



World Federation of Engineering Organizations  
Fédération Mondiale des Organisations d'ingénieurs  
Official partner of UNESCO (associate status)



**WFEO CECB IS HOSTED BY THE ENGINEERING COUNCIL OF ZIMBABWE**  
**WFEO Committee on Engineering Capacity Building. (CECB)**  
**ONLINE 5 MARCH 2025**

**Eng. Martin Manuhwa**

**CHAIR – CAPACITY BUILDING (WFEO)**

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

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

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

**PAST President :-Zimbabwe Institution of Engineering (ZIE)**

# 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

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.*



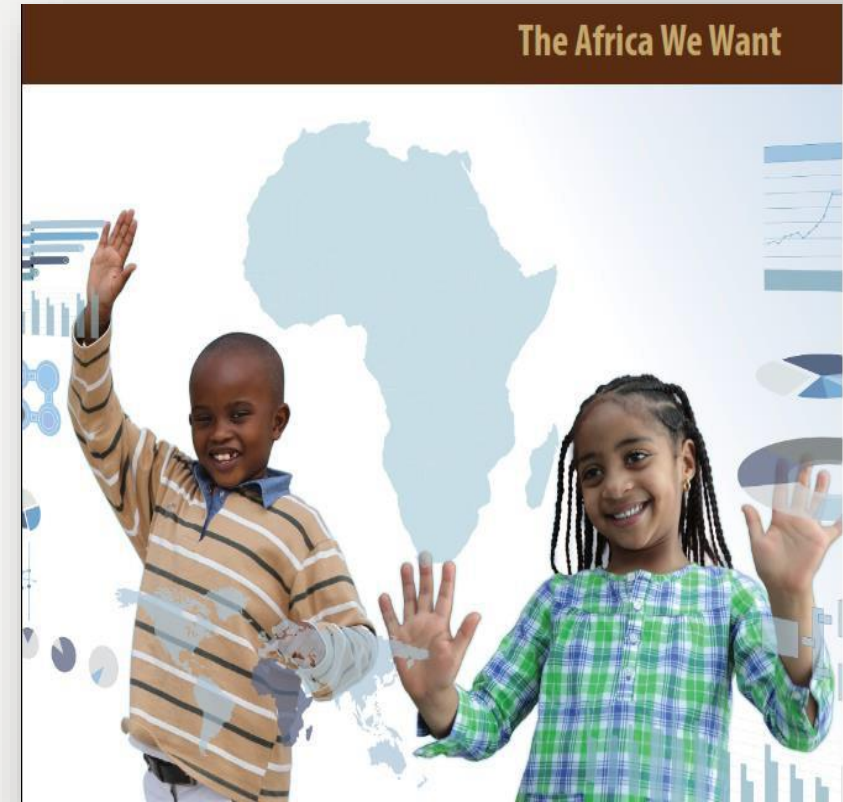
# CONTEXT FOR CAPACITY BUILDING

- 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



## 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



*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.*





## THE PLANNED ACTIVITIES

- *The following are the themes for 2024-2025 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

