

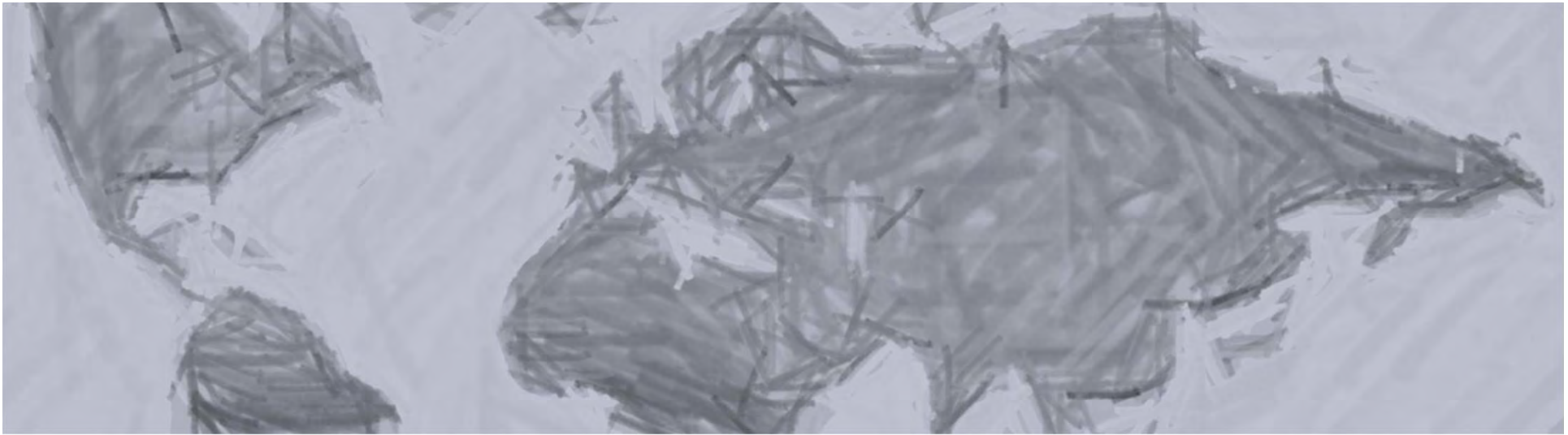
Information Meeting with UNESCO Permanent Delegations

Capacity Building for Engineering
1st February 2019

Speaker Name:
Dr. Marlene Kanga AM
President WFEO

Engineering for Sustainable Development

www.wfeo.org



- The international organization for the engineering profession
- Founded in 1968
- Under the auspices of UNESCO
- 90+ national engineering institutions
- Representing 30+ million engineers

Engineering for Sustainable Development



Engineering for Sustainable Development



Algeria
Argentina
Australia
Bahrain
Bangladesh
Belize
Bolivia
Brazil
Bulgaria
Cameroon
Canada
Chile
China
Chinese Taipei
Colombia
Costa Rica
Croatia
Cuba
Cyprus
Czech Republic

Ecuador
Egypt
Ethiopia
Fiji
France
Germany
Ghana
Greece
Honduras
Hong Kong, China
Hungary
India
Iraq
Italy
Ivory Coast
Japan
Jordan
Kenya
Korea
Kuwait

Lebanon
Libya
Macedonia (FYROM)
Madagascar
Malawi
Malaysia
Malta
Mauritius
Mexico
Moldavia
Mongolia
Montenegro
Morocco
Nepal
New Zealand
Nigeria
Pakistan
Palestine
Peru
Poland

Portugal
Puerto Rico
Qatar
Romania
Russia
Rwanda
Saudi Arabia
Senegal
Serbia
Sierra Leone
Singapore
Slovakia
Slovenia
South Africa
Spain
Sri Lanka
Sudan
Switzerland
Syria
Tanzania

The Philippines
Tunisia
Turkey
Uganda
Ukraine
United Arab Emirates
United Kingdom
United States
Uruguay
Yemen
Zambia
Zimbabwe

Engineering for Sustainable Development





Only International Engineering Organisation representing all disciplines that is recognised at the UN

Co-Chair Major Science and Technology Group at UN

10 x Standing Technical Committees

Executive Council

Executive Board

Supported by a small secretariat based in Paris

Engineering for Sustainable Development



WFEO Committees and Working Groups

- **Engineering and the Environment (Hosted by UK)**
- **Energy (Hosted by USA)**
- **Engineering Education (Hosted by Lebanon)**
- **Information and Communication (Hosted by India)**
- **Engineering and Innovative Technologies (Hosted by China)**
- **Engineering Capacity Building (Hosted by South Africa)**
- **Disaster Risk Management (Hosted by Peru)**
- **Anti-Corruption (Hosted by Zimbabwe)**
- **Women in Engineering (Hosted by Nigeria)**
- **Young Engineers/Future Leaders (Hosted by Kuwait)**
- **UN Relations Committee (Hosted by USA)**
- **Working Group on Water (Hosted by Spain)**
- **Working Group on Global Infrastructure Report Card (Hosted by Federation of African Engineering Organisations)**



Partnering with our international peers

- UN SDG 17 : Partnerships
- Together we can progress joint objectives in education, training and sustainable development
- Partnerships with:
 - International Engineering Alliance (IEA)
 - International Federation of Engineering Education Societies (IFEES)
 - Federation of International Consulting Engineers (FIDIC)
 - International Network for Women Engineers and Scientists (INWES)
 - International Centre for Engineering Education (ICEE, UNESCO Centre)
 - International Science Technology and Innovation Centre for South-South Cooperation (ISTIC, Malaysia, UNESCO Centre)
 - International Science Council (ISC)



Influencing...

a respected source of advice & guidance on
engineering and technology

Supporting...

UN sustainable development goals

Partnering...

with our international peers in engineering
and science

Growing...

engineering capacity and mobility

Improving...

the ethical engineering practice and a diverse
and inclusive profession

Convening...

world engineers' events

Recognising...

excellence in engineering



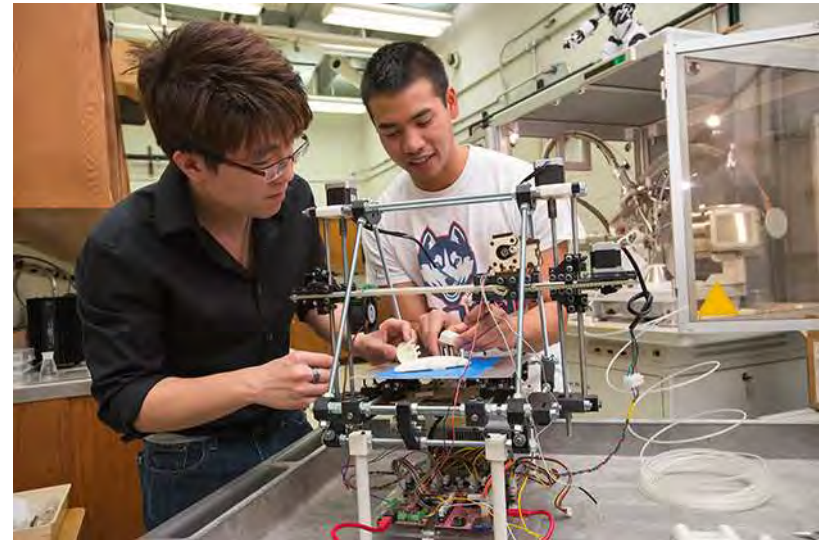
Working with international organisations

- UN Economic and Social Council, (ECOSOC),
- UN Department of Economic and Social Affairs (UNDESA),
- UN Development Program (UNDP),
- UN Educational, Scientific and Cultural Organisation (UNESCO),
- UN Industrial Development Organisation (UNIDO)
- UN Environmental Program (UNEP)
- UN Framework on Climate Change (UNFCCC)
- UN Office for Disaster Risk Reduction (UNISDR),
- The International Atomic Energy Agency (IAEA)
- The World Meteorological Organisation (WMO)



Engineering 2030 – Engineering Education and Professional Development

1. **Supporting** High Quality Education
2. **Graduate Outcomes** that meet industry needs
3. **Engineering qualifications** that are recognised nationally and internationally
4. **Continuous professional development**
5. **Capacity Building** – for professional engineering institutions
6. **Support national and international registration** – for recognition of qualifications and experience of practising engineers
7. **Liaise with governments** – to establish consistent regulation policies for engineers
8. **Establish an international platform for engineering standards** – under auspices of WFEO and UNESCO



