

FEIAP Engineering Education Guidelines for Inequalities Reduction through International Quality Engineering Education

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IEM

The Institution of Engineers, Malaysia



Federation of Engineering Institutions
of Asia and the Pacific (FEIAP)



WFEO/FMOI

World Federation of
Engineering Organizations

BOOMING AND WIDENING TRENDS



The population boom:
7 billion and counting



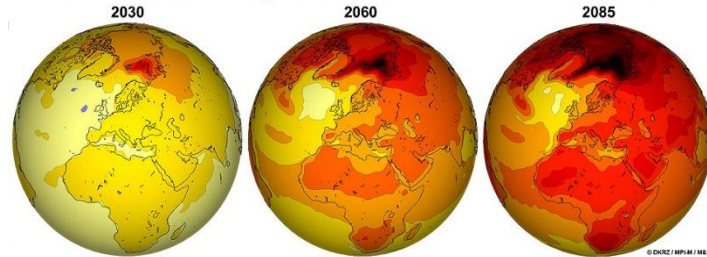
In 2010, 50.5% or 3.5 billion
people live in cities.



Extreme inequality in wealth
distribution



In 2016, the richest 10% of
adults accounted for 89% of
the world global assets.

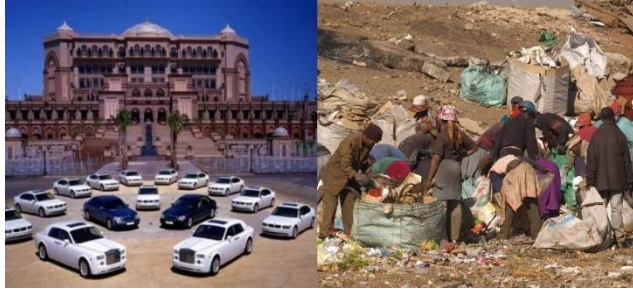


Global Warming

Source: Chuah HT

CHALLENGES

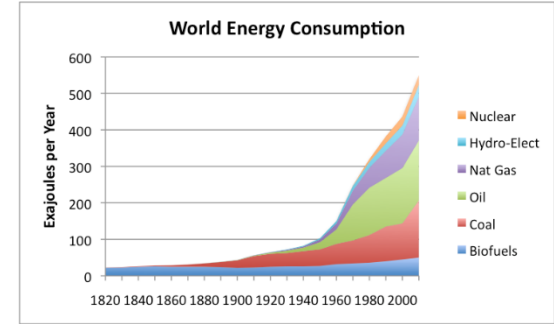
Source: Chuah HT



Inequality of wealth distribution



Inequality in food distribution



Increasing energy consumption-



Global warming and Climate change



Aging



Security

Education-The Driver

- Source of human capital
- Uplifting of poverty
- Catalyst of change and innovation
- Driver of economic growth



ENGINEERS- PRIME MOVER OF NATION BUILDING



NATIONAL ECONOMY

KNOWLEDGE BASED

INNOVATION DRIVEN

- Within the framework of the **Malaysian Cooperative Trust Fund** to enhance **South-South Cooperation for Capacity Building** in education and science for the benefit of the ***Least Developed Countries (LDCs), Small Island Developing States (SIDS)*** in Asia and the Pacific, linking with African countries;

UNESCO-ISTIC-FEIAP COOPERATION

- UNESCO in association with the engineering bodies has a leading experience in improving the engineering education standard in universities and institutions internationally.



STANDING COMMITTEE ON ENGINEERING EDUCATION

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Prof. Dr. Chuah Hean Teik

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Ir. Dr. Tan Chee
Fai



Engr. Tin Lett



To forste the policies and **Capacity Building** in **Science, Technology and Innovation (STI)**, with focus on the science, technology and engineering in **Asia** and **the Pacific** as well as **Africa** Economies through **Knowledge Exchange** and **Mutual Learning**



FEIAP Engineering Education Guidelines



to assist member of FEIAP and the pilot economies to achieve the engineering qualification standards that are required to become internationally competitive