- **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).**



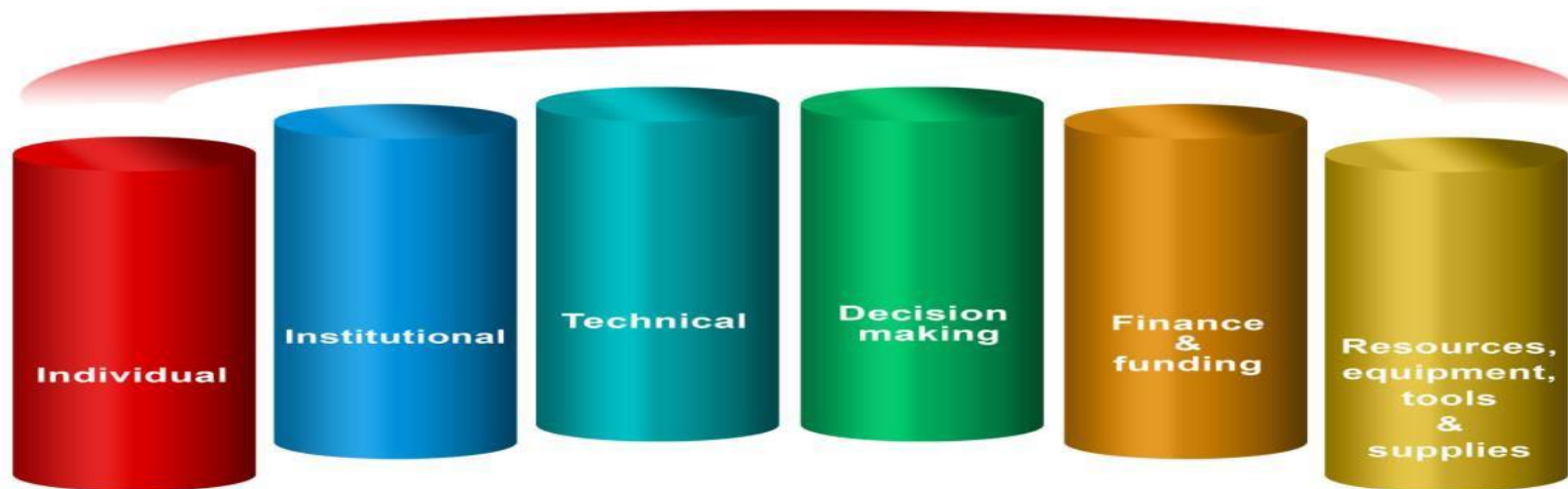
# THE COMPENDIUM PROJECT

- 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



# THE COMPENDIUM

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



the six pillars of capacity for sustainable engineering





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

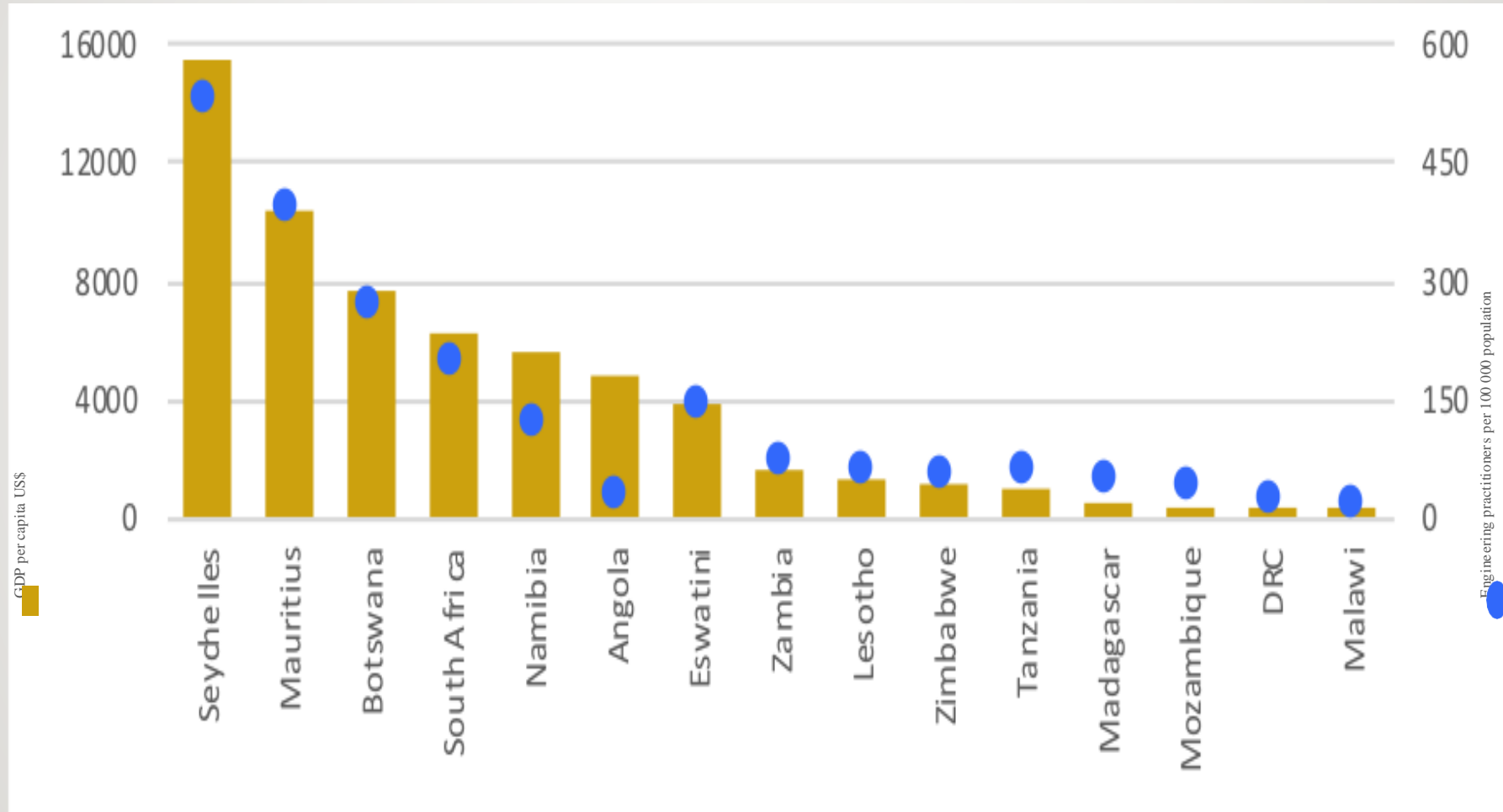


Source: United Nations, 2019



# INCREASING THE NUMBER OF ENGINEERS

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





## UNESCO AFRICA ENGINEERING WEEK

- 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.
- The Africa Engineering Week took place in Angola in October 2024.
- This year AEW will take place in Uganda in September 2025.





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



- WFEF 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, WFEF 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*



# 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.*



# *WFEO Engineering Capacity Building for Africa Programme (ECBAP).*

*Africa has immense potential for growth and development in various sectors. However, to harness this potential, it is crucial to focus on engineering capacity building, partnerships, education, and technology policies. This concept note outlines the importance of these areas in the cooperation framework between CAST and African Engineering Organisations to foster strategies to enhance Africa's progress.*

- WFEO recognizes the importance of capacity building for Africa to achieve the goals outlined in the Africa Agenda 2063, and to accelerate the implementation of the SDGs of the UN's 2030 Sustainable Development Agenda. To address this need, WFEO proposed a 10-year Engineering Capacity Building for Africa Programme to be supported and initially funded by the China Association of Science and Technology (CAST).*



# *WFEO Engineering Capacity Building for Africa Programme (ECBAP).*

## ***Major aims of the Engineering Capacity Building for Africa Programme.***

- *To Enhance Capacity in Engineering Education*