Engineering for Sustainable Development



**Information Meeting with UNESCO Permanent
Delegations
Capacity Building for Engineering
1st February 2019**

**Speaker Name:
Prof. Jose Vieira
Chair WFEO Strategic Planning Committee
President European Federation of Engineering Institutions
(FEANI)**

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The WFEO Strategic Plan 2015-2019

A. External Objectives

1. **Be recognised** as the respected source of advice and guidance on engineering and technology related issues for human well-being and natural environment management
2. **Be at the forefront of international efforts** in making the engineering profession contribute that is scientifically and technologically achievable
3. **Apply engineering and technology for promoting sustainable development**, climate change adaptation, disaster risk mitigation, public health and poverty alleviation
4. **Facilitate mobility** of engineering professionals globally
5. **Establish and maintain a global code of ethics** for the professional practice of engineering
6. **Promote diversity and inclusion** in the engineering profession

B. Internal objectives

7. **Improve the financial visibility**, presence and stature of WFEO
8. **Expand the membership** and the support of national and international members
9. **Continuously improve the work of the STCs** and the quality of their outputs





SUSTAINABLE DEVELOPMENT GOALS

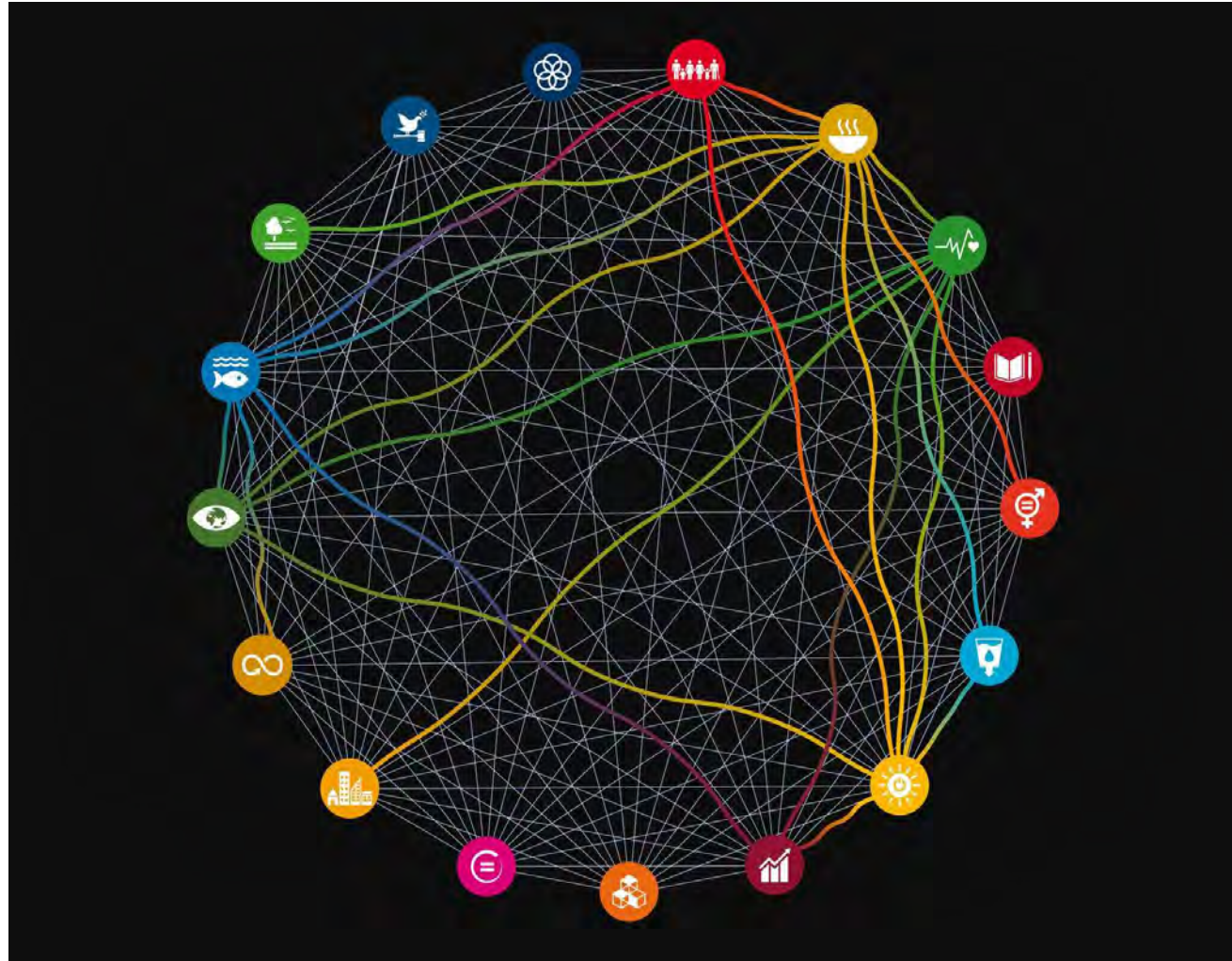
17 GOALS TO TRANSFORM OUR WORLD



Engineering for Sustainable Development



Engineering is essential to achieve the UN SDGs
and WFEO has an imperative – a pressing need to step up and lead engineers
to develop solutions for sustainable development

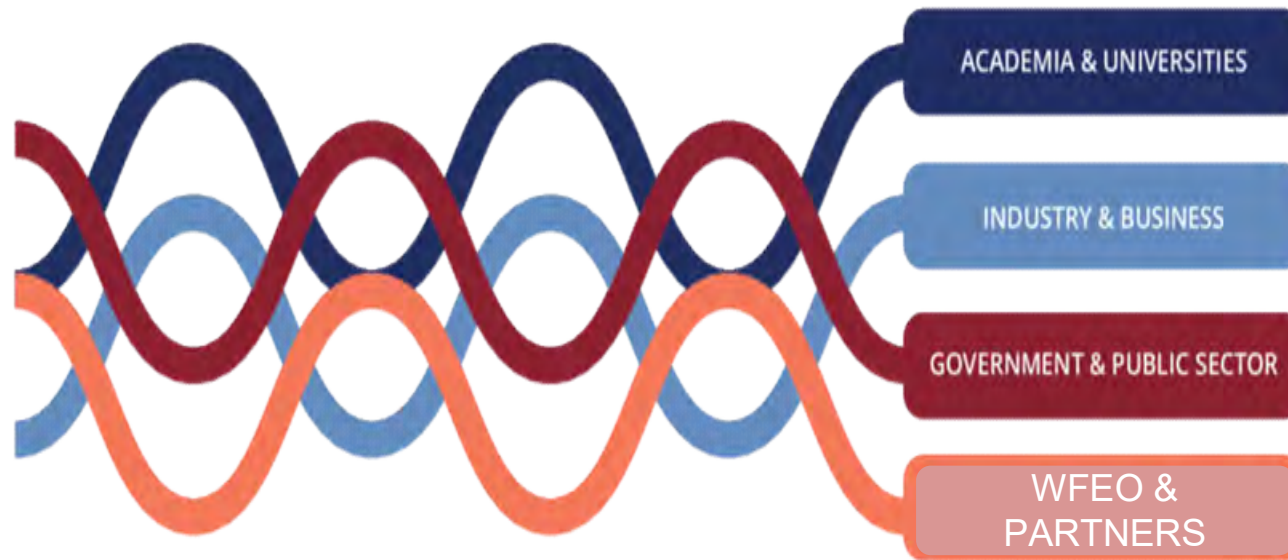


Source: Image from International Science Council

Engineering for Sustainable Development



WFEO Engineering 2030 – Partnerships for SDGs



The Plan is based on a quadruple interaction of government, academia, industry and professional engineering institutions which is best described in the Quadruple Helix Model



WFEO Engineering 2030 Plan

- **WFEO Engineering 2030** - A Plan to develop engineering capacity for a sustainable world through partnerships with educators, government, industry and professional engineering institutions
- a strategic initiative to address the gap in engineering capacity and the quality of engineering professionals
- recognises that:
 - engineers are essential for sustainable development
 - good engineering is essential achieving the UN Sustainable Development Goals
 - consistent with the mission and objectives of WFEO
- WFEO will be leading and co-ordinating the Plan with its international partners



Engineering 2030 – Principles for Action

1. **Encourage young people** – To consider engineering as a career
2. **Graduate Outcomes** - Agree with educators, government, industry
3. **Global standards** - for engineering education and professional development
4. **Partnerships** – with international standard setting organisations for consistent international framework
5. **Support** – development of national engineering education systems to comply with agreed standards
6. **Capacity Building** – for accreditation of engineering education and accreditation bodies
7. **Capacity Building** – for professional engineering institutions
8. **Develop professional development pathways** – so graduates meet employer needs
9. **Support national and international registration** – for recognition of qualifications and experienced of practising engineers
10. **Liaise with governments** – to establish consistent regulation policies for engineers
11. **Establish an international platform for engineering standards** – Education and professional development, under auspices of WFEO and UNESCO
12. **Report on progress** - to UNESCO and other international organisations

