

Fostering People Capable of Sparking Innovation

The Future of Science and Technology Starts Here

Education and research are essential in fostering human resources capable of generating new technology and ideas. Here we introduce two universities that are attracting exceptional students from throughout the continent, and equipping them with advanced knowledge and skills in science and technology.

Focus on Science, Technology and Innovation

Capacity Building for Africans in Africa is the core concept behind the Pan-African University (PAU), which was established by the African Union Commission (AUC) in 2008. Africa was split into five regions, each with a designated field, a host country, a host university, and supporting partner countries. PAU is working toward raising the level of university research in the continent as a whole, and fostering outstanding personnel.

In 2012, the PAU Institute for Basic Sciences, Technology and Innovation (PAUSTI) was established in Kenya's Jomo Kenyatta University of Agriculture and Technology (JKUAT) as PAU's foothold in the east. Japan is among PAUSTI's supporting partners. "Specialists from Japan were dispatched

to provide support, mainly to the faculties of science, engineering, and agriculture. They have formed teams with the main members of each faculty to train personnel who are well-versed in science, technology, and innovation (STI)," recounts Mai Toda of JICA's HR Development Department, who oversees the project.

The most popular courses at PAUSTI among the approximately 500 international students, currently drawn from 40 countries throughout Africa, are robotics and agricultural research. There are students doing research into creating robots for sowing seeds in fields; and some are eager to spread knowledge to farmers about tomato cultivation techniques that require less water. "We want them to get to meet students from other countries at PAUSTI and form



A significant amount of equipment has been provided by JICA for research purposes.



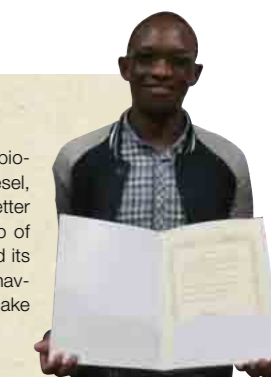
The name of the university at the entrance is written in Arabic, Japanese, and English.



The E-JUST graduation ceremony. Knowledge and technology will be spread throughout Africa from here.

Meshach Howey Ochen From Kenya

In Kenya, researchers are striving to produce biodiesel from non-edible plants. Using this biodiesel, research is underway to develop engines with better environmental performance. E-JUST is the hub of engineering universities in the African region; and its collaborations with Japanese universities, and having the possibility to receive training in Japan make the university extremely attractive to students. (PhD Graduate of E-JUST, January 2019)



Assembling a computer-controlled self-propelled device as part of group work. This type of practical training is extremely popular.



Research being carried out in the field of medicine. Here we see students dissecting a small experimental animal in a laboratory.

networks that in the future will transcend borders," notes Toda expectantly.

A University that Adopts Japanese-style Education

Another university with which Japan cooperates in the field of STI is the Egypt-Japan University of Science and Technology (E-JUST), which was newly established in 2010.

In Egypt there is Cairo University, which is a huge university with 260,000 students and a teaching faculty of about 10,000. In fact, it is so big that there are 30 students per teacher. Consequently, classes are primarily lectures, allowing little time for staff to engage in research. E-JUST was established because there were strong calls from within Egypt to introduce the Japanese style of engineering education where faculty teach in detail to a small number of students, the lectures are accompanied by practice, and experiments are carried out.

To date, the university has produced 94 masters of engineering and 132 doctors of engineering. The research level

is rapidly increasing, with the school now holding the top ranking in Egypt in terms of the number of research papers published by each staff member. E-JUST now also has a number of supporting universities in Japan, with which they have both teacher and student exchanges. Undergraduate faculties were established in addition to the graduate school two years ago, and more international students are being accepted.

"The international students attending E-JUST include teaching staff from universities in surrounding countries. They come to further their research, and because they want to learn how to carry out better research in their own countries. Some of them also go to study short-term at the Japanese universities that support E-JUST, and carry out joint research. This creates an even stronger bond between Japan and Africa in terms of university education," remarks Toda.

She continues, "In this way, people who have studied at such universities can return and spread throughout the continent, bringing innovation that is suited to the unique needs of each area—well, that's the future that we envision."



Growing tomato seedlings as part of an experiment for developing tomato cultivation techniques that require less water.



Mohammed Tawheed Abdul Khan From Nigeria

I specialize in molecular biology and biotechnology, and am researching the interaction between microbes and plants. PAUSTI is home to some of the best minds in Africa, and one of its strengths is that researchers from numerous countries can carry out cross-border joint research. After completing my doctorate degree, I will return to the National Biotechnology Development Agency, my former place of work, and use what I have learned at PAUSTI. (PhD Graduate of PAUSTI, June 2018)