

CONCEPT NOTE

Improving Engineering Education: A collaboration between the Sciences Committee of the UK National Commission for UNESCO and Partners in Sub-Saharan Africa

1. Introduction

The UK National Commission for UNESCO (UKNC) is the focal point in the UK for UNESCO-related policies and activities. It has established four sectoral committees with responsibility for Education, Culture, Communication & Information and Sciences respectively. The Sciences Committee comprises 20 ad hominem experts who lend their knowledge, experience, skill and time to the National Commission's work in the interest of furthering UNESCO's sciences programme.

Members of the Sciences Committee have considerable knowledge and experience of engineering education and links into UK based and international agencies working in this area. They are currently looking for African based partners who are interested in working with them to improve engineering education in the Sub-Saharan context.

2. Rationale

Engineering is an integral part of efforts to tackle global challenges such as poverty, climate change and insecurity. But engineering education does not always equip students with the skills, knowledge and attitudes that are necessary for Sub-Saharan Africa in this rapidly changing global environment.

Engineering education in the countries of the south has largely evolved as a replica of educational approaches and trends developed in the north. There are examples of good practice but in many instances the curriculum is based on developing fundamental tools and general foundations that are more applicable in an international context than a local one. It is becoming increasingly evident that new moirés of engineering education in the south need to be developed that address both local and global needs.

Thus curricula that instil fundamental engineering knowledge and principles, while at the same time providing education and training and encouraging innovation to meet current and future engineering challenges, would be immensely valuable. Issues such as lack of water resources, adaptation and mitigation of climate change, paucity of energy, alternative technologies and systems, development of renewables and green energy sources, evolution of globally connected information and communication systems together with skills and techniques for developing networks, exploiting policy processes, training for leadership, and cross-disciplinary working could and should form important elements of an engineer's armoury of education and training. Curricula would also benefit from being rooted in the real world and responsive to the needs of potential employers.

In this context the engineering profession should play a seminal role in the provision of safe, secure, healthy, productive, and sustainable life for all. Engineers should be trained to meet the basic needs for water, housing, sanitation, food, health, transport and energy, as well as to protect cultural and natural diversity.

The proposed collaboration will help develop an environment where engineers are educated beyond the conventional limits of engineering education to become facilitators of sustainable development, appropriate technology and social and economic improvement.

3. Potential partners

Potential partners should be actively involved in engineering education and should have a level of responsibility that enables them to make (or advocate for) changes in policy and practice in at least one institution. This might include institutions of further or higher education, networks of such institutions, professional institutions and regulatory bodies, government departments, policy and research institutions and NGOs. They must also have identified a need to improve engineering education policy and practice and be willing to commit the time and resources necessary to collaborate with the UKNC. The UKNC is particularly interested in opportunities to develop innovative solutions that could be scaled-up and used to inform policy and practice at an international level.

4. Support provided

The specific details of the support provided will be determined by the needs of the partner, but types of support might include:

- Needs/situation/opportunity analysis
- Curriculum development
- Professional development
- Pedagogy development (e.g. innovative teaching methods)
- Extra-curricula learning
- Partnership building (e.g. between educational institutions and industry or NGOs).

5. Resources

The UK National Commission for UNESCO (UKNC) and its sectoral committees are not grant-making bodies and do not provide financial support to partners. However, they do have links with funding organisations and may be able to mobilise financial support from third parties to cover all or part of the costs of the collaboration.

6. Contacts

If you have questions or would like to discuss the possibility of collaborating with the UK National Commission for UNESCO to improve engineering education, please contact:

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