Engineering for Sustainable Development



WFEO Engineering 2030 – Partnerships

1. **UNESCO and other UN bodies** – Member major UN Science & Technology Group
 - WFEO UNESCO Paris Declaration, 4 March 2018
2. **WFEO Standing Technical Committees** – support aspects of the plan, e.g. ethical engineering practices, diversity, youth leadership
3. **National and International Members of WFEO** – These are the professional engineering institutions that will both deliver and benefit from the Plan
4. **International partners of WFEO** – Key bodies for international standards in engineering education
 - International Engineering Alliance (IEA)
 - International Federation of Engineering Education Societies (IFEES)
 - Federation of International Consulting Engineers (FIDIC)
 - International Network for Women Engineers and Scientists (INWES)
 - International Centre for Engineering Education (ICEE, UNESCO Centre)
 - International Science Technology and Innovation Centre for South-South Cooperation (ISTIC, Malaysia, UNESCO Centre)
 - International Science Council (ISC)



Engineering 2030 – Projects in hand

1. ENGINEERING EDUCATION STANDARDS (SDG4): Reviewing and Developing Standards for Engineering Education to meet current and future needs of industry and society

1. **Engineers to meet industry needs** – increase employability and continuing professional development
2. **Improve mobility of engineers in the region** – where they are needed

2. CAPACITY BUILDING FOR ENGINEERING (SDG4): Capacity Building for Engineering Education Systems, accreditation and registration to meet the needs for engineers around the world

1. **Engineering Education standards:** mentoring and support for educational Institutions, development of accreditation bodies
2. **Professional Engineering Institutions** – Establish and develop professional engineering institutions including governance, leaderships training and systems
3. **Regulation of engineers** – Review best practice models and liaise with government
4. **National and international registration of engineers** – registers to recognise qualifications and ongoing professional development of engineers, will also support mobility



Engineering 2030 – Projects in hand

3. **WOMENG (SDG5):** Facilitate the work being done to encourage girls to consider STEM careers by WFEO associate, **WomEng, South Africa**
4. **WORLD COUNCIL OF CIVIL ENGINEERS (international member) (SDG6) :**
World Council of Civil Engineers facilitate the work being done to advance UNSDG6: Water through the Water Monographies
5. **SPAIN AND PORTUGAL (National member) (SDG6):** The Institution of Engineers Spain (IIE), the Order of Engineers Portugal (OdE) and the World Council of Civil Engineers (WCCE) have combined to develop strategies and programmes to address the severe drought in the Iberian Peninsula and to develop sustainable solutions to integrated water management.
6. **BAHRAIN SOCIETY OF ENGINEERS (national member) (SDG 4, 9):** The Cyber School, Collaborative effort to create an online global interactive remote teaching K-12
7. **WFEO Committee for Engineering and Innovative Technologies (SDG9):**
Innovative Technologies Assisting Disaster Risk Reduction - the International Meridian Circle Project



Engineering 2030 – Projects in hand

8. **FIJI (National member) (SDG11):** Sustainable Infrastructure and Resilience to Natural Disasters in Small Island Developing States
9. **WFEO Committee of Disaster Risk Management (SDG 13):** Piura River, Peru, Early Warning System – Resilience Against Natural Disasters
10. **WFEO Committee on Anti-Corruption (SDG16):** Partnerships for Governance, Anti-Corruption and Strong Institutions



Engineering 2030 – Technical Committee Projects

1. **WFEO Committee on Disaster Risk Management** – capacity building for natural disasters mitigation.
2. **WFEO Committee on Engineering Education** – biennial conferences on engineering education and publication of IDEAS journal.
3. **WFEO Committee on Information and Communication** – international seminars on implementation in technologies for Smart Cities and the Internet of Things
4. **WFEO Committee on Energy** – international World Energy Forum and publication on solar energy
5. **WFEO Committee on Engineering Capacity Building** – facilitation of capacity building in engineering including Africa Engineering Week, held annually
6. **WFEO Committee on Engineering and the Environment** – Codes of Practice for Sustainable Development and Environmental Stewardship for Engineers and participation in the UN Conference of Parties (COP) events
7. **WFEO Committee on Engineering for Innovative Technologies** – international conferences and seminars on artificial intelligence, use of innovative technologies
8. **WFEO Committee on Women in Engineering** – survey on the status of women engineers in Africa and work on improving sanitation for women in Africa.
9. **WFEO Committee on Anti-Corruption** – contribution to the ISO 37001 Anti Bribery Standard, ongoing participation in the ISO technical committee
10. **WFEO Young Engineers/Future Leaders Committee** - supporting young engineers including the inaugural Young Engineers Competition held in 2018.



Reporting on progress in advancing the 2030 UN Agenda with a focus on young engineers



Engineering for Sustainable Development



Information Meeting with UNESCO Permanent Delegations

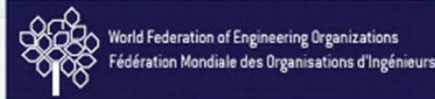
Capacity Building for Engineering
1st February 2019

Speaker Name:
Prof. Gong Ke
President Elect WFEO

Engineering for Sustainable Development

www.wfeo.org

WFEO – UNESCO
Declaration, signed on March 7, 2018



WFEO / FMOI

Paris Declaration

**Advancing the United Nations
Sustainable Development Goals
through Engineering**



The World Federation of Engineering Organizations (WFEO) is the main body for engineering globally, representing nearly 100 nations and some 30 million engineers.

The members of WFEO are the national and regional professional engineering institutions of the world. WFEO is a member of the United Nations Scientific and Technological Community (UN STC) Major Group and has an official Associate status with UNESCO.

UNESCO, as the United Nations agency for education, science and culture, supports engineering through its Natural Sciences Sector, and acknowledges engineering as a powerful means to achieve sustainable development, capacity-building in engineering education and gender equality in developing countries, as well as the safeguarding of world heritage.

CELEBRATING 50 YEARS OF INTERNATIONAL ENGINEERING LEADERSHIP

WFEO / FMOI
Maison de l'Unesco - 1 rue Miollis, 75015 Paris, France - Tel : +33 (0) 1 45 68 48 46
secretariat@wfeo.org - www.wfeo.org

Engineering for Sustainable Development



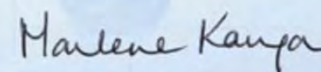
Considering that:

1. In September 2015, the United Nations General Assembly adopted its Resolution 70/1 announcing the 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals (SDGs), which take an integrated approach to future development, combining progress in economic prosperity, social inclusion and environmental sustainability.
2. Engineers and engineering are critical for achieving the SDGs. Engineers have a key role in supporting the growth and development of essential infrastructures such as: roads, railways, bridges, dams, waste management, water supply and sanitation, energy and digital networks. They are responsible for developing and implementing technologies and systems that contribute towards achieving the SDGs as they relate to water, energy, environment, sustainable cities, natural disaster resilience and other areas, which will benefit people and the planet for greater prosperity and better quality of life.
3. WFEO is committed to playing a key role in leading and coordinating projects to achieve the SDGs through engineering. WFEO can bring together its members, educational institutions, government and industry to address the need for engineering capacity and the quality of engineers around the world and develop strategic frameworks and best practices for the implementation of engineering solutions for sustainable development. The national and regional members of WFEO, that are leading professional engineering institutions, will develop country and region-specific responses.
4. The celebration of WFEO's 50th anniversary in 2018 is a catalyst to develop a framework for an action plan for the engineering capacity that is required to achieve the SDGs. The Symposium held today, on 7th March 2018, is the first stage in bringing together the WFEO members and partners to develop the *WFEO Engineering 2030 Plan*.

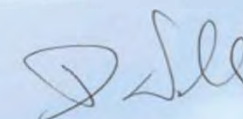
Accordingly, we declare:

1. WFEO, a recognized member of the UN STC Major Group and UNESCO, through its Natural Sciences Sector, will work together and in cooperation with other UN organizations, including UNEP, UNFCCC and UNISDR towards achieving the SDGs through engineering.
2. WFEO and UNESCO are committed to the following principles for action through engineering to achieve the SDGs:
 - a. Increase the numbers and quality of engineering graduates that meet the needs of sustainable development with rapidly changing technologies, in collaboration with educators, government and industry;
 - b. Inform global standards for engineering education, support the development of a range of engineering education systems to comply with agreed standards and facilitate the mobility of engineers;
 - c. Support capacity-building through strong institutions for engineering education and the development of accreditation bodies for the recognition of professional credentials;
 - d. Establish policy frameworks and best practices, notably through WFEO Standing Technical Committees, as digital technologies, data sciences and artificial intelligence have ethical and social implications.

