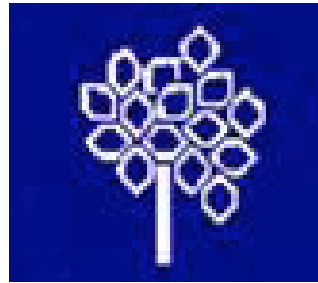




**ENGINEERING COUNCIL OF ZIMBABWE**

*“Regulating Engineering Practice in Zimbabwe”*



## **Towards a FAEO Vision for Mutual Recognition Agreement for Engineering Professionals throughout Africa**

**Martin Manuhwa Pr. Eng (Z)** - Vice President – World Federation of Engineering Organisations (WFEO)  
Chair – WFEO Anti-Corruption Committee

Incoming President –Federation of African Engineering of Organisations (FAEO)

Past President – Southern Africa Federation of Engineers (SAFEO)

Past President – Zimbabwe Institution of Engineers (ZIE)

Past Chairman of The Engineering Council of Zimbabwe (ECZ)

**Date: Wednesday 21 November 2018**

**BEIJING, CHINA**

# Presentation Agenda

- About FAEO
- Background
- International Engineering Mobility
- Mutual Recognition Agreements
- Policy background
- An MRA for Engineering Services
- Key Concepts of the MRA
- What we need to do

# What is then is FAEO

- Properly constituted as an international non-government organization
- Represents the interests of all engineering practitioners in Africa
- Is a member of WFEO
- Secretariat in Nigeria (Abuja)
- Registered with the Corporate Affairs Commission (CAC) in Nigeria as a Corporate Body

# Vision

The FAEO is recognized by international organizations as the overall leader of the engineering profession in Africa and sets out to apply engineering for the benefit of mankind.

# Mission

- To serve humanity through the use of best practiced technology.
- To represent the engineering profession in Africa, internationally.

# FAEO Vision For Engineering Education

- To establish a corps of engineers in Africa that is equal to the best in the world in terms of professional service delivery, in order to improve the standard of living and the quality of life for all people in Africa.

# Mission For Engineering Education

- To establish an oversight body that will ensure adherence to education standards, oversee continued professional development, ensure the professional conduct of engineers, and administrate a register of professionals.

# FAEO Objectives in Engineering Education

- The objectives are to:
  - Establish an African Council of Engineering under the auspices of the African Union,
  - Ensure that Engineering Councils are established in every member country,
  - Develop guideline minimum standards for education and training,
  - Set up an accreditation system for university courses.



# The Engineering Standards Generating Body

## Roles & Responsibilities

- Developing generic engineering qualifications,
- Ensuring that the standards developed are internationally comparable
- Ensuring that standards conform to principles of the National Qualifications Framework (NQF)
- Ensuring that qualifications developed provide access into the profession and provide articulation and progression within the profession

# Code of Professional Conduct

Rule of Conduct for Registered Persons requires observance of

- The interests of humanity and environment
- Accepted norms of professional conduct
  - Work only within limits of own competency
- Honouring the standing of the profession
- Improvement of skills
- Encouraging excellence within the profession
- Act Ethically

## Pressing issues and challenges facing the world (AFRICA in the receiving end)

39% world population do not have safe water – 2.6 billion people

35% do not have improved sanitation - 2.3 billion people

24% do not have electricity – 1.6 billion people

20% live in poverty (<1\$/day, 70% women) – 1.3 billion people

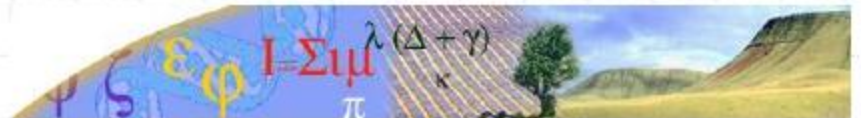
15% lack adequate housing/live in slums – over 1.0 billion people

