UNIVERSITI SAINS MALAYSIA

The APEX University

The State Of The Art

Transforming Higher Education for a Sustainable Tomorrow

Seri Paduka Baginda Yang di-Pertuan Agong XIV

Al-Sultan Almu’tasimu Billahi Muhibuddin
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The APEX *University*

The State Of The Art

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Future
Uniqueness
Sustainability
Humanity
Universality
Change
Sacrifice

7 Thrusts

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1976 - 1982

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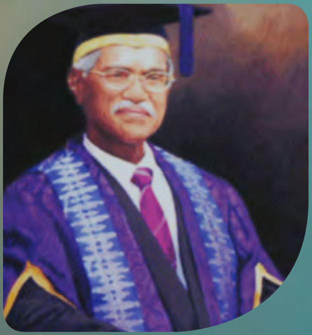

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Professor Tan Sri Dato' Dzulkifli Abdul Razak
2000 - 2011

Quality • Equity • Availability • Accessibility • Affordability • Appropriateness

Transforming Higher Education for a Sustainable Tomorrow

USM UNIVERSITI SAINS MALAYSIA

USM is a pioneering, transdisciplinary research intensive university that empowers future talent and enables the *bottom billion* to transform their socio-economic well-being

UNIVERSITI SAINS MALAYSIA

The future • Uniqueness • Sustainability • Humanity • Universality • Change • Sacrifice

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LIST OF ACRONYMS

AIESEC	Association Internationale des E'tudients en Sciences E'conomiques at Commerciales
AKEPT	Akademi Kepimpinan Pengajian Tinggi
APC	Anugerah Perkhidmatan Cemerlang
APEID	Asia-Pacific Programme of Educational Innovation for Development
APEX	Accelerated Programme for Excellence
APUCEN	Asia-Pacific University-Community Engagement Network
ARAL	Academic Recognition and Leadership
ARI	Advanced Research Innitiatives
AUSMAT	Australian Matriculation
BJIM	Bahagian Jaringan Industri dan Masyarakat
BOD	Board of Directors
BOS	Blue Ocean Strategy
CASE	Community and Social Engagement
CEE	Centre of Engineering Excellence
CGPA	Cummulative Grade Point Average
CGSS	Centre for Global Sustainability Studies
CMLV	Cambodia-Myanmar-Laos-Vietnam
CoE-E&E	Centre of Excellence for Electrical and Electronics
CPU	Canadian Pre-university
CREST	Collaborative Research in Engineering, Science and Technology
CSR	Corporate Social Responsibility
DICN	Division of Industry & Community Network
DVC	Deputy Vice Chancellor
EAC	Engineering Accreditation Council
EDA	Electronic Design and Automation
ERRC	Eliminate-Reduce -Raise -Create
ESD	Education for Sustainable Development
ESQ	Emotional Spiritual Quotient
GA	Graduate Assistant
GACER	Global Alliance for Community Engaged Research
GDC	Global Design Competition
GMP	Good Manufacturing Practice
GOT	Graduating on Time
GSB	Graduate School of Business
HBP	Housing, Building and Planning
HCMS	Human Capital Management System
IB	International Baccalaureate
ICAP	Industry, Community Advisory Panel
ICC	Innovative and Creative Circles
ICQCC	International Convention for Quality Control Circles
IEA-WA	International Engineering Alliance-Washington Accord
IETEX	International Exposition on Team Excellence
IHL	Institute of Higher Learning

IIT	Institute of Technology
INTAN	Institut Tadbiran Awam Negara
IPS	Institute for Postgraduate Studies
MyRA	Malaysia Research Assessment
IP	Intelectual Properties
IR	Institutional Repository
ISTIC	International Science, Technology and Innovation Centre
KIK	Kumpulan Inovatif dan Kreatif
KIP	Key Intangible Performance
KKU	Khazanah Koridor Utara
KLE	Karnataka Lingayat Education
KPI	Key Performance Indicators
KRA	Key Result Area
KTP	Knowledge Transfer Programme
LGU	Lembaga Governer Universiti
LOVE	Lifting Others Through Volunteer Engagement
MEC	Malaysian Examinations Council
MNC	Multinational Companies
MNI	Multinational Industry
MoA	Memorandum of Agreement
MOHE	Ministry of Higher Education
MoU	Memorandum of Understanding
MPC	Malaysia Productivity Corporation
MQA	Malaysian Qualifications Agency
MRO	Maintenance, Repair and Overhaul
MTDC	Malaysian Technology Development Corporation
MUnSyI	Malaysian University Selection Inventory
MyCPD	Malaysian Continous Professional Development
MyCSD	Malaysian Continous Student Development
MYRA	Malaysian Research Assessment
NADI	National APEX Development Indicators
NCADD	Northern Analogue and Digital Design
NCIA	Northern Corridor Implementation Agency
NCR	National Centre for Research
NDA	Non-Disclosure Agreement
NGO	Non-Governmental Organisation
NRIC	National Research and Innovation Competition
OCW	Open Course Ware
OSL	Optically Stimulated Luminescence
PASS	Postgraduate Academic Support Service
PCT	Patent Cooperation Treaty
PPD	Professional & Personal Development (Programme)
PPSK	Pusat Pengajian Sains Kesihatan
PRGS	Postgraduate Research Grant Scheme

PSPTN	Pelan Strategik Pengajian Tinggi Negara
PTJ	Pusat Tanggungjawab (Schools, units, institutes, etc)
PWD	Public Works Department
QA	Quality Assurance
R&D	Research and Development
R&I	Research and Innovation
RCE	Regional Centre of Expertise
RCMO	Research and Creativity Management Office
REAP	Research and Publication
RIKEN	Japanese Natural Science Research Institute
RLC	Right Livelihood College
RU	Research University
S&T	Science and Technology
SAM	Sustainability Assessment Methodology
SAM	Suth Australian Matriculation
SCOMM	Strategic Communications Office
SEM	Scanning Electron Microscope
SKT	Sasaran Kerja Tahunan
SME	Small and Medium Enterprises
SOP	Standard Operating Procedures
SSR	Student Social Responsibility
SSUA	Skim Saraan Universiti APEX
TAS	Teaching and Supervision
TEL	Technology Enhanced Learning
TNA	Training Needs Analysis
TOR	Term of Reference
TWAS	Third World Academy of Science
UCE	University Community Engagement
UCEC	University Community Engagement Cluster
UGAP	Undergraduate Attachment Programme
UHP	Universite Henri Poincare
UIN	University Industry Network
UISB	Usains Infotech Sdn Bhd
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNU-IAS	United Nations University - Institute of Advanced Studies
UNU-RCE	United Nations University Regional Centre of Expertise
UPU	Unit Pusat Universiti
UQC	University Quality Centre
USIC	USAINS Strategy Industry Council
USM	Universiti Sains Malaysia
WEHAB	Water, Energy, Health, Agriculture and Biodiversity
WWF	World Wildlife Fund
UGGI	University Good Governance Index
SEDIA	Students Entrepreunerial Initiative Agenda

APEX: THE STORY THUS FAR

APEX was a challenge that was taken up by USM to see how we as a university would be able to move beyond normality, or the normal routine of "business as usual" and push the limits of creativity, innovation and aspiration beyond or over the normal approach of strategising and planning. When we submitted the APEX proposal to the government, the documents that we produced were very ambitious and required hefty investment by the government to push USM at an accelerated rate that would propel us into the global arena; in particular we were envisaging that we would be able to be more autonomous, produce talented researchers and students and create many breakthroughs

in research and its related output. Therefore, the original APEX model was dependent upon three parameters namely that:

- We would be able to govern the university autonomously.
- We would be able to choose talented students and nurture talented staff to produce the best.
- The resources that would be made available to us would be allocated with due consideration to our requirements.

In essence, the idea was that we would be able to accelerate faster, produce faster and move beyond the other institutions.

However on reflection, those aspirations and the premises upon which we worked were good but did not materialise within the timeframe that we had envisaged. The reality is that the research process, acceleration process, talent management and nurturing, and the autonomous quest upon which the university was looking to embark were achievable but would have to take into consideration many other externalities that had not been fully considered during the formulation of the proposal. More significantly, the higher education transformation in Malaysia was just about to begin at the time and APEX was supposed to be the test bed of many things that

were carried out; hence in due recognition we were awarded the status and we were willing to push beyond normal activities. The acceleration process however faced many hurdles. Internalisation was a factor that was not initially viewed in a strategic manner. So later, in mid-2011 and more forcefully in early 2012 the internalisation process was pushed more furiously, directed in particular to ensuring that processes were more efficient to ensure the beneficial utilisation of resources. At the same time, hiccups in programmes and projects were weeded out.

By the end of 2012, with the limited resources and partial autonomy that were made available to us and with the talent that we commanded both students and staff, we were able to achieve more than other institutions in many areas. Several of our Blue Ocean efforts have become the template emulated by other institutions. If that is the benchmark for acceleration, then we have made remarkable progress; bearing in mind that while trying to implement change and move the whole institution we still remained at the forefront as a research university whilst pioneering several measures such as autonomous student intake, holistic student development programmes and our own APEX constitution. Our USM-grown talent won many creative and innovative awards and more importantly produced the necessary capacity of researchers and talent with proper qualifications as part of the whole sum process of achieving research

PERPUSTAKAAN HAMZAH SENDUT 2

university status and achieving the APEX mission of making us a sustainability-led university.

Thus, in our fourth year of APEX, we are positioned to move into a better position of planning, envisioning and realising our vision through:

- a review of programmes that are beneficial
- the identification of modalities and enablers that propel us to the goal of being a sustainability–led research university with global mindset talents, both staff and students.

APEX should therefore be seen as pushing the frontier of higher education transformation whole sum, holistically and in totality so that USM can be an institution that will be looked up to and respected yet willing to share the wealth of knowledge, both economic-driven and community-shared that can be derived from its research, its activities and its talents in the near future. We envision that probably in ten to fifteen years to come a whole new generation of APEX talented students and staff will be born out of this long term plan.

Professor Dato' Omar Osman
Vice-Chancellor
Universiti Sains Malaysia

1

The APEX University

KAMI MEMIMPIN
USM
UNIVERSITI
SAINS
MALAYSIA

Introduction

What is APEX?

Universiti Sains Malaysia (USM) was selected to implement the Accelerated Programme for Excellence (APEX) in 2008. APEX is a fast track development programme for institutions of higher education to be recognised as world class institutions. The programme aims to facilitate the university selected to be on the international level and also as a motivating factor to help raise the level of excellence in higher education to a higher level. The APEX programme was identified as one of the most critical initiatives to help transform Malaysian Higher Education. As a result of this initiative, the Ministry of Higher Education (MOHE) requested all local public and private institutions to submit their proposal for consideration to be selected as APEX University. All the higher institutions have tried their best to be awarded with the APEX status.

Mission

USM's mission in implementing the APEX programme is to become a pioneering university; transdisciplinary and research-intensive, that empowers future talents and enables the bottom billion to transform their socioeconomic well-being.

"We aspire to lead and innovate in achieving excellence at the international level through advancing and disseminating knowledge and truth, instilling qualities that stress academic excellence and professionalism, developing holistic individuals and providing a strong commitment towards the society's aspiration, the country's vision and universal aspirations".

