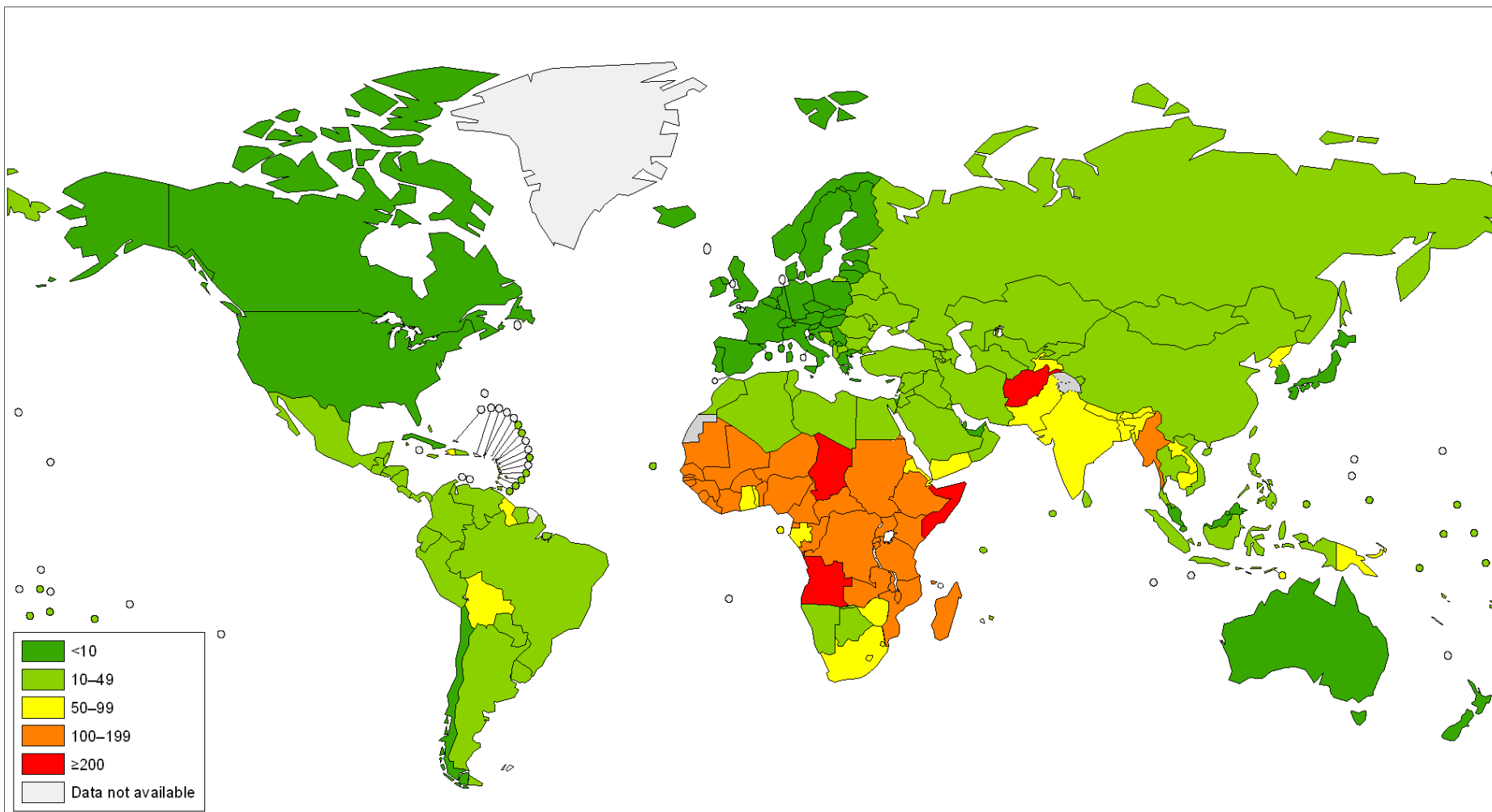


ICT and Robust Engineering Education in Africa

Presented by :

Professor Muhammad H. Zaman, Boston University,
USA

Under-5 mortality rate (probability of dying by age 5) per 1000 live births, 2008



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: World Health Organization
Map Production: Public Health Information and Geographic Information Systems (GIS)
World Health Organization



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Opportunities

- Africa has the among highest entrepreneurial activity in the World*
- Approximately 454 Universities
- Most countries have schools of Engineering and Schools of Medicine
- A great national need for innovation

(*Global Entrepreneurship Monitor, 2009)