15% lack any ICT connection – over 1.0 billion people

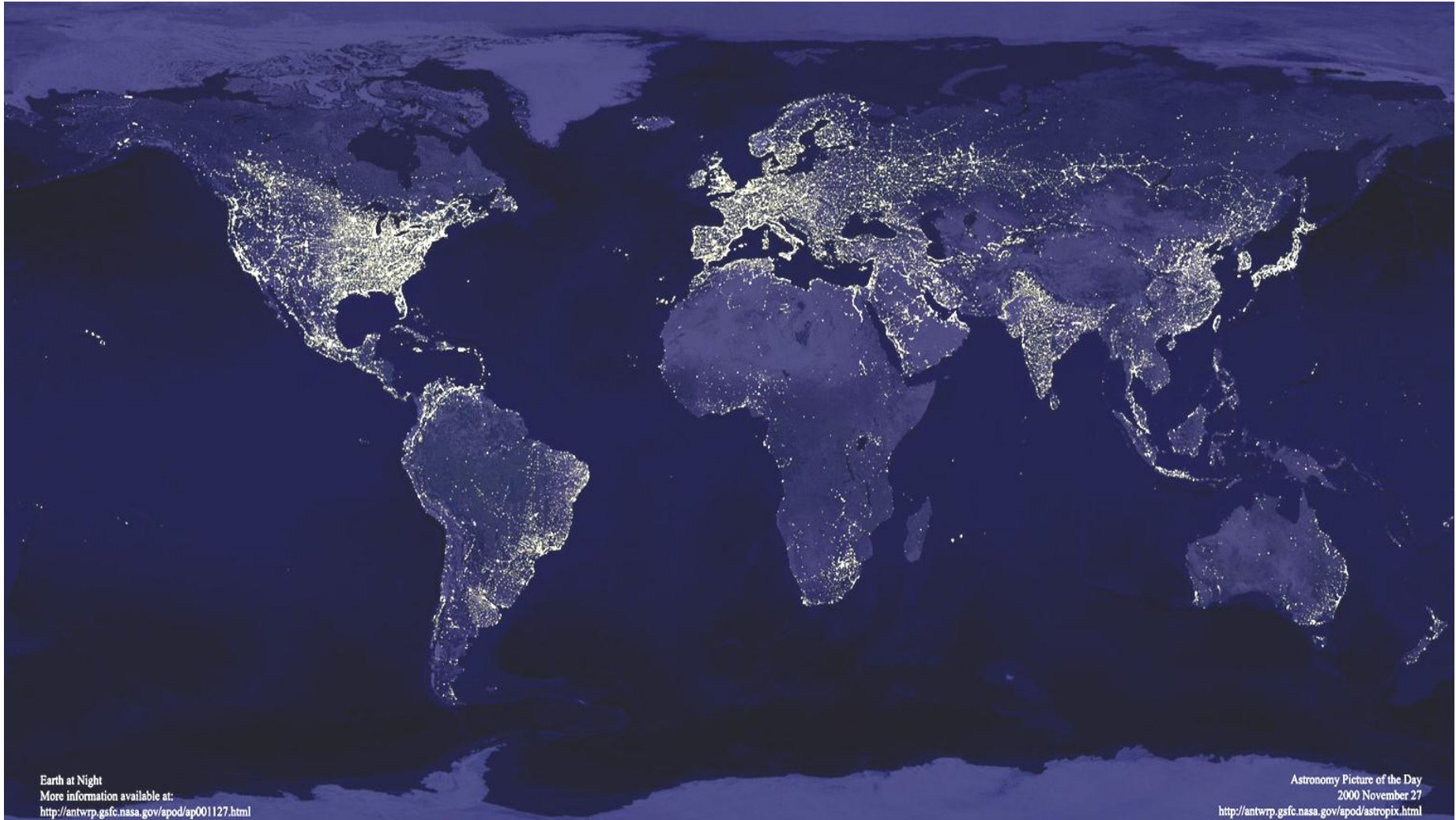
13% go hungry every day - 852 million people

Life expectancy - poor countries: 52 years; rich countries: 78 years

These are engineering problems with engineering solutions!



# Introduction: The World at Night!

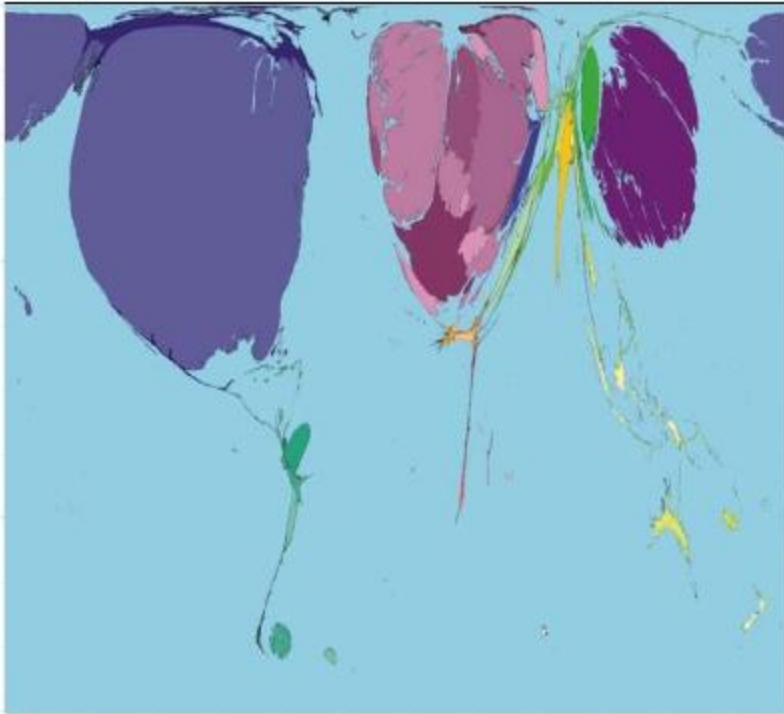


Earth at Night  
More information available at:  
<http://antwrp.gsfc.nasa.gov/spod/ap001127.html>

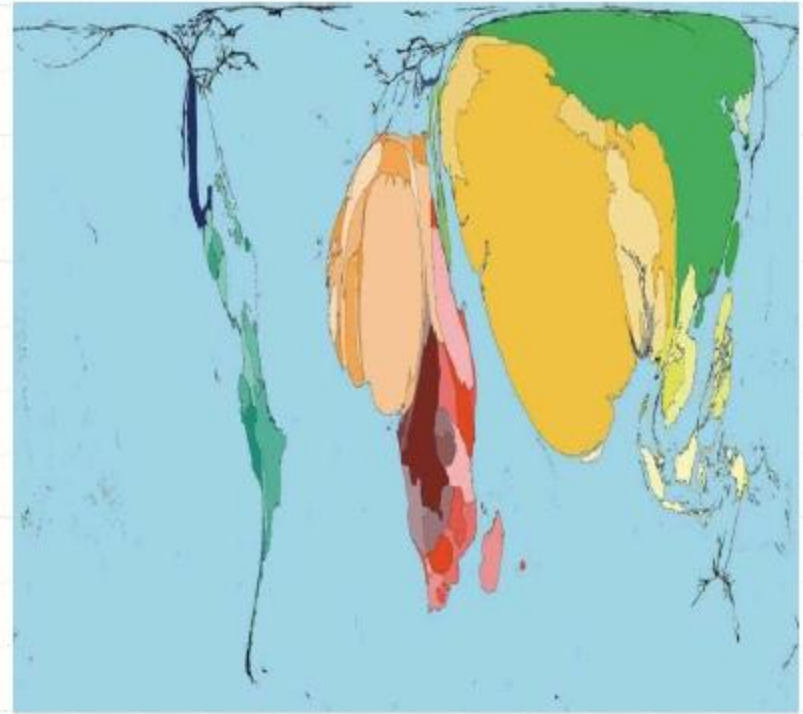
Astronomy Picture of the Day  
2000 November 27  
<http://antwrp.gsfc.nasa.gov/spod/astropix.html>