Vision

USM also incorporated the concept of sustainability to achieve its vision as an APEX university, which is:
“Transforming Higher Education for a Sustainable Tomorrow”

Selection of the vision is based on the university’s initial efforts to develop alternatives for the future. Sustainability is one of the five scenarios that encourage Universiti Sains Malaysia to adopt the concept of University in a Garden. Universiti Sains Malaysia is described as a large tree. This tree is symbolic of knowledge while the tree roots are nurtured with care by professionals who are committed and dedicated. These branches in turn, symbolise the holistic development of mind without losing sight of a sustainable relationship with nature.

Why USM?

Universiti Sains Malaysia has been chosen to implement the APEX programme based on several factors, including:

1. Outstanding achievements in teaching and learning programs as well as research and innovation justify awarding Universiti Sains Malaysia the status.

2. Universiti Sains Malaysia is in the best position to achieve world class university status. Universiti Sains Malaysia has also developed basic infrastructure to compete globally and to attract quality employees as well as local and international students.

3. Universiti Sains Malaysia is the only university to receive five-star recognition by the Malaysian Qualifications Agency (MQA) and this makes Universiti Sains Malaysia the best university in terms of research and contributions to the community

4. Universiti Sains Malaysia’s sustainability programme was acknowledged by the United Nations University’s Regional Centre of Expertise (UNU-RCE) in 2005.

5. Universiti Sains Malaysia has created a structured and systematic research programme in line with the integration between science and arts.

6. Since 2004, Universiti Sains Malaysia has rolled out institution plans for the future up to 2025. This plan outlines a number of global reach features and also programmes with sustainability–led concept.

7. In 2007, Universiti Sains Malaysia has been selected as one of four research universities in Malaysia by the Ministry of Higher Education. The outstanding achievements prove that USM is able to continue to move forward to become a world-class university.

The Proposal

After a rigorous selection process, Universiti Sains Malaysia (USM) was selected as an APEX status university under the APEX programme by the Minister of Higher Education starting from 3 September 2008.

Under the APEX proposal entitled, ‘Transforming Higher Education for a Susrtainable Tomorrow’, USM has outlined a two-pronged transformational goal within the APEX framework to include its efforts in advocating the process of sustainable development in ascertaining a more lasting future. In particular the survival of the planet and humankind by ensuring the appropriate use of resources towards a greater understanding, respecting and even taking necessary steps to build a robust, balanced, prosperous and sustainable future. Another goal that USM has proposed is to become world-renowned for sustainability and a sustainability-led university.

For the goal of transforming higher education for a sustainable tomorrow, USM has moved the sustainability agenda by reinvigorating and transforming its teaching and learning programmes, R&I activities and various services to produce more meaningful quality outcomes that embrace the values of equity, accessibility, availability, appropriateness and affordability. Ultimately, it aims to support the drive to improve the well-being of humanity, especially the bottom billion.

For the goal of being a sustainability-led university, USM has pursued and expanded to nurture the human being as the 'seed' of sustainable social transformation amongst USM staff and students. On the other hand, staff and students are given opportunities in the learning programmes so that they were exposed to the real world environment. It aims to integrate relevant knowledge concepts of sustainability across thinking, practices, applications and solutions.

By choosing these agenda as its destination, USM will embark on numerous transformational journeys, including revamping most of its activities pertaining to nurturing and learning, research and innovation, services, students and alumni and the management of the university as a whole. The university will take steps to improve the three core pillars of its strengths, for example concentration of talent, resources and acculturation of supportive governance.

APEX Critical Agenda

In a short period of time, USM has adopted five critical agenda as its guiding principles in order to reinvent itself to become a global institution of higher learning of tomorrow. The five principles are:

1. Transforming higher education for a sustainable tomorrow.

2. Creating cutting edge, high value innovative flagships.

3. Reaching out towards the bottom billion.

4. Translating sustainability into action via the *sejahtera* concept, and the University in a Garden concept.

5. Leveraging on Scenario Planning - the 'Blue Ocean Strategy' - Change management.

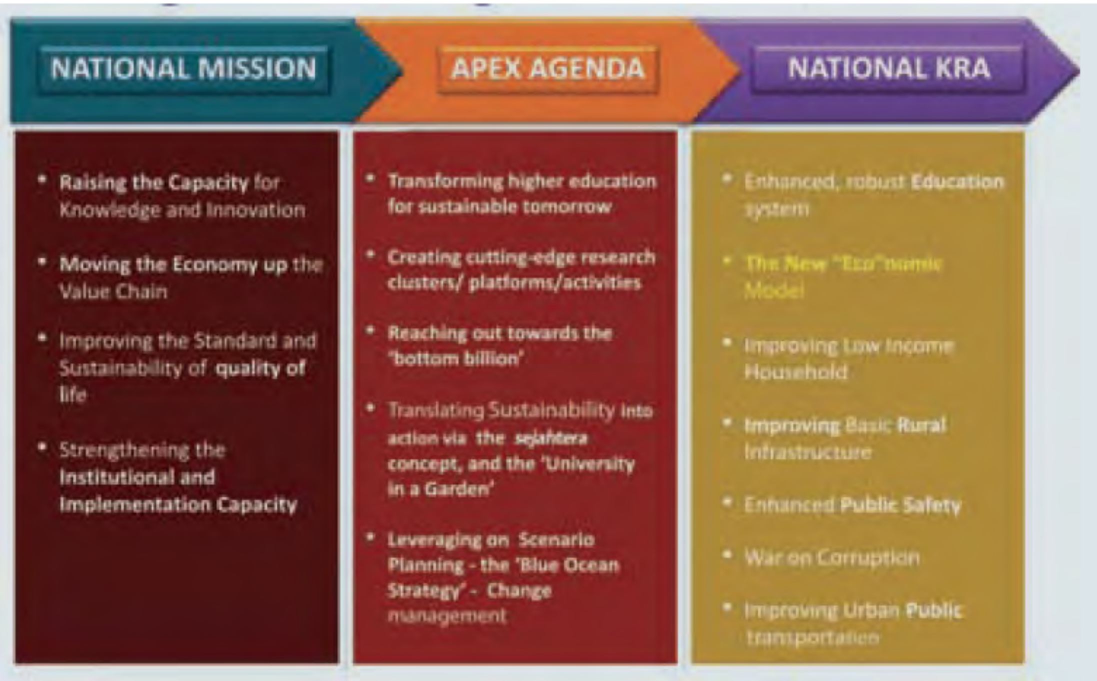
These agenda are contextualized within the principles and values of the future, uniqueness, sustainability, universality, change and sacrifice which are realigned to support Malaysia's New Economic Model of high income, sustainability and inclusiveness. These agendas are also congruent to, and supportive of, the National Mission and Key Result Areas (KRA) (Table 1.1).

2.2 Seven Thrusts of USM

Universiti Sains Malaysia would continue to lead in facing future challenges by implementing seven core areas as a basis to shape the world's first APEX University. The seven core areas are:

1. Future
2. Uniqueness
3. Sustainability
4. Humanity
5. Universality
6. Change
7. Sacrifice

Table 1.1 APEX and the National Agenda



NATIONAL MISSION	APEX AGENDA	NATIONAL KRA
• **Raising the Capacity** for Knowledge and Innovation • **Moving the Economy up** the Value Chain • Improving the Standard and Sustainability of **quality of life** • Strengthening the **Institutional and Implementation Capacity**	• **Transforming higher education for sustainable tomorrow** • **Creating cutting-edge research clusters/ platforms/activities** • **Reaching out towards the 'bottom billion'** • Translating Sustainability **into action via the *sejahtera* concept, and the 'University in a Garden'** • **Leveraging on Scenario Planning - the 'Blue Ocean Strategy' - Change** management	• Enhanced, robust **Education** system • The New "Eco"nomic Model • Improving Low Income Household • **Improving** Basic **Rural** Infrastructure • Enhanced **Public Safety** • War on Corruption • Improving Urban **Public** transportation

APEX in the Context of the National Higher Education Strategic Plan (PSPTN)

Under the Action Plan of the National Higher Education Strategic Plan, one of the high profile projects for the empowerment of higher education on the world stage is the involvement of the public university in the APEX program, as APEX University. The APEX University will act as a catalyst to stimulate the entire system of higher education to move towards excellence. USM as a selected institution needs to implement this programme to become a model for other institutions by setting a performance benchmark and using the best practice of the university.

To implement the APEX programme, flexibility should be given to Universiti Sains Malaysia in order to be able to act fast in making certain decisions. Therefore, USM has been actively working on gaining more autonomy in terms of governance, finance and income generation, human resources, academic and admission of students.

Universiti Sains Malaysia's main mission in the APEX programme is translated as "a pioneering university, transdisciplinary and research-intensive that empowers future talents and enables the bottom billion to transform their socioeconomic well-being". This is in line with USM's vision "Transforming Higher Education for a Sustainable Tomorrow."