FEIAP Engineering Education Guidelines



1ST LEVEL

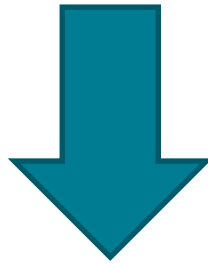
Nation Building / National Standards

2ND LEVEL

International Standards



FEIAP Engineering Education Guidelines



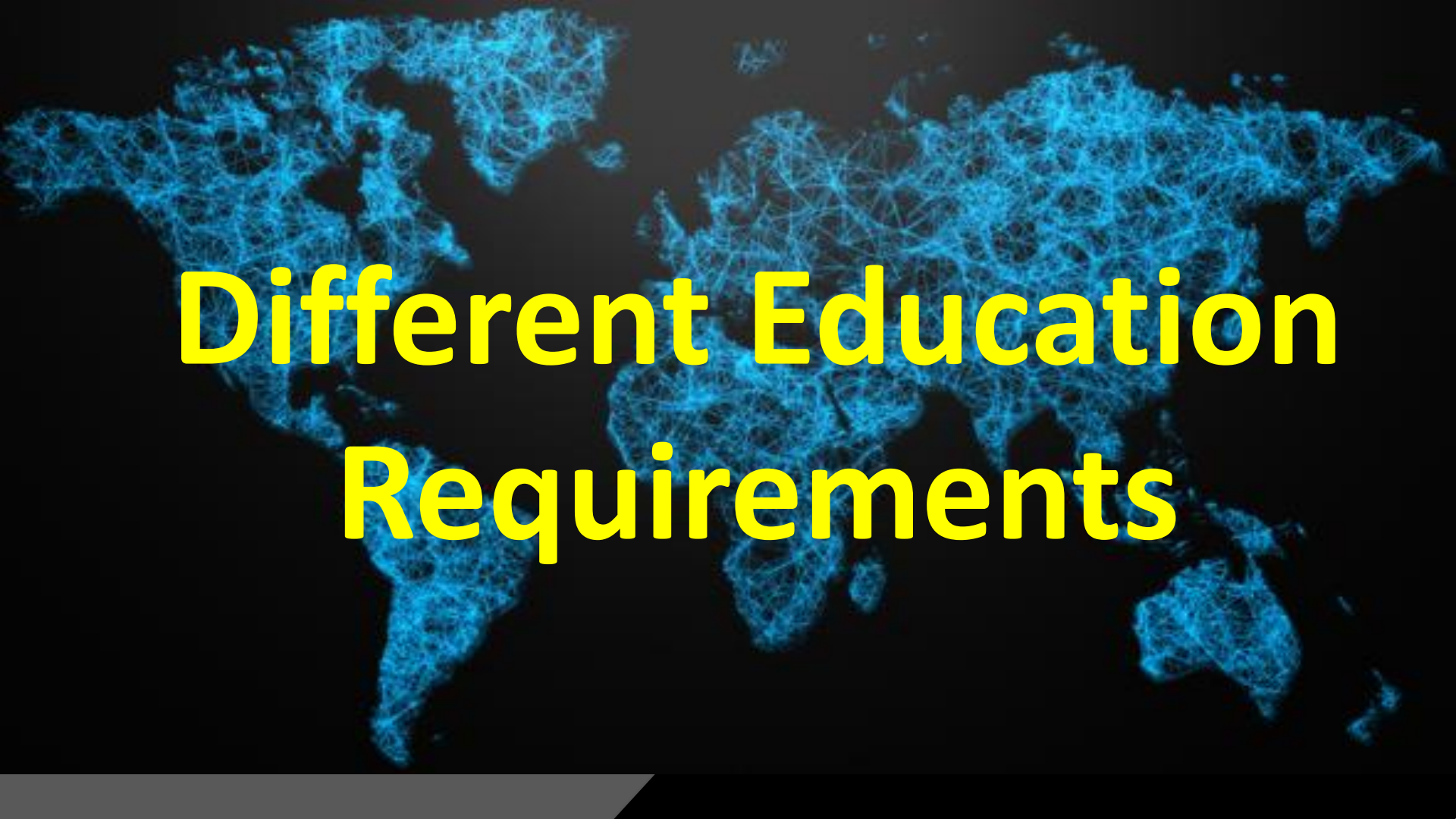
INCLUSIVE APPROACH

- FEIAP Engineering Education Guidelines cover
 - Engineers (published on 30 December 2010 and revised on 12 July 2018),
 - Engineering Technologist (published on 12 July 2018) and
 - Engineering Technician (published on 12 July 2018).

