

## Lessons Learned on Strategic Planning for Enhanced Utilization of Low Power Research Reactors

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The International Centre for Environmental and Nuclear Sciences (ICENS) was set up to be an institution with a formidable range of applications that promised to impact on Caribbean expertise and its potential to advance the application of science and technology to the sustainable development of the member countries of the University of the West Indies. Before the reactor was commissioned a small, but influential group, was established called the committee for the peaceful uses of atomic energy to chart the way forward for the facility.

The SLOWPOKE-2 reactor, JM-1, at ICENS is a pool type, light-water-moderated and cooled by natural circulation, with a nominal power of 20 kW (thermal). The reactor achieved first criticality in March 1984 with HEU fuel and has operated on a regular weekly schedule since then. The main use of the reactor has been neutron activation analysis, presently there are four inner (reflector) irradiation sites, one outer (external to the reflector) irradiation site and one in-pool irradiation rig. Refuelling with LEU is scheduled to take place in the last quarter of 2015. Fortunately, the dimensions of the LEU fuel are almost identical to the HEU fuel, thus allowing the reuse of all the ancillary systems.

The facility is housed at the University of the West Indies in Jamaica and is one of several specialized research units on the campus. The ICENS, which is a partnership between the University and the Government of Jamaica, has a scientific agenda which emphasises integrated research programmes based on the chemistry of the total environment and its effects on the biosphere. The analysis outputs are used to develop powerful interactive geochemical databases which combined with Geographical information systems, provides a valuable resource critical in the development of evidence based policy formulation. It makes use of inter-institutional (University/Government Ministries) and international collaborations to ensure that the research activities are relevant to all stakeholders; in particular, the transfer of knowledge between academia and government with a major objective being the development of the human and economic resources of the country. These collaborations include M.Phil. and Ph.D. students from the Departments of Basic Medical Sciences, Botany, Chemistry, and Geology; MSc. Students from Forensic Chemistry, teaching undergraduate chemistry students and providing courses in Radiation Physics, Radiation Biology and Radiation protection for BSc. in Diagnostic Imaging. Although the majority of the funding for the institution is provided by the University and the Government, it also provides services for the private sector. The commissioning of the reactor necessitated the installation of, in the Jamaican context, unique pieces of equipment; these include gamma spectroscopy systems, radiation monitors, thermoluminescence dosimetry systems, liquid nitrogen plant as well as other complimentary analytical techniques. ICENS provides the only dosimetry service in the English speaking Caribbean for approximately 1500 persons; it also provides radiation leak testing services for our industrial radiographers and mining companies and liquid nitrogen to several dermatologist and other laboratories. These activities present unique opportunities that could be replicated in similar facilities, there is very little competition in the market place, and the activities are relatively simple, thus guaranteeing much needed additional income.

This paper reports on the strategies and policies adopted by ICENS over the past 31 years for academic, governmental and private sector partnerships. In addition, the utilization of the SLOWPOKE-2 reactor for various research programmes along with detailed descriptions of the experimental facilities is also reported.

### Organization

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