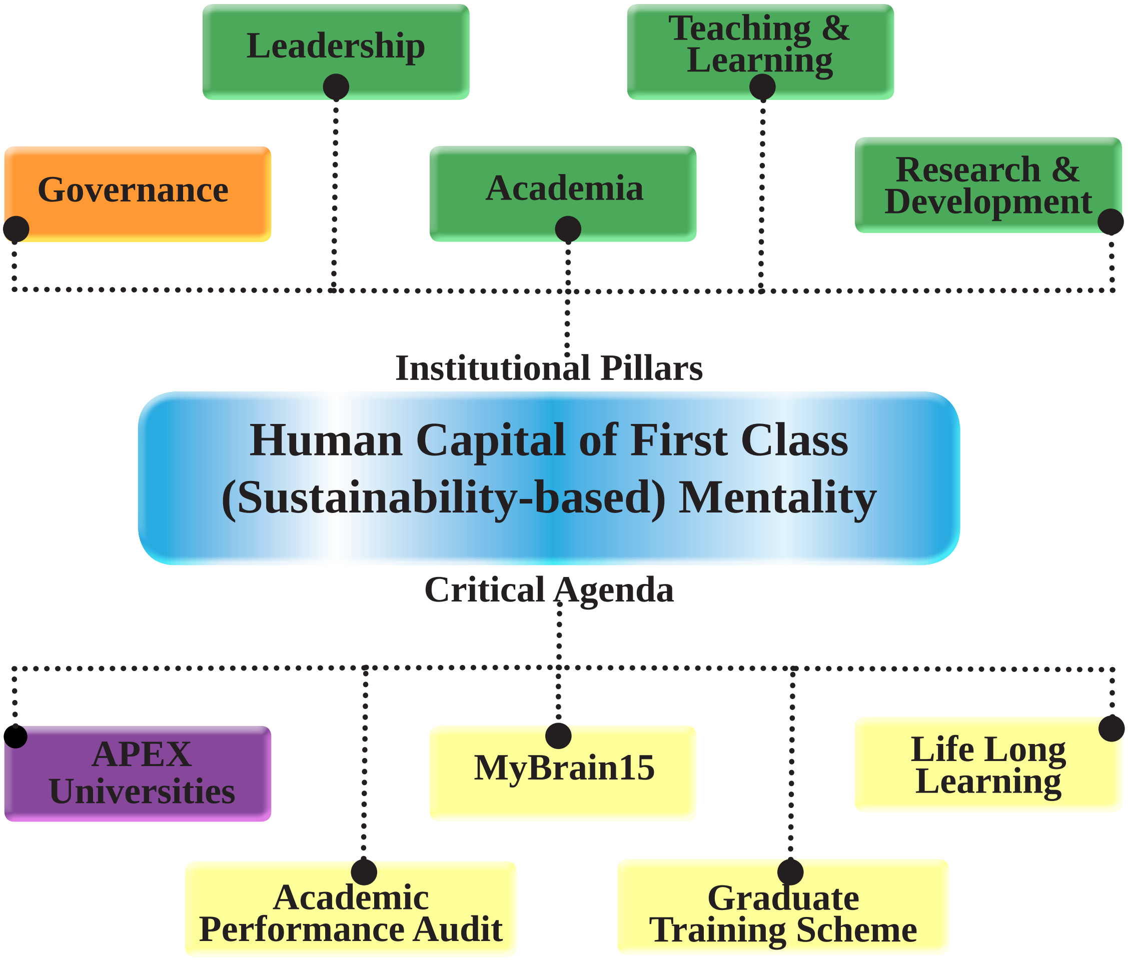
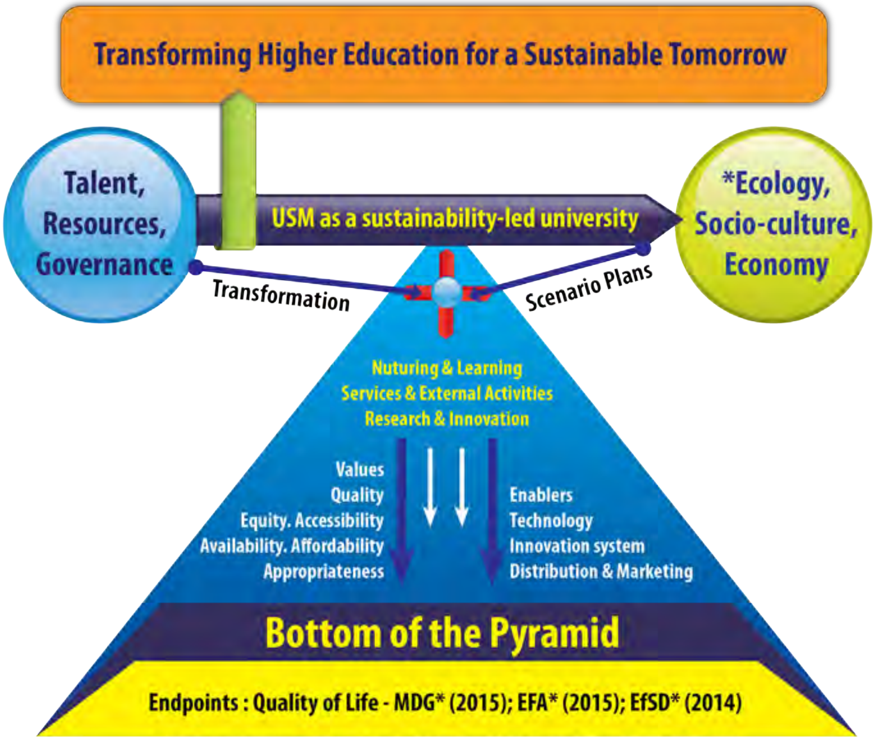

Leadership
Teaching & Learning
Governance
Academia
Research & Development
Institutional Pillars
Human Capital of First Class (Sustainability-based) Mentality
Critical Agenda
APEX Universities
MyBrain15
Life Long Learning
Academic Performance Audit
Graduate Training Scheme

Figure 1.1 PSPTN roadmap

USM’s Framework as APEX University


Transforming Higher Education for a Sustainable Tomorrow
Talent, Resources, Governance
USM as a sustainability-led university
*Ecology, Socio-culture, Economy
Transformation
Scenario Plans
Nuturing & Learning
Services & External Activities
Research & Innovation
Values
Quality
Equity. Accessibility
Availability. Affordability
Appropriateness
Enablers
Technology
Innovation system
Distribution & Marketing
Bottom of the Pyramid
Endpoints : Quality of Life - MDG* (2015); EFA* (2015); EfSD* (2014)

*Millennium Development Goals by 2015; Education for Sustainable Development by 2014

Figure 1.2 The APEX university framework

Figure 1.2 shows USM’s APEX university framework. As the first APEX university, Universiti Sains Malaysia adopts a two stage approach. First, the university intends to be world-renowned for its sustainability concepts. Second, it aims to be a leader in the sustainability process.

In this effort, Universiti Sains Malaysia has embarked on several initiatives to take on the social responsibility in development by protecting the ecology, conserving natural resources and promoting human development in the framework for campus sustainability. To achieve this mission, Universiti Sains Malaysia should take initial steps to reconstruct the learning programme, research and other activities without compromising environmental sustainability.

In this programme, Universiti Sains Malaysia continues to move forward towards sustainability by making changes in the teaching and learning process, research and innovation activities and services to produce quality graduates. However, the main goal of this programme is to support efforts to improve human well-being, especially the bottom billion (Figure 1.3).

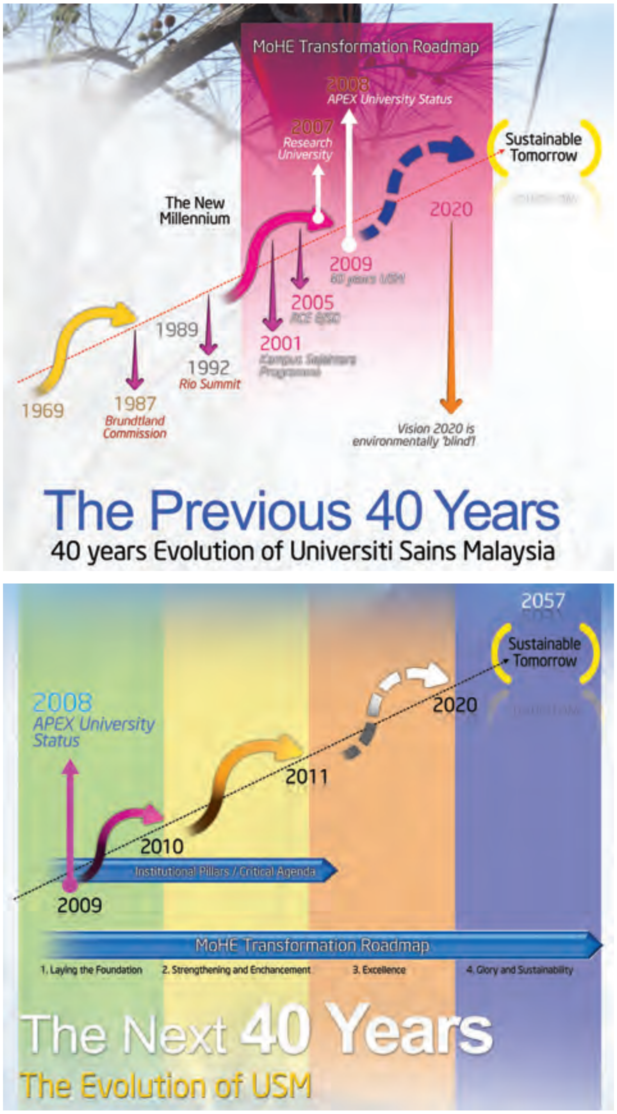

MoHE Transformation Roadmap
2008
APEX University Status
2007
Research University
Sustainable Tomorrow
The New Millennium
2020
2009
2005
1989
2001
1992
Rio Summit
1969
1987
Brundtland Commission
Vision 2020 is environmentally 'blind'!
The Previous 40 Years
40 years Evolution of Universiti Sains Malaysia
2057
Sustainable Tomorrow
2008
APEX University Status
2020
2011
2010
Institutional Pillars / Critical Agenda
2009
MoHE Transformation Roadmap
1. Laying the Foundation
2. Strengthening and Enchancement
3. Excellence
4. Glory and Sustainability
The Next 40 Years
The Evolution of USM

Figure 1.3 USM track record

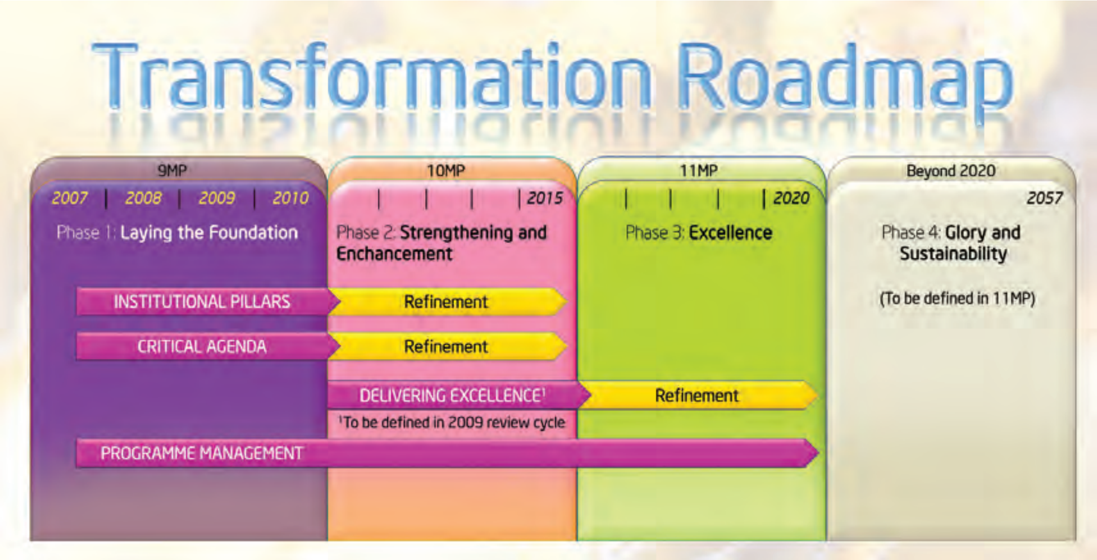

Transformation Roadmap
9MP
10MP
11MP
Beyond 2020
2007
2008
2009
2010
2015
2020
2057
Phase 1: Laying the Foundation
Phase 2: Strengthening and Enchancement
Phase 3: Excellence
Phase 4: Glory and Sustainability
(To be defined in 11MP)
INSTITUTIONAL PILLARS
Refinement
CRITICAL AGENDA
Refinement
DELIVERING EXCELLENCE¹
Refinement
¹To be defined in 2009 review cycle
PROGRAMME MANAGEMENT

Figure 1.4 USM Transformation Roadmap (Source: MOHE)

USM's Transformation Strategy

The transformation strategy adopted by USM will consist of two primary foci (Figure 1.4):

- Transforming the three pillars of a world renowned higher education institution, namely the concentration of talent, the abundance of resources and the acculturation of supportive governance
- Transforming the output/outcome necessary to be world reknowned.

Underlying these focused areas is the overall paradigm of blue ocean thinking approaches taken by USM and other European universities. This allows the university to grow and innovate untainted by competition, through the creation of new demands by introducing new value innovation and opportunities.

USM's Transformation Strategies to Cross the Blue Ocean

The selection of USM as the first and only APEX University in the country has provided the platform for the university to move full steam ahead to transform itself.

The areas which have been identified for transformation are:

- nurturing and learning
- research and innovation
- industrial liaison and community engagement
- student and alumni services
- postgraduate studies
- talent management
- resource enrichment
- autonomy and accountability
- good governance

USM is ready to perform the transformation and move towards the unexplored areas and markets. The Blue Ocean Strategy helps the university to develop and produce innovation to meet market demand through healthy competition. The concept of Blue Ocean Strategy was introduced by Kim and Mauborgne (2005) which was defined as "the untapped market space, demand creation and the opportunity for highly profitable growth."
"To maximize the size of their blue oceans, companies need to take a reverse course. Intead of concentrating on customers, they need to look to non customers. And instead of focusing on customer differences, they need to build on powerful commonalities in what buyers value. That allow companies to reach beyond existing demand to unlock a new mass of customers that did not exist before" (Kim and Mauborgne, 2005).

