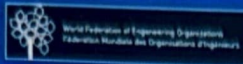


10TH UNESCO AFRICA ENGINEERING WEEK & 8TH AFRICA ENGINEERING CONFERENCE



Hosted by:



ENGINEERING THE FUTURE

INNOVATIVE INFRASTRUCTURE SOLUTIONS FOR A SUSTAINABLE AFRICA AND SWIFT AFCFTA IMPLEMENTATION

9TH - 13TH SEPTEMBER 2024

MONDAY TO FRIDAY - 9AM TO 5PM (WAT) /
10AM TO 6PM (CEST)



INTERCONTINENTAL
LUANDA MIRAMAR HOTEL

LUANDA - ANGOLA

Event website: www.ordemengenharios.ao
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SUSTAINABLE
DEVELOPMENT
GOALS



10th UNESCO Africa Engineering Week and 8th African Engineering Conference Resolutions

PREAMBLE

The 10th Africa Engineering Week & 8th Conference holding on the 9th to 13th September 2024 in Luanda, Angola hosted by the **Order of Engineers Angola (OEA)**, with the theme **“Engineering the Future: Innovative Infrastructure Solutions for a Sustainable Africa and a Swift AfCFTA Implementation”** and sub-themes of **“Sustainability and Innovative Infrastructures; Engineering and Acceleration of AfCFTA implementation; Engineering Education and Capacity Building.”**

The event was a huge success with participation by representatives from the African Union - Scientific, Technical and Research Commission (AU-SRIC), UNESCO, WFEO, FAEO and National Engineering Institutions. The total number of participants were over 250 engineering practitioners and over 1000 online delegates from 23 countries from Africa and other parts of the world, *namely*: Angola, Burkina Faso, Congo, United States of America, Ethiopia, France, Ghana, Mauritius, Madagascar, Malawi, Mozambique, Namibia, Niger, Nigeria, Portugal, Kenya, Central African Republic, Democratic Republic of Congo, Rwanda, Somalia, South Africa, Tanzania, Zambia and Zimbabwe.

The sessions discussed the **“Innovative Infrastructure Solutions for a Sustainable Africa and a Swift AfCFTA Implementation as well as Engineering Education and Capacity Building”**. A Women in Engineering Conference and Young Engineering professionals Panel Session also took place. The event featured comprehensive technical discussions and social interactions with primary and Junior High students.

A keynote address was delivered by our special guest of honour, Honourable Minister Mario de Oliveira, Minister of Telecommunications, Information Technology and Social Communication. The Guest of Honour, AU, WFEO, FAEO and UNESCO keynotes recommended the adoption of an effective capacity building and quality engineering education for Africa. The path forward requires commitment, collaboration, and continuous improvement for developing robust engineering capacity towards a FAEO Accord for Accreditation and an Agreement for Mobility of Professional Engineering Practitioners (Professional Engineer (FAEO), Professional Technologist (FAEO) & Professional Technician (FAEO)). By implementing strong accreditation systems, aligning with international standards, and fostering regional cooperation, African nations can build world-class engineering education and best practices frameworks. This will produce graduates capable of driving innovation, sustainable development, and economic growth.

We, the participants of the 10th UNESCO African Engineering Week, commend the collaborative efforts of UNESCO, IEEE Entrepreneurship, WFEO, FAEO, and the Order of Engineers of Angola in organizing the UNESCO-IEEE Entrepreneurship Bootcamp for Early-Career Engineers. This initiative brought together 33 youth from 10 African countries, in addition to Angola, for an intensive 3-day bootcamp. It underscores our collective commitment to nurturing the entrepreneurial skills of young engineers, empowering them to transform scientific inventions into viable commercial solutions. We resolve to continue supporting such initiatives that foster innovation, enhance engineering education, and contribute to the sustainable development of Africa.

