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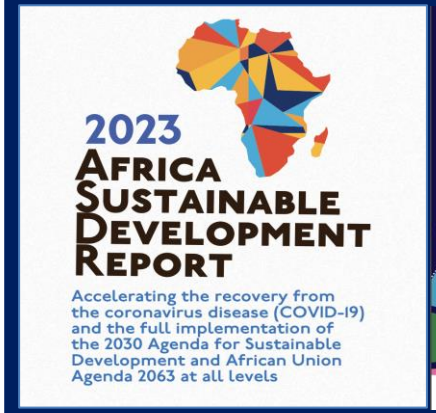
WFEO Engineering Capacity Building for Africa Programme (WFEO ECBAP)

Problem and Opportunity

Background: The Lag of SDGs progress in Africa and Capacity Building

For Africa, less than 6 percent of the 32 measurable SDGs are on track to be achieved by 2030. Progress on the SDG agendas varies across subregions, but none of the subregions is on track to achieving the SDGs.



- ✓ On the 25th of August 2023, the 78th United Nations General Assembly adopted a resolution proclaiming 2024-2033 as **the International Decade of Sciences for Sustainable Development**. The General Assembly recognized that developing countries face specific challenges in accessing new sciences and technologies, stressing the need to bridge the divides within and between countries, and highlighting the importance of financing and **capacity-building**.

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Solutions

WFEO's new Africa Program

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 proposes a **10-year Engineering Capacity Building for Africa Programme** initially funded China Association for Science and Technology (CAST) .

Enhance Capacity in Engineering Education

- to improve the quality and relevance of engineering education across the continent

Enhance Capacity in Continuous Professional Development

- To enhance technical and soft skills required for Africa's digitalization and green transition

Enhance Capacity in Technology Transfer

- to harness advanced technologies to address Africa's developmental challenges and promote innovation

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Progresses made

- **Recognition from Multiple UN Agencies**: The programme was recognized by several United Nations agencies, with the United Nations Educational, Scientific and Cultural Organization (UNESCO) agreeing to include it in the International Decade of Science for Sustainable Development framework. Partnerships were established with UNDESA, UNIDO, UNU,UNEP, AU, AAS, CAST, RAEng, etc.
- **Establishment of IPO**: With the support of CAST and Nankai University, IPO was preliminary staffed at Nankai University.
- **Programme Feasibility, Justification, and Overall Framework Design**

UNITED NATIONS
DEPARTMENT OF ECONOMIC
AND SOCIAL AFFAIRS

UNIDO

UNESCO

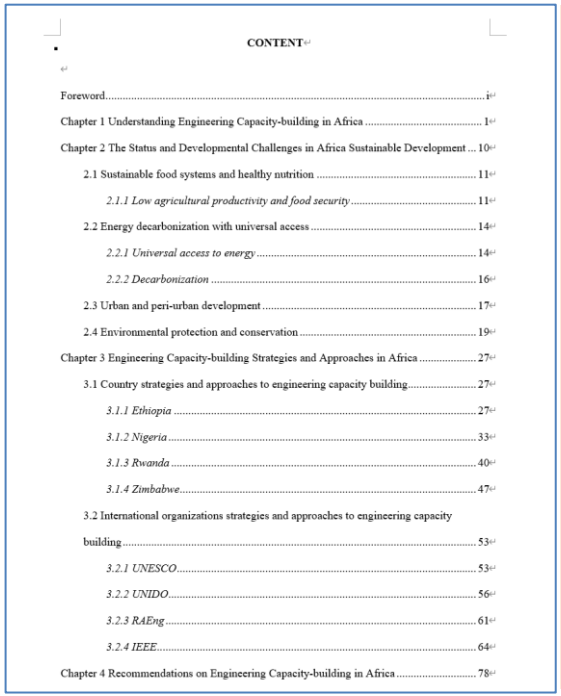
UNEP

UNU

African Union

The African Academy of Sciences
Driving Scientific and Technological Development in Africa

Feasibility study: refering UN documents and given practice (IEEE, RAEng,etc.)



CONTENT

WFEO. 2020. Declaration: Global Engineering Education Standards and Capacity-building for Sustainable Development. Paris: World Federation of Engineering Organizations. http://www. wfeo.org/wp-content/uploads/declarations/UNESCO IEA WFEO Declaration GlobalEngg Education.pdf.

