

THE MONA INSTITUTE OF APPLIED SCIENCES

Dr. H.O.N. Reid – Executive Director

WORK OF THE INSTITUTE

The Mona Institute of Applied Sciences (MIAS), launched in 2001, is a self-financed legal entity, interdependent with the Faculty of Pure and Applied Sciences, but operating within its own financial systems. It is a company limited by guarantee, governed by a Board of Directors drawn from the University and the private sector of Jamaica and an affiliate of the University of the West Indies, Mona.

The activities of the MIAS have been built around three areas of operation which we believe will compliment the effort of the Jamaican society in forging an innovative science and technology culture. These are: (i) Training – building applied science graduate programmes which facilitate the development of a cadre of trained technology workers, as well as professional technical training programmes aimed at supporting key areas of the nation’s science and technology initiatives; (ii) Research and Development – with a focus on building R&D bridgeheads and local and global business networks and (iii) Services – offering science and technology services to the public, with a leading area being analytical services; the MIAS currently has the analytical laboratory with the fastest turnaround time with respect to chemical and microbiological analysis in the island.

Within these areas, the Institute experienced growth over the period with the operating revenue of the company increasing by 132% from J\$9.3 million dollars in 2003/2004 to J\$21.6 million dollars in 2004/2005.

Full-time staff of the Institute increased from four to seven, with the addition of Mr. Jovan Evans (Systems Support) and Mr. Wilbert Lyn and Ms. Loy Malcolm (Project Officers). The other members working along with Dr. Reid are Ms. Celia Alleyne (Training programmes), Mr. Dayton Outar (Information Technology) and Mr David Simons (Accounting).

For the year 2004/2005 over J\$3.3 million dollars have been paid to various departments of the UWI and to members of the FPAS for the rental of classrooms, facilities and for teaching on our professional training programmes.

Training

The responsibility for developing and administering courses and training programmes is the responsibility of the Academic Programmes Committee (APC) of the Mona Institute of Applied Sciences (MIAS). The APC is chaired by the Dean, Faculty of Pure and Applied Sciences (FPAS), Prof. Ronald Young and is made up of the Executive Director, MIAS, senior faculty appointed by the Faculty Board of the Faculty of Pure and Applied Sciences and prominent industry members appointed by the Board of Directors, MIAS. A notable accomplishment during the year has been the successful implementation of a joint MSc in Computer Science with the Department of Mathematics and Computer Science in February 2004. The second batch of students started in January 2005.

MSc Computer Science

The aim of the Masters in Computer Science is to provide a model postgraduate programme which caters to the needs of working students while offering them exposure to some of the best academic minds in the discipline. In essence, the programme seeks to produce high quality graduates for

related local, regional and international industries. Towards this goal, the MIAS has sought to involve, where necessary, a number of overseas lecturers who not only enrich the programme with their global perspective but also act as useful international collaborators.

Post-Graduate Diploma/Programmes in Information Technology

The Postgraduate Diploma in Information Technology commenced in March 2005. The programme is offered on a part-time basis in the evenings and target non-Computer Science first degree holders who wish to enter the field of Information Technology. This course covers the core content of UWI's BSc in Computer Science, in addition to an individual project over a twelve-month period. After completing the course, these students will also be eligible to enter the MSc programmes in Computer Science and Information Technology.

Professional and Certificate Courses in Information Technology (IT)

Certificates in Information Technology lead the professional development programmes of the MIAS. These courses are geared towards persons requiring formal quality training in the use of computers at various levels. Currently, the MIAS offer six (6) Certificates in Information Technology:

- i) *Introduction to Computers*, our foundation certificate programme, introduces participants with no or limited knowledge of computers to computer fundamentals, the basic applications in the Microsoft Office Suite and the use of the Internet
- ii) *Computer Office Applications*
- iii) *Introduction to Programming*
- iv) *Introduction to Web Site Design*, created to meet the rising demand for web page designers as well as the needs of a growing number of individuals who have some technical skills but lack the formal training to produce appealing and functional websites.
- v) *Advanced Java*
- iv) *Web Development and Administration*

Both Advanced Java and Web Development and Administration have been recognised as intensive advanced post BSc programmes which cater to the needs of the IT industry.

Other certificate courses:

The Mona Institute of Applied Science in collaboration with the Department of Physics and with the sponsorship of The Petroleum Corporation of Jamaica successfully introduced a new certificate programme entitled "Certificate in Alternate Energy and Energy Management". This course commenced in June 2005 with twenty five (25) students.

Future Training Programmes

In addition to the degree, certificate and postgraduate programmes mentioned above, there are several other proposed programmes that the Unit is currently developing for the near future. These include:

Information Technology

– Masters in Information Technology (MSc)

Food Science

- .– HACCP (and other food safety certification programmes, to be offered once each year)

- .- Masters in Food Science (MSc)

Forensics

- Masters in Forensics (MSc)

Analytical Chemistry

- Masters in Analytical Chemistry (MSc)

Geography & Geology

- .- Project Management
- .- Graduate Diploma in Water Resource Management
- .- GIS/ GPS Certificate
- .- Environmental Law & Policy

Physics & Electronics

- .- Certificate in Alternative/Reusable Energy
- .- Masters in Computer Engineering (MSc)

Computer Science

- Graduate Diploma in Computer Science

Technology Management

- Masters in Technology Management

Research and Development

The major research projects for development and promotion are:

– Tilapia Project:

This project involves the acclimation of freshwater tilapia fingerlings to seawater and a protocol for farming them in the sea in cages and builds on work done by a research team led by Dr. Dunbar Steel, now retired, in the Department of Life Sciences. The proposal to extend work on this project to build a commercial pilot plant along with a research component for J\$14.6 million dollars over a two year period was approved. An amount of \$5.7 million dollars has since been received.

