

## TOOLBOX: Fostering international collaboration

### The challenge

One of the challenges for the engineering sector in sub-Saharan Africa (SSA) is the **limited mobility of local engineers, and limited knowledge and practice exchange** with engineers from other countries. This can have a negative impact on engineers' expertise and employability. The cause of this is a lack of funding, networks, and points of contact within international institutions, and the fact that national engineering **qualifications are often not recognised abroad**.

### Initiatives

In order to improve the situation, professional engineering institutions (PEIs) in SSA engage in a range of international agreements and exchanges with PEIs and other bodies around the world, as set out below.

#### Memorandums of understanding

PEIs sign agreements with professional bodies, governments and universities

**Outcomes:** improved professional standards, increased membership offer, knowledge transfer

**PEIs:** Institution of Engineers Rwanda, Ghana Institution of Engineering

#### International accreditation

PEIs strive to get national engineering qualifications recognised abroad

**Outcomes:** facilitated international movement and exchange of experience, increased employability

**PEIs:** Engineering Council of South Africa, Association of Consulting Engineers of Kenya

#### Support to sister organisations

PEIs provide assistance to PEIs in neighbouring countries

**Outcomes:** improved professional standards, website, database, and organisational and legal systems

**PEIs:** Institution of Engineers of Kenya, Engineering Council of South Africa, South African Institution of Civil Engineering, Engineering Council of Zimbabwe, Zimbabwe Institution of Engineers

#### Regional coordination

PEIs coordinate activities between each other

**Outcomes:** increased visibility of PEIs, opportunities for knowledge exchange



**PEIs:** Federation of African Engineering Organisations, South African Institute of Agricultural Engineers

### Case study: Institution of Engineers Rwanda (IER) and its agreements with international professional bodies

Through international visits and events, IER has built relationships and signed memoranda of understanding (MoUs) with institutions in Asia, and in particular with the China Association for Science and Technology, and a PEI in Malaysia. The main objectives of these MoUs are to: (i) **receive support** for the accreditation of engineering programmes in Rwanda to ensure that students learn adequate skills, (ii) **mutually exchange knowledge and technologies**, (iii) **allow IER members to travel** to China to receive training, (iv) allow graduates and IER members to be able to **train or work on projects in China or Malaysia**. This would be an excellent way for graduates to transfer knowledge upon their return to Rwanda. IER and its partners are currently working on an action plan for the next few years. IER also has an MoU with an Egyptian syndicate, which provides training to IER members in electrical and mechanical works.

## Success factors and achievements

For each category of interventions, the table below identifies the implementation challenges and the success factors for these interventions. The table also highlights some of the strongest achievements.

Interventions	Challenges	Success factors	Examples and achievements
<p><b>Memorandums of understanding</b></p> 	<ul style="list-style-type: none"> <li>→ <b>Dedicating time</b> to identify opportunities and develop agreements</li> <li>→ Obtaining <b>buy-in</b> from international bodies is required, and offering benefits in exchange</li> </ul>	<ul style="list-style-type: none"> <li>→ <b>International visits</b> and attendance at events to learn about other professional bodies and universities, and identify areas of common interest</li> <li>→ Platforms for <b>online interaction</b> to take forward negotiation and exchange</li> <li>→ Developing and maintaining <b>personal relationships</b> between representatives of the participating organisations</li> </ul>	<ul style="list-style-type: none"> <li>→ <b>Rwanda – Institution of Engineers Rwanda (IER): Memorandums of understanding</b> See case study box above</li> </ul>
<p><b>International accreditation</b></p> 	<ul style="list-style-type: none"> <li>→ Accreditation guidelines are not always clear</li> <li>→ It can be difficult to dedicate staff to prepare the application and related documents</li> <li>→ Strong systems need to already be in place to support the accreditation process and comply with requirements</li> </ul>	<ul style="list-style-type: none"> <li>→ <b>Consulting services</b> to support with collecting the necessary documents, and complying with guidelines and requirements</li> <li>→ Supportive <b>leadership</b></li> <li>→ Interaction with, and support from, <b>other accredited PEIs</b></li> <li>→ <b>Funding</b> to support the lengthy process</li> </ul>	<ul style="list-style-type: none"> <li>→ <b>South Africa – Engineering Council of South Africa (ECSA): <a href="#">Accreditation to the Washington Accord</a></b> ECSA, a well-established institution benefiting from supportive leadership, has been a signatory of the <b>Washington Accord</b> since 1999. This has facilitated the mutual recognition of accredited engineering degree programmes, and mobility and knowledge exchange between the 20 participating bodies, including Australia, Ireland, New Zealand, South Africa, and the United Kingdom. ECSA is now supporting other African countries in understanding and complying with the requirements to achieve accreditation to the Washington Accord.</li> </ul>