Signed in Paris, 7 March 2018



Marlene Kanga
President
World Federation of Engineering Organizations



a.i. Flavia Schlegel
Assistant Director-General for Natural Sciences
UNESCO

Considering that:

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3. WFEO is committed to playing a key role in leading and coordinating projects to achieve the SDGs through engineering. WFEO can bring together its members, educational institutions, government and industry to address the need for engineering capacity and the quality of engineers around the world and develop strategic frameworks and best practices for the implementation

WFEO is working with global partners to develop position papers and policy frameworks that meet future needs of society.

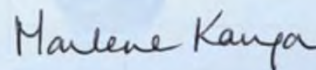
Accordingly, we declare:

Engineering is critical to implementing solutions to advance the UN SDGs

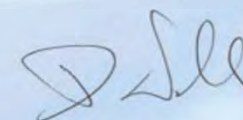
WFEO will lead the world's engineers in co-ordinating projects that achieve the UN SDGs

- c. Support capacity-building through strong institutions for engineering education and the development of accreditation bodies for the recognition of professional credentials;
- d. Establish policy frameworks and best practices, notably through WFEO Standing Technical Committees, as digital technologies, data sciences and artificial intelligence have ethical and social implications.

Signed in Paris, 7 March 2018



Marlene Kanga
President
World Federation of Engineering Organizations



a.i. Flavia Schlegel
Assistant Director-General for Natural Sciences
UNESCO

WFEO Participation @ UN to High Level Political Forum and Science Technology Innovation Forum



- STI-Forum June 2018, UN New York, 2 side events
- HLPF July 2018 UN New York, 3 side events

Engineering for Sustainable Development



WFEO Participation @ UN to High Level Political Forum and Science Technology Innovation Forum

Systems Analysis and Capacity Building for Transformative Change toward Achieving the SDGs and long-term sustainability

Intergenerational Dialogue, Capacity Building and Lifelong Learning in STI

Effective tools employed by Major Groups and other Stakeholders in the 2030 Agenda implementation, follow-up and review

Managing SDG interactions

STC for Sustainable and Resilient Societies

- **STI-Forum June 2018, UN New York, 2 side events**
- **HLPF July 2018 UN New York, 3 side events**



WFEO NETWORKING@ COP24



COP24 · KATOWICE 2018
UNITED NATIONS CLIMATE CHANGE CONFERENCE

“Engineers need to mobilise and implement feasible solutions to existing and future built infrastructure systems.”





**WFEO Model Code of Practice
for Sustainable Development and Environmental Stewardship
Think Global and Act Local**

1. Maintain and continuously improve awareness and understanding of environmental stewardship, sustainability principles and issues related to your field of practice.
2. Use expertise of others in the areas where your own knowledge is not adequate to address environmental and sustainability issues.
3. Incorporate global, regional, indigenous and local societal values applicable to your work, including local and community concerns, quality of life and other social concerns related to environmental impact along with traditional and cultural values.
4. Implement sustainability outcomes at the earliest possible stage employing applicable standards and criteria related to sustainability and the environment.
5. Assess the costs and benefits of environmental protection, eco-system components and sustainability in evaluating the economic viability of the work, with proper consideration of climate change and extreme events.
6. Integrate environmental stewardship and sustainability planning into the life-cycle planning and management of activities that impact the environment, and implement efficient, sustainable solutions.
7. Seek innovations that recognize environmental, social and economic factors while contributing to healthy surroundings in both the built and natural environment.
8. Develop locally appropriate engagement processes for stakeholders, both external and internal, to solicit their input in an open and transparent manner, and respond to all concerns – economic, social and environmental in a timely fashion in ways that are consistent with the scope of your assignment. Disclose information necessary to protect public safety to the appropriate authorities.
9. Ensure that projects comply with regulatory and legal requirements and endeavour to exceed or better them by the application of best available, economically viable methodologies, technologies and procedures for stakeholders.
10. Where there are threats of serious or irreversible damage but scientific certainty is lacking, implement risk mitigation measures in time to minimize environmental degradation.





Model Code of Practice: Principles of Climate Change Adaptation for Engineers

Prepared by:

WFEO Committee on Engineering and the Environment

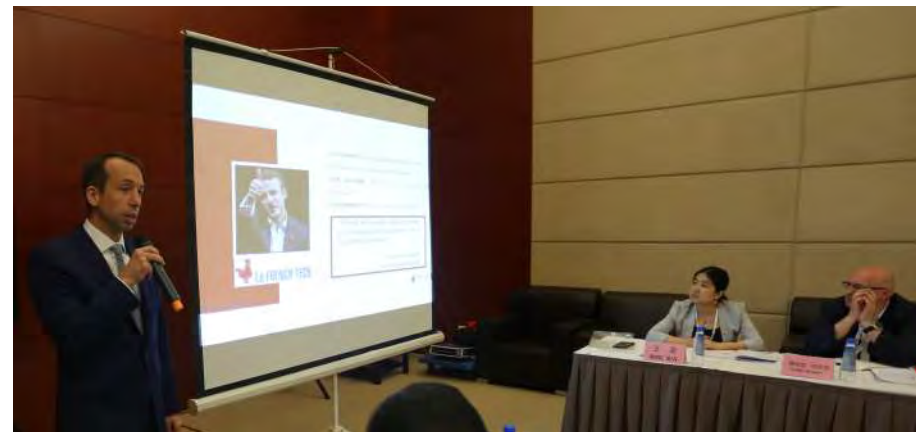
December 2015

Engineering for Sustainable Development



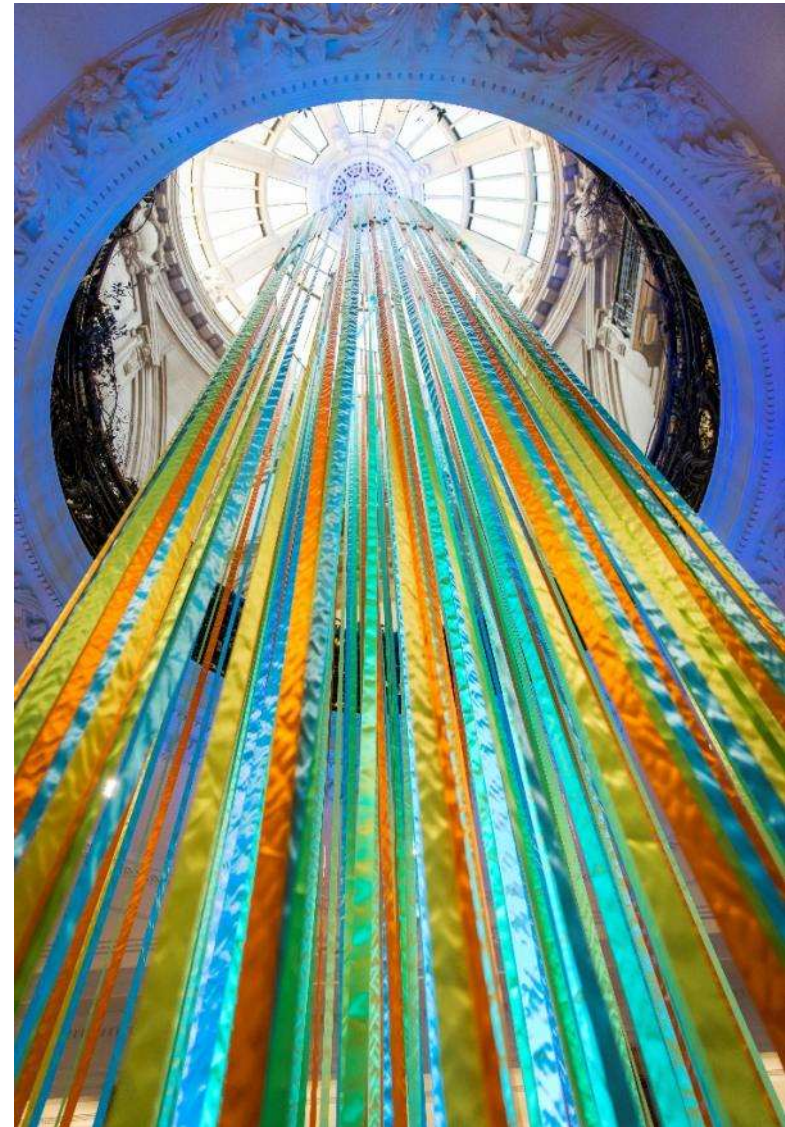
UNIDO meetings

AI and Data Project



All WFEO Conferences and Events focus on selected of the UN Sustainable Development Goals

Reaching for solutions for the UN
SDGs Water, Energy, Innovation,
Sustainable Infrastructure and
Climate Change at GEC2018, as
well as WEC2019, WCF2019,etc.



