“Changing and Transforming the Research Landscape at the University of Malaya”

by

Professor Hamzah A. Rahman

DVC P&I, University of Malaya
UM’s History

- **1907**
  - King Edward VII Medical School founded in Singapore

- **1949**
  - Amalgamation of Raffles Collage & King Edward VII Medical School to form University of Malaya

- **1957**
  - Branch campus in Kuala Lumpur

- **1962**
  - Independent university retaining original name
University of Malaya in 2010
University of Malaya

- 12 Faculties, 6 Institutes, 2 Academies, 3 Academic Centres
- Offering courses at:
  - Undergraduate (112 programmes)
  - Postgraduate (109 programmes)
- More than 2000 academic staff
  - 67% are PhD holders
  - 21% are International staff
University of Malaya

- Home to 26,000 students
- 14,400 undergraduate (UG) students
  - 900 are International UG students
- 11,600 postgraduate (PG) students
  - 2500 are International PG students
- Total of about 3400 international students from 82 countries

www.um.edu.my
Australia-Malaysia Research Innovation Forum, Kuala Lumpur 12th June 2012
UM Vision
To be an internationally renown institution of higher learning in research, innovation, publication and teaching

UM Mission
To advance knowledge and learning through quality research and education for the nation and for humanity
ENABLERS

WORLD-CLASS RESEARCH

GOVERNANCE & LEADERSHIP
QUALITY RESEARCHERS
STATE-OF-THE-ART INFRASTRUCTURE
PLATFORM TECHNOLOGY
SUFFICIENT & SUSTAINABLE FUNDING
Roadmapping Implementation Strategies

**Roadmapping**

**Internally**

- Stock taking (SWOT Analysis)

**Synergize efforts (team building – multi-discipline)**

**Enhance R&D&C (CORs)**

**Strengthen collaborations (partnership)**

**Sourcing Funds (Private & International)**

**Introducing Quality Researchers**
- Bright Sparks (new talents)
- Academic Icons (foreign talents)
-- Postdocs and Research officers (enhancing expertise)

**External**

- National Level
  - IPTA, IPTS, RI, Industries

- International Level
  - Universities
  - Research Agencies
  - Industries
<table>
<thead>
<tr>
<th>Year</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**UM R&D ROADMAP (2011–2015)**

To be the Leader in Research and Innovation (Top 100 University)

Laying the Foundation

Strengthening & Enhancing

Delivering Excellence

**CRITICAL AGENDA**

- World-class Centre of Excellence
- Quality Researchers (Bright-spark Program)
- Foreign Talents (Academic Icons)
- High-Impact Research (HIR)
- Commercialisation Activities
- Financial Autonomy
Enhancement of Research and Publications

- Formation of 8 Research Clusters
- Formation of Units to assist research & publications
- Increased R & D fund (operational budget) from 7% (2006) to 25% (2011)
- Implementation of the University Research Grant (URG) scheme
Enhancement of Research and Publications

Key:

- **8 Research Clusters**
  - **AET**: Advanced Engineering Technology
  - **AFR**: Advanced Fundamental Research
  - **HNE**: Humanities & Ethics
  - **HTM**: Health & Translational Medicine
  - **ICT**: ICT & Computational Science
  - **SBS**: Social & Behavioral Science
  - **SuSci**: Sustainability Science
  - **UMBIO**: Biotechnology & Bioproduct
Enhancement of Research and Publications

Formation of New Units

- ISI Publication Unit
- Secretariat for Ranking & University Performance
- Bright Spark Unit
- International Benchmarking
- High Impact Research Fund
Enhancement of Research and Publications

- Set **Standard Academic Performance Targets** and new promotion criteria as benchmarked against global research universities in the Asian as well as other regions.
- Set up **High Impact Research Grant (HIR) scheme** which is chaired personally by the VC - stringent outcome targets is expected from the scheme.
- **Incentives** of RM 50,000 for publication in Nature and Science.
- **Incentives** paid for ISI paper based on the ISI tiers (Q1, Q2, Q3, Q4)

www.um.edu.my
Australia-Malaysia Research Innovation Forum, Kuala Lumpur 12th June 2012
HIR from the Ministry of Higher Education

Cabinet decision to support at least one research university to break into the Top 100 world ranked universities by 2015 based on QS Ranking