REALISING THAT;

Engineering is the gateway to the actualization of the AfCFTA strategy and hence the need to push for favourable Regulatory Framework to groom and grow African consulting firms and contractors in implementing AfCFTA for the Africa We Want.

Engineering Education and Skills are not coherently developed and harmonised to meet international benchmarks, address local contexts, and promote mobility of engineering services and natural persons. The Africa, Asia, and the Pacific (AAP) Accord by FAEO and FEIAP is an agreement that ensures professional engineering organisations in these regions that will build up capacity to align with the requirements of the International Engineering Alliance (IEA) mentoring through training and capacity building. The AAP Accord is the framework for the establishment of an International Standard of Engineering Education that empowers each member's authority/jurisdiction or economy of FEIAP and FAEO to establish a section of the Register for Engineering for Graduate Engineers, Engineering Technologists and Engineering technicians.

Desiring:

- The proper and implementation of the Agenda 2063 and the Acceleration of AfCFTA operationalisation through engineering professional fields and support professions.
- Development and dissemination of the African standards through ARSO and ensure harmonization with their compliances in goods and services delivery.
- Alternative Dispute Resolutions (ADR) based on African values for ease of doing business and promotion of mobility for engineering goods and services.

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- Establishment of African Engineering Professionals' Database through FAEO's Capacity Building Programme and its partners for the promotion and implementation of AfCFTA's Digital trade, E-Commerce, and Engineering underwriting as important tools for trade facilitation in Africa.
- Implementation of outcome-based engineering education, training, and practices through establishing the Africa Engineering Education Accord (AEEA) which works closely with the Africa and Asia Pacific (AAP) Accord and the International Engineering Alliance (IEA), connecting the engineering related education structures on the Continent and certifying the continuous professional development learning.
- WFEO, FAEO and the PEIs must include women in Engineering in strategic international and national committees that will build capacity in policy development and implementation.
- Training of women in Engineering in entrepreneurship, import and export trading, International Trade Fair programs, Protocol in digital Trade and to ensure there is inclusion for women in economic growth.

OBSERVING THAT;

- African Heads of states and governments took a decision to ensure inclusiveness in all policies, legislation and strategies and that the AfCFTA took it a step further by developing a Protocol on Women and Youth in Trade which emphasises *economic and financial inclusion of women and youth in trade*. It also emphasises inclusion of women in National Implementation Committees and other decision-making bodies.
- **Innovative Infrastructure is vital** for the attainment of the Agenda 2063 for the Africa we want and that **Engineering is key** to the actualization of sustainable infrastructure delivery and the full mobilization and input of the engineering profession in Africa at all levels will be required to deliver the goods and services needed.

And that;

- AfCFTA has a number of platforms such as Biashara Africa, Conference on Women in Trade, Youth Symposium as well as Intra Africa Trade Fair where women and youth in engineering can participate for bench learning, networking, interact with investors and financiers, source raw materials and other products and learn from each other.
- This will necessitate the development of a sufficient number and quality of engineering practitioners to deliver the infrastructure we need.

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- iii. **Engineering skills development** plays a critical role in ensuring that Africa has a critical mass of **engineering** practitioners to provide and design engineering solutions for the local and global market

CONCERNED THAT;

there are noted infrastructure development issues across the engineering such as power and renewable energy, communications, and transportation and the deficiencies outlined below:

- i) **The pool of licensed engineering practitioners** for the accelerated development of sustainable infrastructure is limited.
- ii) **There is constrained inter-regional skills mobility due to a limited regulation and inadequate inter-regional recognition** of educational qualifications and professional competence compounded by **retention** of engineering practitioners,
- iii) **Lack of awareness, visibility** of engineering and lack **participation** of engineering practitioners in society and policy making
- iv) **Lack of research and reliable data** on engineering, engineering skills development, and engineering education in Africa
- v) **Lack of communication mechanisms** to involve critical stakeholders.
- vi) **Several** capacity building efforts depend on volunteerism and lack **sustainable support and funding**.
- vii) **The system of the colonial era** is prevalent in the African Engineering Education landscape, and lacks cultural influence and context