# The world of knowledge and poverty:

Map re-sized according to variable:  
IP royalties (knowledge)



Poverty (<\$1/day)



## AFRICAN INFRASTRUCTURE OPPORTUNITIES

- Huge opportunity in Africa to contribute to infrastructure provision and development
- Infrastructure deficit in Africa currently amounts to \$1.5 trillion

*(Source: African Development Bank VP: Professor Mthuli Ncube)*

## AFRICA'S INFRASTRUCTURE NEEDS

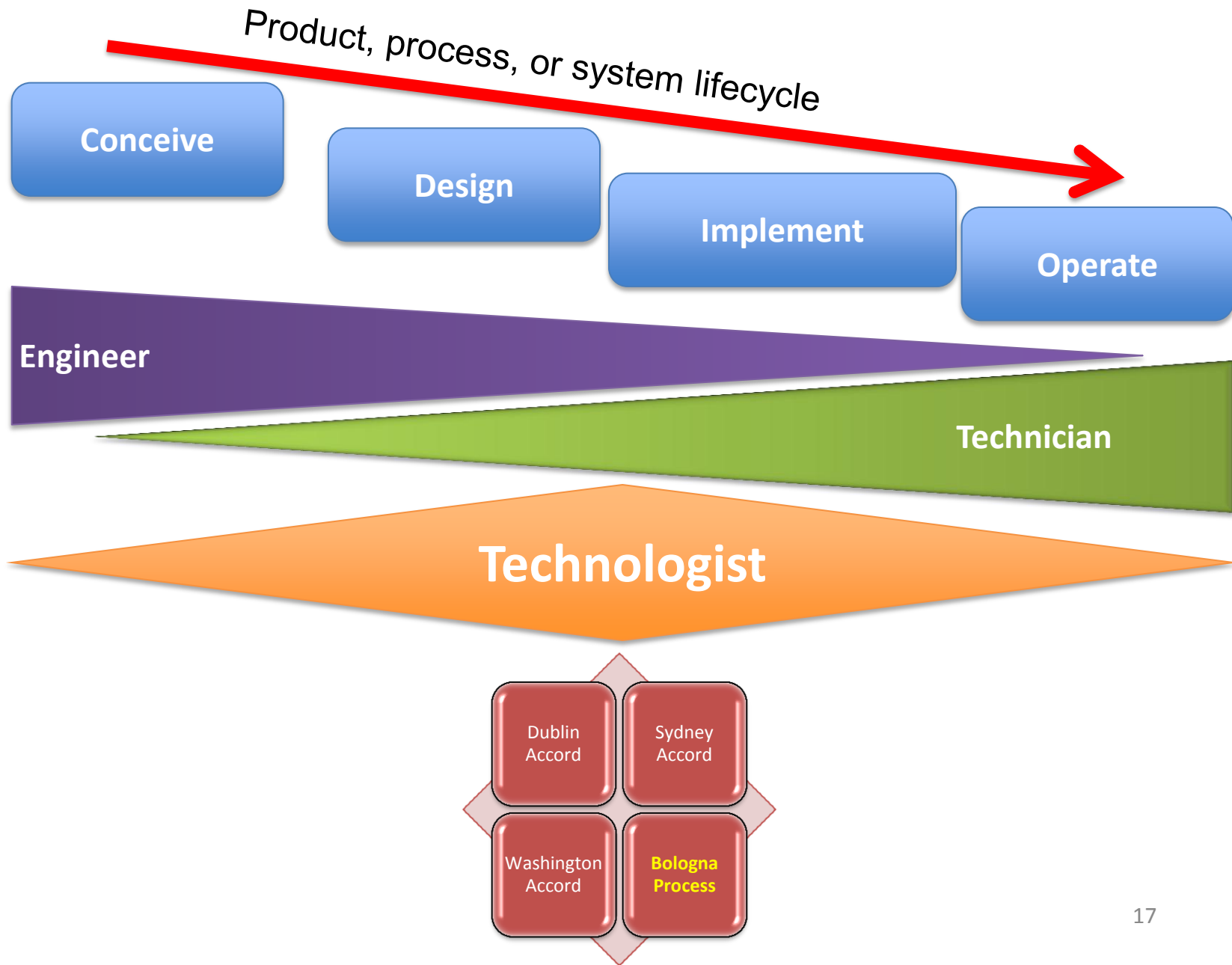
- Energy
- Development of Roads
- Airline Industry
- Railway Networks
- Affordable housing and townships
- Telecommunication
- Water and Sewerage treatment plans
- Dams
- Hospitals
- Schools

## NEW APPROACH TO INVESTING IN AFRICA NEEDED

- Bill Clinton called for a “new approach” to investment practices for opportunities in Africa at the Fortune Global Conference on 27 June 2010:
  - *“the huge opportunities in Africa for non –Africans, but the only way to make it work, and the only ethically appropriate way to make it work, is to create opportunities for Africans.”*
  - *“the only way to make it work is to create opportunities for Africans”*



