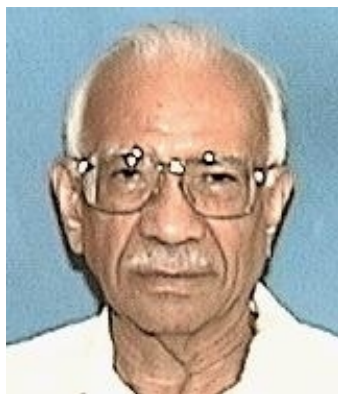


INTERNATIONAL CENTRE FOR ENVIRONMENT AND NUCLEAR SCIENCES (ICENS)

**Professor the Hon. Gerald C. Lalor OJ, CD, MSc *Lond-UCWI*,
PhD *Lond* – Director General**

Dr. Richard Annells, formerly of the British Geological Survey, has accepted the offer of Director-General of ICENS and will arrive in September 2011 to take up the post. Dr. Annells brings a wealth of knowledge and experience and is a very good appointment for ICENS. He is being supported by the Bank of Nova Scotia Foundation. Another appointment, a Jamaican Dr. Adrian Spence, who recently completed a Doctorate from University of Dublin, has accepted the offer which arose on the departure of Dr. Paul Wright for Australia. Dr Spence's interest is in soil geochemistry. He comes very highly recommended.



The Centre has had new equipment problems as the optical emission spectrometer has been inoperable for months despite every effort to fulfill the government regulations required for foreign based firms to fulfill the regulations. Arrangements have now been made with the Chemistry Department and with the Bureau of Standards to carry out some analyses on their equipment. The food composition studies are well behind the operational schedule.

In the transformation process, the government responsibility for ICENS has been transferred from the Office of the Prime Minister to the Ministry of Energy. The relevant minister and permanent secretary have welcomed the change most warmly and expressed their appreciation for the major role the Campus has played and continues to play in the development of ICENS.

Preliminary plans are being made for the exchange of SLOWPOKE cores. These include a new safety manual and determining the detailed steps for the process.

RESEARCH AND DEVELOPMENT

Food and soils

Data have been gathered on the chemical composition of imported and locally grown rice. The locally grown samples, taken from St. Elizabeth and St. Catherine, show elevated levels of several essential trace elements but very low levels of toxic elements. The imported rice also raises no flags.

A study of nematodes as indicators of heavy metal pollution in soils was carried out by The Third World Academy/UNESCO Fellow. The data are being examined.

Health Studies

Trace element information on soils and foods in Jamaica has led to an interest in elemental transfers to humans and possible links with diseases such as hypertension, cancers, renal maladies, diabetes and cardiovascular illnesses which are reported to be of high incidence in Jamaica. Data on trace element concentrations on the blood of a selection of blood donors are available and these form a basis of future work. No surprising features have been observed but there are indications of gender differences and perhaps zinc deficiencies for some women. These and other points will be followed up.

FUTURE WORK

Food and Soils

Work on the series Soil Plant Humans will continue hopefully at a greater rate to contribute to both agriculture and health.

Radio Nuclides and Soil Erosion

A collaborative study by Rural Physical Planning Division (RPPD), for the Ministry of Agriculture and Fisheries, ICENS and Forestry on **“Using Environmental Radionuclides as Indicators of Land Degradation in Latin American, Caribbean and Antarctic Ecosystems”**, **RLA/5/051**, was approved for 5 years ending 2013. To date, ICENS has received equipment and standard reference materials for soil measurements from the IAEA and performed analyses on the set of samples taken from Orange River, Newton and Hope Garden areas. The results will be used to quantify soil erosion over the past few decades.

Cadmium Isotopes

Cadmium has many natural isotopes and the isotopic ratios may well help determine the origin of the remarkable levels of cadmium found in some bauxites in Jamaica. This may well be a means of determining the origins of the cadmium in Jamaican soils.

Conferences and Meetings

In December 2010, ICENS in cooperation with the International Atomic Energy Agency hosted an international meeting on “Innovative Applications of Low Flux Research Reactors”. The meeting was attended by 12 participants from 8 countries.