MOHE Fund started in July/August 2011

Total allocation – RM590 million for 5 years

Five faculties and one Special Chancellory Project
WORLD UNIVERSITY RANKING

1) Research Output – 40%
2) Quality of Faculty – 40%
3) Quality of Education – 10%
4) Size of Institution – 10%

1) Academic Peer Review – 40%
2) Research Excellence – 20%
3) Teaching Excellence – 20%
4) Employer Survey – 10%
5) International Students – 5%
6) International Faculty – 5%

1) Academic Peer Review – 40%
2) Citations per faculty – 20%
3) Student faculty ratio – 20%
4) Employer/Recruiter review – 10%
5) International Students – 5%
6) International Faculty – 5%
High Impact Research (HIR) STRATEGIES

- Stringent internal and external review process
- Tough but transparent monitoring and audit systems
- Regular progress reports and oral presentations
- Dedicated HIR Secretariat to expedite process of purchases, employment of RA, etc.
- Flagship projects which can attract Bright Sparks
- Investment in high-end equipment (RM100 million) for central facility labs
CRITERIA FOR HIR FUNDING

1. Emphasis is on Fundamental Research
2. Quality projects in niche priority areas
3. Internationalism and partnership with Ivy-league universities
4. Publication in ISI/WoS Tier 1 high impact journals in respective disciplines
5. PIs must have good track record of Tier 1 publications, not meant for “rookies”
6. Cost-effectiveness at RM100K/Tier 1 paper
7. Other targets include manpower development, patents
HIGH IMPACT RESEARCH (HIR) ADVISORY COUNCIL

1. UM Nobel Fellow Dr. Barry Marshall
2. UM Nobel Fellow Dr. Ryoji Noyori
3. UM Nobel Fellow Dr. David Baltimore
4. UM Distinguished Fellow Dr. Rita Colwell
UM RYOJI NOYORI
Chemistry/Materials Science

UM COLWELL CENTRE
Systems Biology/Bioinformatics

UM MARSHALL CENTRE
Helicobacter/Tropical Diseases

UM BALTIMORE CENTRE
Epigenetics

HIR RESEARCH COLLABORATORS

Ryoji Noyori

Rita Colwell
Standard Academic Performance Targets (KPIs) for Staff

1. Research Grants (on average)
   - For S&T: RM 50,000.00 per staff per year
   - For non S&T: RM 10,000 per staff per year

2. Publications:
   - Publications in ISI-indexed journals per year (minimum)
   - No. of citations (minus self-citations)
   - $h$-index (faculties and discipline-based)
Research and Teaching Programmes

Collaboration Partners (some examples)

- Japan Society for Promotion of Science (JSPS)
- Malaysian University Consortium for Environmental Development (Denmark)
- EU Asia Link Programme (Denmark & Netherlands)
- Africa Asia University Development Network (AADUN)
- Kyoto University-Tsinghua University-UM -E-Learning Programme
- Academia Sinica Taiwan-UM Research Collaboration
Some of UM’s MOU International partners
### How UM Has Changed

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Academic Staff</td>
<td>Has increased from 1,650 (2007) to more than 2,000 (2011) with 25% international faculty</td>
</tr>
<tr>
<td>Number of Undergraduate Students</td>
<td>Has decreased from 19,443 (2006) to 14,340 (2011)</td>
</tr>
<tr>
<td>Number of Postgraduate Students</td>
<td>Has increased from 9,884 (2006) to 11,638 (2011) with 25% foreign students from 82 countries</td>
</tr>
<tr>
<td>Expenditure for Research &amp; Development</td>
<td>Has increased from 7% (2006) to 25% (2011) of university’s annual operational budget</td>
</tr>
<tr>
<td>Research Publications</td>
<td>Has increased from 1,436 (2006) to 3,747 (2011)</td>
</tr>
<tr>
<td>Patent (Registered and Pending)</td>
<td>Has increased from 28 (2007) to 57 (2011)</td>
</tr>
</tbody>
</table>
UM Output