It also required the university to create its own wave that has the ability to develop new competition while at the same time providing benefits to mankind, not limited only to Malaysians but also for people around the world. Apart from that, USM should eliminate bureaucracy, financing gaps and differences in talent. However, Universiti Sains Malaysia has to boost its global agenda, autonomy and the need to foster people-led concepts in order to solve global problems through local solutions (Figure 1.5).

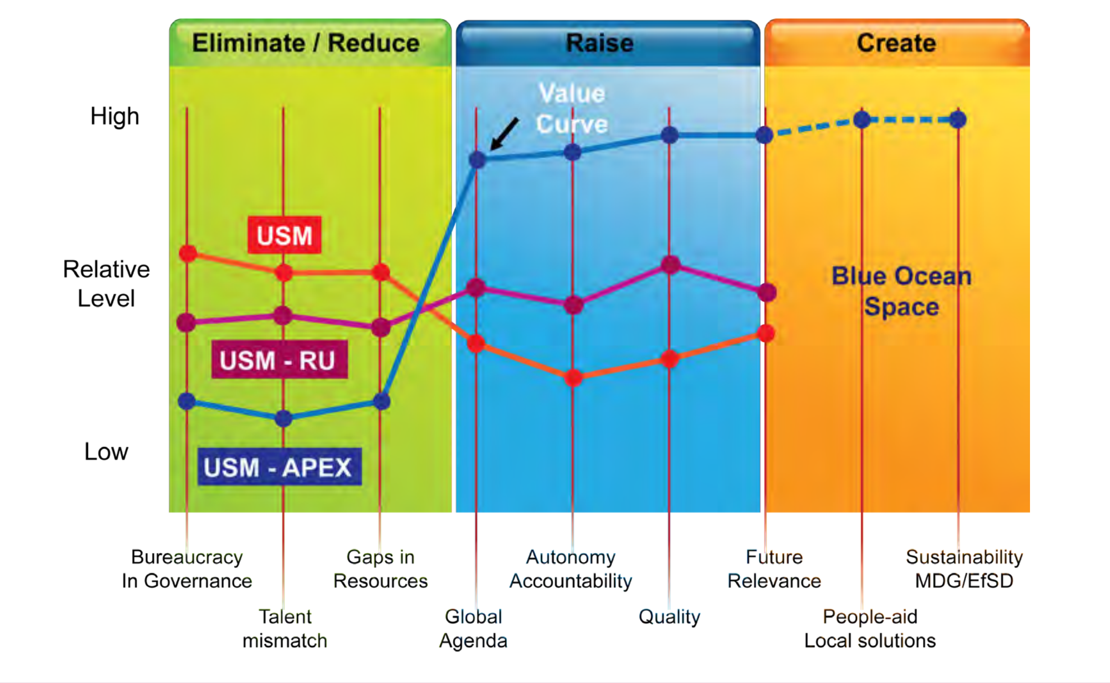


Figure 1.5 USM-Canvas

Sustainability

In conjunction with the APEX award that was conferred on the university, USM has begun to refocus and retool its teaching, research and community engagement areas to meet sustainability standards. These three missions form an integral part of Education for Sustainable Development, thus embodying the principles of a holistic education. In order to facilitate and catalyse the APEX vision, USM was convinced that a dedicated centre was a necessity in transforming higher education for sustainable development.

In response to this need, the Centre for Global Sustainability Studies (CGSS) was established to promote sustainability within the USM-APEX context. CGSS has taken the first step to introduce sustainability at all levels of the university by developing the USM-APEX Sustainability Roadmap (Figure 1.4) and in the context of awareness building, a set of Sustainability Fact Sheets.

The Roadmap presents the university's situation, state of readiness and action plans for the systemic adoption of the principles and practices of education for sustainable development. It also assesses the current status of sustainability across the university's mission areas as well as Water, Energy, Health, Agriculture, and Biodiversity (WEHAB) and intimately relates cross-sectoral issues such as climate change/ disaster risk management, population/ poverty and production/consumption.The Roadmap is expected to generate a variety of university-wide projects. A major monitoring and evaluation scheme was also developed, together with a condensed section on all major global initiatives dealing with Education for Sustainable Development.

Conclusion

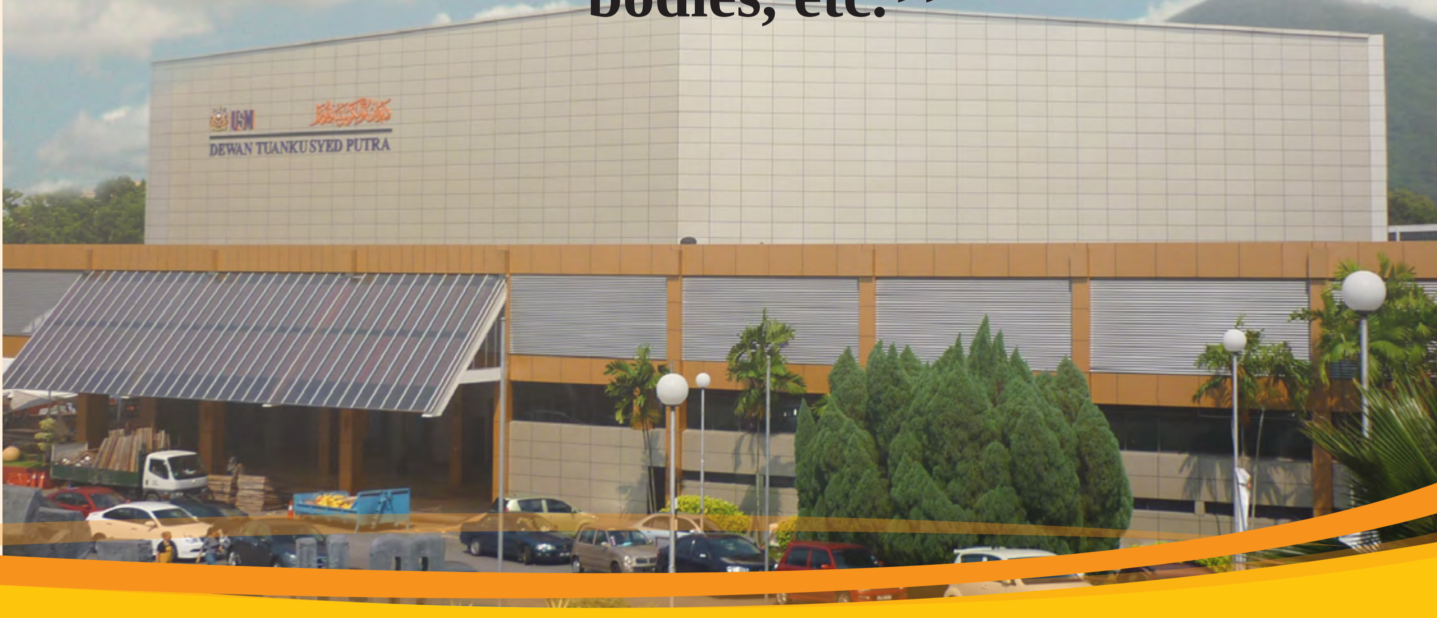
In order to make USM a world-class research university with an emphasis on sustainability and a top university in the field of sustainability in providing global solutions using local resources and to ensure that the desire to help the bottom billion in the context of using existing expertise can be done effectively.

This APEX Programme which is proposed and submitted by USM is done on the basis of our fervent desire to be the best not only in the country but in the region and in the world. The university has articulated this belief in its plan. USM also share the aspiration of MOHE, that is to lay the foundation for the revolution of Malaysian Higher Education - a revolution that is not merely desirable, but is necessary for USM's survival.

2

Governance: Pioneering Good Governance and Integrity

“Governance has been identified as one of the three main pillars in the transformation plan of the USM-APEX university. In order to steer confidently and effectively into the Blue Ocean, USM proposes “supportive governance” as its vehicle. The primary issue in supportive governance is not simply autonomy from the government, but how to build a credible internal overall audit system that would necessitate less intervention from outside agencies - government, legislature and politicians, funding bodies, etc.”



Introduction

Good governance and integrity are important pillars in the management of any entity including the university. The university therefore must ensure that it has the financial, management and administrative policies and procedures in place for the declaration of interests in any situation where decisions may give rise to conflict of interest, unfairness, manipulation, misrepresentation, undue influence and abuse.

Situations involving conflict of interest are avoided by requiring disclosure of interest. For example, Paragraph 2 of the Schedule of the University Constitution provides that any member of the university's authority, including all the university's staff that have an interest in a company or an undertaking or a contract with which the authority is dealing, must inform the authority of his interest. The interest must then be minuted.

The university always adheres to the natural justice rule of *nemo judex in causa sua* ie. no one can be a judge in his own cause. A staff member with an interest is disqualified from taking part in a proceeding in which he has a personal or pecuniary interest. Failure to observe this requirement may vitiate the decision in a court of law and may subject the staff to criminal prosecution under the laws of corruption.

The university's financial integrity is promoted through the appointment of a Standing Finance Committee to regulate the university's finances. Upon the advice of the Standing Finance Committee, the university draws up detailed estimates which are submitted to the Minister.

Accountability and redressal of grievances are promoted through the institution of a Complaints Officer also known as Ombudsman. Openness, transparency and accountability are further strengthened through a whistleblower's clause that protects those who make disclosures in order to expose corruption etc.

A Code of Ethics, containing procedures and guidelines for ethical conduct is always in place. For example, almost all committees established by the university will have their own Terms of Reference (TOR) or Standard Operating Procedures (SOPs) which clearly specify their functions and duties that include guidelines on how the respective committees should conduct themselves to ensure that integrity is preserved.

The university good governance is in good standing and various mechanisms are in place to provide a system of check and balance to mitigate potential risks and deliver quality services to its stakeholders. However, to enhance the effectiveness of good governance and integrity in the university, a few improvements and initiatives are imperative.

1	Draw up clear criteria and attributes for all the committees in the university
2	Set out the selection process for the appointment of the Board and senior management officers of the university to ensure greater transparency and fairness in paving the way for a high performing Board.

Governance

The APEX university emphasises good governance practices in managing its resources. The major characteristics include participation, rule of law, transparency, responsiveness, consensus orientation, equity and inclusiveness, effectiveness and efficiency and accountability. In transforming the management of resources, rigorous auditing shall contribute to supportive governance. A flexible working environment is likewise required, encompassing the mass participation of the university community. It shall be supported by strong customer relationship management.

Transforming Supportive Governance

Governance has been identified as one of the three main pilllars in the transformation plan of the USM-APEX university. In order to steer confidently and effectively into the Blue Ocean, USM proposes "supportive governance" as its vehicle. The primary issue in supportive governance is not simply autonomy from the government, but how to build a credible internal overall audit system that would necessitate less intervention from outside agencies–government, legislature and politicians, funding bodies, etc. The transformation plan of governance includes all aspects of nurturing and learning activities, research and innovation, services and resources as well as student development (Figure 2.8).

