UNESCO Africa Week 2026 – WFEO Participation and Presentation

“Leveraging AI to Achieve SDG 6 for Economic Development”

Submitted by:

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Date of Event:

21 May 2026

Venue:

UNESCO Headquarters, Paris, France

1. Executive Summary

This report provides an overview of the participation of the World Federation of Engineering Organisations (WFEO) at the UNESCO Africa Week 2026 held at UNESCO Headquarters in Paris, France, from 19–22 May 2026.

On 21 May 2026, Dr. Eng. Martin Manuhwa, Chair of the WFEO Committee on Engineering Capacity Building (CECB), took part as a panelist during Session 9 titled:

“From Knowledge to Action: Partnerships, Innovation and Investment”

under the Integrated Solutions thematic discussions.

The session focused on:

- Public-private partnerships;
- Green and circular sanitation economy;
- Youth-led water enterprises;
- Regional flagship initiatives;
- Innovation and investment for sustainable water management in Africa.

Dr. Eng. Martin Manuhwa delivered a presentation titled:

“International Collaboration under the WFEO Engineering Capacity Building for Africa Programme: The Impact of Water Infrastructure and Artificial Intelligence to Achieve SDG 6.”

The presentation highlighted:

- Africa's water and sanitation challenges;
- The importance of engineering and AI in achieving SDG 6;
- WFEO's Engineering Capacity Building for Africa Programme (ECBAP);
- Pilot capacity-building programmes implemented across Africa;
- Strategic partnerships supporting sustainable development;
- The importance of engineering education, technology transfer, and digital transformation.

The event significantly enhanced WFEO's visibility within UNESCO Africa Group engagements and reinforced WFEO's role as a global engineering leader supporting sustainable development, engineering capacity building, and digital transformation in Africa.

2. Background and Context

UNESCO Africa Week 2026 brought together governments, academia, development agencies, engineering organisations, youth innovators, and international stakeholders to discuss sustainable development challenges and opportunities across Africa.

The conference theme focused strongly on:

- Water security;
- Climate resilience;
- Sustainable infrastructure;
- Innovation and technology;
- Capacity development;
- Partnerships for Africa's transformation.

The WFEO contribution centred on how engineering innovation and Artificial Intelligence (AI) can accelerate the implementation of Sustainable Development Goal 6:

"Ensure Availability and Sustainable Management of Water and Sanitation for All."

The presentation emphasised that Africa continues to face serious challenges including:

- Limited access to safe drinking water;
- Inadequate sanitation infrastructure;
- Rapid urbanisation;
- Climate change impacts;
- Water scarcity;
- Aging infrastructure systems.

The resulting consequences include:

- Health crises;
- Reduced economic productivity;
- Educational disruption;
- Gender inequality;
- Environmental degradation.

3. WFEO Participation in the High-Level Panel

Dr. Eng. Martin Manuhwa participated in Session 9 alongside four other distinguished panelists:

1. **Dr. Jauad El Kharraz**
   CEO & Founder, Water-Energy-Climate Experts Network (WECEN), Morocco
2. **Ms. Lylian Coelho**
   Representative and Chair of the Water Committee, WFEO
3. **Dr. Akotto Achiepo Gaeëtan**
   Environmental Process Engineering Specialist, INHP-HB, Côte d'Ivoire
4. **Engr. Chenge Chikara**
   Development Bank of Southern Africa (DBSA)

Dr. Eng. Martin Manuhwa represented WFEO in discussions on:

- Engineering capacity building;
- AI-enabled infrastructure systems;
- Digital transformation;
- Public-private partnerships;
- Regional cooperation;
- Investment frameworks for sustainable infrastructure development in Africa.

4. Key Themes and Discussions

4.1 Engineering as a Driver for SDG 6

The presentation demonstrated that engineering remains central to solving Africa's water challenges through:

- Water treatment systems;
- Smart water distribution networks;
- Irrigation systems;
- Flood management infrastructure;
- Wastewater recycling;
- Desalination technologies.

Engineers were identified as critical for:

- Design;
- Innovation;
- Infrastructure maintenance;
- Sustainability;
- Policy implementation.

4.2 Artificial Intelligence and Water Infrastructure

A major focus of the presentation was the transformative role of AI in water management systems.

The following technologies were highlighted:

- Machine learning;
- Predictive analytics;
- Internet of Things (IoT);
- Digital twins;
- GIS and satellite monitoring;
- Smart sensors.

Applications discussed included:

- Leak detection;
- Flood and drought prediction;
- Water quality monitoring;
- Smart irrigation optimisation;
- Predictive maintenance;
- Demand forecasting.