# The Currila Notion of CDIO



# Educational Accords

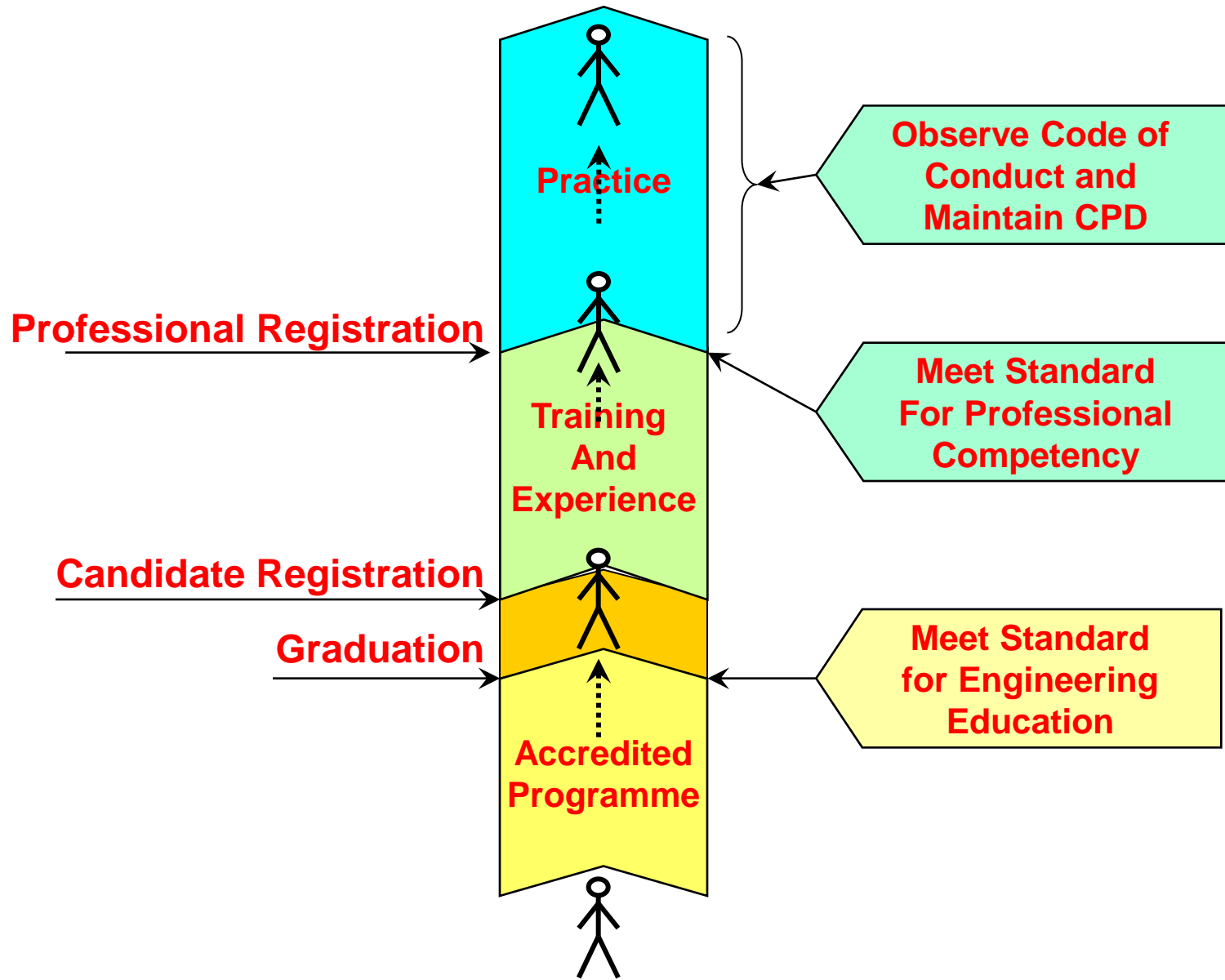
International educational agreements provide for:

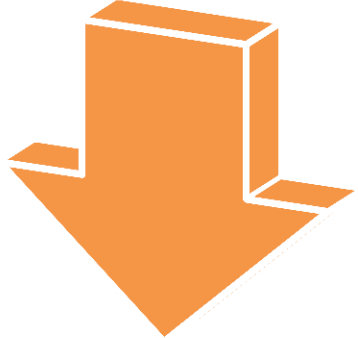
- Mutual recognition
- Benchmarking

of programmes providing the educational foundation for practice in each category

Washington Accord	Professional Engineer
Sydney Accord	Professional Engineering Technologist
Dublin Accord	Professional Engineering Technician

