



Outcome Based Engineering Education-Rwanda

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Overview of the Engineering Education and Practices in Rwanda

- ▶ **“Skills Development and Employment Promotion are central to Rwanda’s transformative vision, aiming to become an upper-middle income country by 2035 and ultimately a high income country by 2050. Today, Rwanda’s skills base is a constraint to growth of existing businesses, limits investment, and is not enabling rapid transition to a middle-income economy” - National Skills Development & Employment Promotion Strategy 2019-2024;**
- ▶ The assessment done by National Public Service Commission (NPSC) in 5-years from 2013-2018 indicated that only 7% of candidates successfully passed the recruitment exams to access public offices;
- ▶ IER is self-regulatory and established by the law No 26 dated 29th June 2012 with a mandate to regulate, promote and develop engineering profession in Rwanda. Its membership currently women are less than 10% and overall registration is at Professional Engineers – 1136, Graduate Engineers – 505, Technologists – 28 and Technicians -13 which is a very small number compared to those in the marketplace;
- ▶ Today there is no institution in Rwanda you can go to and find actual data on the number of engineers, technologists and technicians despite the fact that universities and Colleges have been graduating them year after year;
- ▶ The assessment by IER during the process of registration of practicing engineers, technologists and technicians and during regular inspections conducted on different engineering construction sites reveal that Rwanda graduates are not competent enough in engineering fields and also have little experience;
- ▶ Engineering practitioners (local and foreigners) not all registered in accordance with the law as a result of existing enforcement and compliance challenge.

Outcome Based Education (OBE) Background in Rwanda & Definition

- ▶ IER was inspired to take the lead towards OBE by the Institution of Engineers Malaysia (IEM) that succeeded to implement it in their country and in 2018 decided to join the Federation of Engineering Institutions of Asia and Pacific (FEIAP) in order to establish Engineering Education Accreditation System in Rwanda for the same goal;
- ▶ This system is key to engineers' mobility and is benchmarked against international best practices in compliances with FEIAP Engineering Guidelines and International Engineering Alliance (IEA) requirements for Engineers, Technologists and Technicians in accordance with the Washington, Sydney and Dublin Accords respectively;
- ▶ OBE is an educational philosophy that states that education ought to aim at giving students a particular minimum level of knowledge and abilities as the major educational outcomes;
- ▶ “**OBE** is an educational process that involves **assessment** and **evaluation** practices to reflect the attainment of certain specified **outcomes or (attributes)** in terms of individual student learning. Once having decided what are the key attributes or outcomes students should be able to do and master, both course structures and curricula are designed to achieve those outcomes”.

Where are we in the IER driven OBE Implementation Roadmap

- ▶ 1st workshop was attended by officials from IER, UR, HEC, WDA and RP among others and conducted by FEIAP expert from 25th-26th April 2019 and the outcome was the Draft Engineering Programs Accreditation Manual which was adopted from the Malaysian latest manual;
- ▶ 2nd workshop was by officials from IER, UR, HEC, WDA and RP among others and conducted by two FEIAP experts from 24th-25th February 2020 the outcome was to engage MINEDUC to constitute and commission the taskforce to review, align with existing laws, validate and adopt the manual ready for implementation by next year 2021;
- ▶ 3rd workshop is scheduled in October 2020 if the situation will allow the movement of experts to fly to Rwanda from Malaysia. This will focus on training stakeholders (academic staff, external examiners, accreditation board members, industry advisors, employers, alumni, students, and parents) **on how to go with OBE.**

Challenges in the Implementation Roadmap

- ▶ Stakeholders' low levels of understanding and commitment to OBE;
- ▶ Change of leadership affects implementation momentum due to lack of institutional memory framework (MINEDUC, HEC, WDA, UR, IER);
- ▶ No funding and motivation for the OBE initiative;
- ▶ Lack of proper institutional collaborations, complementarity and information sharing;
- ▶ No joint implementation framework by OBE stakeholders (built environment professions, public and private actors)
- ▶ Gaps in the existing policies and legal frameworks.