THEREFORE;

Delegates deliberated on the key challenges, opportunities, and solutions to realize the goals for Africa with the support of all organizations present. These deliberations were in the areas of power and renewable energy, capacity building and engineering education, policies, accreditation, and harmonization. In addition to continuing work on previous resolutions, and to harmonize efforts **the delegates RESOLVED as follows:**

1 Innovative Infrastructure Development

- 1.1 To develop local solutions with international partnerships to address issues related



to sustainable power and renewable energy supply.

- 1.2 To enhance the professional voice that can provide independent advice to policymakers and engineering organizations on infrastructure issues and concerns through coordinated efforts from the engineering profession locally and throughout the continent.
- 1.3 To create a mechanism to disseminate research findings, best practices and solutions deliberated in this conference to relevant bodies and associations. Formalizing publications should be investigated.
- 1.4 To research the impact of technology on skills and employment especially the jobs of the future.
- 1.5 Engineering practitioners should include international technological trends and practices in their solutions, after carefully evaluating local context, sustainability, ethics, climate change, and inclusivity.

2 Engineering Capacity Development in education, policies, accreditation, and harmonization.

- 2.1 **Develop capacity building programmes for engineering in Africa.**
- 2.2 **Establish an 'African Engineering Education Accord'** to facilitate interregional mobility of engineering professionals with measure of cultural competence to bring together African countries in promoting engineering education and strengthening the continent's collective voice in the global arena.
 - i) **Develop** the African Engineering Mobility Framework supported by our Governments, ADEA, RECs and the AU.
 - ii) **Develop** the Africa Accreditation Manual and other tools to accelerate the FAEO members admission to the AAP and the IEA.
 - iii) **Develop** relevant tools, such as a database of African engineering professionals - profiling who they are, areas of expertise, and create an Africa pass mechanism for engineering practitioners.
- 2.3 **Leverage existing structures and policy forums within the African Union and ADEA** to promote evidence informed policies and decision making, and the forums as platforms for peer learning and knowledge exchange for engineering



education in Africa. Endorse prior resolutions within the continent on engineering education and encourage reports on actionable outcomes.

2.4 **Conduct research work and build engineering education capacity for research and practice.** Create access and funding mechanisms to develop capacity and conduct research. The UNESCO AEW and conference can be used as data for research work, provided that due process is followed with either the panellists, speakers, or delegates where necessary.

2.5 **Evaluate the effect of effect of the colonial era on current education systems** and develop culturally relevant and context-based approaches to decolonise the current educational systems.

3 Diversity, and Inclusivity (Youth and Women)

3.1 Women and youth in engineering can participate under the AfCFTA Protocols in Trade in services and in Digital trade as well as other initiatives such as Guided Trade Initiative (GTI) in Services and capacity building where they can take part to ensure their interests are catered for, and this includes even on issues of Mutual Recognition.

3.2 **To attain the SDG 4**, we should invest in STEM related programs to inspire young girls whilst also educating parents on the need to encourage the girl child towards taking STEM related courses. We further encourage the promotion and mentoring of young girls and women in STEM related programs and activities through seminars, conferences, forums, and other engagements.

3.3 Policy Advocacy

i) **Workplace:-** To advocate provision of adequate workplace support and establishment of strong gender equality policies and practices to women engineering professionals that will promote and ensure work-life balance, fair and transparent recruitment, promotion, and remuneration practices. To continue addressing challenges women engineering professionals face such as outdated culture notions, stereotypes, sexual harassment and gender-based discrimination that hinder women's participation in the engineering sector.

ii) **Mobility:** - Advocate for policies that prioritize gender-sensitive mobility solutions.



such as improved transportation infrastructure, accessibility, and safety. Engage with relevant government bodies and decision-makers.

