African activities

Working with Africa Universities to improve Higher Education

The University of Manchester, through Dr Mutale of EEE, is participating in the Education Partnerships in Africa programme, whose focus is on enabling African academic and industrial partners to develop the local expertise needed to grow their economies. The University of Manchester through the EEE School has established a partnership with the School of Engineering at the University of Zambia to extend this research through the development of structured final year undergraduate project modules. This ensures that the engineering training given to these undergraduates is of the highest international standard so that their qualification can be internationally recognised.

Local Industry supporting local universities
Following the success of the initial UK Government funded EPA project, local industry in Zambia recognised the value of the engineering training being given at The University of Zambia and the Copperbelt University have continued to provide funding for the initiative. This has enabled refurbishment and improvement of teaching facilities as well as renewal of laboratory equipment. A list of the projects that have been undertaken under the EPA programme is given Table 1. The EPA programme also enables leading research academics from The University of Manchester to travel to Zambia to deliver teaching programmes and engage in on-going research with Zambian colleagues.

Audience at Launch of EPA project
Dr Mutale delivering speech at Launch of EPA project

Dignitaries at launch of EPA project including Minister of Education

Signing of EPA intent to sign MoU (MTN representative) at Launch of EPA project
Mr Michael Tarney, Chairman of EPA management Committee, delivering speech at the launch of EPA project

So far through the EPA, local industry has funded projects worth in excess of US$750,000 at the two public universities over a period of 3 years. Some highlights are summarised in the Table 1 below:

Table 1: Summary of EPA facilitated activities at the University of Zambia

<table>
<thead>
<tr>
<th>Contribution</th>
<th>Value</th>
<th>Provider</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Refurbishment of school of engineering teaching spaces and provision of data projectors, white boards and laptops for staff.</td>
<td>US$300,000</td>
<td>CEC (Copperbelt Energy Corporation). A private power company</td>
<td>CEC is a key supporter of the EPA and its Managing Director chairs the EPA Steering committee. The Substation project is scheduled to be commissioned by September 2014</td>
</tr>
<tr>
<td>(2) Construction of a demonstration substation at the University of Zambia 66/11kV – ongoing funded by CEC</td>
<td>US$300,000</td>
<td>Lunsemfwa Hydro</td>
<td>This is modern state of the art lab equipment</td>
</tr>
<tr>
<td>(3) Replacement of roof over the workshops and labs in the school of Engineering</td>
<td>US$100,000</td>
<td>ZESCO (The Zambian national utility)</td>
<td>New machines will replace the old machines over 35 years old</td>
</tr>
<tr>
<td>Electronic design laboratory kits for the University of Zambia and Copperbelt University (Elvis kits)</td>
<td>US$300,000</td>
<td>Lunsemfwa Hydro</td>
<td></td>
</tr>
<tr>
<td>Micro Machines for the electrical machines lab</td>
<td>US$50,000</td>
<td>HUAWE</td>
<td>Some of the machines are being used with the Elvis kits</td>
</tr>
<tr>
<td>50 new Dell computers</td>
<td>US$50,000</td>
<td>HUAWE</td>
<td></td>
</tr>
<tr>
<td>15 used desktop computers</td>
<td>US$1500</td>
<td>The University of Manchester</td>
<td></td>
</tr>
<tr>
<td>Transportation of computers donated by the University of Manchester</td>
<td>£1398.36</td>
<td>Lafarge Cement</td>
<td></td>
</tr>
</tbody>
</table>
EPA Galvanises International companies and Donor Community to support EPA

- ABB, which has substantial projects in Zambia, has committed to raise funds through the Swedish Embassy and others to fund state of the art communication and control equipment for the demonstration substation for education and research purposes.
- The Finnish Embassy funded a study to expand EPA and put it on a sustainable footing.

EPA takes refurbishment of the University of Zambia Main Library - An ambitious new project

The EPA has embarked on a major project to modernise the library of the University of Zambia. The University of Zambia Library has been in use since it was opened on 27 August 1969, 45 years ago. Over this period very little refurbishment has been carried out to the library due to chronic underfunding of the University. This project, consistent with the EPA approach, is being led by local experts.

Fig 1: Electronic circuit design and analysis kit purchased by Lunsemfwa Hydro

Fig 2: Hand over event for laboratory equipment purchased by Lunsemfwa Hydro
Working with IEEE on workforce development in Africa

Dr J Mutale has been actively involved in IEEE activities in Africa after his appointment by the IEEE President to serve on the IEEE President’s Ad Hoc Committee on African Activities in 2013 and 2014. The main focus of committee has thus far been on technical workforce development. Key activities of the committee have included promoting access to IEEE Xplore digital library and forging closer links with industry.