The FEIAP Mentorship towards International Recognition

A world map where the landmasses are filled with a dense, glowing blue network of lines, resembling a global communication or economic network. The background is black, and the text is in a bold, yellow, sans-serif font.

Different Economies



Different Education Requirements



Different Education Requirements



FEIAP Engineering Education Guidelines

**REMOVE BARRIERS TO PROFESSIONAL
MOBILITY OF ENGINEERS**



World Federation of Engineering Organizations
Fédération Mondiale des Organisations d'Ingénieurs
50th anniversary

WFEO Engineering 2030

A Plan to advance the achievement of the UN Sustainable Development Goals through engineering



Progress Report No. 1 - October 2018

A collaborative project with



Sustainable
Development
Goals



Division of Science Policy and Capacity Building
Natural Sciences Sector

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Project: Capacity Building for Engineering Education



The Federation of Engineering Institutions in Asia and the Pacific (FEIAP) is an international member of WFEO and has been developing projects to mentor and support professional engineering institutions to improve national engineering education standards to internationally recognised levels.

Thus degrees recognised by an accreditation agency of an economy which is recognised by FEIAP will be considered to have fulfilled the required standards for basic engineering qualifications according to the APEC Engineer Agreement.

The FEIAP Engineering Guideline takes into account that different economies in Asia and the Pacific region are at different stages of development. This references graduate outcomes against the exemplar standards set by the Washington Accord and/or EUR-ACE systems.

It allows for two levels of recognition based on the level of maturity of the applicant agency's accreditation system and processes, as well as the degree of compliance with the criteria that is set out under the FEIAP framework. The *first level* of compliance is appropriate to the 'nation-building' phase of the economy and is very much an indication of the *potential* to achieve the educational requirements of the APEC Engineers.

The *second level* of recognition is an acknowledgement of the standard of accredited programs within the applicant agency's jurisdiction as meeting the base level education requirements for recognition under the APEC Engineer registration system. Thus by improving the quality of engineering education, from national standard to an international standard, more developing economies will be able to achieve the standard that is required for the global mobility of engineers.

Contribution by: Ir Prof Academician Dato' Dr Chuah Hean Teik, Chair Education Committee, FEIAP, an international member of WFEO



Federation of Engineering Institutions
of Asia and the Pacific (FEIAP)



NPU-FEIAP B&R ENGINEERING TRAINING CENTRE



B&R-FEIAP Engineering Training Centre

- **Vision:**



Harmonisation & Standards

Allow mutual recognition of the Engineering Education Programs (Engineer, Engineering Technologist and Technician programs) among Economies in the B&R Initiative region and FEIAP



Facilitate and to promote

Mobility of the Engineers, Engineering Technologists and Technicians among the economies in B&R Initiative region and FEIAP



Train and Provide

Continuous professional development to increase the number of competent Engineers, Engineering Technologists and Technicians who will help the economies to develop into developed nations

PROPOSAL

“B&R Engineering Education Accord”
**for Mobility of Engineering Personnel in
B&R Initiative Region**

VISION of “B&R Engineering Education Accord”

“Belt & Road (B&R) Engineering Education Accord” is a platform for mutual recognition of engineering workforce that covers :-

- Engineers,
- Engineering Technologists,
- Engineering Technician.

Objectives :-

- 1) *To have a unified & inclusive engineering education accord that promotes mutual recognition of engineering education for engineers, engineering technologists and engineering technicians in Belt & Road (B&R) Initiative Region.*
- 2) *To facilitate the rationalization of the standards of engineering graduates for cross-economy employment.*
- 3) *To enable mobility of engineering workforce among B&R Initiative Region.*
- 4) *To promote understanding of civilization in B&R Economies via cultivation of cultural intelligence in engineering education*



World Federation of Engineering Organizations
Fédération Mondiale des Organisations d'Ingénieurs

► WHO WE ARE ▾

WHAT WE DO ▾

WFEO IN ACTION ▾

SUSTAINABLE DEVELOPMENT GOALS ▾

COMMITTEES ▾



SDG SUMMIT
2019



The World Federation of Engineering Organizations (WFEO) is the international organization for the engineering profession. Founded in 1968, under the auspices of UNESCO, WFEO brings together national engineering institutions from some 100 nations and represents more than 30 million engineers.