Engineering for Sustainable Development



Message of Congratulations from UN Secretary
General Antonio Guterres to the Global
Engineering Congress, 22-26 October 2018



*“The United Nations will continue to count on your engagement and support as we strive to achieve the 17 Sustainable Development Goals – the world’s blueprint for building a future of peace and prosperity for all on a healthy planet. **Every one of the Goals requires solutions rooted in science, technology and engineering.** I am therefore pleased that the focus of this Global Engineering Congress is to advance the goals relating to water, energy, infrastructure and cities.”*



**Information Meeting with UNESCO Permanent
Delegations
Capacity Building for Engineering
1st February 2019**

**Speaker Name:
Eng Martin Manuwha
Chair WFEO Committee for Anti Corruption
Chair Engineering Council of Zimbabwe
President Federation of African Engineering Organisations
Past President Zimbabwe Institution of Engineers**

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WFEO in Africa

- WFEO has **18 national members in Sub-Saharan Africa** Cameroon, Democratic Republic of Congo, Ethiopia, Ghana, Ivory Coast, Kenya, Madagascar, Malawi, Mauritius, Nigeria, Rwanda, Senegal, Sierra Leone, South Africa, Tanzania, Uganda, Zambia, Zimbabwe,
- One international member: the FAEO (Federation of African Engineering Organizations).
- **Nigeria, South Africa and Zimbabwe**, are currently host of a Standing Technical Committee: Capacity Building, Anti-corruption and Women in Engineering, and, as such, their chairs are members of WFEO Executive Council.
- **Federation of African Engineering Organisations (FAEO)**, as international member, headquartered in Nigeria, also has a seat at the WFEO Executive Council.



FAEO Vision and Mission

- **Vision**
- FAEO is recognized by international organizations as the overall leader of the engineering profession in Africa and sets out to apply engineering for the benefit of mankind.
- **Mission**
- To serve humanity through the use of best practiced technology.
- To represent the engineering profession in Africa, internationally.



Africa Engineering Week 2019

We have send out calls to host to all the WFEO-FAEO Members in Africa.

Call to Host the 6th UNESCO Africa Engineering Week 2019 & 4th Africa Engineering Conference.

By United Nations Educational, Scientific and Cultural Organisation (UNESCO), the World Federation of Engineering Organisations (WFEO) and the Federation of African Engineering Organisations (FAEO).



FAEO CIRCULAR 01/19

DATE 02 JAN 2019

Engineering for Sustainable Development



AEW 2018

- The **Institution of Engineers Kenya** in collaboration with the Federation of African Engineering Organisations (FAEO) hosted the African Engineering Conference in Mombasa, Kenya, between 17 and 21 September, with the support from **UNESCO** and guidance from **WFEO**.
- The Theme of the Conference, “Harnessing Blue Economy for Accelerated Economic Growth”, is in line with the United Nations Sustainable Development Goal No. 14 on life in the sea.



Africa Engineering Week Activities

- Workshops on capacity building for engineering education
- Workshops on the development of national Infrastructure Report Cards
- Workshops on Corruption Prevention organised by the WFEO Anti-Corruption Committee,
- African Women Engineering Forums to support women in engineering,
- Meetings of FAEO and its regional bodies (SAFE0, WAFEO, EAFEO, NAFEO and CAFEO),
- Educational activities for high school students
- Public awareness events, such as Family Fun Day
- Mentoring events, such as Introduce a Girl to Engineering Day
- University - led activities and events, such as lectures in conjunction with university students
- Involvement of industry and government through the Ministries of Higher and Tertiary Education, Science and Technology and other relevant departments
- Some activities listed above are implemented during the Africa Engineering Week Conference, while others are carried out in the rest of the African Countries across the continent.

Engineering for Sustainable Development



Mombasa Declaration Sept. 2018



**5th UNESCO Africa Engineering Week (AEW), 3rd Africa
Engineering Conference (AEC) 2018 & 25th IEK Conference
17th -21st September 2018**

Mombasa Declaration on Harvesting Blue Economy for Accelerated Economic Growth.

Preamble:

The participants at the 5th UNESCO Africa Engineering Week (AEW), 3rd Africa Engineering Conference (AEC) and the 25th IEK Conference on "Harvesting Blue Economy for Accelerated Economic Growth", held in Mombasa, Kenya, from September 17th -21st, 2018, discussed the current state, future, and expected innovations of the various fields of engineering with regard to the blue economy and other issues facing the world and humanity, and the relationship between these problems and national development with emphasis on Africa in general and Kenya in particular. The participants applauded Kenya's big four agenda strategy and its effort towards

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WFEO Committee for Anti Corruption

- Our vision is to promote zero tolerance to corruption. This will reduce corruption in engineering projects and practice through the enforcement of sound **management systems** and **ethical professional practice**.
- Our Mission Statement is to **execute** thematic, results-oriented programmes that **raises ethics and corruption prevention awareness and increases the understanding of the global, regional, engineering and policy issues** and solutions for the **combating of corruption** to induce transparency in infrastructure and other vital services.



WFEO @ OECD Integrity Forum March 2018



- UN SDG 16 : Improving governance
- Fostering ethical engineering practice
- Supported development of ISO 37000 Anti Bribery and Governance Standards
- Training and development programs

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WFEO @ IACA



International Recognition of CAC & WFEO by IACA the UN Anti-corruption Academy



44



WFEO @ World Justice Forum



Information Meeting with UNESCO Permanent Delegations

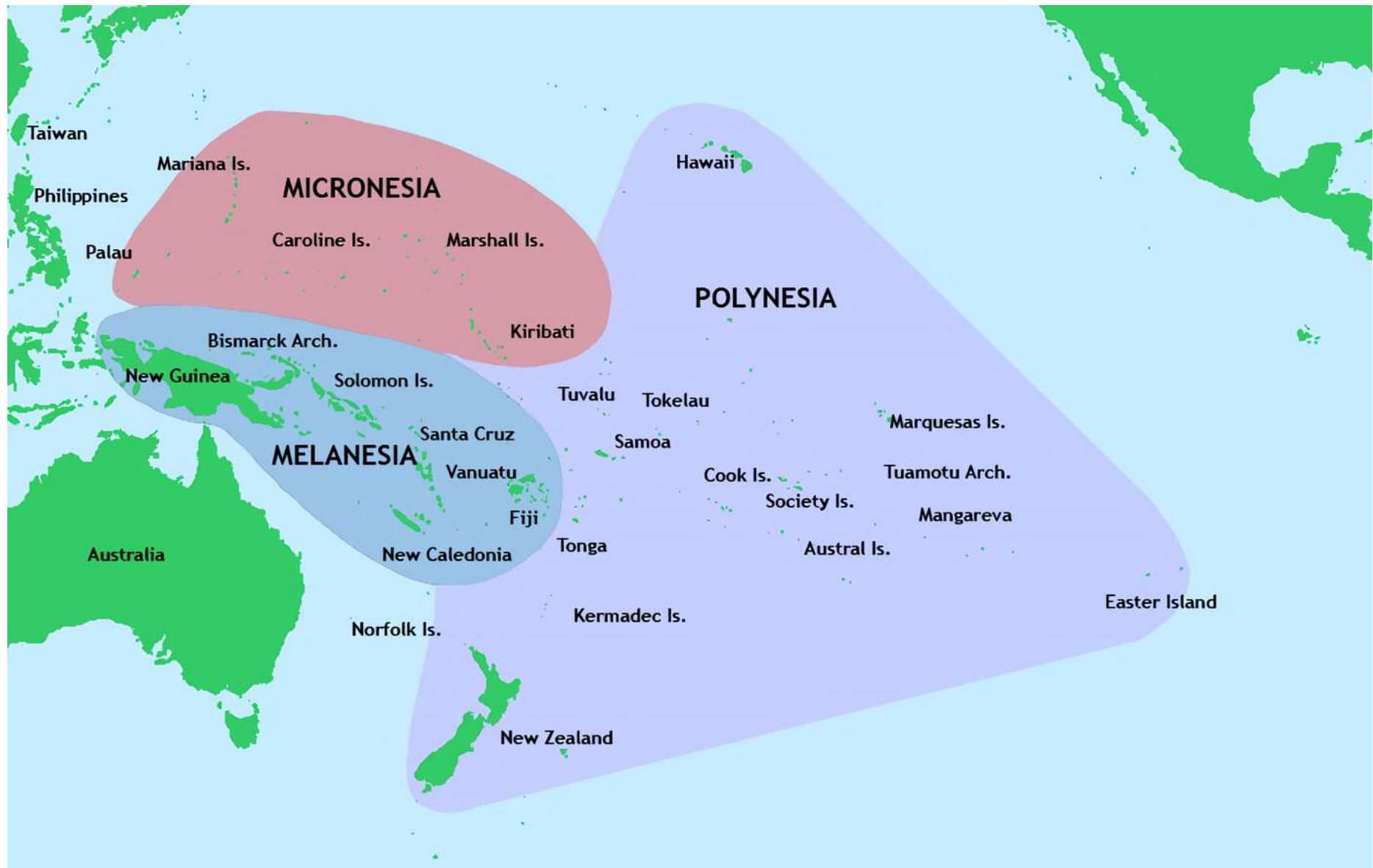
**Capacity Building for Engineering
1st February 2019**