The central issue for colleges and universities is the relationship between governance and the internal environment for nurturing and learning. This has been emphasised by El-Khawas (2002)32 and McMillin and Berberet (2002)33. Gayle et al. (2003)34 further states that "in enhancing learning and individual student development, the key is not simply for faculty to teach more and better, but to create conditions that motivate and inspire students to educationally purposive activities, both inside and outside the classroom. Faculty who engage deep and relational learning must have the institutional support to do so". According to McMillin and Berberet (2002), "the essential variable in effective teaching and learning may be whether universities and colleges are viewed from the top as academic corporations or as institutions intended to foster innovative teaching and learning."

To achieve autonomy and sustainability, USM should create credible internal audit (finance:Figure 2.10, academic and resources), self-assessment, peer assessment and evaluation (Figure 2.9). The most important pillars of autonomy and governance are issues of quality and accountability (Figure2.11). An autonomous university comes with the burden of achieving high quality with accountability. Autonomous governance should be complemented by a regular (e.g. 5-year) system audit(Figure2.2).

- Introduce systems of monitoring satisfaction and performance by students.
- Students' representation in decision-making.
- Internal performance indicators – e.g., commercialisation of intellectual property.
- A strong system of overall internal review.
- Review existing governing bodies for their relevance and scope of authority.
- Ultimate authority on academic matters, finance and staff recruitments.

Figure 2.2: Elements of system audit

Reputable universities worldwide are built on a culture of autonomy. USM proposes a framework for a supportive governance autonomous university with strong accountability and transparency which will promote quality teaching, research and effective management. It is particularly important for USM to establish clear governing principles which include administrative representation, students' representation and external entities' representation.

The USM Constitution contains:

- USM's requests on autonomy and empowerment;
- USM's own "wish list".

What USM Has Promised In The Black Book On Governance

Transformation of Governance in 3 key activities of USM, namely:

a) nurturing and learning;

b) research and innovations; and

c) services, administration and finance.

Figure 2.3: Key elements for tranformation of governance

Transformation Strategies

Transformation of governance encompasses the three key/core activities of USM, namely nurturing and learning, research and innovations, and services and administration. (Figure 2.3). Using the ERRC Grid (Eliminate- Reduce – Raise – Create : Table 2.1), the transformation strategies of USM governance include:

Table 2.1 Tranformation strategies (ERRC Grid)

Eliminate	Raise
• Restrictive rules and regulations • Unnecessary bureaucratic structures • External authority and interference	• Internal accountability and monitoring measures in Financial, Nurturing and Learning and Services • Academic audits • Peer review system • Decentralisation • Strategic directions • Staff participation in the formulation of the university's aspirations and vision
Reduce	**Create**
• Rules and regulations that restricting academic activities • External control and functions from governmental and non-governmental influences and directives; • Central control.	• Student participation and empowerment • Student representations in decision making processes • Autonomous students' governing body • Staff self-accountability • An autonomous administrative system and structure. • USM own administrative system and creation of posts

On 2 September 2008, Universiti Sains Malaysia (USM) was awarded the country's first APEX University status.

“Reputable universities worldwide are built on a culture of autonomy. USM proposes a framework with strong accountability and transparency which will promote quality teaching, research and effective management. It is particularly important for USM to establish clear governing principles which include administrative representation, students’ representation and external entities’ representation.”

In the announcement of the APEX status to USM in 2008, USM was promised autonomy to create an innovative and competitive university management system together with a dynamic campus environment premised upon accountability and integrity. Autonomy would cover four main areas:

- i) Financial governance
- ii) Human resources
- iii) Academic management
- iv) Student's recruitment

Figure 2.5: Autonomy - four key areas

In order to implement the USM APEX mission, MoHE has promised USM a new constitution which contains provisions on granting of autonomy and governance rights to the university (Figure 2.5). As a result, the university delivered a complete draft of the new proposed Constitution to MoHE in February 2009.

From February 2009 until June 2011, there were no less than 36 meetings, discussions and/or workshops held between USM and various other stakeholders including, mainly the Legal Adviser and Director Genaral MoHE including several important meetings involving the Chief Secretary of MoHE and the Honourable Minister of Higher Education for their input and approval of the new USM Constitution.

In addition, discussions and meetings were held with other stakeholders and other interested parties such as the Ministry of Finance and the Public Services Department.

In December 2009, MoHE approved the USM Constitution which was then forwarded to the Attorney General's Office. In mid-June 2010, the Attorney General's Office approved the USM Constitution and returned it to MoHE with a letter dated 7th June 2010, referenced PN (PU2)75B/II.

During the drafting stage, there were at least five identified obstacles that hindered the progress of the new APEX Constitution of the University. A couple of meetings between USM and MoHE's top management for the ultimate solution were organized with the final meeting beeing held on 26th December 2010.

Autonomy With Integrity

The current administrative system and structure is tied to and determined by the Public Services Department. USM should be allowed to set up an institution with its own administrative system, remuneration scheme, and the creation of posts based on the needs of USM (Figure 2.6).

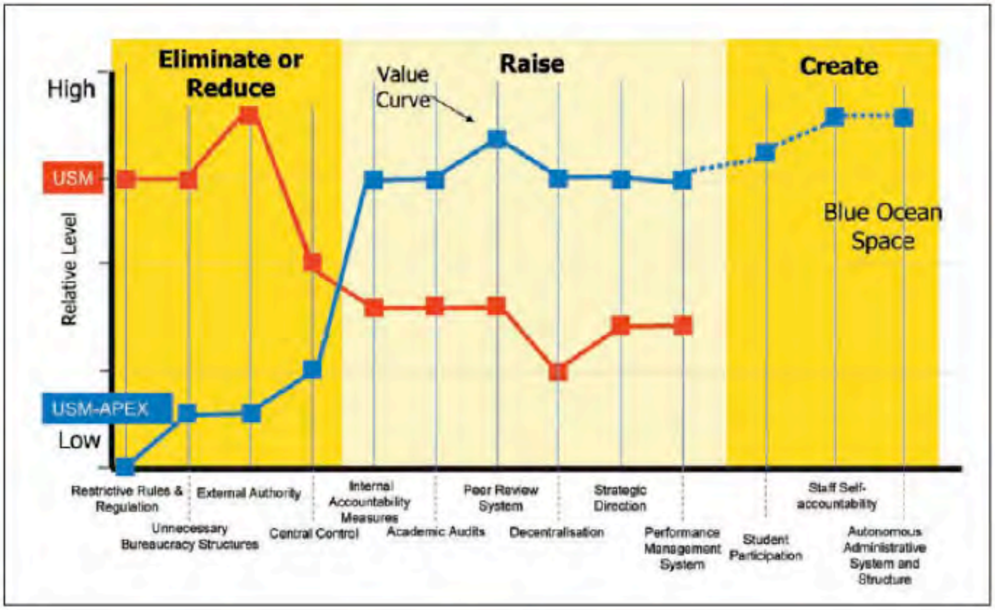


Figure 2.6: A strategy canvas for the tranformation of Governance

LPU now becomes LGU

The Board of Directors or *Lembaga Pengarah Universiti* (LPU) is now renamed as the Board of Governors or *Lembaga Gabenor Universiti* (LGU) – Section 18(1) *Perlembagaan USM*. This is in line with the practice of most foreign universities.

The Drafting and Reorganisation Process of the University's New Statutes

Since January 2012, USM Legal Office has embarked on the process of drafting statutes based on the APEX Constitution (Figure 2.7). These new and updated statutes are essential to reflect the change of governance of the university as well as to adapt to the changing times and challenges that the university faces in the 21st Century. university statutes are nevertheless subordinate to the University's Constitution and AUKU 1971.

Section 88 of the New Constitution USM states:

> "All statutes, rules, regulations, proclamations, orders, notices, forms and letters of an authorization issued or made by the university before the appointed date shall continue in force so far as statutes, rules, regulations, proclamations, orders, notices, forms and letters that authorized in accordance with, or until superseded or canceled by the provisions of this Constitution."

There were many discussions, meetings and workshops dedicated to assist the Legal Office in drafting the new statutes of the university. For this purpose, a few working groups were set up consisting of representatives of the stakeholders from each respective PTJ as well as university's stakeholders and experts.

In drafting the new statutes, the Legal Office has outlined the following objectives that every new statute should adhere to. Among them are:

- Be easily read and understood
- Be legally effective to achieve the desired objectives in accordance to the university's mission and vision
- Achieve balance of the outcomes
- Possess legal certainty on the words used
- Be readable and understandable to the layman
- Be unambiguous and drafted in a sufficiently clear and precise manner
- Be logical with coherence be consistent, and if practicable, arrange ideas to promote effective communication on the subject matter

The total number of new proposed statutes is 39. However, the University Authority is considering and identifying additional new statutes (Figure 2.7) which are deemed appropriate and relevant while the drafting process is ongoing (Figure 2.12). This is to ensure there are no omissions of important statutes relevant to the university.

GOVERNANCE	1. CHANCELLOR’S STATUTE
	2. PRO-CHANCELLOR’S STATUTE
	3. VICE CHANCELLOR’S STATUTE
	4. THE DEPUTY VICE-CHANCELLOR’S STATUTE
	5. STATUTE FOR UNIVERSITY MANAGEMENT COMMITTEE
	6. STATUTE FOR UNIVERSITY GOVERNER’S BOARD
	7. LAW ADVISOR’S STATUTE
	8. REGISTRAR’S STATUTE
	9. TREASURER’S STATUTE
	10. STATUTE FOR CENTRES
	11. STATUTE FOR UNIVERSITY HOSPITAL
	12. STATUTE FOR IPPT
	13. CHIEF LIBRARIAN’S STATUTE
	14. DIRECTORS’ STATUTE
	15. OMBUDSMAN’S STATUTE
	16. INTERNAL AUDITOR’S STATUTE
	17. STATUTE FOR CAMPUS BRANCH
	18. DEAN’S STATUTE
	19. STATUTE FOR THE BOARD & SENATE JOINT COMMITTEE
ACADEMIC	20 . STATUTE FOR SENATE
	21. STATUTE FOR STUDY CENTRES
	22. STATUTE FOR HONORARY DEGREE
	23. PROFESSOR EMERITUS’S STATUTE
	24. STATUTE FOR DEGREE AND DIPLOMA
	25. STATUTE FOR OFFICIAL ATTIRE AND ACADEMIC
	26. STATUTE FOR THE BOARD OF STUDIES / STATUTE OF SCHOOL COUNCIL
	27. STATUTE FOR ENTRY STUDENTS
	28. STATUTE FOR ESTABLISHMENT OF SCHOOL AND INSTITUTE
	29. STATUTE FOR CONFERRING OF DEGREES AND DIPLOMAS
	30. STATUTE FOR ROYAL PROFESSOR
	31. STATUTE FOR SYMBOLS AND COLOURS
	32. STATUTE FOR DEFINITION AND MEANING
	33. STATUTE FOR UNIVERSITY MACE
	34. STATUTE FOR POSTGRADUATE STUDIES INSTITUTE
HUMAN RESOURCES	35. STATUTE FO EMPLOYEES WELFARE COMMITTEE
	36. STATUTE FOR SELETION COMMITTEE OF VOTERS AND APPOINTING AUTHORITY
	37. STATUTE FOR SABBATICAL LEAVE
FINANCE	38. STATUTE FOR PERMANENT FINANCIAL CMMITTEE
RESEARCH	39. STATUT FOR INTELLECTUAL PROPERTY
OTHER	40. STATUTE FOR STUDENT WELFARE COMMITTEE
	41. STATUTE FOR DESASISWA