Working with IEEE to enable Universities in Africa Access IEEE Xplore digital library

The committee has so far concentrated on countries in sub-Sahara Africa to facilitate access by universities in this region to IEEE Xplore at favourable rates. A workshop bringing together universities from Uganda, Malawi, Zimbabwe, Zambia and Kenya, the IEEE team as well as EBSCO, the IEEE Xplore agent and the members of the Ad Hoc Committee was held in Nairobi, Kenya on 28 January 2014. Progress is being made on this and it is anticipated that at least 5 universities will soon have access to IEEE Xplore.

Forging close links between Universities and Industry

The University of Manchester is providing support to the establishment of engineering employers’ circles with the aim of bringing industry and universities closer together. This is intended to provide (i) a platform for industry to provide feedback to universities on the quality of graduates and their fitness for purpose (ii) a formal framework for industrial support to the universities and (iii) formalise the process of industry providing internships for engineering students as part of their education programme.

The IEEE has provided US$9,350 for establishing the Employers’ circle in Zambia.

Supporting accreditation of Engineering Degree programmes

A workshop was held on 19 June 2012 to address issues of accreditation of the engineering degree programmes initially by local engineering institutions and later by international organisations such IET or Abet.
Promoting research

EPA organised a research workshop to encourage local academics to develop their research and begin to publish in international journals. Research workshop was held on 24 April 2013 to which international contributors where invited.

The EPA Committee

The EPA committee members are:

1. EPA Director – Dr Joseph Mutale
2. EPA Co-Director – Dr Ackim Zulu, Head Electrical and Electronic Engineering at the University of Zambia
3. EPA Chairman- Mr Michael Tarney, Managing Director Corporate Development CEC Africa
4. Fund raising committee chair
5. Research Committee chair
6. Health Safety Committee Chair
7. Maintenance Committee Chair
8. EPA Projects Manager
9. Deans of Engineering from CBU and UNZA
10. Heads of Departments form CBU and UNZA schools of Engineering
11. Industry representatives (ZESCO, CEC, Lunsemfwa Hydro, EIZ, ZICTA, REA, Lafarge, ZAMTEL, HUAWE, TOYOTA, MTN, ERB)
Advancing Higher Education in Africa

The Pan African University (PAU) is an initiative of the African Heads of State and Government of the African Union. It is a premier continental university network whose mission is to provide a comprehensive postgraduate education geared towards the development of a prosperous, integrated and peaceful Africa.

The PAU is part of a continental initiative to revitalize higher education and research in Africa. It is aiming to exemplify excellence, enhance the attractiveness and global competitiveness of African higher education and research and establish African Universities at the core of Africa’s development.

Five thematic institutes will establish Master and PhD programmes and engage in collaborative and development oriented research programmes. They will work with centres in other African regions while collaborating closely with the economic sector and civil society to enhance their relevance and contribution in dealing with local challenges.

The five PAU thematic institutes are:

- Pan African University Institute for Basic Sciences, Technology and Innovation (PAUSTI) at Jomo Kenyatta University of Agriculture and Technology (JKUAT), Juja, Kenya.
- Pan African University Institute for Life and Earth Sciences including Health and Agriculture (PAULESI) at the University of Ibadan (UI), Ibadan, Nigeria.
- Pan African University Institute for Governance, Humanities and Social Sciences (PAUGHSS) at the University of Yaounde II, Soa, Cameroon.
- Pan African University Institute of Water and Energy Sciences (including Climate Change) (PAUWES) University of Tlemcen, Tlemcen, Algeria.
- Pan African University Institute of Space Sciences to be hosted in Southern Africa. The host country and host university are yet to be determined.

The University of Manchester through Dr J Mutale has contributed to curriculum development and needs assessment of the Pan African Institute for Water and Energy Sciences (PAUWES) ([http://pauwes.univ-tlemcen.dz/about/pan-african-university-pau/](http://pauwes.univ-tlemcen.dz/about/pan-african-university-pau/)) including staff recruitment. It is envisaged that when the time is right collaborative research links will be established between Manchester and PAUWES.

Dr Mutale Chaired PAUWES staff selection committee
PAUWES Staff selection committee at the University of Tlemen, Tlemcen Algeria

Signing ceremony for funding of PAU by the German Government
High Level panellists at the signing ceremony

High level panel discussion