Speaker Name:

**Pratarp Singh, BE, FFIE, AIAMA, FIEAust; FIPENZ
Immediate Past President, South Pacific Engineers Association
(SPEA)**

Engineering for Sustainable Development

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Engineering for Sustainable Development



SOME COMPARISONS

Region	Area (km ²) approx;	Population (M) approx;
UK	243,000	66.6
AUSTRALIA	7,700,000	24.8
EUROPE	10,200,000	742.8
SOUTH PACIFIC OCEAN	>41,000,000 SIDS<550,000	11.3 (PNG – 8.3)



Situation for Small Island developing States (SIDS)

The South Pacific and the Small Island Developing States (SIDS) are very low in human population, widely spread out and geographically remote from the rest of the world. In the global context, normally it is easily forgotten and left out.

Nonetheless, the impact of Climate Change and frequent natural disasters such as tropical cyclones and floods have a serious financial and social setbacks on the SIDS developing and fragile economies. Therefore, building resilience to impact of climate change and natural disasters is in the best interest of the national governments, the general public and the development partners, who need some level of protection of their publicly funded investment.



Engineering - Advancing SDGs in Fiji

This brief report focuses on some of the recent past, current and forward works of the engineering leadership in the region. In particular the report addresses how relevant UN Sustainable Development Goals (SDG's) are being actioned in the worlds hope to transformation.

The engineering leadership recognizes, embraces and accepts the direct relevance to the engineering profession of the 9 of the 17 SDG's in the above context: SDG1 Poverty, SDG4 Quality Education, SDG6 Clean Water and Sanitation, SDG7 Affordable and Clean Energy, SDG9 Industry; Innovation and Infrastructure, SDG11 Sustainable Cities and Communities, SDG13 Climate Action, SDG16 Strong Institutions and SDG17 Partnerships.

The work of the engineering leadership reflects in all the above SDG's.



Engineering - Advancing SDGs in Fiji

Over the years the engineering leadership has identified the key partners in order to progress the relevant SDG's. It has built a strong relationship, visibility and identity with the national governments, academia, infrastructure owners and asset managers, national disaster management office, private sector; particularly the business community and the international development partners.

In the more recent years various industry trainings and awareness have been provided, a couple having been fully funded by the Australian Aid.

The engineering leadership is proud to have initiated and engaged on “pro bono” basis with the Government of Fiji immediately after the Category 5, Tropical Cyclone Winston, February 2016 in Fiji whereby the private sector Engineers provided technical assistance.



Engineering - Advancing SDGs in Fiji

Immediately after the Cyclone, some private sector engineers voluntarily undertook damage assessments including cost estimates of in excess of 2,000 school and public buildings throughout the country. Well documented reports covering each of the more than 2,000 buildings were presented to the Government of Fiji.

This is a really unique and very successful story. The quality of the work produced by the engineers convinced the Hon; Prime Minister to publicly announce “Adopt a School” Programme. Some international development partners and business corporates took advantage of the Programme and financed part or the entire reconstruction works.



Engineering - Advancing SDGs in Fiji

Some Pro Bono Major Projects:

1. AusAID funded (2 year term) – Capacity building and Climate Change Adaptation, 2012 to 2014, FIE.
2. Washington Accord Equivalence – University of the South Pacific (USP), 2016 Accreditation, 2008 to 2016, FIE/SPEA/WFEO.
3. Washington and Dublin Accords – Fiji National University (FNU), ongoing since 2008, FIE/SPEA/WFEO
4. Post Disaster Assessments, Major Projects a) 2009 Floods – Entec/FIE/RedR Australia, 3 weeks field & 2 weeks reporting b) TC Evan 2012 – Entec/FIE, 1 week c) TC Winston 2017 – FIE/Private Sector Engineers, 8 weeks.



Engineering - Advancing SDGs in Fiji

5. USAID Climate Ready Project – “Pacific Islands – Building Resilience to Climate Change”, 2017 to 2022 – AECOM (SPEA on ground support)

“Climate Ready will work with Pacific Island governments and regional stakeholders to: 1) draft and implement policies to achieve national adaptation goals; 2) access and utilize international sources of climate financing and; 3) improve systems and expertise to better manage and monitor adaptation projects.

6. PCRAFI (Pacific Catastrophe Risk Assessment & Finance Initiative) – World bank/Aire World (FIE – Stds;/Building Code)

7. Proposed Climate Change Education Training – Fiji, July 2019
UNESCO/WFEO/SPEA/FIE



Engineering - Advancing SDGs in Fiji

8. International Symposium - Global Infrastructure Outlook (Outlook), a research and publication of Oxford Economics and Global Infrastructure Hub (GIHub), a G20 Initiative, 2018 SPEA/Entec/WFEO

“Global Infrastructure Outlook (Outlook) is a detailed review and analytical tool that enables governments, businesses and infrastructure organizations to comprehensively analyze and predict infrastructure investment requirements across the globe over the next 25 years.

9. PRIF (WB, ADB, DRAT, MFAT, EU, JICA) – National Building Code Consultants engaged, consultations in progress

10. Good Governance – Industry “Code of Conduct” in partnership with UNDP – WIP



Symposium on Sustainable Infrastructure Successful Economy

- The South Pacific Engineers Association (SPEA) held its inaugural **SPEA Symposium on “Sustainable Infrastructure Successful Economy”** on 23rd April 2018.
- The inaugural Symposium was endorsed and partly sponsored by the Government of Fiji. It was officially opened by His Excellency, the President of the Republic of Fiji, Major-General (Ret'd) Jioji Konusi Konrote. Nine out of 50 government parliamentarians were asked to attend the Symposium. The event was endorsed and partly sponsored by the Department of Foreign Affairs and Trade of Australia, the University of the South Pacific, the Insurance Council of Fiji and various corporates. The event was endorsed by WFEO, and the President was one of the international speakers by invitation. The event organizer was Entec Pte Limited supported by the South Pacific Engineers Association
- The Symposium concluded with a meeting of major funding and aid organisations and the **Fiji Declaration on commitment of engineers to developing infrastructure resilience for sustainable development**, thus progressing the UN Sustainable Goal 11 for Sustainable Infrastructure



Symposium on Sustainable Infrastructure Successful Economy



Engineering for Sustainable Development



Proposed Project for an International Conference and Training workshop on Climate Change education for SIDS

- 1 day conference plus 4 day training workshop
- A workshop to help educators to understand changes in climate and to carry out climate change education activities
- To be held in October 2019 (tbc)
- Expected partners UNESCO, WFEO, Government of Fiji (Ministry of Education) and Development Partners