Figure 2.7: List of proposed statutes

GOOD GOVERNANCE

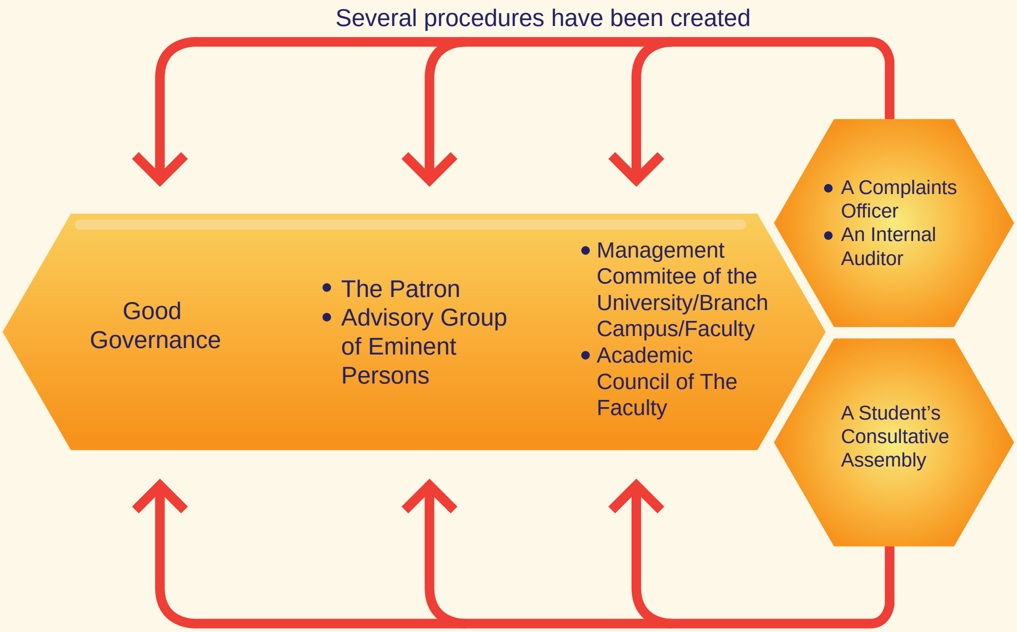

Several procedures have been created
Good Governance
• The Patron
• Advisory Group of Eminent Persons
• Management Commitee of the University/Branch Campus/Faculty
• Academic Council of The Faculty
• A Complaints Officer
• An Internal Auditor
A Student's Consultative Assembly

Figure 2.8: Good Governance, reputation and fame attracts quality staff and students

AUTONOMY

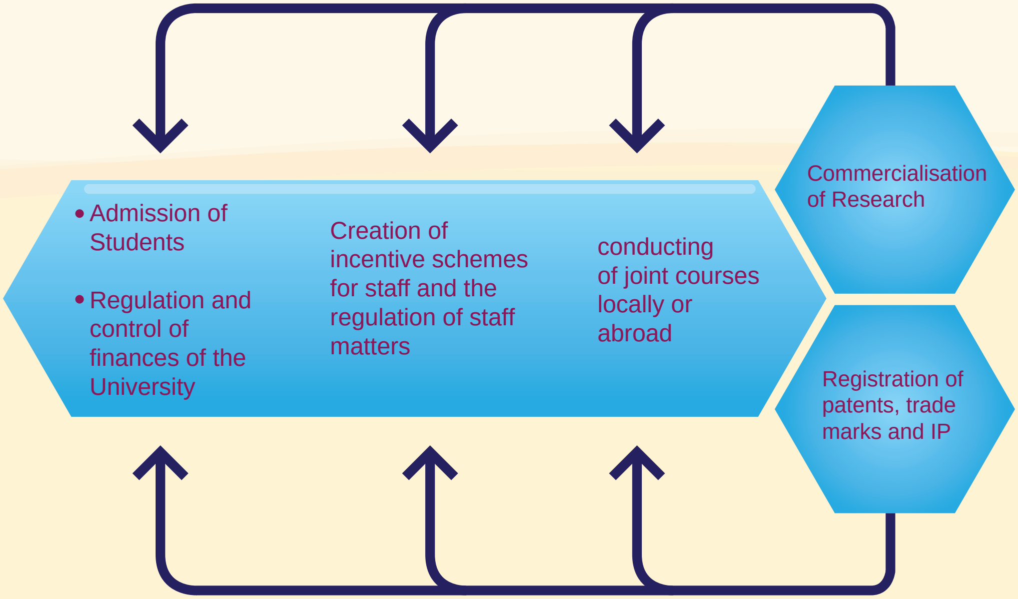

• Admission of Students
• Regulation and control of finances of the University
Creation of incentive schemes for staff and the regulation of staff matters
conducting of joint courses locally or abroad
Commercialisation of Research
Registration of patents, trade marks and IP

Figure 2.9: Autonomy creates Opportunities and Innovation

FINANCIAL AUTONOMY

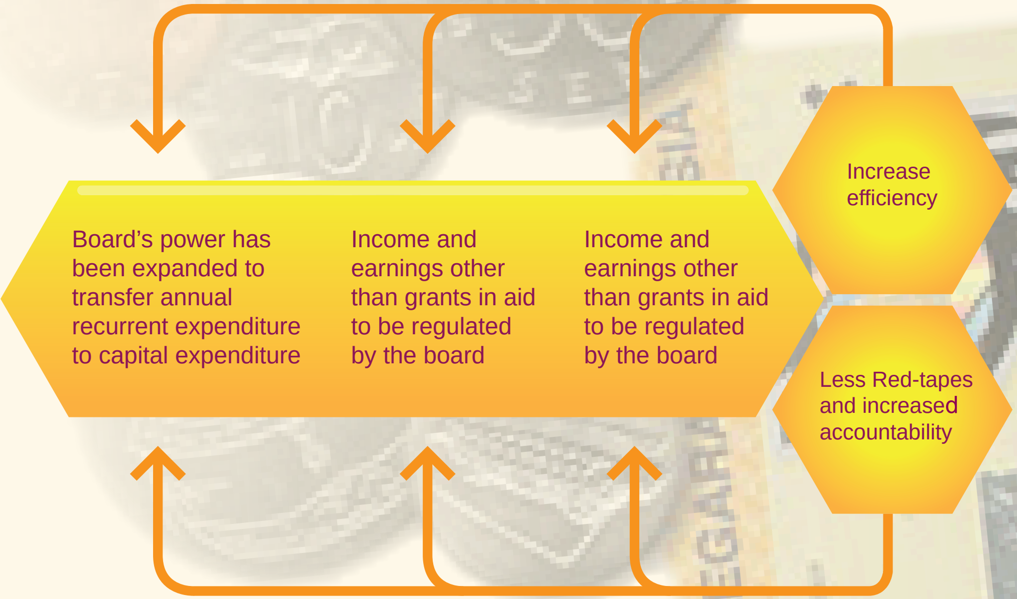
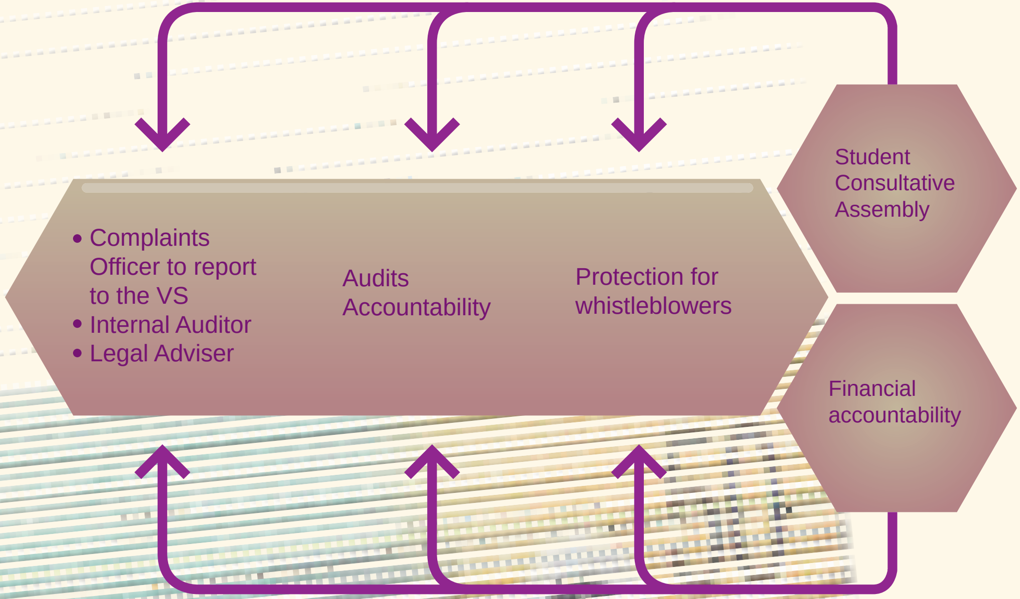

Board's power has been expanded to transfer annual recurrent expenditure to capital expenditure
Income and earnings other than grants in aid to be regulated by the board
Income and earnings other than grants in aid to be regulated by the board
Increase efficiency
Less Red-tapes and increased accountability

Figure 2.10: Financial Autonomy Creates Financial Accountability

ACCOUNTABILITY



• Complaints Officer to report to the VS
• Internal Auditor
• Legal Adviser
Audits Accountability
Protection for whistleblowers
Student Consultative Assembly
Financial accountability

Figure 2.11: Accountability creates the best

Summary of Implementation of Autonomy

A MOHE AUTHORISED AUTONOMY

LGU shall make the appointment of and fixing the compensation of personnel selection in selected key and critical areas.

LGU can recognize high-performing employees for promotion based on the top-up but do not involve changes in pension and government provisions and must use their own source of income for the university.

The university may open PTJs or programmes using their own funds.

LGU shall take action upon criticism and audit reports conducted by the university, outside agencies or the government.

Universities need approval from LGU to use internally generated funds of the university for the establishment of new Research Centres or programmes.

The university may terminate programmes or courses that are not well received and no longer economical to run.

The Senate may make decisions concerning the determination of the strategic value of programmes.

University students can determine the mechanism of entry.

B PARTIAL AUTONOMY / MOHE CONDITIONAL AUTONOMY

LGU shall formulate and prepare policies in four areas of University operations based on basic principles.

The University must comply with instructions / rules / Finance Circulars by the MOF.

The university may appoint qualified lecturers (citizens or non-citizens) aged 65 and above on a contract basis.

The university may establish PTJs and programmes that offer a degree without the approval of the Ministry when using internal resources but must obtain the approval of the Ministry when it comes to government provision.

New programmes still require accreditation by MQA.

C ITEMS THAT ARE DENIED AUTONOMY

Directives and financial regulations to be observed.

All service rules and regulations to be observed.
All directives/rules/service circulars pertaining to matters not granted autonomy shall be submitted to the Goverment for approval.
Change to the limit value and procument management procedures-SPP Bil.5/2009 quotation

Procedure for procurement of goods management of supplies / services / works-SPP Bil. 5/2007.

Limit the value and conditions of direct purchase of supplies and services-SPP Bil. 12/2007.

Limit values, powers and responsibilities of the Board-SPP No. Procurement Agency. 9/2009.

Financial events of Part III of the eight related investments.

Treasury Directive Letter March 26, 2008.

Implementation of Public Works Department projects worth no more than $ 5 million for the Department of Non-SPP No. techniques. 2/2011.

Treasury Instruction 169.2 (a) of materials / items of local services should be fully utilized by the agency in their turnover. Imported procurement should only be considered after ensuring it can not be sourced locally.

