ISTRA

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INDUSTRIAL TOMOGRAPHY IN TUNISIA AND GHANA

Through an International Atomic Energy Agency (IAEA) triangular project, Ghana and Tunisia each received, last year, a portable industrial gamma Computed Tomographic (CT) equipment each meant for process diagnostics. The equipment was designed and fabricated by the Korea Atomic Energy Research Institute (KAERI. To train national project team members on diagnosing industrial processes problems using Computed Tomography (CT), an Regional (AFRA) Training Course hosted by the Government of Tunisia through the Centre National des Sciences et Technologies Nucleaires (CNSTN), Tunis, Tunisia, took place from 4-8 March 2019. The TC was attended by participants from Ghana, Tunisia, Kenya and Sudan.

At the opening ceremony of the TC, the Director-General of CNSTN expressed his gratitude to the Agency for supporting the Centre in expanding its frontiers as far as nuclear technology is concerned. He also thanked the Local Organising Committee (LOC) in general and the Course Director, Dr. Haifa Abdelouahed in particular, for their hard work and tenacity. Furthermore, he urged participants to make the most of the training course.

The training course consisted of presentations/lectures on the theory, principles and application of CT and image reconstruction software by the IAEA expert, Mr Jin Moon. These were followed by hands-on sessions on the installation, experimental set-up and scanning of a simulated blocked pipe in the laboratory. Participants had the opportunity to run the image reconstruction software using the scan data.

To ease off the stress, the organisers took participants on a tour to Sidi Bou Said, a tourist attraction town and is known for its extensive use of blue and white.

Group photograph


Participants in lectures

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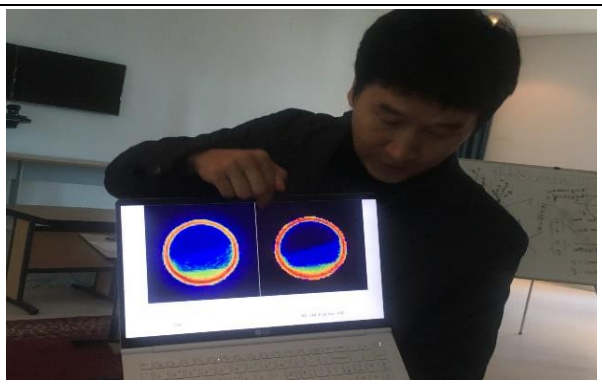
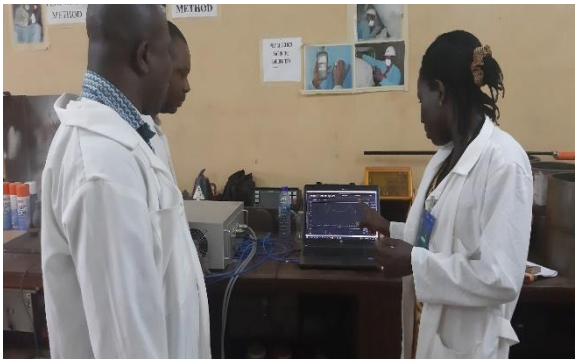
Participants setting up for scanning



Expert showing reconstructed images

In a related development, the Ghana CT team successfully installed and tested its CT at the radiotracer laboratory of the Nuclear Applications Centre, Ghana Atomic Energy Commission. This was a sequel to the TC in Tunis. A 3-member team was trained to operate the CT equipment as well as reconstruct images using appropriate software. The portable CT system which weighs about 30 kg, consists of two major parts, the mechanical hardware and the system software. The hardware comprises a radioactive source (Cs-137) with holder and collimator, a radiation detector with collimator, a translation bench each 60 cm in length, a circular motion frame (C-frame) 60 cm of inner diameter and an electronic and power supply. All these are mounted on a clamp-on jig. The system software consists of two main programmes: system control and data acquisition, and image reconstruction. The team, prior to the scanning, carried out a mapping of the radiation doses around the equipment. Since then, a number of items have been scanned including archaeological figurines, concrete samples and simulations of pipe sludge. The capabilities of the CT equipment were exhibited during the recent 2019 African Scientific Renaissance Day and AFRA @30 celebrations hosted by the Ghana Atomic Energy Commission on June 2019. The Guest of Honour for the occasion, the minister for Environment, Science, Technology and Innovation (MESTI) expressed the hope that the CT equipment will further deepen the benefits of nuclear technology in processes and materials industries.

Ghana CT team setting up simulation



Team discussing the profile