- iii) **SDG 5:** there is the need to develop Key Strategic Indicators of Women in Engineering to enable adequate policy development and initiatives that will close the gender inequality.
- iv) **Engineering:** - Advocate for policies that promote gender diversity in STEM fields, including engineering. Encourage governments to adopt policies that support scholarships, mentorship programs, and initiatives specifically targeting young women.

3.4 Education, skills development, and related support

- i) **To encourage engineering professionals to continuously** engage in professional development courses that includes mastering of new technologies, learn new skills, and developing other skills that will be accomplishing their tasks efficiently and competitively.
- ii) **To encourage and establish mentorship programmes,** networking opportunities and career guidance initiatives that connect experienced engineering professionals with aspiring young talent to help bridge the knowledge and experience gaps, provide guidance, and nurture future leaders in engineering.
- iii) **To Develop training programmes and workshops** to equip young women with practical engineering skills. Partner with industry to provide internships and practical experience.
- iv) **Scholarships and Grants:** - To lobby for scholarships and grants dedicated to young women pursuing engineering degrees. These financial incentives can help reduce barriers to entry.
- v) **African countries to collaborate with governments, private organizations and NGOs** and come up with initiatives such as like **Sibo the Engineer Series** and **Artificial Intelligence Robotic Boot Camps** and clubs as well as other hands-on STEM activities that will equip skills and enable young girls to develop a passion for science, technology, engineering, and mathematics (STEM).

3.5 Advocacy, Outreach and Research

- i) **Community Outreach:** - Engage with communities to change perceptions about gender roles and STEM careers. Conduct awareness campaigns and engage

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parents and teachers to encourage girls' interest in engineering.

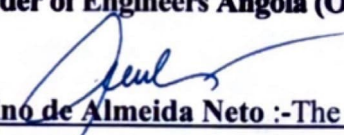
- ii) **To conduct research to understand the specific mobility challenges** faced by women across Africa and the barriers to young women entering engineering professions. Use this data to inform policy recommendations.
- iii) **International Forums:** - To present causes at international forums and conferences related to gender equality, mobility, and engineering. Collaborate with global organizations for support.
- iv) **To engage in projects and research directly related to SDGs**, contributing our expertise to sustainable development efforts.
- v) **To establish activities/programmes that continuously showcase the contributions of prominent female engineering professionals** while celebrating their accomplishments to encourage other women engineering professionals to be part of the transformative impact.

3.6 Monitoring and Evaluation and review:

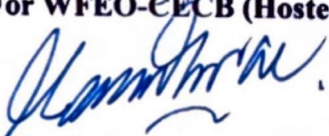
- i) Continuously monitor the impact of established initiatives and policies. To collect data on the number of young women entering engineering programs and their success rates.
- ii) **Policy Implementation Oversight:** - To ensure that policies related to mobility and engineering are effectively implemented. Advocate for accountability in policy execution.

Dated this 12th of September 2024 in Luanda, Angola and signed and approved by the representatives of the Conference Hosts and Partners below.

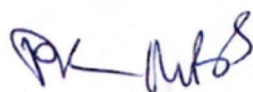
(i) For the Order of Engineers Angola (OEA)


Augusto Paulino de Almeida Neto :-The OEA President;

(ii) For WFEO-CECB (Hosted by Zimbabwe)

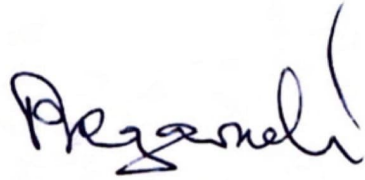

Eng. Martin Manuhwa :- Chair WFEO in Engineering Capacity Building Committee;

(iii) For the Federation of Engineering African Organizations (FAEO)









Eng. Papias Kazawadi:- The FAEO President;

(iv) For the World Federation of Engineering Organizations (WFEO)



Engr. Mustafa Shehu:- The President