  - *This seeks to create an African Engineering Education Accord for mutual recognition of qualifications to strengthen engineering curricula, promote accreditation standards, and develop mechanisms for knowledge sharing among African engineering institutions and with engineering institutions outside of Africa. The aim is to improve the quality and relevance of engineering education across the continent, which is the foundation of engineering capacity.*
- *To Enhance Capacity in Continuous Professional Development*
  - *This seeks to establish training courses for engineering skills*

## *WFEO Engineering Capacity Building for Africa Programme (ECBAP).*

*The aim is to improve the quality and relevance of engineering education across the continent, which is the foundation of engineering capacity.*

- Enhance Capacity in Continuous Professional Development*
- This seeks to establish training courses for engineering skills development programmes, workshops, and capacity building initiatives to address skill gaps in various engineering disciplines. These initiatives will focus on technical and soft skills required for Africa's sustainable development enabling engineers to adapt to digitization and green technologies.*



# *WFEO Engineering Capacity Building for Africa Programme (ECBAP).*

## *Enhance Capacity in Technology Transfer*

- The purpose is to facilitate technology transfer from developed nations to Africa by establishing partnerships, promoting collaboration, and providing technical support.*
- This aims to harness advanced technologies to address Africa's developmental challenges and promote innovation.*



# Global North and South Cooperation to achieve **sustainable** goals through engineering

Bridging North and South for the SDGs

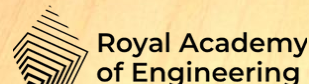
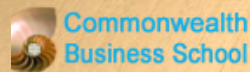
hosted by



WFEO /  
CECB



in collaboration



# Background



In November 2019, UNESCO officially proclaimed World Engineering Day for Sustainable Development (WED) at its 40th General Conference. Since 2020, WED has been celebrated annually on March 4, recognizing the critical role of engineering in addressing global challenges and advancing the United Nations 2030 Agenda for Sustainable Development Goals (SDGs).