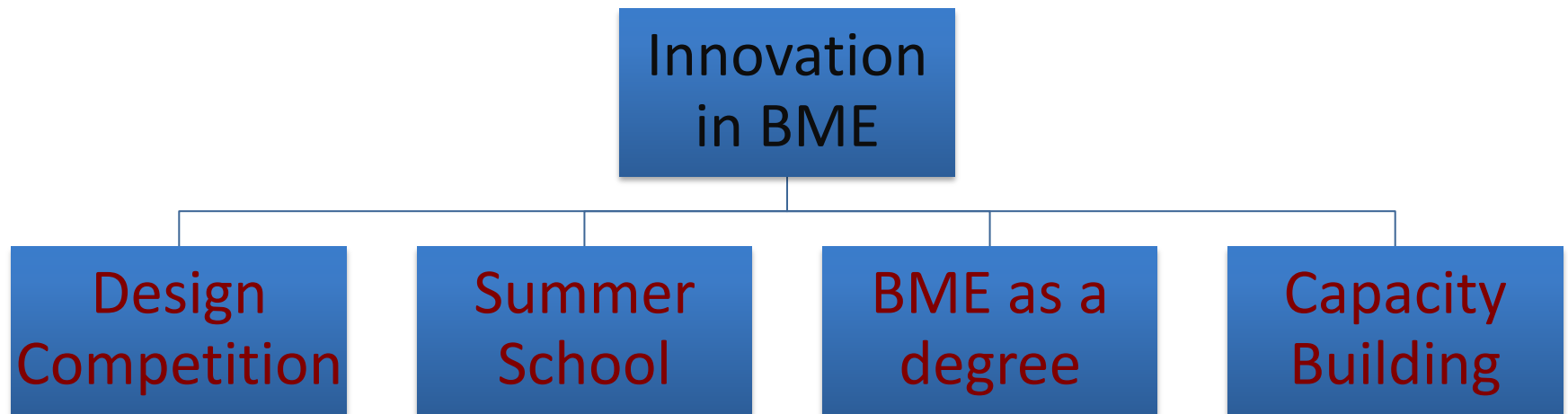
Vision

- To develop a regional, high quality platform for biomedical engineering innovations using ICT.
- To improve higher education in biomedical engineering, using ICT and other tools, in an effort to foster research and innovation.
- To stimulate and promote the development of user-friendly, economically viable and technically sound engineering solutions

Engineering Healthcare using ICT

- Creation of new BME programs, integrating traditional and ICT approaches.
- Using existing networks
- Working with LEED in designing locally appropriate curriculum for local challenges
- Creating the next generation of problem solvers in BME in next 5-10 years.

Creating Biomedical Capacity: Four-Pronged Approach



Innovation in BME

Design Competition

Summer School

BME as a degree

Capacity Building

Impacting Universities

- Addis Ababa University
- Kenyatta University
- University of Nairobi
- University of Zambia
- Kyambogo University
- Makerere University
- *University of Cape Town