The presentation concluded that integrating digital and physical infrastructure can:

- Improve efficiency;
- Reduce operational costs;
- Increase resilience;
- Enhance sustainability outcomes.

5. WFEO Engineering Capacity Building for Africa Programme (ECBAP)

The presentation showcased the WFEO Engineering Capacity Building for Africa Programme (ECBAP) as a flagship initiative supporting Africa's engineering and digital transformation agenda.

5.1 Programme Objectives

ECBAP focuses on:

- Strengthening engineering education;
- Continuous professional development;
- Technology transfer;
- Research and development;
- Digital engineering capability development.

The programme aims to:

- Train at least 100,000 engineering professionals;
- Establish regional centres of excellence;
- Support Agenda 2063 and SDG implementation.

The programme is initially supported by the China Association for Science and Technology (CAST).

5.2 Digital + Engineering Model

ECBAP's unique "Digital + Engineering" approach integrates:

- Civil engineering;
- Electrical engineering;
- Mechanical engineering;
- Agricultural engineering;
- Environmental engineering;

with digital technologies to address:

- Water infrastructure;
- Energy transition;
- Agriculture and food security;
- Climate resilience.

6. Capacity Building Activities and Pilot Programmes

6.1 AI and Digital Engineering Training

The report highlighted successful training initiatives under ECBAP including:

- "AI for Engineers" training in Kenya;
- AI-assisted agricultural production CPD programmes in Uganda;
- Digital Engineering Transformation webinars.

The programme has also established:

- Online learning platforms;
- Recorded technical webinars;
- WFEO Academy digital learning initiatives.

6.2 Water and Wastewater Treatment Pilot Programmes

The presentation highlighted successful pilot programmes conducted in:

- uGu District Municipality, South Africa;
- Victoria Falls, Zimbabwe;
- Windhoek, Namibia.

The WFEO Committee on Engineering Capacity Building (CECB) implemented these programmes in partnership with:

- The South African Government's Department of Science and Innovation (DSI);
- The Federation of African Engineering Organisations (FAEO);
- Stellenbosch University;
- UNESCO and regional stakeholders.

The programmes involved:

- Municipal engineers;
- Water utility professionals;
- Technical specialists;
- Researchers;
- Doctoral fellows.

Training formats included:

- Online delivery;
- Face-to-face workshops;
- Hybrid delivery models;
- Technical site visits to water treatment facilities.

The programmes strengthened competencies in:

- Water treatment process management;
- Wastewater management;
- Operational efficiency;
- Regional technical cooperation;
- Knowledge exchange.

7. International Collaboration and Strategic Partnerships

The presentation emphasised that international cooperation remains essential for:

- Technology transfer;
- Knowledge exchange;
- Infrastructure financing;
- Capacity building;
- Skills development;
- Regional integration.

Key partners identified included:

- UNESCO;
- UNDESA;
- UNECA;
- FAEO;

- National engineering institutions;
- Universities and research centres;
- Development banks;
- Private sector organisations.

The programme also aligns with:

- The UN Pact for the Future;
- The Global Digital Compact;
- UN Technology Facilitation Mechanism initiatives.

8. Strategic Recommendations

The presentation proposed the following strategic priorities:

Governments

- Prioritise investment in water infrastructure;
- Support AI and digital transformation policies.

Engineering Institutions

- Strengthen professional training;
- Promote interdisciplinary collaboration.

Development Partners

- Increase financing support;
- Facilitate technology transfer.

Academia

- Expand AI and water engineering research.

Private Sector

- Invest in innovation and scalable engineering solutions.

9. Key Outcomes and Observations

The event achieved the following outcomes:

- Enhanced visibility of WFEO and ECBAP activities;
- Strengthened recognition of engineering as a driver for SDG implementation;

- Promoted AI-enabled infrastructure solutions;
- Demonstrated practical outcomes from WFEO pilot programmes;
- Expanded opportunities for collaboration with UN agencies and development partners.

The event also reinforced the urgent need for:

- Expanded engineering education;
- AI governance frameworks;
- Investment in digital infrastructure;
- Sustainable financing mechanisms for engineering capacity development.

10. Conclusion

UNESCO Africa Week 2026 provided an important platform for WFEO to demonstrate the strategic role of engineering, digital transformation, and AI in accelerating sustainable development across Africa.

The WFEO Engineering Capacity Building for Africa Programme (ECBAP) continues to emerge as a scalable and impactful platform supporting:

- Engineering education;
- Technology transfer;
- AI-enabled infrastructure systems;
- Regional collaboration;
- Sustainable development implementation.

The event concluded with a strong call for expanded partnerships and investment to bridge Africa's engineering and digital skills gap and accelerate progress toward SDG 6 and broader sustainable development objectives.

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