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COMMITTEES ▾

Committee on Engineering for Innovative Technologies (CEIT) - Overview

Overview

Themes

Chair

Sustainable Development Goals

Committee members section

The Committee on Engineering for Innovative Technologies (CEIT) has set its objectives in the area of technological advancements to identify and promote suitable technologies for sustainable development, especially in the context of the UN Sustainable Development Goals

WFEO-CEIT





World Federation of Engineering Organizations
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➤ WHO WE ARE ▾

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WFEO IN ACTION ▾

SUSTAINABLE DEVELOPMENT GOALS ▾

COMMITTEES ▾

Committee on Education in Engineering (CEIE) - Overview

Overview

Themes

Sustainable Development Goals

Committee members section

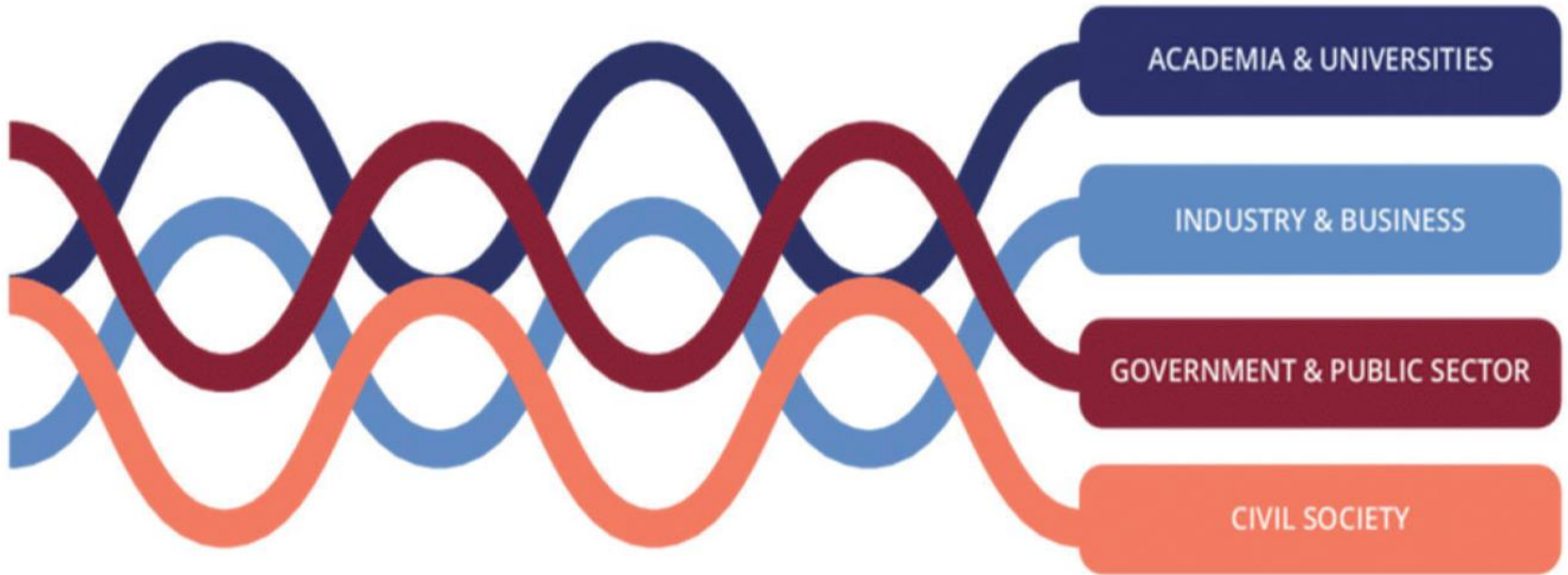
The aim of the Education in Engineering Standing Technical Committee (CEIE) is to work for the development of the profession and the review of the engineering programs through collaboration with different educational establishments and organizations

WFEO-CEIE



Partnership to Achieve the WFEO Strategic Plan

- A Quadruple interaction of Governments, Academia, Industry and Professional Engineering Institutions.
- Quadruple Helix Model between the Professional Engineering Institutions: members of WFEO, Academia, and Universities, Industry and Business, and Governments



The partnership Model to Achieve the WFEO Engineering 2030 Plan

THANK YOU