Economic Commission for Africa

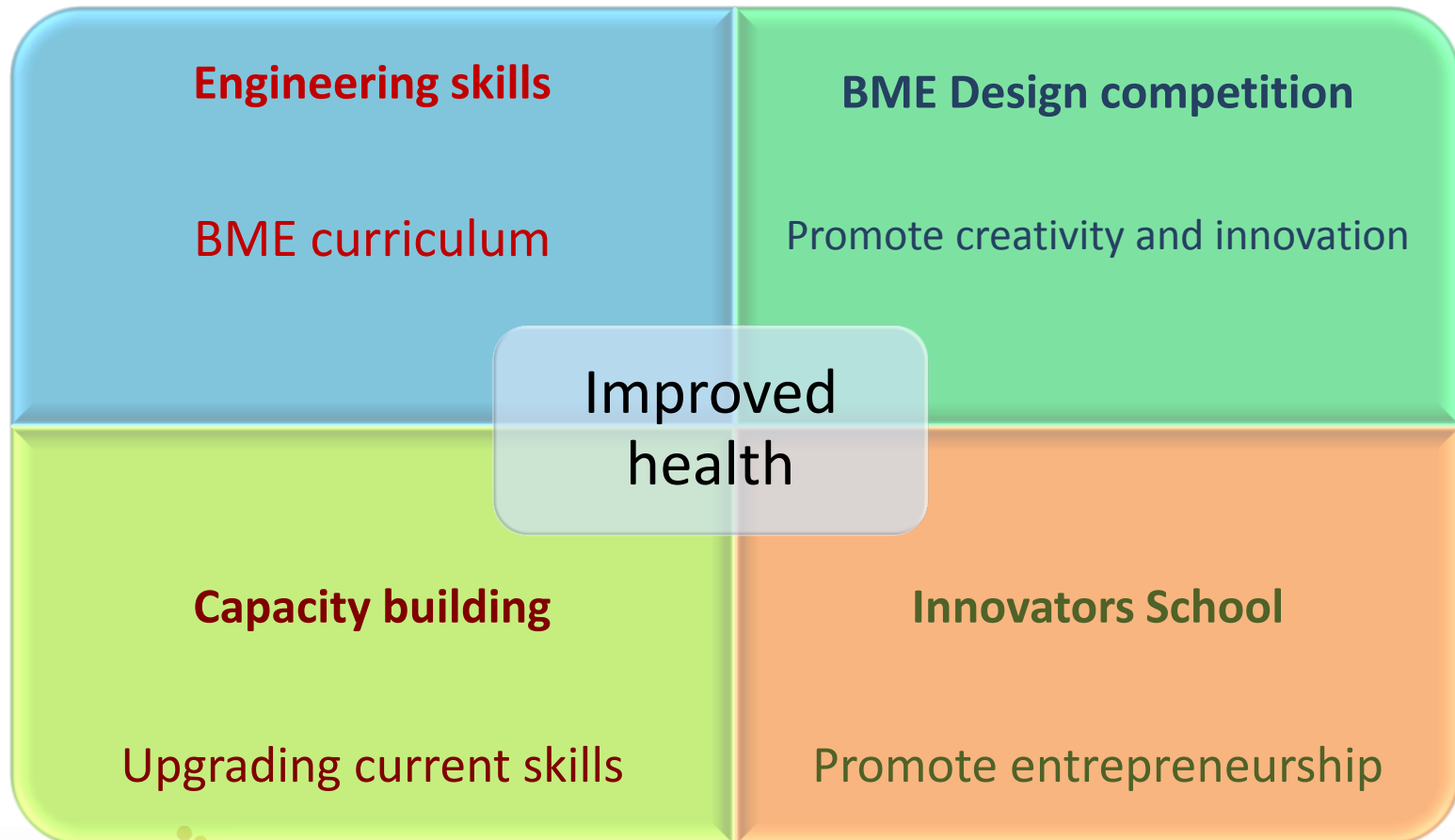


Boston University



Republic of Korea

The approach





Six African Universities Develop a Generic Biomedical Engineering Curriculum

ECA Press Release No. 141/2011

Durban, South Africa 29 November 2011 - Six African Universities have adopted a generic programme for developing biomedical engineering (BME) curriculum as a result of an initiative supported by the United Nations Economic Commission for Africa (ECA).

The initiative, termed "Engineering Expertise to Improve Health Outcomes in Africa" includes representatives from universities in Ethiopia, Kenya, Malawi, South Africa and Zambia. The curriculum will now guide the participating universities in developing their own BME programmes and departments.

Speaking after the adoption of the programme, Ms Aida Opoku-Mensah, Director of ICT, Science and Technology Division of ECA, thanked the experts for their commitment to advance healthcare in Africa and their hard work in developing and adopting a generic curriculum. She stated that "Africa needs to urgently develop the capacity to install, operate, maintain and upgrade medical devices as well as develop robust and reliable medical equipment and systems".

"The main goal is to build the Africa's capacity to maintain, modify and upgrade medical devices as well as to develop and bring to market unique, robust and reliable medical devices," she said. By so doing, the project could save lives, save money, promote innovation and entrepreneurship as well as create jobs and wealth.

She noted that Africa spends a large amount of its meager resources importing biomedical equipment with an average usage span of about 3.5 years or less due to poor use and maintenance. "The lack of skilled biomedical engineers in this field has been identified as a major bottleneck by the World Health Organization and African leaders," she said.

Ms. Opoku-Mensah said the initiative will offer 1) training to medics, technicians and researchers interested or involved in innovating, maintaining, designing and fabricating medical equipment and systems in hospitals and laboratories, 2) assist interest universities put in place a curriculum to generate a cadre of biomedical engineers; 3) identify and support talented and entrepreneurial university students through the International Medical Design Competition with mentorship and coaching; 4) and promote innovation and entrepreneurship through the BME Innovators School.

Present were deans and senior lecturers from medical and engineering schools of Addis Ababa University, Kenyatta University, University of Malawi, University of Nairobi and University of Zambia as well as professors from University of Cape Town and Medical Research Council of South Africa. Others included the Manager of the National Technology Business Centre in Zambia and the CEO of Stellenbosch University's Innovation and Development Centre.

They further adopted the guidelines and modalities for undertaking the Needs Assessment for Capacity Building, organizing the International Design Competition and managing the Innovators School.

This pilot phase is supported by ECA, the Laboratory for Engineering Education and Development (LEED) at Boston University (BU) and the Government of Korea. For more information on this initiative, please contact:

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Innovation and Entrepreneurship

- Design Competition
 - Robust Diagnostics
 - Hospital Management and Infrastructure
 - Information and Communications
- Multidisciplinary teams: Required to have
 - Mentor/ Mentors
 - Clearly defined local impact
 - Business plan

Rounds and judging

Building Capacity using ICT

- Building local capacity through technical education
- Short courses designed for technicians on innovation (supported by the WB)
- Opportunities and grants for small-scale innovation.
- Mechanisms to integrate into the mainstream education program



Challenges and Opportunities for the Future

- Financial constraints
 - NGO funding
- Capacity to teach higher-level courses
 - Integration with other departments
 - Retirees
- Job Prospects
 - Integration with the Ministry of Health



Sustainability and Policy Impact