ENTEC PRO BONO – TC EVAN COMMUNITY POSTER

THESE TIPS WILL
PROTECT YOUR HOUSE
AND YOUR FAMILY IN
A CYCLONE

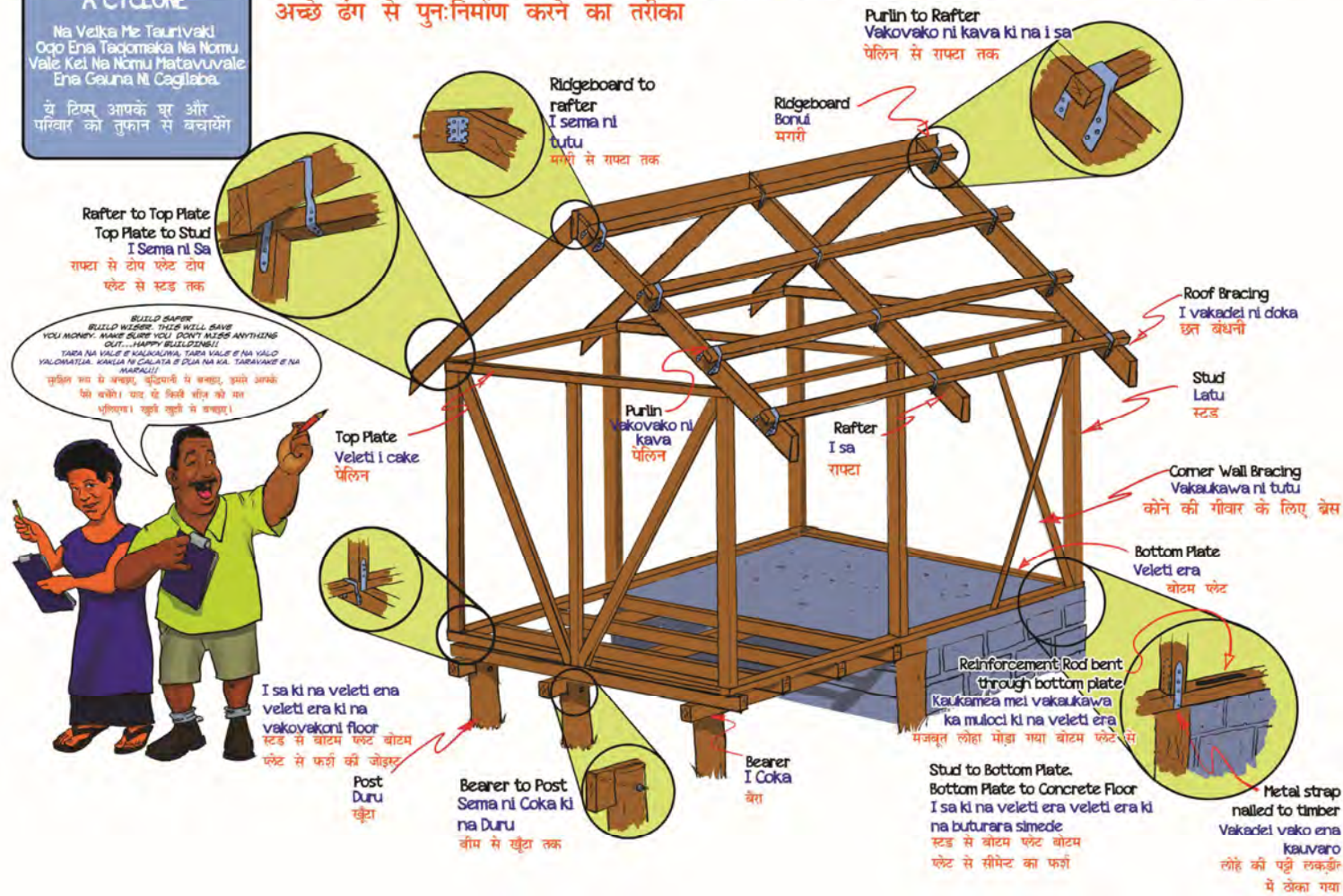
Na Veika Me Taurivaki
Ogo Ena Tadiomaka Na Nomu
Vale Kei Na Nomu Hatavuvale
Ena Gauna Ni Cagilaba.

ये टिप्स आपके घर और
परिवार को तूफान से बचावेंगे

Tips to Build Back Safer

Na veika me taurivaki e na kena tara vou tale vakamatau e dua na vale

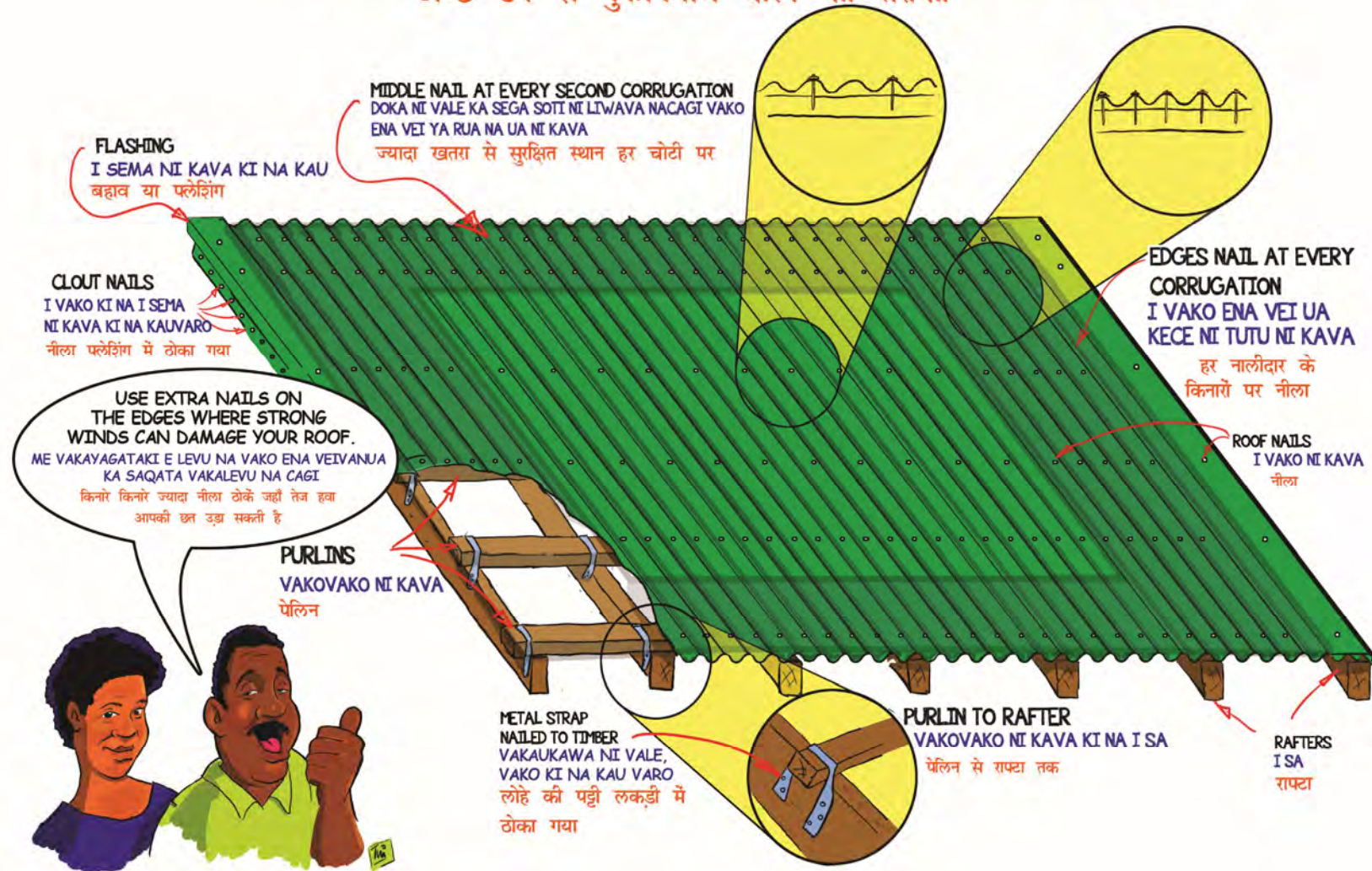
अच्छे ढंग से पुनःनिर्माण करने का तरीका



Tips to Build Back Safer

NA VEIKA ME TAURIVAKI ENA KENA TARA VOI TALE E DUA NA VALE

अच्छे ढंग से पुनःनिर्माण करने का तरीका



THEREFORE, SOME MODERN DAY CHALLENGES (IN GENERAL)

1. CAPACITY
2. FINANCE and INSURANCE
3. PLANNING and CONSULTATION
4. PARTNERSHIP
5. INNOVATION

Engineering, if understood and applied properly and given time could easily achieve all the UN SDG's.

“Good engineering is the cornerstone of a successful economy”





Engineering for Sustainable Development



Information Meeting with UNESCO Permanent Delegations

Capacity Building for Engineering

1st February 2019

Speaker Name:

Ms. Valerie Agberagba

Chair WFEO Committee for Women in Engineering

Past Vice President Nigerian Society of Engineers

Past President of the Association of Professional Women

Engineers of Nigeria (APWEN)

Engineering for Sustainable Development

www.wfeo.org

WFEO Committee for Women in Engineering established in 2007



- Attract women and girls to engineering
- Mentor and support women in the engineering work force
- Recognise achievements with awards

Engineering for Sustainable Development



WFEO Committee for Women in Engineering – Our Themes

All our activities are geared towards achieving these 3 themes.



