

WEC 2023

7TH WORLD ENGINEERS
CONVENTION

PRAGUE, CZECH REPUBLIC

11 – 13 OCTOBER, 2023

THEME:

**ENGINEERING FOR LIFE - BREAKTHROUGH
TECHNOLOGIES AND CAPACITY
DEVELOPMENT FOCUSED ON UN SDGS:**



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World Federation of Engineering Organizations
Fédération Mondiale des Organisations d'ingénieurs
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WFEO CECB IS HOSTED BY THE ENGINEERING COUNCIL OF ZIMBABWE
WFEO Committee on Engineering Capacity Building. (CECB)
PRAGUE, CZECH REPUBLIC, 09-15 OCTOBER 2023

Eng. Martin Manuhwa

CHAIR – CAPACITY BUILDING (WFEO)

Past President :- Federation of African Engineering Organisations (FAEO).

Past President :- Southern African Federation of Engineering Organisations (SAFE).

Past Chairman :- Engineering Council of Zimbabwe (ECZ).

PAST President :-Zimbabwe Institution of Engineering (ZIE)



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Outline of Presentation

1. Background and Context
2. Strategic Plan and Action Plans for 2021/2024
3. Themes for 2023-2027.
4. Activities performed so far
5. Planned Activities
 - Projects
 - Events
 - Meetings
6. Conclusion



**No problem can be solved from
the same level of consciousness
that created it.**

Albert Einstein





Capacity Building Committee Mandate

The WFEO-CECB shall support the WFEO and engineering profession worldwide by:

- Encouraging and supporting CECB theme leaders to organize international webinars, workshops and seminars related to their work within the strategic plan.
- Developing and promoting Engineering Capacity Building policies, strategies and practices for sustainable development.
- Drafting practice guidelines and policies related to Engineering Capacity Building for the consideration and approval of the WFEO Executive Council and WFEO members.
- Representing the CECB as one of the WFEO delegates on issues to do with Engineering Capacity Building.
- Communicating to WFEO and the international community on the work of the CECB.





Capacity Building Strategic Thrusts

A Strategic Plan and Action Plans for 2021/2024, was presented to the WFEO Board and Council and they approved and we seek this special General Assembly to Endorse these Recommendations. This will be our WED2021 Gift from WFEO as ECZ, FAEO and indeed the whole World.

- Be recognized as the respected and reliable source of advice and guidance on engineering capacity building
- Be at the forefront of international engineering capacity building efforts
- Improve the visibility/presence, and stature of WFEO, and attain support of National and International engineering Organization
- Continuously improve the work and quality of the STCs outputs and outcomes.





CONTEXT FOR CAPACITY BUILDING

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Engineering professionals, the custodians of infrastructure, have taken it upon themselves:

- *to not only facilitate and enhance their own knowledge,*
- *but also to assist decision makers from all levels of society to ensure a sustainable world for all.*
- *CECB is a lever for economic, social and sustainable development, and is recognized as a priority in the global engineering community.*



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CONTEXT FOR CAPACITY BUILDING

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- Strong Relationship between: Critical mass of educated and skilled engineering and science graduates and economic and social development.
- Stronger efforts should be made to develop and build in developing nations both:
 - engineering and science capacity and
 - informed decision-making capacity