Instructions related to stronger governance AFFORDABLE Government IT and Internet Committee-General Circular No. 2/2006.

D IMPORTANT REMINDER LIST FOR MOHE

Application of all Treasury Circulars.

Application of all Public Service Circular.

The practice of accountability, transparency and value for money.

Strengthen systems and governance structures and elements of check and balance.

Generation of revenue shall ensure the protection of the University.

Disciplinary action againts officers and staff who neglect to perform their duties

University has mechanisms for calculation "calculation program for services carried out".

The Vice-Chancellor is the Chairman of the Board of Governance of the University.

Scheduled auditing for 4 key basic principles.

The university provides details of costs related to the sales price of the service.

The university should establish policies and methods of computation for international students’ tuition fees to ensure full cost recovery.

Generation of income exceeding 20% of the operating budget by the year 2012.

Generation of income for more than 30% of the operating budget by 2015.

Subsidiary gains should be declared as a contribution to the university.

UGGI Audit still exists.

E THE LACK OF CLEAR DIRECTION

LGU as the decision maker vs. Government regulations and directives is permanent.

LGU compliance with government rules and regulations.

LGU can modify the rules and regulations based on the needs of the University vs. Government regulations and directives is permanent.

Appointment of lecturers who are aged 65 years and above, regardless of citizenship, should be notified to the central agency in a timely manner."Who is the central agency?"

F AUTONOMY - VERBALLY INFORMED

Permission to travel abroad by the Vice-Chancellor shall be approved by the Chairman of the LGU.

Permission to attend overseas conferences shall be approved by the Vice-Chancellor.

Permission to hold a contract for any position in the government service may be approved by the Vice-Chancellor.

PEJABAT
PERUNDANGAN
UNIVERSITI SAINS MALAYSIA

Ongoing Process Of Empowering Governance

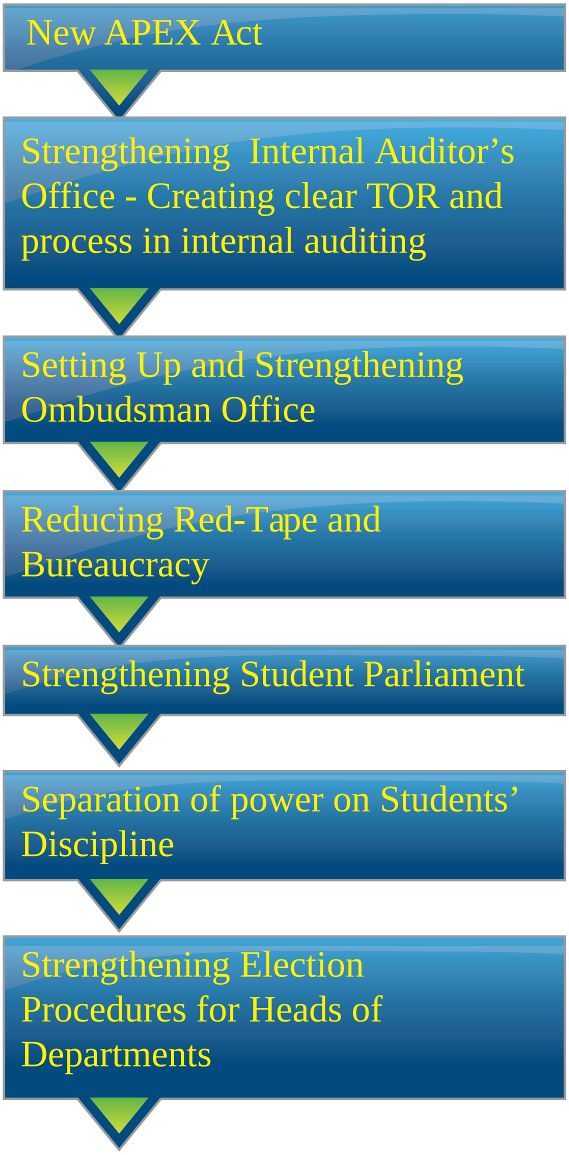

New APEX Act
Strengthening Internal Auditor’s Office - Creating clear TOR and process in internal auditing
Setting Up and Strengthening Ombudsman Office
Reducing Red-Tape and Bureaucracy
Strengthening Student Parliament
Separation of power on Students’ Discipline
Strengthening Election Procedures for Heads of Departments

Figure 2.12: Process of empowering govermence

Ombudsman

One of the main pillars for APEX transformation is to ensure good governance and integrity in the University ecosystem.

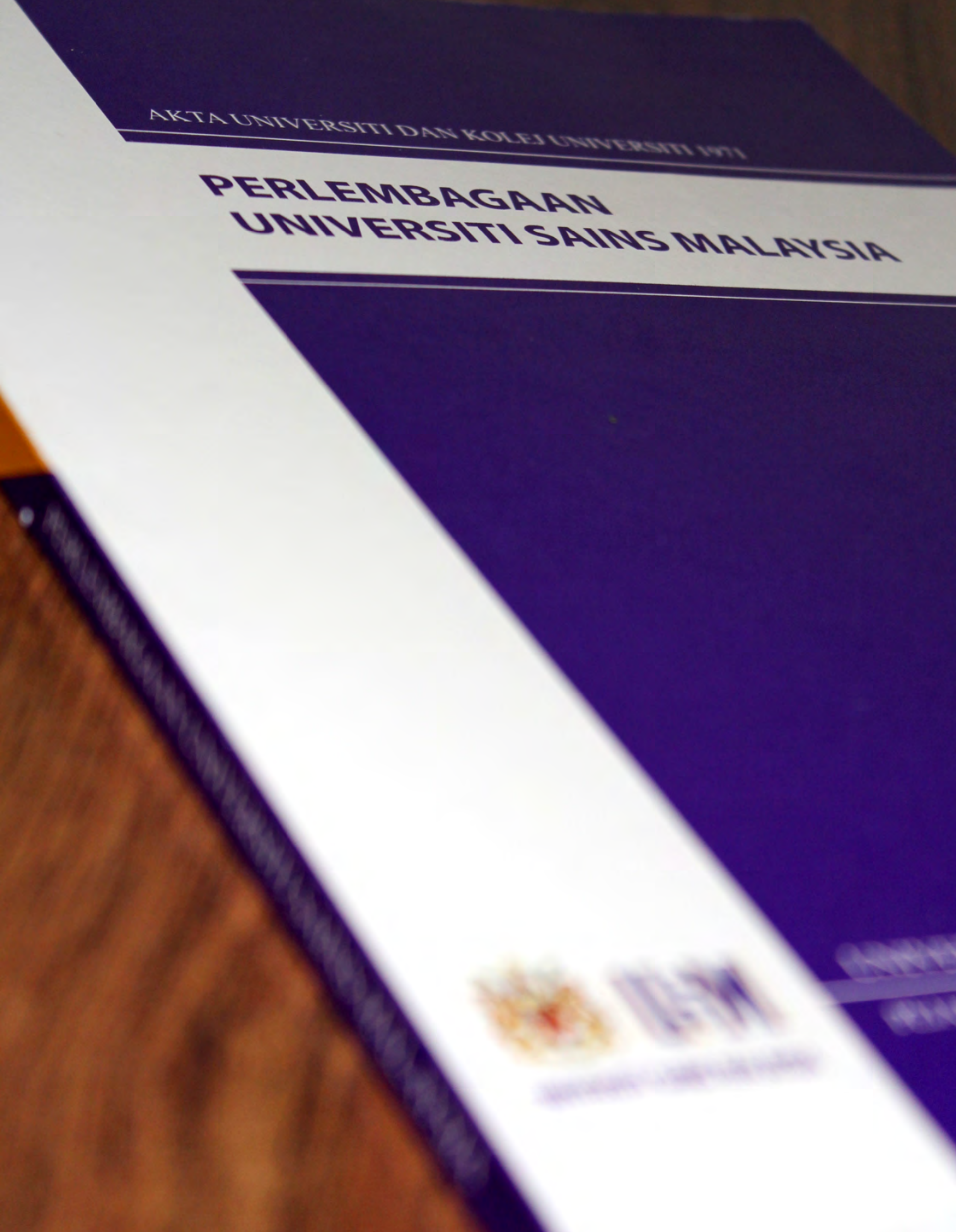
To achieve this, the establishment of "complaints officer" has been included in the USM APEX Constitution to ensure that the complaints officer or 'Ombudsman' will be an important element and act as the integrity officer in improving the good governance of the University.

In his annual speech for 2012, the Vice-Chancellor pointed out that every member of USM can share information in any form with the Ombudsman since the establishment of the Ombudsman is to improve, transform and enhance the university administration, integrity and management mechanism from time to time.

To start with, the USM Ombudsman is a member of the Ombudsman Association International (International Ombudsman Association - IOA), based in Los Angeles, USA. This is to ensure that the principles of the university ombudsman, as applied in most of the American universities, are adhered to in the fullest.

The University Ombudsman Office is open to all university staff and students. The Office is an independent resource for problem resolution to ensure that all members of the University community are treated equitably and fairly.

The Ombudsman provides confidential and formal or informal assistance to help resolve issues related to the workplace and academic environment. A complainant can discuss issues and concerns with the Ombudsman without committing to further disclosure or any formal resolution.
The Ombudsman Office provides the Vice-Chancellor with a confidential annual statistical report that summarizes the activities of the Office. The Ombudsman Office operates in accordance with the code of



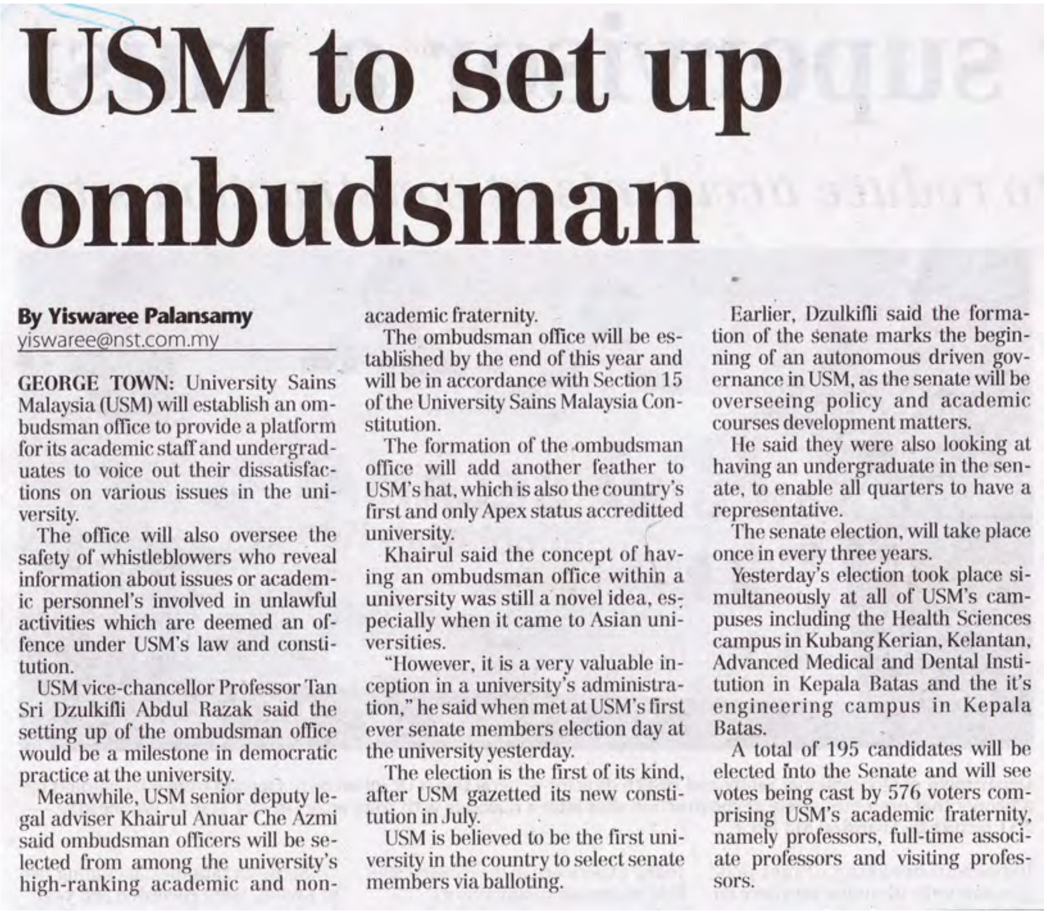
AKTA UNIVERSITI DAN KOLEJ UNIVERSITI 1971

PERLEMBAGAAN
UNIVERSITI SAINS MALAYSIA

ethics and standards of practice of the International Ombudsman Association i.e.:

a) Confidential
b) Independent
c) Neutral

It is worth noting that the main APEX thrust in governance highlights the Ombudsman's main function, which is to protect the interests, rights, and privileges of staff, students and the respective PTJs at all levels of university operations and administration. The Ombudsman is has thus been designated by the University to function as an impartial and neutral resource to assist the University community. The Ombudsman provides solutions related to university procedures and facilitates the resolution of problems and grievances through informal investigation and mediation.