No. of Publications in ISI-Indexed Journals

(Source: UM Library)
### UM in QS World University Rankings

<table>
<thead>
<tr>
<th>Year: 2007</th>
<th>Year: 2008</th>
<th>Year: 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall</strong> 246=</td>
<td><strong>Overall</strong> 230=</td>
<td><strong>Overall</strong> 180</td>
</tr>
<tr>
<td>Social Sciences &amp; Management 119</td>
<td>Social Sciences &amp; Management 137=</td>
<td>Social Sciences &amp; Management 167=</td>
</tr>
<tr>
<td>Natural Sciences 124</td>
<td>Natural Sciences 197=</td>
<td>Natural Sciences 244</td>
</tr>
<tr>
<td>Life Sciences &amp; Medicine 107</td>
<td>Life Sciences &amp; Medicine 127=</td>
<td>Life Sciences &amp; Medicine 132=</td>
</tr>
<tr>
<td>Engineering &amp; Technology 166</td>
<td>Engineering &amp; Technology 179=</td>
<td>Engineering &amp; Technology 201=</td>
</tr>
<tr>
<td>Arts &amp; Humanities 233=</td>
<td>Arts &amp; Humanities 190</td>
<td>Arts &amp; Humanities 178=</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year: 2010</th>
<th>Year: 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall</strong> 207</td>
<td><strong>Overall</strong> 167</td>
</tr>
<tr>
<td>Social Sciences &amp; Management 195</td>
<td>Social Sciences &amp; Management 165</td>
</tr>
<tr>
<td>Natural Sciences 290=</td>
<td>Natural Sciences 296</td>
</tr>
<tr>
<td>Life Sciences &amp; Medicine 181=</td>
<td>Life Sciences &amp; Medicine 147</td>
</tr>
<tr>
<td>Engineering &amp; Technology 164=</td>
<td>Engineering &amp; Technology 180</td>
</tr>
<tr>
<td>Arts &amp; Humanities 238=</td>
<td>Arts &amp; Humanities 191</td>
</tr>
</tbody>
</table>
University of Malaya

THANK YOU
TERIMA KASIH
Ranking of Local Universities based on WoS Publications

Comparison of RU: Publications Indexed in Web of Science 2003-2012
(as of 27th February 2012)

- **UM**: 276, 388, 420, 398, 498, 593, 1,089, 1,633, 1,979, 158
- **USM**: 256, 240, 347, 420, 511, 743, 1,013, 1,504, 1,713, 124
- **UKM**: 133, 180, 179, 196, 271, 419, 594, 706, 901, 58
- **UPM**: 202, 240, 233, 286, 298, 411, 747, 987, 1,388, 103
- **UTM**: 52, 84, 91, 105, 150, 184, 278, 447, 628, 54
Comparison of RU: Publications Indexed in Scopus 2003-2012
(as of 27th February 2012)

<table>
<thead>
<tr>
<th>Year</th>
<th>UM</th>
<th>USM</th>
<th>UKM</th>
<th>UPM</th>
<th>UTM</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>410</td>
<td>362</td>
<td>211</td>
<td>281</td>
<td>77</td>
</tr>
<tr>
<td>2004</td>
<td>522</td>
<td>465</td>
<td>357</td>
<td>370</td>
<td>192</td>
</tr>
<tr>
<td>2005</td>
<td>611</td>
<td>543</td>
<td>377</td>
<td>400</td>
<td>238</td>
</tr>
<tr>
<td>2006</td>
<td>715</td>
<td>704</td>
<td>544</td>
<td>587</td>
<td>285</td>
</tr>
<tr>
<td>2007</td>
<td>792</td>
<td>782</td>
<td>658</td>
<td>670</td>
<td>372</td>
</tr>
<tr>
<td>2008</td>
<td>1,142</td>
<td>1,162</td>
<td>1,066</td>
<td>1,081</td>
<td>676</td>
</tr>
<tr>
<td>2009</td>
<td>1,689</td>
<td>1,531</td>
<td>1,754</td>
<td>1,758</td>
<td>851</td>
</tr>
<tr>
<td>2010</td>
<td>2,261</td>
<td>2,425</td>
<td>1,946</td>
<td>1,666</td>
<td>1,329</td>
</tr>
<tr>
<td>2011</td>
<td>2,854</td>
<td>2,717</td>
<td>2,598</td>
<td>2,482</td>
<td>1,555</td>
</tr>
<tr>
<td>2012</td>
<td>270</td>
<td>270</td>
<td>222</td>
<td>226</td>
<td>175</td>
</tr>
</tbody>
</table>
Some Challenges Faced

1. Capacity: Difficulties in recruitment
2. Administrative Procedures and Process
3. Infrastructure and Facilities
4. Mind Set