# Professional Development Model





Ideas  
Licences  
Training  
Research capability

Academia

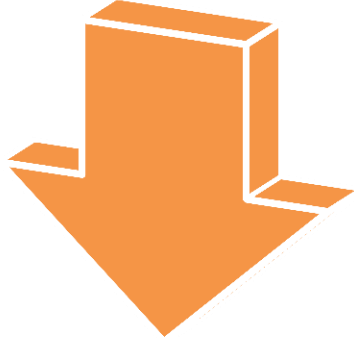


Examples  
Practical experiences  
Problems  
Research required



Industry

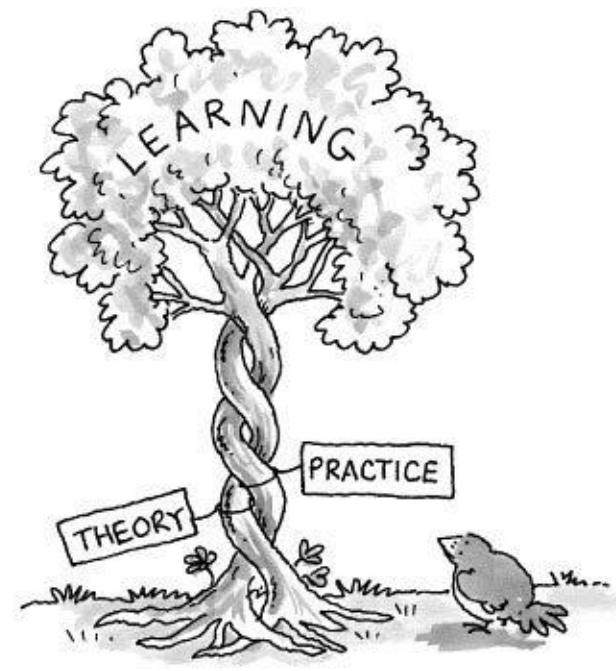




Ideas  
Licences  
Training  
Research capability

Academia

Industry



Examples  
Practical experiences  
Problems  
Research required







- Pre-university
- University

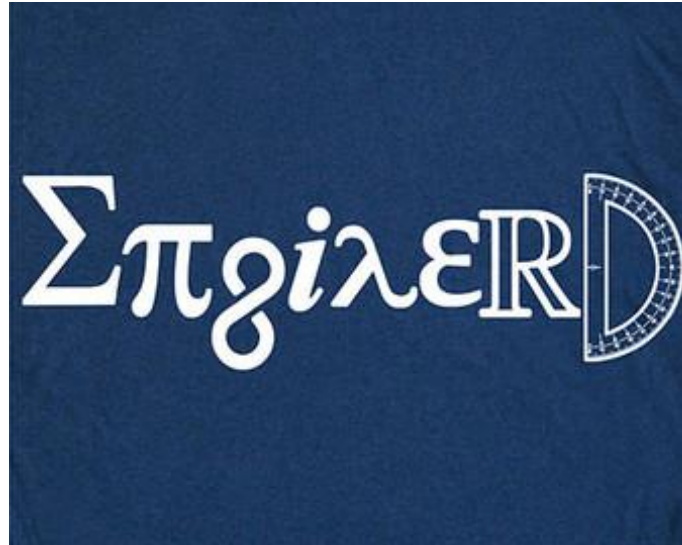




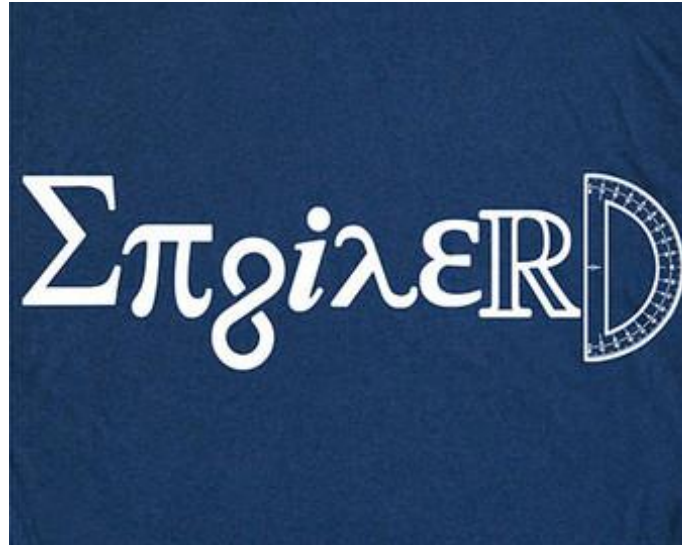




# Perception - public



# Perception - public



**Scare skills**

Or

**Scarce Skills**

# Perception - students

## BEFORE ENGINEERING



HOW I THINK ITS GOING TO BE



HOW IT REALLY IS

## MODELS OF COLLABORATION

- Partnership between African and non African companies
- Development of local capacity by international companies
- Formation of joint ventures with local companies

## LEGACY FROM INFRASTRUCTURE DEVELOPMENT

Completed infrastructure projects should leave a lasting legacy which could include:

- Benefits to and advancement of local communities
- Development of people via knowledge and skills transfer
- Sustainability of the projects must be planned
- Future investment and development opportunities

# Africa Union Higher Education

- **Harmonization of African H.E., including the Revised Arusha Convention for Mutual Recognition of qualifications**
  - It is the continent's primary framework for the recognition of academic qualifications through bilateral, regional, and continental mechanisms
- **African Quality Rating Mechanism, for fostering a culture of continuous quality improvement**
  - A pilot run of AQRM was conducted where 32 African institutions participated
  - The report of the pilot AQRM is published in English and French
- **Mwalimu Nyerere African Union Scheme, Extended Nyerere (Intra-ACP Academic Mobility) and Africa-India Fellowship Program**
  - Nyerere programme is expanded as part of the intra-ACP academic mobility with 40 million Euro support from the European Commission
  - First Call: Three partnerships comprising 25 African HEIs involving 380 individuals academic mobility: 234 Masters, 102 PhD and 44 staff exchanges
  - Second Call: Five partnerships with 41 HEIs intend to organize 618 mobility (370 Masters, 148 PhD and 100 Staff)
- **Pan African University project**
  - Basic Science, Technology and Innovation (Eastern Africa- Kenya- JKUAT)
  - Water and Energy Sciences , including Climate change (Northern Africa)
  - Earth and Life Sciences (Western Africa- Nigeria- Ibadan University)
  - Space Sciences (Southern Africa)
  - Governance and Human and Social Sciences (Central Africa-Cameroon- Yaounde)
- **Establishment of a Continental Accreditation Agency for Higher Education in Africa**



