

ADVISORY COMMITTEE TO THE VICE  
CHANCELLOR REPORT ON THE  
ACCULTURATION OF POTENTIAL WORLD  
CLASS RESEARCH PROGRAMMES AT USM :  
PRESENTATION TO THE USM MANAGEMENT  
FORUM, 10 DECEMBER 2001, DEWAN  
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**Advisory Committee to the Vice Chancellor  
Report on the**

**ACCULTURATION OF POTENTIAL  
WORLD CLASS RESEARCH  
PROGRAMMES AT USM**

*Presentation to the USM Management Forum*

10 December 2001  
Dewan Persidangan Universiti

December 2001

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**ACCULTURATION OF POTENTIAL  
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PROGRAMMES AT USM**

December 2001

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## EXECUTIVE SUMMARY

### 1. Introduction

- 1.1 The Vice Chancellor outlined his vision that USM will be a research-based teaching university, working towards world class research and academic programmes. To this end he appointed a professorial committee comprising five senior professors to conduct an in-dept audit and submit a report for further action.
- 1.2 A world class programme is taken to mean a programme which appears to be at the cutting edge of scientific and/or technological discovery generating innovative high impact products or scholarly activity.
- 1.3 The move towards making USM a world class university is by transforming USM into a research-intensified university.

### 2. Terms of Reference

- 2.1 The Committee was responsible for assessing submitted programmes for impact and sustainability of research activities and also to identify programmes which have potential to be nurtured as world class programmes.
- 2.2 The Committee considered teaching and research as the two major functions of the university. But for the purposes of this report the Committee will focus only on research activities.

### 3. Criteria for Excellence

- 3.1 The Committee identified two major criteria that world class programmes have to fulfill: sustainability and impact.
- 3.2 In order to be sustainable the programme must have:
  - a sufficient human resources with critical mass and generation cohorts,
  - b research funds from multiple sources and continuing programmes,
  - c physical facilities including buildings, laboratories, equipment and support resources,
  - d networking within USM and externally with other research institutions.
- 3.3 The impact of research was assessed on:
  - a publications
  - b patents/IP/products/copyrights
  - c training and technology transfer
  - d consultancy
  - e policy and regulatory implications
  - f awards and honours

### 4. Methodology

- 4.1 The Committee developed a set of criteria and evaluation system from which a questionnaire was prepared.
- 4.2 The questionnaire was distributed to 36 research leaders. Nineteen (19) responded.
- 4.3 To ensure reliability, validity and transparency the following steps were undertaken by the Committee in its deliberations:

- a the questionnaire was distributed and discussed with the researchers and their comments taken into account;
- b meetings were held with researchers in all three campuses;
- c programme sites were visited to verify achievements; and
- d scores from the questionnaires were calculated three times by two groups and the Committee as a whole.

## 5. Results

5.1 The scores from the questionnaire and supported by observations during site visits indicate that USM research programmes fall into these categories:

### Group A

- Medical Biotechnology research

### Group B

- Ecological Drainage research
- Vector Control research
- Anti-infective research
- Aquaculture research

### Group C

- Archaeology research
- X-ray Crystallography research,
- Addiction research

### Group D

- Neuroscience research,
- Bio-material research
- Women & Human Resource Studies
- Ferrocement research
- Tissue culture research,

### Group E

- Herbal Standardisation research,
- High-speed Computing research,
- Human Genome research

Two programmes not included are Latex research and Wetland research as they require more time and greater financial commitment to attain sustainability.

5.2 The Committee identified two fundamental research projects in the Medical Biotech group namely the Malaria Vaccine and the Molecular Mechanism of Disease research as worthy of support for the Nobel Laureate activity. In the longer term and with better focus and support three other programmes can be used as platforms for this purpose and these are Anti Infective, Human Genome and Neuroscience programmes.

## 6. Recommendations

6.1 The Committee recommends that:

- a) USM reiterate its pledge to attain the highest standards of teaching and research and to create institutional reward structures to support that commitment;
- b) USM create an environment in which research can flourish with the greatest effectiveness and efficiency;

- c) To rejuvenate and facilitate research excellence, USM establishes a Research Creativity and Management Office (RCMO).
- d) USM establishes an Endowment Fund for research;
- e) Interdisciplinary research should be encouraged through the establishment of research clusters;
- f) Programmes in Groups A and B categories be placed directly under RCMO for ease of support and monitoring;
- g) A central common shared laboratory facility be established for each campus to accommodate high end, common user equipment;
- h) Five programmes be cultivated under the Nobel Laureate Science programme, namely; Malaria Vaccine, Molecular Mechanism of Diseases, Anti-Infective Drug, Human Genome and Neuroscience;
- i) Programmes that could fit into a Nobel Laureate programme for the liberal arts\* would include research in Archeology.

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\* A separate committee is being formed to study this possibility



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