



Deans in a GIS sensitisation workshop

# A SHINING LIGHT IN AFRICAN GIS EDUCATION

ESRI'S 100 AFRICAN UNIVERSITIES PROGRAMME IS HELPING TO PLUG THE GAPS IN GIS KNOWLEDGE AND EXPERIENCE ACROSS THE CONTINENT. MICHAEL GOULD AND JIM BAUMANN EXPLAIN AND HIGHLIGHT THE SUCCESS STORY OF KENYATTA UNIVERSITY IN KENYA

Although African universities have been teaching and researching using GIS for decades, usage has been intermittent and for the most part kept at a basic level. At the same time, industrial and government GIS users have been evolving toward enterprise solutions and this has created gaps in knowledge and experience.

With an eye to plugging that gap, Esri's 100 African Universities programme has quietly been providing software and learning resources to selected universities across the continent. "Our goal is to foster sustainable GIS curriculums in universities throughout Africa," says Esri president Jack Dangermond.

The programme is open to any African university with a desire to upgrade and implement GIS at the enterprise- or university-wide level. This means moving away from concentration in a single department towards the use of ArcGIS across all departments, libraries, and public spaces so that all students and researchers might gain access to the software. The university must commit to working with the local Esri office to assure that teachers are trained in the latest software. The IT department and university administrators must also be involved, because the enterprise GIS serves their needs for applications such as campus planning, security, utilities and transport.

The programme is now more than halfway toward the symbolic goal of 100 universities, including the University of Rwanda, Ardh University (Tanzania), the Obafemi Awolowo University, University of Lagos and Federal University of Technology – Akure (Nigeria), and the University of Ghana. New to the programme is Addis Ababa University (Ethiopia), which recently agreed to host the 2016 Esri Eastern Africa GIS Education Conference.

## **Kenyatta University**

One notable success is Kenyatta University in Nairobi, Kenya. Established in 1965, Kenyatta University now has 11 campuses serving more than 88,000 students. After implementing an Esri

enterprise license agreement under the 100 African Universities programme in 2012, it took the university less than two years to rapidly expand its use of GIS technology. Previously used as a research tool limited to a few professors and graduate students, the university now boasts a multi-campus ArcGIS implementation that is a respected centre of excellence throughout Eastern Africa.

Simon M Onywere, associate professor at Kenyatta's School of Environmental Studies, first discovered GIS in the late 1980s. While he was later instrumental in implementing GIS in his department, he had long standing beliefs about the potential the technology held for enhancing studies across the entire university. In 2011, a colleague told Onywere about the recently launched 100 African Universities programme.

"The benefit of the 100 African Universities Program is very clear," says Onywere. "It provides the opportunity for students and faculty throughout our university to use ArcGIS in their coursework and research."

Onywere applied to the programme and he soon determined that the existing university server resources could not support the anticipated use of ArcGIS, so he convinced the vice chancellor to buy additional servers. By September 2013, GIS was fully available across the entire campus.

"After we explained the benefits of using ArcGIS in their work, the students seemed very enthusiastic about learning this new and powerful technology," said Onywere. "My assumption was that because the students are internet-savvy and Esri provided a wide variety of online educational materials, they would quickly begin studying the available self-tutorials."

But when uptake was slow, Professor Onywere began developing an introductory ArcGIS training course that was modelled on the university's existing curricula.

"Though I really did not anticipate personally teaching GIS when I first began this project, I found that it was necessary. This little boost



Esri staff members Joseph Kerski and Michael Gould with the Environmental Studies faculty in September 2013

provided the incentive and confidence the students needed to pursue learning the technology on their own," says Onywere. "The pre-training became fundamental to the growing success of geospatial literacy at Kenyatta University."

### Collaboration

To expand his teaching efforts, Onywere approached the university's former Institute for Research, Science & Technology that had partnered with the International Centre of Insect Physiology and Ecology (ICIPE) in Nairobi. The Institute was working with ICIPE on its Community of Excellence for Research in Neglected Vector-Borne & Zoonotic Diseases (CERNVec) initiative. Using GIS, the research group was trying to better understand the spread of these diseases in order to control them. Because CERNVec had a well-established GIS capability, Onywere was able to convince them to provide two

staff members as interns to assist with his training at the university.

"This really helped us expedite our training – by the end of the first year, more than 1,000 Kenyatta University students were able to use ArcGIS," says Onywere.

Today, GIS is used in more than 15 areas of study throughout the university including the School of Hospitality and Tourism Management, which is mapping tourism resources in Kenya for easier planning, marketing, and research.

### The future

An overarching objective of Professor Onywere is to prepare Kenyatta University students to support the government and its people in achieving the goals outlined in Kenya Vision 2030. This was created with the intention of increasing the quality of life, social wellbeing and democratic voice of all its citizens.



Signing the memorandum of understanding at the Esri Eastern Africa offices in June 2012

"I am certain that the breadth of GIS applications can play a significant part in helping our country realise the goals of Vision2030," says Onywere. "Whether it is environmental management, land reform, increasing agriculture yields, urban planning, infrastructure development, and so on; geospatial technology can help with analysing the problem and providing fact-based solutions."

## OUR GOAL IS TO FOSTER SUSTAINABLE GIS CURRICULUMS IN UNIVERSITIES THROUGHOUT AFRICA

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