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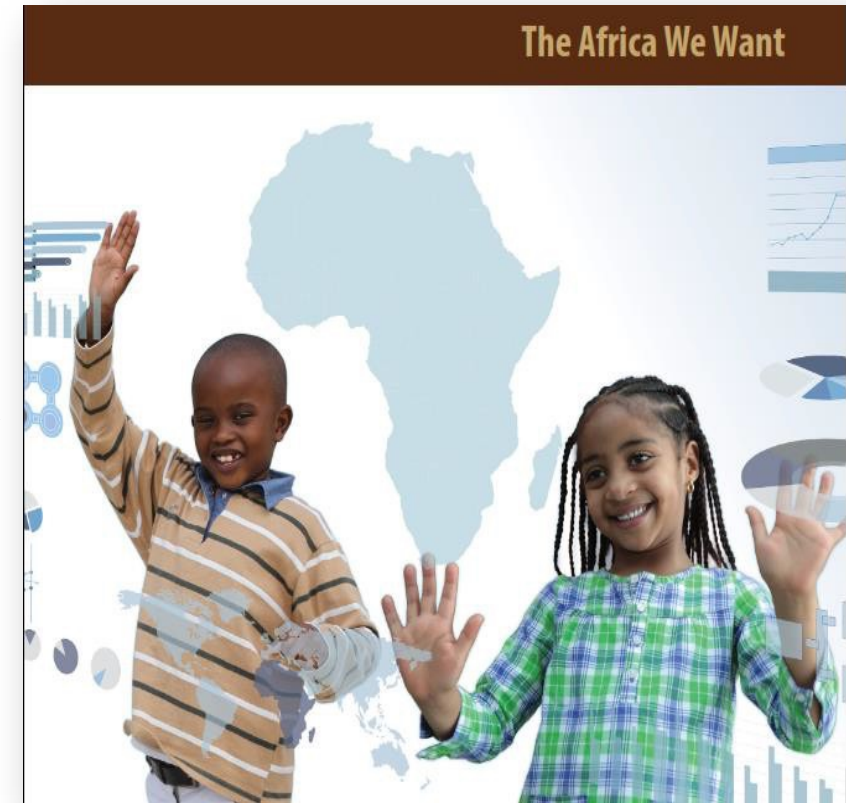
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Human Capacity Building Context: Focus on AFRICA

- It is estimated that some 2.5 million new engineers and technicians in sub-Saharan Africa – Sustainable Development Goals
- 1 engineer per 7 000 in sub-Saharan Africa
 - 1/311 in UK
 - 1/227 – Brazil





SDGS FOCUS: G16 & 17



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**SUSTAINABLE
DEVELOPMENT
GOALS**

*To contribute to the achievement of the focus SDGs (16 & 17)
CECB has projects for:*

- Preparing a unified model contracts covering all areas of transaction in the fields of engineering and constructions in a portal for ease access of training and CPD materials.*
- Setting unified requirements for qualification and classification of contractors and engineering professionals.*
- Setting the rules securing public safety in the works of building and construction.*
- Intensify organization of training courses and seminars in all WFEO countries to exchange experiences and to keep pace with the scientific developments and needs of labour market.*



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THE PLANNED ACTIVITIES

- *The following are the themes for 2020-2023 which will produce tangible outcomes.*
 - i) *Implementing the WFEO 2030 Plan to create Partnerships, Co-operations, Global Alliances and Networking to achieve the Sustainable Development Goals (SDGs).*
 - ii) *Engineering Capacity Building Activities in Developing and Developed Countries.*
 - *Projects (Compendium, Digital Platform for CPDs, MOOC, e-Books for CECB)*
 - *Events (Africa Engineering Week, Congresses, WEF, WEC, Gas etc)*
 - *Meetings*
 - iii) *Engineering Capacity Building Awareness, Training and Development of Systems.*
 - v) *Engineering Capacity Building Projects and co-operative initiatives.*
 - v) *Engineering Capacity Building Publications (webinars, newsletters, magazines).*





KEY PROJECTS

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- **Capacity building in sustainable development goals (SDGs) for other STCs and WFEO National Members.**
- Capacity building in lifelong engineering education, and improving quality, needs and numbers and continuous professional development.
- Develop a new edition of the capacity building manual and a Compendium in order to meet the engineering capacity to deliver the SDGs.
- **Capacity building for engineering project planning, design, implementation and management, in light of the fourth industrial revolution and sustainable development.**
- **Developing of a hub linking and an online Resources Centre for WFEO to facilitate continuous professional development. (e.g online courses like MOOCS about Anticorruption from GIACC, Sustainability from MOOCS Engineers Canada, and about Disaster Risk management from Peru, Japan and China).**





THE COMPENDIUM PROJECT

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- It was decided that the most suitable way to realise this would be through the production of
- a "Guidebook for capacity building in the engineering environment" and
- an associated compendium of programmes and initiatives.
- Store the accumulated knowledge and experience, but summarised, sifted and analysed.
- Lessons learned in one nation can be shared with others.
- Many who are undertaking capacity building activities are isolated from support systems – thus a guidebook can provide advice and prevent wasteful re-invention of the wheel



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THE COMPENDIUM

- Repository for All Efforts
- Developed the Guidebook for International Use



the six pillars of capacity for sustainable engineering

Challenges of leaving no one behind Due to Lack of Capacity Gaps – Engineering Capacity Building is the Answer.