– Butterfly Project:

This project is a joint initiative between the Mona Institute of Applied Sciences, the Department of Life Sciences and the McGuire Centre for Lepidoptera, University of Florida. The objective of the project is to conduct research on Jamaica's species of butterflies and moths with special emphasis on the ecology and preservation of the *Papilio Homerus* (Giant Swallowtail). The economic viability in establishing a sustainable butterfly farming and display industry across Jamaica and the construction of a butterfly research facility on the UWI campus will be considered with the aim of achieving significant financial benefits to the UWI. We are currently involved in developing a commercial butterfly farm and display facility on the north coast of Jamaica with a private developer.

– ***Mona Research and Innovation Park:***

The Mona Institute of Applied Sciences working with the Business Development Office of the University of the West Indies, Mona was successful in obtaining a J\$10 million grant from the Government of Jamaica for the Campus to carry out a feasibility study and build a business plan to develop a Research and Innovation Park (R&I Park) for the Mona Campus of the University of the West Indies as the centrepiece of an innovation system for Jamaica. The goal of the R&I Park would be to facilitate research and innovation from local and global knowledge institutions and firms, fostering the establishment and growth of science and technology-based enterprises in Jamaica and the Caribbean. The Mona R&I Park would be the engine of an evolving innovation system for Jamaica, allowing distinct institutions and companies in Jamaica and the Caribbean to contribute effectively to the development and diffusion of new and adapted technologies, providing a framework within which governments and the private sector formulate and influence policies to guide the innovation process.

It is proposed that the showpiece of the park will be nine development centres in: (i) analytical services, (ii) mariculture, (iii) bioscience (genetic engineering, drug testing, drug harvesting), (iv) ecotourism/ecology, (v) web/software solutions, (vi) chemistry related and new materials research, (vii) information and communication technology and electronics, (viii) food technology and (ix) nanotechnology. It is hoped that each centre will form the nucleus of research clusters for high technology firms which rely heavily on research and development initially drawn from the pharmaceuticals, chemical and material science, biotechnology, electronics and food industries.

The major objectives of this effort will be to establish Jamaica as the centre for science and technology innovation and investment in the Caribbean and as a global competitor in the export of high-level technology applications and services.

Services

The Mona Institute of Applied Sciences sought to further establish the Institute's name in the science/technical services marketplace in Jamaica during 2004/2005. Over the last two years the MIAS has been very successful in obtaining funding for and the implementation of number of projects. These include the Plant Health Methodology Project for the Ministry of Agriculture, Jamaica, funded by the Agricultural Support Services Project (ASSP) (US\$75,000), the Ascidiens project funded by the Environmental foundation of Jamaica (US\$46,000), the Japan International Cooperation Agency (JICA) Project (US\$20,000), and the Financial Services Data Capture Project (US\$5,500).

Analytical Services

Following from the Memorandum of Understanding signed between the Mona Institute of Applied Sciences and the Bureau of Standards Jamaica (BSJ) on November 22, 2002, there has been increased cooperation on standards and metrology formulation, training for industry personnel and participation in the analytical work for clients, previously performed by the BSJ.

The three main types of analyses that the Unit offers are chemical, nutritional and microbial. These analyses are done in the Chemistry Department and the Biochemistry/Molecular Biology sections in the Department of Basic Medical Sciences. In some instances, analyses are also subcontracted to independent institutions such as the International Centre of Environmental and Nuclear Sciences (ICENS) to broaden its scope on services offered. Within the period the Institute has provided analytical services to over thirty (30) clients, both locally and overseas, many on a routine basis.

The Future

The Mona Institute of Applied Sciences seeks to continue a steady growth pattern through the development of existing and new projects and programmes. Amidst the need for larger office, laboratory and classroom facilities the Institute will aggressively explore local and global opportunities for the upcoming year for the benefit of both the Faculty of Pure and Applied Sciences, and the University of the West Indies.

PAPERS PRESENTED

- Malcolm, Loy (2005). "Mariculture of Jamaican Red Hybrid Tilapia" World Aquaculture Conference in Bali, Indonesia May 9 -13.

PUBLIC/ACADEMIC SERVICE Dr. Howard Reid

- .- Member, New Initiatives Committee-the University of the West Indies, Mona
- .- Member, Management Advisory Board, Office of the Registrar of Companies
- .- Member, Milk Powder and Sugar Committees, Trade Board
- .- Member, Organising Committee – Science Education Conference 2006

Mr. Damian Cohall

- Member, Milk Powder and Sugar Committees, Trade Board

Ms. Loy Malcolm

- Member, Organising Committee – Science Education Conference 2006

