).
Written Statement
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It is a privilege to present this submission as a past President of the World Federation of Engineering Organizations the only global platform for engineering and shared practices, representing 100 nations and some 30 million engineers. The Federation is Co-Chair of the Science and Technology Major Group of Stakeholders. As a chemical engineer and past National President of Engineers Australia, I am among less than 10 percent of women working engineers and an even smaller percentage in leadership.

The UN Sustainable Development Report 2019, recognized that science and technology are key levers to advance the UN 2030 Agenda for Sustainable Development. The Second UNESCO Engineering Report, 2021, recognized that engineers and engineering are essential for sustainable development and are essential to drive the change we need to advance the UN 2030 Agenda for Sustainable Development.

With just 8 years remaining, we are at the crucial point to address what it will take. Clearly engineering technology is advancing quickly to address issues such as climate change with carbon net zero targets by 2030 becoming a reality. Huge advances have been made in improving food and agriculture (SDG#1), improved health outcomes, especially during the pandemic (SDG#3), developing clean water and Sanitation (SDG#6) and providing access to low cost and reliable energy (SDG). This has been and will always be the work of engineers.

But engineering alone will not deliver the changes we need. We need a paradigm shift in the way technology itself is developed and how the benefits are shared across the world. It is essential to challenge the status quo and the barriers to change, essential for a sustainable future beyond 2030 where no one is left behind, including in engineering.

Engineering is essential for sustainable development and economic growth with a positive correlation between these. Engineering leaders need to act to build capacity building in engineering capability and enable engineers to be the agency for change.

The World Federation of Engineering Organizations is working with its partners in international engineering to build capacity for more engineers where they are needed most – in Africa, Asia and Latin America. In some of these countries, the numbers of engineers one-tenth or less than in the developed world. These engineers can transform engineering approaches with more indigenous, culturally and environmentally appropriate solutions.

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Under my leadership, the Federation has transformed the engineering benchmarks which are the foundation of engineering to ensure future engineers are more aware of the broader implications of their extraordinary work, consider the social, environmental and ethical dimensions of their solutions and their impact on people and planet. Engineers will be trained to think critically, work inclusively and consult and communicate with their stakeholders. This is the first major change to the engineering education benchmarks since they were first established more than 30 years ago. It is an example of how challenging and changing the status quo can benefit us all.

The Federation is collaborating with it partners and members in engineering, for more engineers in Africa, Asia and Latin America. Because engineering education, empowers and provides sustainable capacity to innovate, develop and implement solutions to global challenges, today and beyond 2030.

Beyond 2030, engineers will need to use their expertise to address other barriers to change – legal, regulatory, political, to ensure that technology and engineering benefits people and planet while enabling prosperity and peace. This will be increasingly important for new emerging technologies that use large volumes of data, faster communications as we approach 5G and beyond, and enormous computing capacity through quantum computing technologies, including, Artificial intelligence, Robotics, Metaverse technologies that will dominate every sphere of life.

The frameworks that will enable these technologies across nations will also need to adapt. This will require new capabilities and understanding, essential to ensure that the power of technology is shared equally around the world. Capacity building and effective education, especially in engineering is urgent and essential. Ensuring the participation of women and other unrepresented groups especially from rural areas, in engineering and in the development of new technology solutions is an imperative.

At the World Federation of Engineering Organizations, our hope and vision is to provide transformative leadership and sustained action for a shared future where no one is left behind.

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