Mr Grant presented a paper on “The Jamaican SLOWPOKE Utilization and Core Conversion Plans” at 32nd International Meeting on Reduced Enrichment for Research and Test Reactors (RERTR), held in Lisbon, Portugal from October 10-14, the paper has been published in the conference proceedings. Funding for attendance to the meeting was provided by the U.S. Department of Energy / National Nuclear Security Administration’s Office of Global Threat Reduction in cooperation with the International Atomic Energy Agency.

In September 2010 and February 2011; Mr Grant attended two International consultants meetings in Vienna; these covered the areas of Neutron Activation Analysis and Safety Aspects for Research Reactor

Core Management and Conversion from Highly Enriched Uranium to Low Enriched Uranium.

In May 2011: Mr Grant participated in the 3rd Coordination meeting of the Latin American and Caribbean IAEA Regional project RLA0037: “Supporting a Sustainable Increase in the Use of Research Reactors in the Latin American and Caribbean Region through Networking, Exchange of Experiences, Knowledge Preservation and Training of Human Resources (ARCAL CXIX)”.

In December 2010: Mr Preston delivered a paper entitled “Data Management Strategies to Maximize the Output of the Jamaica Low Flux Research Reactor” at the IAEA/ICENS Technical Meeting (TM) on Innovative Applications of Low Flux Research Reactors held at the University of the West Indies, 6-10 December.

In June 2011, Mr Preston was invited by the IAEA to sit on a panel of experts to advise them on “Automation of Neutron Activation Analysis (NAA) Services within the Research Reactors Caribbean Coalition”.

Training

As part of the drive of the ICENS to attain ISO accreditation, 3 members of staff attended an IAEA training course in Peru. The purpose of the course was to give an overview of the processes required for research reactor facilities to achieve certification/accreditation for compliance with International Standards such as ISO-9000 series and, ISO/IEC 17025, as well as the latest approaches in the required quality control and quality assurance for work associated with the use of research reactors. One member of staff also received training.

As part of the sustainability of the “MegaPorts Initiative”, Mr. Craig Boyd has been certified as a trainer in response to radiological emergencies and the radioactive source recovery process, through the United States Department of Energy (US DOE) and their National Nuclear Security Administration (NNSA) in conjunction with the Second Line of Defence (SLD) for the dJamaica Customs.

PUBLICATION

- * **Grant C, Lalor G**, Fletcher H, Potter T, Vutchkov M and Reid M. Elements in Human Placentae in Jamaica, *West Indian Medical Journal*, 2010; 59(5):479-85.

PUBLIC SERVICE

Mr Johann Antoine

- Chairman, National Mirror Committee on ISO Standard TC 93, technical committee on starch (bi-products and derivatives);
- Member, Codex Committee on Methods of Analysis and Sampling.

Mr Charles Grant

- Member, Ministry of Energy Committee on Nuclear Energy as an option for Jamaica;
- Committee member, NEPA/UNDP renewable wave energy technologies for the generation of electric power in small coastal Communities in Jamaica;
- National Coordinator, Incident Reporting system for Research Reactors;
- National Coordinator, Radiation Safety Information Management System;
- Country Representative to ARCAL, Supporting a Sustainable Increase in the Use of Research Reactors in the Latin American and Caribbean Region

Ms Leslie Hoo Fung

- Chairperson, National Food Standards Committee.

Professor Gerald Lalor

- Commissioner, National Commission for Science and Technology;
- Honorary Chairman, Gleaner Company;

- Board Member, Insurance Company of the West Indies;
- Board Member, Insurance Company of the West Indies Foundation;
- Member, Editorial Board of The Science of the Total Environment;
- Member, Third World Academy of Sciences (TWAS); The Royal Society of Chemistry; the American Chemical Society; the New York Academy of Sciences; The American Association for the Advancement of Science;
- Member, Council of the Institute of Jamaica.

Mr. John Preston

- Member, Land Information Council of Jamaica;
- Member, Telecommunications Appeals Tribunal.

Mrs. Joan Thomas

- Member, Inner Wheel Club of Kingston.