Source: United Nations, 2019

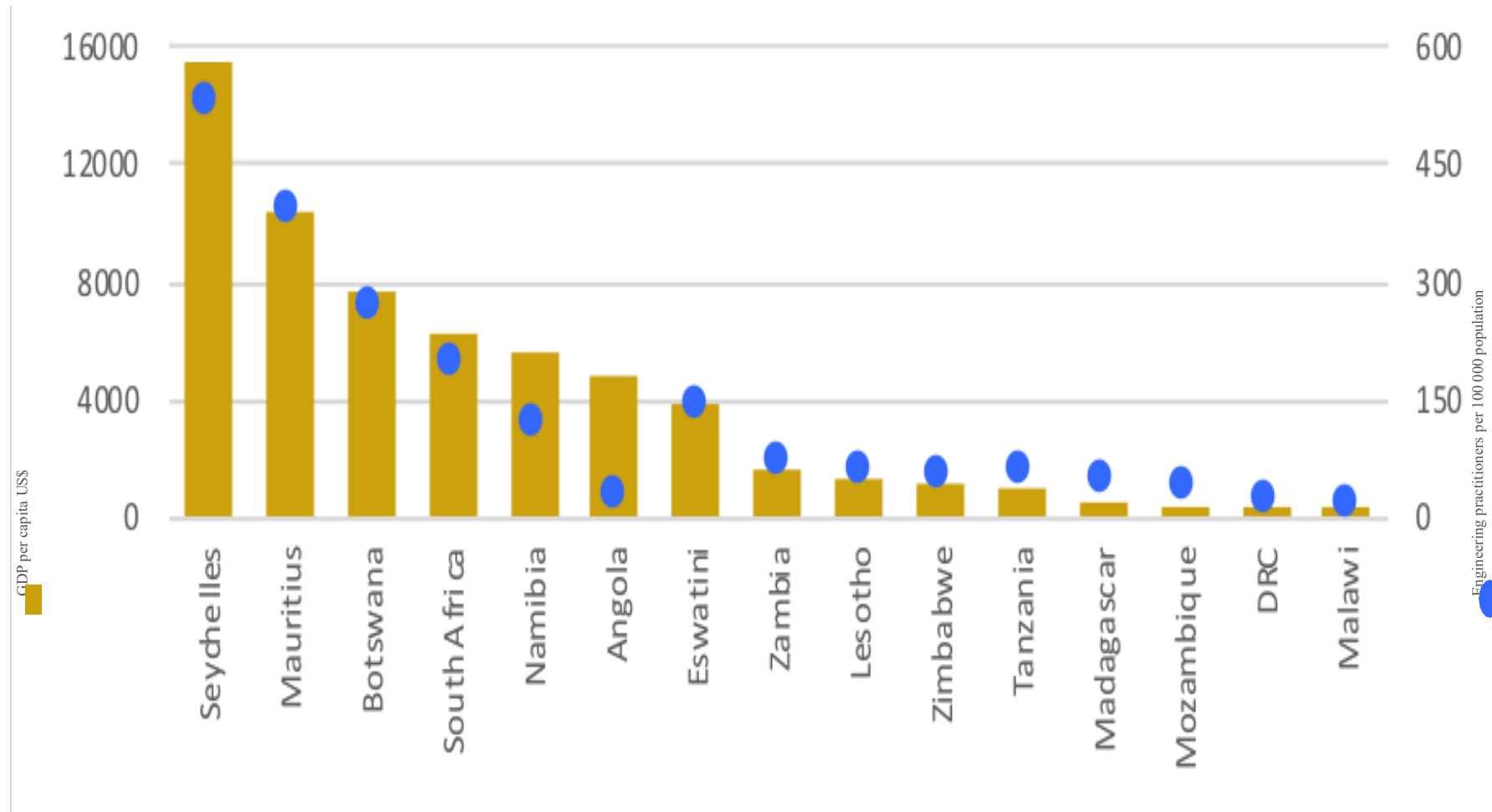




INCREASING THE NUMBER OF ENGINEERS

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SADC Countries GDP per capita 2016 vs engineering practitioners per 100,000 population



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Source: SADC (2019)

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WORLD CAPACITY BUILDING IN ENGINEERING CONFERENCE 2022



WFEO CECB
JOINTLY HOSTED A
CAPACITY BUILDING
CONFERENCE IN
VICTORIA FALLS,
ZIMBABWE.