Interventions	Challenges	Success factors	Examples and achievements
<p><b>International accreditation</b></p> 			<p>→ <b>PEIs in Sierra Leone, Ghana and Nigeria: <a href="#">GCRF Africa Catalyst grant to harmonise engineering education</a></b></p> <p>With funding from GCRF Africa Catalyst, this project aims to establish an initial framework for the <b>harmonisation of engineering education</b> in Western Africa. The end goal is to promote mutual recognition of professional qualifications achieved in the three countries, and increase mobility and collaboration as a result. The project also looks at strengthening the capacity of engineering institutions to respond to the education and employment needs of the population.</p>
<p><b>Support to sister organisations</b></p> 	<ul style="list-style-type: none"> <li>→ It can be difficult to find <b>funding</b> to support activities and interactions</li> <li>→ The supporting PEI needs to be <b>internationally accredited</b></li> </ul>	<ul style="list-style-type: none"> <li>→ <b>Broader agreements</b> between countries</li> <li>→ <b>Staff training</b> in sister organisations</li> <li>→ <b>Continuity of staff</b> within sister organisations</li> <li>→ <b>Guidelines and handbooks</b> that provide clarifications and advice</li> <li>→ <b>Strategic plan</b> embodying the willingness to support neighbouring organisations</li> </ul>	<ul style="list-style-type: none"> <li>→ <b>Kenya – Institution of Engineers of Kenya (IEK): Mutual recognition agreement to support capacity development</b></li> </ul> <p>IEK has been assisting a number of professional engineering organisations in neighbouring countries. Drawing on the <b>mutual recognition agreement</b> that Kenya has signed with four other East African countries, IEK helps to build the capacity of other PEIs in the region (primarily in Burundi and Rwanda, but also in Somalia, South Sudan and Sudan). Support includes training and guidelines giving clarifications and advice on how to improve professional and organisational standards. Rwanda is now on track to be eligible for membership of the Federation of African Engineering Organisations by 2021. Other countries, such as Somalia, South Sudan, and Sudan, will require further support, as their systems are less developed.</p> <ul style="list-style-type: none"> <li>→ <b>South Africa – South African Institution of Civil Engineering (SAICE): <a href="#">GCRF Africa Catalyst grant to support sister organisations</a></b></li> </ul> <p>With funding from GCRF Africa Catalyst, SAICE has developed a <b>customisable web tool</b> to allow professional bodies to develop their own websites, build their databases, advertise and manage events, and enhance their services. Existing platforms are now being further developed to include dispute resolution, framework agreement preparation, and local professional development events.</p>

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<p><b>Support to sister organisations</b></p> 			<p>→ <b>South Africa – Engineering Council of South Africa (ECSA): Supporting sister organisations in obtaining accreditation to the Washington Accord</b></p> <p>ECSA has secured funding from the Royal Academy of Engineering, UK to <b>support other countries</b> in Southern Africa, and in particular Mauritius, in putting into place professional engineering standards, in line with the Washington Accord. This should help these countries to become signatories to the Accord in the future.</p>
<p><b>Continental coordination</b></p> 	<p>→ <b>Funding</b> (e.g. membership fees) is needed to sustain and expand cross-country activities and engagement on an ongoing basis</p> <p>→ <b>Buy-in</b> and support is required from international institutions meant to take part in the initiative, to favour task division and increase chances of sustainability</p>	<p>→ Strong <b>collective leadership</b> supporting the initiative</p> <p>→ <b>Shared vision and values</b> across participating organisations</p> <p>→ Strategic <b>operational plan</b> and functioning governance system</p> <p>→ <b>Consulting services</b> to draft guidelines and improve systems and operations that will support coordination and collaboration</p> <p>→ <b>Needs assessments</b> of participating organisations to identify areas for improvement</p> <p>→ <b>Templates</b> to standardise and streamline processes across organisations and areas of operation</p>	<p>→ <b>South Africa – South African Institute of Agricultural Engineers (SAIAE): GCRF Africa Catalyst grant to establish a pan-African body for agricultural engineering</b></p> <p>With funding from GCRF Africa Catalyst, the project supports the establishment of the <b>AfroAgEng platform</b>. The platform aims to promote and grow agricultural engineering in Africa by fostering collaboration, joint projects, and professional activities between agricultural engineering societies and academic institutions in Africa and the UK. Under the leadership of SAIAE, several events have been organised to build relationships, assess needs of participating organisations and develop a common understanding of how to address those. Data on the participating organisations have been developed and templates are under development to support evolution and continuation of the activities.</p>