WFEO. 2023. WFEO STANDING COMMITTEE ON ENGINEERING CAPACITY-BUILDING (WCEO-CECB) ABRIDGED STRATEGIC PLAN (2024-2027). WFEO. https://www.wfeo.org/committee-engineering-capacity-building/.

WFEO. (2024). Institution of Engineers Rwanda to Host GECO 2024 in October. World Federation of Engineering Organizations. https://www.wfeo.org/institution-of-engineers-rwanda-to-host-geco-2024-in-october

WFEO. (2023). WFEO-CECB Forum Africa-Asia Pacific Accord Meeting. World Federation of Engineering Organizations. https://www.wfeo.org/wfeo-cecb-forum-africa-asia-pacific-accord-meeting-zimbabwe-institution-of-engineers-biennial-conference/

WFEO. 2018. WFEO Engineering 2030: A plan to advance the achievement of the UN - Sustainable Development Goals through engineering. Progress Report No. 1. A collaborative project of World Federation of Engineering Organizations with the Division of Science Policy and Capacity Building, Natural Sciences Sector, UNESCO. http://www.wfeo.org/ wp-content/uploads/un/WFEO-ENgg-Plan_final.pdf

WFEO. (2022). WFEO-CECB Forum Africa-Asia Pacific Accord Meeting. World Federation of Engineering Organizations. https://www.wfeo.org/wfeo-cecb-forum-africa-asia-pacific-accord-meeting-zimbabwe-institu ion-of-engineers-biennial-conference/

Implementing the UNGA Resolutions of AI in Engineering Capacity Building

Seizing the opportunities of safe, secure and trustworthy AI systems for sustainable development

78/265. Seizing the opportunities of safe, secure and trustworthy artificial intelligence systems for sustainable development

> Expanding participation of all countries, in particular developing countries, in digital transformation to harness the benefits and effectively participate in the development, deployment, and use of safe, secure, and trustworthy artificial intelligence systems, including **by capacity building** relating to artificial intelligence.

United Nations A/78/L.86

General Assembly

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25 June 2024

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Seventy-eighth session
Agenda item 13
Integrated and coordinated implementation of and follow-up to the outcomes of the major United Nations conferences and summits in the economic, social and related fields

Algeria, Burundi, Cambodia, China, Congo, Cuba, Dominica, Egypt,

Enhancing international cooperation on capacity building of AI

Enhancing international cooperation on capacity-building of artificial intelligence

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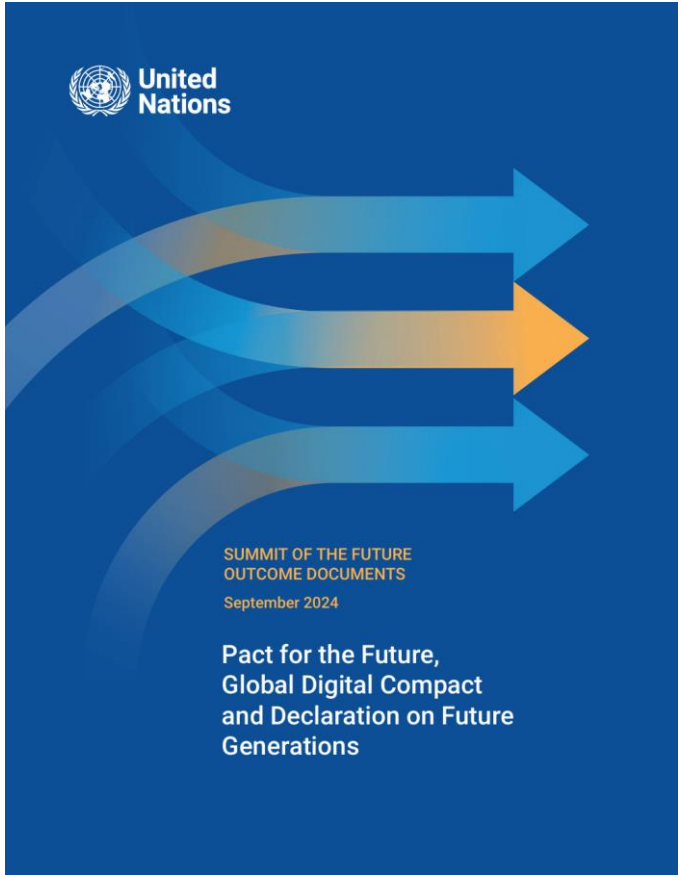
Capacity Building is highlighted in the Pact of the Future and Global Digital Compact