- KEY PARTNERS:
WFEO STCs, FAEO,
SAFEQ, FEIAP, and
Africa Asia Pacific Accord.
- Dates are: 16-20 August
2022





THE WFEO CECB CONFERENCE VIC FALLS

Africa Asia Pacific, WFEO/FAEO-CECB Capacity Building in Engineering Education

International Forum and Zimbabwe Institution of Engineers Biennial Conference

In Partnership with UNESCO

16 -20 August 2022 - Victoria Falls, Zimbabwe (Elephant Hills Resort Conference Centre)

**“Engineering the Future through Capacity Building , Quality Engineering Education,
Partnerships, and Innovative Infrastructure.”**





SPECIAL PRE-CONFERENCE EVENTS AND TRAINING

- *12-16 AUGUST 2022: - WFEO CECB, FAEO, DSI SA and STELLENBOSCH University facilitated Capacity Building Training on Water and Sanitation Infrastructure Assets Maintenance to Local Authorities' Management and Engineering Practitioners in the SADC at WFEO-FAEO-FEIAP-ECZ-ZIE Engineering Conference in Zimbabwe.*
- *UNESCO, WFEO, CECB, AND ECZ ROBOTICS BOOTCAMP FOR VICTORIA FALLS SECONDARY AND PRIMARY SCHOOLS RUNS IN PARALLEL FROM 16 TO 17 AUGUST 2022.*





Capacity building in sustainable development goals (SDGs)

- Capacity building in sustainable development goals (SDGs) for other STCs and WFEO National Members via conferences, webinars, and workshops.*
- The CECB attended the WEEF & GEDC partnering with AEEA and supported by WCCE, FAEO, WFEO and UNESCO, held in Cape Town, South Africa from the 28th of November to the 1st of December 2022, under the theme: "Adapting to Global Disruption",*





UNESCO AFRICA ENGINEERING WEEK

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- Week-long focus on engineering aims to educate the youth and the general public about the engineering profession, through strategic outreach activities in each country, such as educational workshops, public awareness events, mentoring activities and university events.
- The aim of these events is to show how engineers are key players in the solutions to important continental challenges, such the provision of clean drinking water, sustainable housing, and issues around climate change.



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The Africa Engineering Week continued to be steered by the CECB, the 2022 event was held in Ethiopia with theme: "Infrastructure Development in Africa".

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- *WFEO incoming President Engr. Mustafa Shehu (centre), President of the Democratic Federal Republic of Ethiopia H.E Sahle-Work Zewde, FAEO Immediate Past President Ing. Carlien Bou-Chedid, Minister of Defense Ethiopia Dr. Abraham Belay and Eng. Martin Manuhwa, WFEO CECB Chair and the Africa Engineering Week Chairman at the official opening of last year's edition of AEW in Addis from 7-11 Nov 2022*



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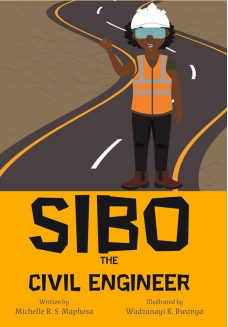
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2023 Africa Engineering WEEK – ECSA South Africa

- The Africa Engineering Week continued to be steered by the CECB, the last two were held in Ethiopia (2022) with theme “Infrastructure Development in Africa” and in South Africa (2023) with theme “Celebrating and Growing Engineering Excellence in the African Region”. The AEW Declarations were published by WFEO, FAEO and UNESCO.*





Sibo the Engineer takes Capacity Building to another Level



- ***The WFEO CECB is part of the Sibbo the Engineer programme that aims to raise interest in the Science, Technology, Engineering, and Mathematics (STEM) fields among children by creating inclusive and diverse STEM content for young children aged 8–12 years.***
- ***This includes a series of STEM children's books, real-world activities such as site visits and virtual reality tours of engineering sites, and an animation based on Sibbo the Civil Engineer book.***



IMPACT - WFEO CECB AT THE AFRICA UNION

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CONCLUSION

Our Committee will work with International and National Members of WFEOCECB and our partners across different Cultures, Nations, Ideologies, and Leadership Styles.



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CECB WILL WORK AS A TEAM AND IN PARTNERSHIP WITH YOU

WE WILL ALWAYS REPEAT THIS AFRICAN PROVERB

If you want to go fast, go alone

**If you want to go far, go together
YES WE CAN GO FASTER
TOGETHER**





**It always seems
impossible until it's done.**

Nelson Mandela