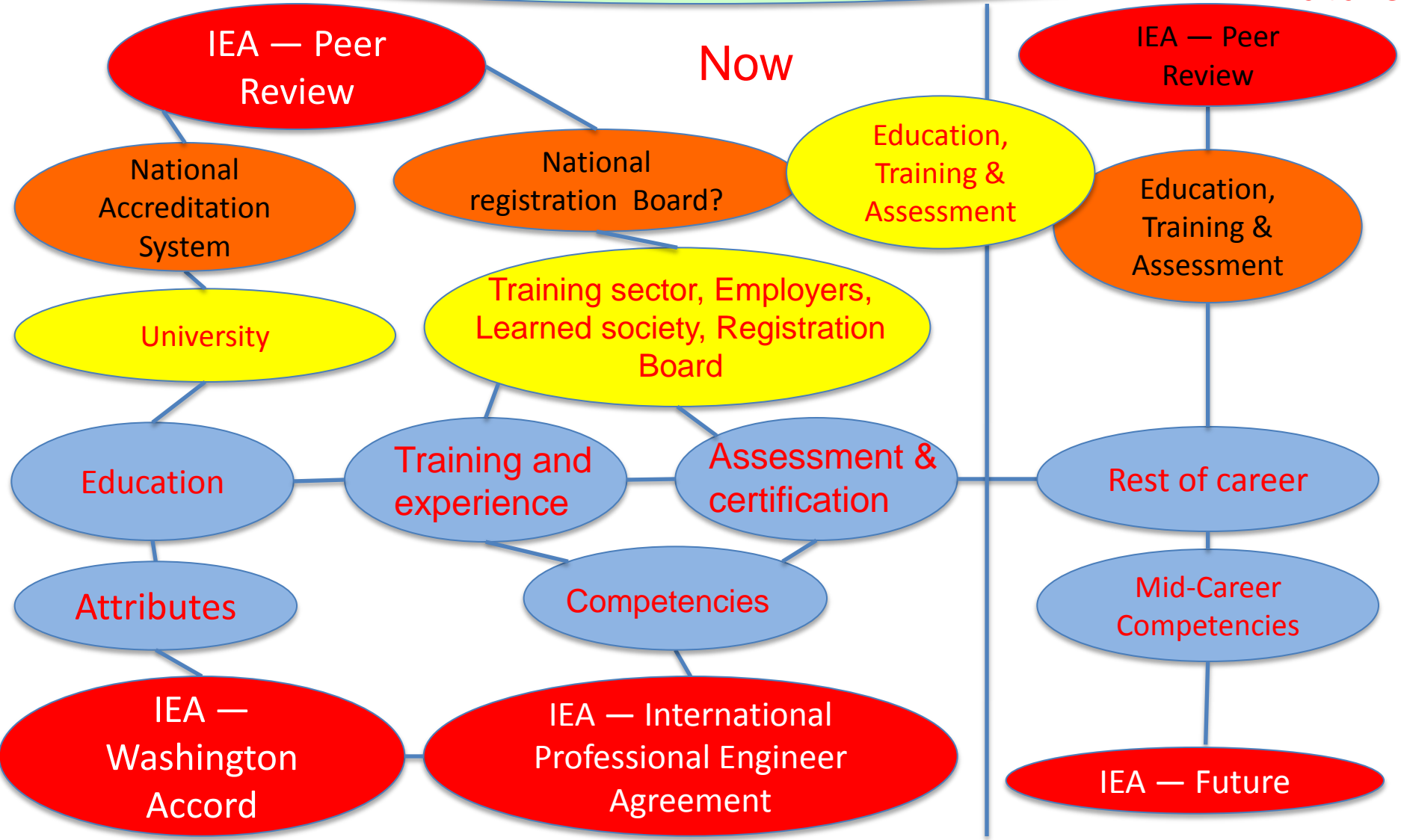
FAEO will follow the IEA processes as follows:

IEA accreditation and certification processes fit with FAEO's Vision for Africa

International Engineering Alliance — Processes, some Stakeholders and Professional Engineer's Career Path

Future

Now



# Key

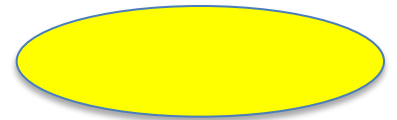
Professional engineers career path



IEA related activities



University and industry capacity



National or jurisdictional  
institutional capacity



# MRA's

**Mutual Recognition Agreements are Agreements between two or more parties to mutually recognise or accept some or all aspects of one another's conformity assessment results (in our case Engineering certificates and qualifications).**

# MRA

- The purpose of an MRA is to facilitate trade
- Each country has its own regulations and administrative procedures
- AN MRA is a mechanism by which regulations, standards and procedures can be conformed
- Initially bi-lateral, then mature to multi-lateral (e.g. EU, ASEAN, SADC, COMESA)
- In order to facilitate international trade, an MRA sets out an agreement by which countries can mutually recognise each other's conformity assessments.
- Each MRA tends to be sector specific.