Enhance international cooperation and capacity-building efforts in order to bridge the digital divides and ensure that all States can safely and securely seize the benefits of digital technologies;

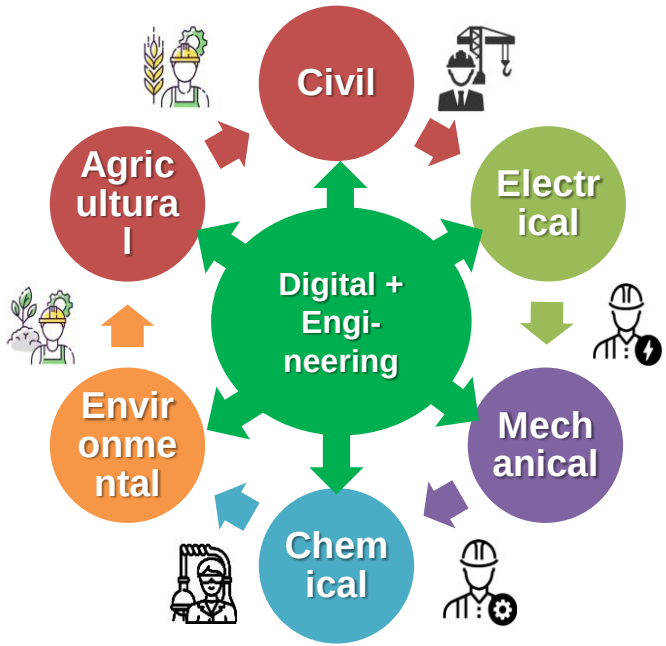
Increase efforts to support developing countries, in particular by developed countries and those developing countries in a position to do so, with capacity-building in science, technology and innovation。

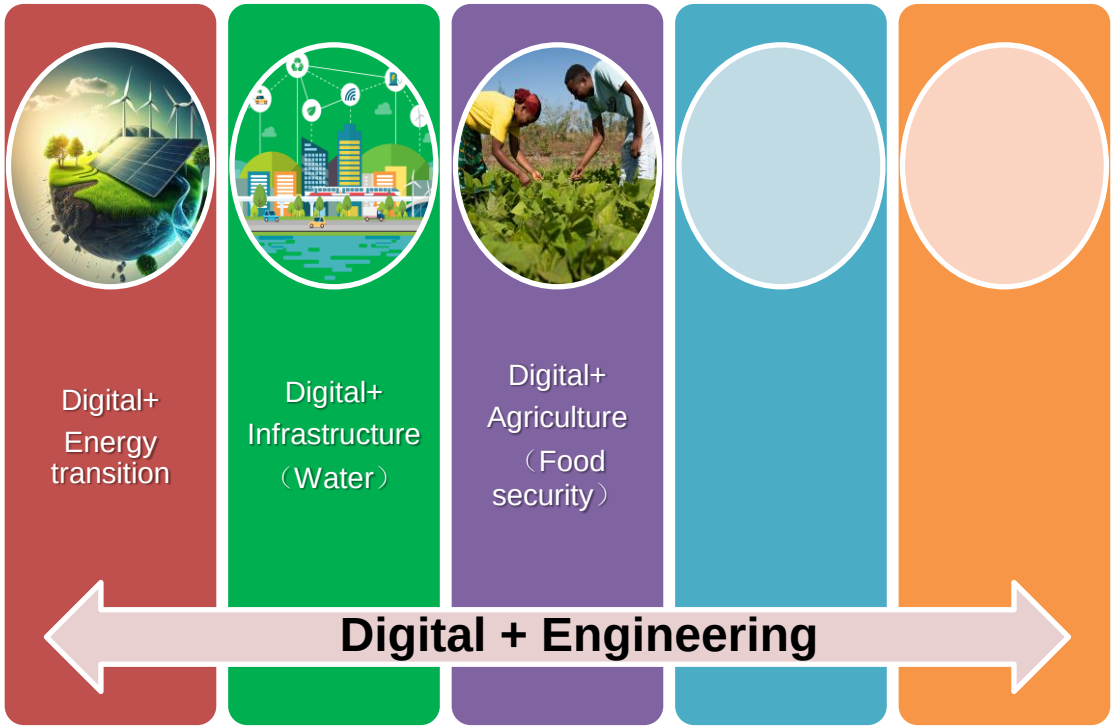
Strengthen North-South cooperation, South-South and triangular cooperation, while taking into account different national circumstances, to build capacity for and improve access to science, technology and innovation, and to increase resources for the implementation of technical and scientific initiatives;