Engineering for Sustainable Development



WFEO Committee for Women in Engineering – Our Themes



WFEO Committee for Women in Engineering – 2018-19 Focus

Contributing to Global Sustainable Development,
Women Engineers Making a Difference with Men as Allies:
“Turning Words into Action”.



Programmes and expected Impact

SDGs of Focus

- SDG6Water & Sanitation
- SDG7Sustainable Energy
- SDG 9 Industries, Innovation& Infrastructure
- SDG 11 Cities
- SDG 13 Climate Change

Programmes

- Encourage Women to engage provide technical Expertise
- Build Capacity
- Identify & work with champions
- Work with male colleagues & other practitioners
- Secure opportunities

Expected Overall Impact

- SDG 1 Poverty Reduction
- SDG 5Gender equality & women Empowerment
- SDG 8 Economic growth



Working with Goal No 6 on Water and Sanitation Project

- **TARGET 6.2**

By 2030, achieve access to adequate and equitable sanitation and hygiene **for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations**

Gaba1 & 2 Community in FCT, Nigeria

A Community Led Total Sanitation (CLTS) project which involves four stages:

- Pre Triggering
- Triggering
- Monitoring & Evaluation
 - i. Formation of WASHCOM
 - ii. Hygiene promotion & sanitation Marketing
 - iii. Establishing WASHCOM in Schools
- Achieving ODF Status



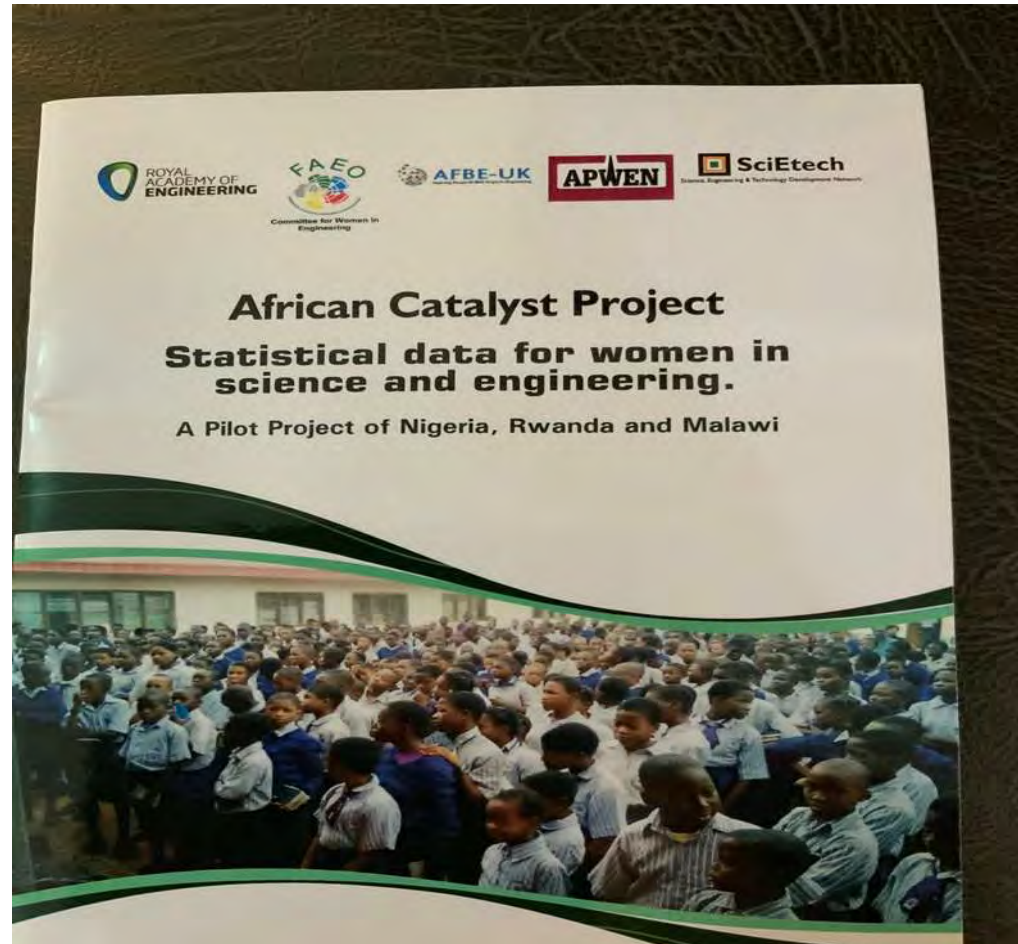
Engineering for Sustainable Development



Pilot Survey of Women in STEM in Rwanda, Nigeria, Malawi

Africa has least data on women in engineering & technology;

Research focussed on West(Nigeria), East(Rwanda) and South Africa (Malawi).



Summary of findings

- Good teaching methods positively influenced female participation in SET subjects
- Female students loose interest in mathematics at senior secondary level
- Lack of visible role models for the female students in SET across the countries
- No career guidance and counselling for studensts except Malawi



Regional Focus

- First African Women Engineers forum held in Kenya (Africa)
- Italy to host a forum later this year 2019 (Europe)
- Lebanon has confirmed hosting for middle East, date TBD



Working with WomEng (South Africa) -WFEO Associate –Project for 1 million girls into STEM



Bwari, Abuja, Nigeria



Mombassa, Kenya



Helping to fund education

Engineering for Sustainable Development



GREE Women in Engineering Award



- First presented in October 2018, to be presented annually.

Engineering for Sustainable Development





SAGA

(STEM and Gender Advancement)

Improved Measurement of Gender Equality in Science and Engineering

A Global UNESCO Project, with the support of Sida



- Dr. Marlene Kanga AM is a member of the SAGA International Advisory Council – WFEO to promote implementation
- Tool kit for Statistical data for Women in STEM
- Tool kit for identifying policy gaps to support women in STEM
- Tested in 8 countries

Engineering for Sustainable Development



Information Meeting with UNESCO Permanent Delegations

Capacity Building for Engineering
1st February 2019

Speaker Name:

Jacques de Mereuil
WFEO Executive Director

Engineering for Sustainable Development

www.wfeo.org

Proposal for World Engineering Day for Sustainable Development

1. **4 March each year** – the founding day of WFEO in 1968
2. **Opportunity to focus on engineering**
 - technologies for climate change action and sustainable development
3. **Important in Africa – need for infrastructure for development:**
clean water and sanitation,
 - mitigate the impacts of climate change,
 - grow more food,
 - protect our oceans and our earth resources
 - develop new technologies
2. **Importance of engineering for economic growth**
3. **Encourage young people** to consider engineering esp. girls
4. **Raise the profile of the contribution of women** in engineering
5. **Dialogue between engineers** and
 - decision makers, industry leaders, NGOs and public



Proposal for World Engineering Day for Sustainable Development

- 1. Engineers are essential for sustainable development and natural disaster resilience**
 - infrastructure against floods, cyclones, fires...
 - especially in Africa and SIDS
- 2. Enable capacity building in developing countries, especially Africa**
- 3. Support improvements in standards of engineering education**
- 4. Engage with government and industry to address the need for more engineers**
- 5. Promote the importance of engineering innovation and international cooperation**



The importance of the World Engineering Day for Sustainable Development

1. A strong focus on key priorities :

- Africa, Education, Gender Equality, SIDS...

2. Support important UNESCO programmes

- Hydrological (IHP),
- Geoscience (IGCP),
- Ocean (IOC)
- Man and the Biosphere (MAB) etc

3. Highlight engineering efforts in other UN agencies: UNIDO, UNISDR, UNDP

4. Follow up and strengthening of UN STI years...

5. ...and days, such as International Day of Women and Girls in Science



World Engineering Day for Sustainable Development : where are we ?

1. **Widespread support** from peak international engineering bodies
2. Some **75 letters of support** from institutions representing more than 23 million engineers
3. **WFEO would lead celebrations** but other institutions also expected to celebrate in their own countries
4. **Communications and Sponsorship plan** to ensure sustainable global celebrations for future years
5. Our objective is to have this proposal on the **agenda of the next UNESCO Executive Board in April 2019**





Science is the Seed - Engineering is the tree
that bears the fruits of scientific discoveries –
essential for a modern sustainable world.

Engineering for Sustainable Development