# MRAs

**We should understand that MRAs:**

- **Do not guarantee a visa or a job**
- **Involve trust and openness**
- **Require uniform terminology**
- **Are based upon credible specifications and conformance**
- **Provide useful steps towards building confidence for cooperation in the future**

There are many barriers which affect the free and easy flow of human resources and services

There are so many different requirements to observe when assessing conformity in countries all over the world

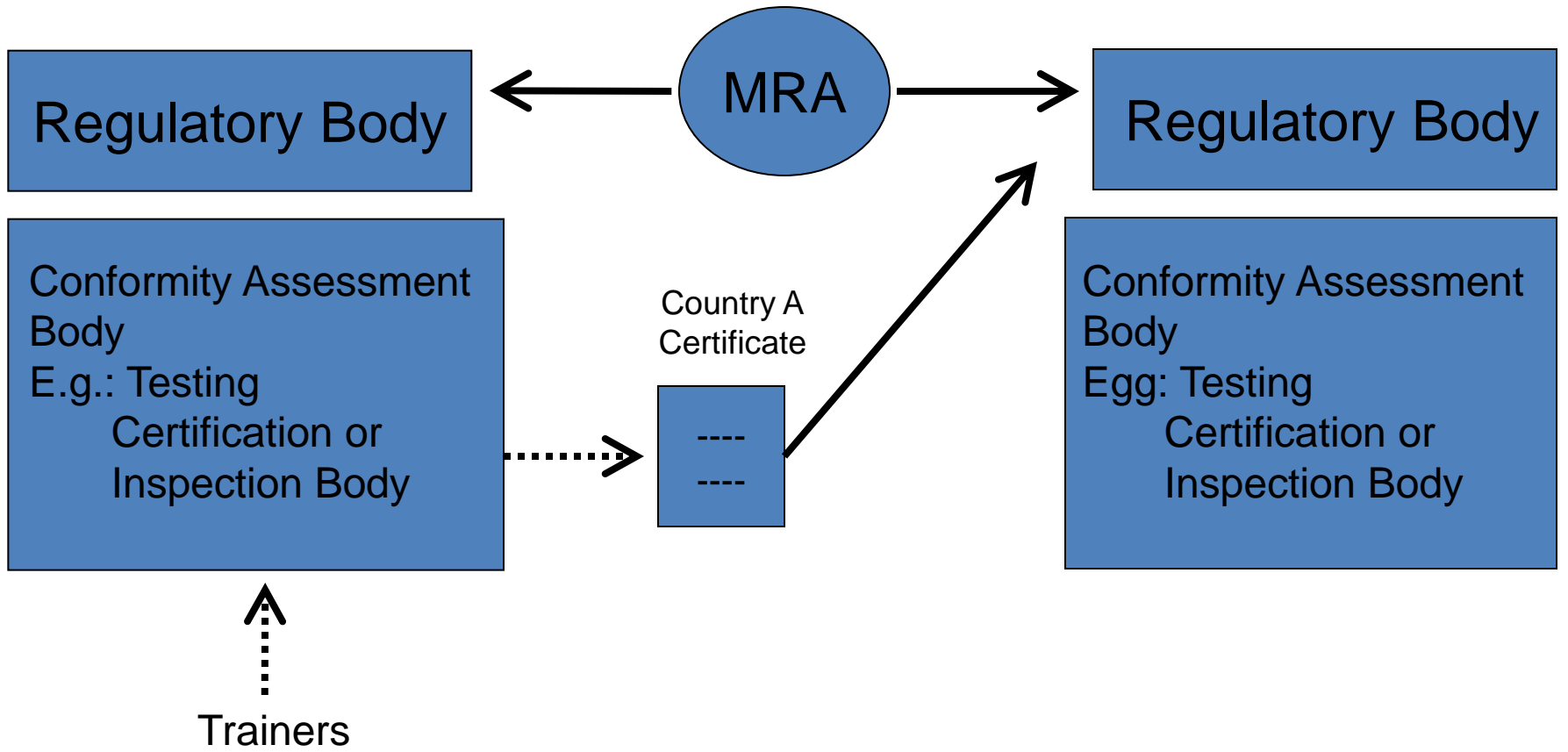
**Accreditation and conformance assessment bodies have responded by seeking to develop Mutual Recognition Agreements (MRAs)**

**Their aim is to reduce the difficulties imposed by the various requirements**



# Benefits of MRAs

- **Reduced compliance costs**
- **Market access**
- **Competition and innovation**
- **Free flow of trade of good and services**
- **Consumers**
- **Good practice and cooperation**
- **Discipline in standards**



# The Policy Background

# Globally

## ■ World Trade Organization - Technical Barriers to Trade Agreement (mid 1990s)

- 'Members are encouraged at the request of other members to be willing to enter into negotiations for the mutual recognition of each others conformity assessment'

## ■ World Trade Organization GATS (article VII)

# MRAs are an Instrument of Regional Economic Co-operations (RECs) Policy

- **Framework Agreement for the Integration of Priority Sectors**
- **Develop an RECs Agreement to facilitate the movement of experts, professionals, skilled labour and talents;**
  - **Accelerate completion of MRAs to facilitate the free movement of experts, professionals, skilled labour and talents in RECs; and**
  - **States shall cooperate to develop and upgrade skills and capacity building through joint training and workshops.**

# **An MRA for Engineering Services**

**An MRA will facilitate agreement on certified competencies (including languages) in specific job titles and access to work visas.**

**i.e.: an RECs-wide Engineering labour market with states exporting and importing labour.**

# An MRA for Engineering Services

The MRA will:

- Require ongoing servicing and development
- Build confidence and cooperation
- Encourage capacity building
- Deal with certification of *people not products or services*

# An MRA for Engineering Services

It will operate by

- The exporting country checking for conformity of their qualification against the rules of the importing country
- Exporting states therefore bear the cost of conformance – and of preparation and training



# The Pivotal Notion of Equivalence

- A key concept driving MRAs is *equivalence assessment* – are the qualifications of country A equivalent to those of country B - i.e of equal value
- MRAs require participants to mutually accept each others' conformity procedures as being *equivalent*

# Conformance

- In considering an MRA we must distinguish between:
  - Rules which may be technical regulations, standards or guidelines against which something is judged; and
  - Conformity assessment - the process by which things are evaluated for compliance with the rules

# Conformity Assessment

- *Conformity Assessment* means systematic examination to determine the extent to which a product, process or service fulfils specified requirements
- In other words, how Engineering certification and qualifications fulfil requirements of each REC member country