We will enhance partnerships to ensure the provision of the required means of implementation to developing countries, including the mobilization of financial resources, capacity-building and the transfer of technology on mutually agreed terms;

Digital capacity development in developing countries and to support the development of local content and content relevant to local realities online and retain talent.

Leveraging Digital + Engineering Capability to implement SDGs





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International Program for Africa, in Africa, but by Africa alone

Africa + International Partners

International Programme Office （IPO）

UN Org.:
UNESCO
UNIDO
UN DESA
UNEP
UNU
.....

STE Inst.:
RAEng
IEEE
CAST
AAS
IEK
EBK
ECSA
.....

Financial Institutions
.....

Industrial Partners
.....

Organization Chart

Steering Committee (SC) — holds executive responsibility for determining the strategy, policy and promotion necessary to carry out ECBAP's mandate.

Expert Committee (EC) — provides advisory support to training curriculum design and monitors progress to ensure the quality in the development of the Programme.

International Programme Office (IPO) / African Coordination Office — serves the role as ECBAP secretariat to coordinate the implementation of the Programme.

Capacity Building Center (CBC) — built with support by local engineering organizations and governments, coordinated by IPO under the guidance of EC and SC, to carry out training activities.

WFEO

as the project organizer, will work with partners to oversee the implementation, collaborate with national engineering organizations, government institutions, and other stakeholders to ensure effective execution. WFEO's STCs and its member organizations will provide technical support, expertise, and guidance throughout the programme's duration.

Implementation Timeline

10-year programme with 3 phases

Phase Ⅰ First three years

Planning, Pilot Training, Fundraising

- Set SC, EC, IPO and 1-2 CBCs
- Conduct assessment of existing capacities, needs, and challenges in Africa
- Develop a detailed action plan and implementation framework
- Carry out pilot training programmes in different format and in different sub-regions of Africa, assess the outcomes of pilot projects for continuous improvement, in the set CBCs
- Establish concrete and effective collaboration with partner institutions' related projects
- Set fundraising plan and raise funds to support the scaling up of the program

Phase Ⅱ Following years

Scaling up Capacity Building Projects

In this phase, the projects will be expanded in

- Subjective dimension of engineering education, CPD and technology transfer in interconnected manner
- Geographical dimension to expand the training to most countries in Africa
- Professional dimension to cover major engineering fields in implementing SDGs
- Educational dimension to cover higher and vocational education

Phase Ⅲ Final year

Review, Improvement and Sustainability

- Review and summarize the good practices
- Optimize institutional frameworks, partnerships, and funding mechanisms to ensure the long-term sustainability of capacity building efforts beyond the project's duration

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Next Agenda in Phase 1

- **Completion of Programme Institutional Mechanisms**
  - **Establish the Expert Committee and work groups to guide the development curriculun and the pool of tools/contect resources**
  - **establishment of Capacity Building Centers to carry out the pilot trainings in different subregion and training format**
- **Starting pilot training and deepening the coopration with partners by joint pilot projects**
  - **Kickoff in Kenya in March 2025 by "AI in Engineering Practices", and further develop AI in Energy, Water, Transort, Food/Agriculture, Green Mining, etc.**
  - **Joint training with partner institutions' related projects, such as UNESCO's Campus Africa, UNIDO's Center of Excellence, UNDESA's related projects, WFEO Academy, etc.;**
- **Set fundraising plan and raise funds to support the scaling up of the program**

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Engineering for Sustainable Development

WORLD FEDERATION OF ENGINEERING ORGANIZATIONS (WFEO)