The World Federation of Engineering Organisations (WFEO) has co-led WED celebrations with UNESCO, bringing together hundreds of member institutions worldwide. Since the COVID-19 pandemic, major international WED events have been organized in Costa Rica (2022), Spain (2023), and Portugal (2024). The flagship event for WED 2025 will be hosted at UNESCO Headquarters in Paris on March 4, 2025, featuring governmental, scientific, and industry leaders.



In line with the global celebrations, WFEO's Committee on Engineering Capacity Building (CECB), in collaboration with ICE, RAENG, GIACC, ZIE, ECZ, and CBS, will host a joint event in London on March 11, 2025. This event will emphasize the importance of engineering capacity building, Global North-South collaboration, and ethical governance in achieving the SDGs.



# Objectives



Highlight the role of engineering in achieving the SDGs, particularly through North-South cooperation.



Discuss capacity-building initiatives and financial mobilization strategies to support sustainable infrastructure development.



Engage diaspora engineers in leadership and cooperation efforts for infrastructure and economic growth.



Explore engineering innovations, policy frameworks, and ethical considerations in sustainable development



Foster collaborations between engineering institutions, governments, and the private sector to address global challenges.

Visualizing partnerships → capacity building → SDG impact.



# Programme & Speakers



Eng. Mustafa Shehu  
WFEO President  
**GUEST OF HONOR**

## Opening Remarks



Professor Jim Hall  
ICE President  
**Welcome Address**



Dr Clive Kinder  
Commonwealth Business School  
**Introduction to the theme**

## Keynote Presentations



Eng. Mustafa Shehu  
WFEO President

Engineering Capacity Building Action Programm



Eng. Martin Manuhwa  
WFEO CHAIRMAN CECB

The Importance of Capacity Building for the  
SDGs through Enhancing Global North-South  
Collaboration in Engineering



Eng. Trudy Morgan  
SLIE Former President  
CEC Representative

The role of the CEC in Capacity Building for  
Sustainable Development



Eng. Fred Mukonoweshuro  
ZIE Chairman UK Branch  
Associate Director OVE ARUP

Diaspora Leadership & Cooperation for  
Infrastructure Development



Neill Stansbury  
GIACC Co-Founder

Anti-Corruption Systems

# Panel Discussions

## Focus Areas

- Financial Mobilization Strategies for Engineering & Sustainability Projects
- How Engineering Innovation Drives Sustainable Development
- Policy and Regulatory Frameworks for Sustainability
- The Role of Ethics and Governance in Sustainable Engineering

## CLOSING REMARKS



**ENG. Anusha Shah – ICE IPP**

## Panelists



**ice**  
Institution of Civil Engineers

Anusha Shah



 **Commonwealth  
Business School**

Dr. Clive Kinder



 **GIACC**  
Global Infrastructure Anti-Corruption Centre

Neill Stansbury



Eng. Fred Mukonoweshuro



**CEC** **Commonwealth  
Engineers' Council**

Eng. Trudy Morgan



 **Royal Academy  
of Engineering**

Representative (TBA)





Scan to join Zoom Meeting



## Expected Outcomes

- Strengthened partnerships between Global North and South engineering institutions.
- Greater diaspora engagement in infrastructure development and investment.
- Enhanced understanding of financial mobilization strategies for sustainable projects.
- Policy recommendations for engineering ethics, governance, and sustainability.
- Commitment to capacity-building initiatives to support the SDGs.

## Target Audience



Engineers, policymakers, and industry leaders



Academics and researchers in engineering and sustainability



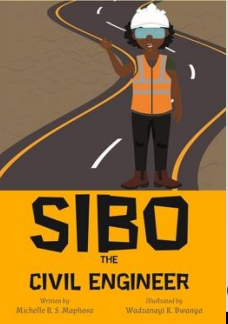
Government representatives and regulators



Development finance institutions and investors



Professional engineering institutions and diaspora networks



## ***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







World Federation of Engineering Organizations  
Fédération Mondiale des Organisations d'ingénieurs  
Official partner of UNESCO (associate status)



# CONCLUSION

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

# **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