# Joint Sectoral Committee

- **Each Sectoral MRA establishes a *Joint Sectoral Committee* responsible for the effective functioning of that Sectoral MRA.**
- **The Joint Sectoral Committee comprises one official representative designated by each Country to the Sectoral MRA.**
- **REC Engineering Professional Monitoring Committee**

# Engineering Professional Certification Board

- *In Engineering Councils or the Institutions are responsible for the assessment and certification of Engineering professionals.*
- **These bodies will facilitate good practice and exchange of knowledge.**

# Capacity Building

**Provisions of the Framework Agreement include capacity building to ensure that competency and infrastructure are developed to deliver the products and services demanded by the MRA**

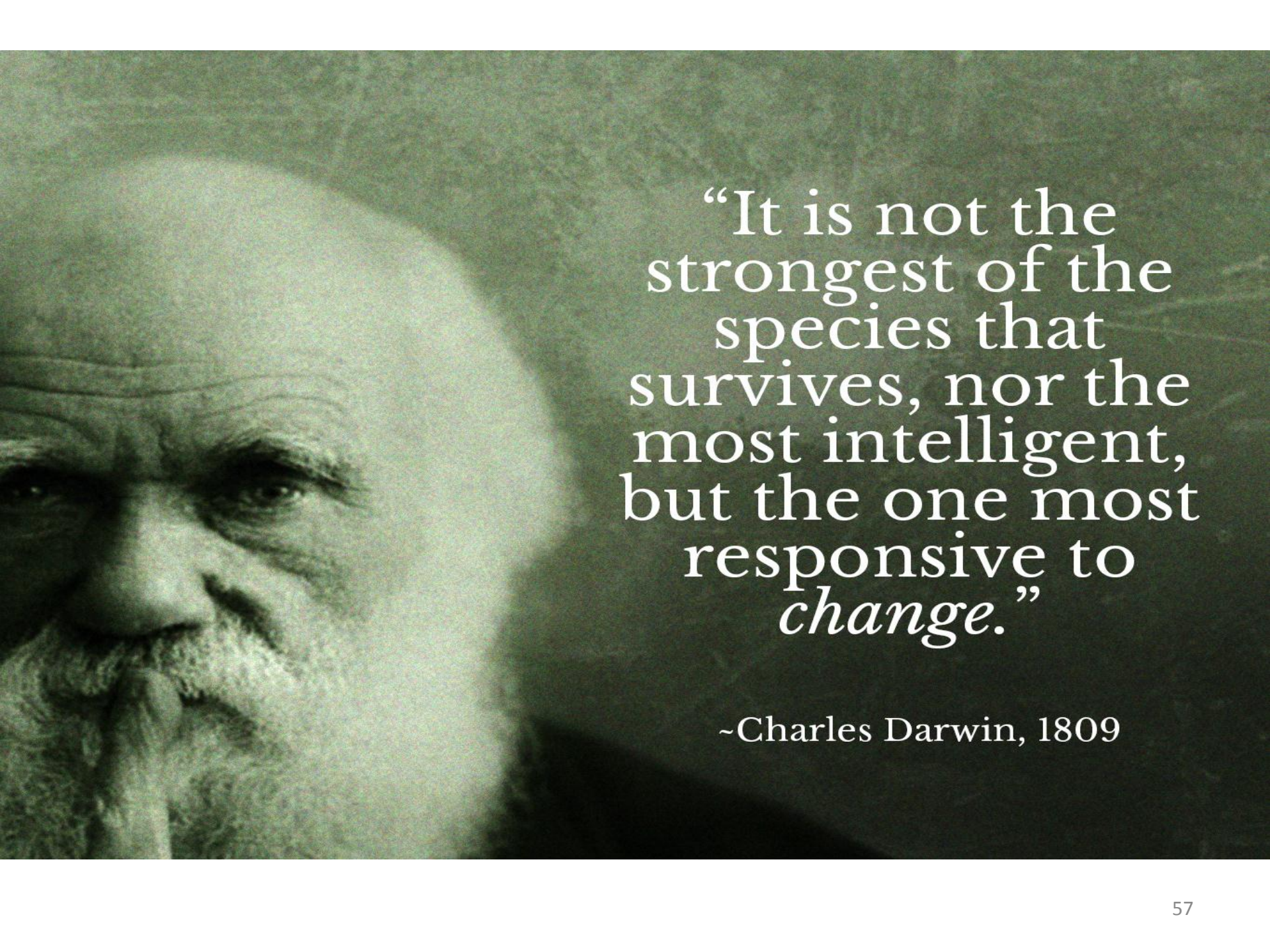
# A Draft Structure for an MRA for Engineering Services

- Preamble
- Objectives
- Scope and coverage
- Provisions for recognition and qualification of foreign Engineering professionals
- National bodies
- RECs Professional Monitoring Committee
- Mutual recognition obligations
- Timing
- Contacts
- Other

# Recommendations and Action Plans

- **There is need to develop regional centres of excellence and hubs for a strategic critical mass in Accreditation development to facilitate Mobility of Engineers in Africa.**
- **FAEO has immense opportunity to work with world bodies IEA, FEIAP, CAST, FEANE, WFEO in this regard.**
- **Sharing known effective models within/ across sectors and nations must be achieved in Sub Saharan Africa.**
- **There is need for the FAEO to create a strong industry, Government and academia linkage which will create the triple helix that will continuously review the strategy to meet the demands of BUILDING ENGINEERING CAPACITY FOR Africa with rigor.**





“It is not the  
strongest of the  
species that  
survives, nor the  
most intelligent,  
but the one most  
responsive to  
*change.*”

~Charles Darwin, 1809