USM to set up ombudsman

By Yiswaree Palansamy
yiswaree@nst.com.my

GEORGE TOWN: University Sains Malaysia (USM) will establish an ombudsman office to provide a platform for its academic staff and undergraduates to voice out their dissatisfactions on various issues in the university.

The office will also oversee the safety of whistleblowers who reveal information about issues or academic personnel's involved in unlawful activities which are deemed an offence under USM's law and constitution.

USM vice-chancellor Professor Tan Sri Dzulkifli Abdul Razak said the setting up of the ombudsman office would be a milestone in democratic practice at the university.

Meanwhile, USM senior deputy legal adviser Khairul Anuar Che Azmi said ombudsman officers will be selected from among the university's high-ranking academic and non-academic fraternity.

The ombudsman office will be established by the end of this year and will be in accordance with Section 15 of the University Sains Malaysia Constitution.

The formation of the ombudsman office will add another feather to USM's hat, which is also the country's first and only Apex status accreditted university.

Khairul said the concept of having an ombudsman office within a university was still a novel idea, especially when it came to Asian universities.

"However, it is a very valuable inception in a university's administration," he said when met at USM's first ever senate members election day at the university yesterday.

The election is the first of its kind, after USM gazetted its new constitution in July.

USM is believed to be the first university in the country to select senate members via balloting.

Earlier, Dzulkifli said the formation of the senate marks the beginning of an autonomous driven governance in USM, as the senate will be overseeing policy and academic courses development matters.

He said they were also looking at having an undergraduate in the senate, to enable all quarters to have a representative.

The senate election, will take place once in every three years.

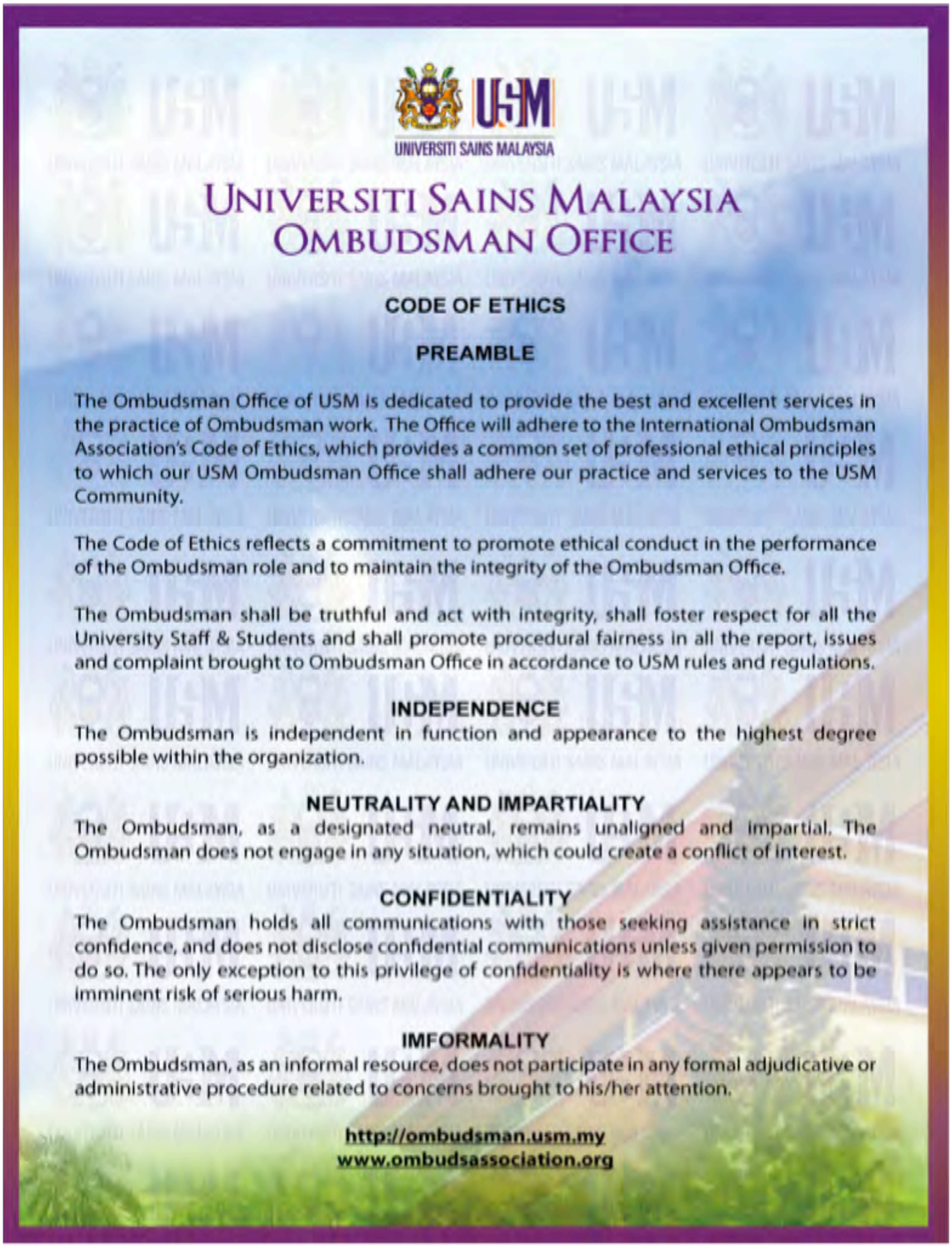
Yesterday's election took place simultaneously at all of USM's campuses including the Health Sciences campus in Kubang Kerian, Kelantan, Advanced Medical and Dental Institution in Kepala Batas and the it's engineering campus in Kepala Batas.

A total of 195 candidates will be elected into the Senate and will see votes being cast by 576 voters comprising USM's academic fraternity, namely professors, full-time associate professors and visiting professors.

Source: *New Straits Times*, 12 August, 2011

The Office Of The Ombudsman

The office of the Ombudsman is an independent, impartial, confidential and informal alternative channel for communication of concerns. In short – *Pejabat Aduan*.



UNIVERSITI SAINS MALAYSIA

UNIVERSITI SAINS MALAYSIA OMBUDSMAN OFFICE

CODE OF ETHICS

PREAMBLE

The Ombudsman Office of USM is dedicated to provide the best and excellent services in the practice of Ombudsman work. The Office will adhere to the International Ombudsman Association's Code of Ethics, which provides a common set of professional ethical principles to which our USM Ombudsman Office shall adhere our practice and services to the USM Community.

The Code of Ethics reflects a commitment to promote ethical conduct in the performance of the Ombudsman role and to maintain the integrity of the Ombudsman Office.

The Ombudsman shall be truthful and act with integrity, shall foster respect for all the University Staff & Students and shall promote procedural fairness in all the report, issues and complaint brought to Ombudsman Office in accordance to USM rules and regulations.

INDEPENDENCE

The Ombudsman is independent in function and appearance to the highest degree possible within the organization.

NEUTRALITY AND IMPARTIALITY

The Ombudsman, as a designated neutral, remains unaligned and impartial. The Ombudsman does not engage in any situation, which could create a conflict of interest.

CONFIDENTIALITY

The Ombudsman holds all communications with those seeking assistance in strict confidence, and does not disclose confidential communications unless given permission to do so. The only exception to this privilege of confidentiality is where there appears to be imminent risk of serious harm.

IMFORMALITY

The Ombudsman, as an informal resource, does not participate in any formal adjudicative or administrative procedure related to concerns brought to his/her attention.

http://ombudsman.usm.my
www.ombudsassociation.org

The establishment of the Ombudsman Office is synonymous with USM's effort to "humanise" the university.

The existence of an Ombudsman Office signals that the university cares about its people and recognises the value of providing informal dispute resolution for members of the campus community.

Key Characteristics of the the functions of the Ombudsman are:

1) Independence
2) Confidentiality
3) Impartiality
4) Informality

Section 81 – Whistle blower [Protection to staff who make disclosures]

Provided one satisfies the whistleblower conditions:

- Any staff member who makes any disclosure shall not be subject to any dismissal, termination, suspension, demotion, disciplinary action or discrimination or suffer any loss of employment or livelihood.
- Likewise, no student shall be liable to any disciplinary action or suffer detriment for any disclosure made or information supplied by him under the whistleblower clause.
- Visit the Legal Office website http://legal.usm.my/ for details.

Apex Status

- Section 74(1) Perlembagaan recognises the conferment of the accelerated programme for excellence (APEX) status on USM and makes it the APEX UNIVERSITY "subject to such conditions as the Minister thinks fit".

As Such:

- USM is the APEX University.

Obstacles that have been discussed and resolved to date are as follow:

1 - Related Consultative Procedure

USM wishes that related Consultative procedures be incorporated in the APEX Constitution as:

- Financial autonomy is the university's internal administration and policy, and does not require any changes of legislation in AUKU 1971.
- Matters related to financial autonomy are crucial because in the last few decades, the First Table, Section 4 and 4A of the AUKU have all provided the university with wide powers in the field of financial and administrative autonomy.
- USM should be given immediate priority by the Government to achieve APEX aims.

2 – Power of "Minister of Higher Education" and "Minister of Finance"

Under Section 4A of AUKU 1971, the university's business, commercial and entrepreneurial power need to be implemented with the consent of the Minister of Finance.

In USM's new constitution, (Section 5), it was suggested that the phrase "Minister of Finance" be replaced with "Minister of Higher Education".

The reasons for the amendment are:

1. There is no suspicious motive behind the amendment. The amendment will not liberate USM from the government's purview, but to recognize and acknowledge that the ultimate accountability it to MOHE as the top organization in the University's hierarchy.

2. Legislation in section 4A of the AUKU 1971 is selective. It allows MOF but not the Ministry of Foreign Affairs, Ministry of Home Affairs, Ministry of International Trade and Industry, Public Service Department, Economic Planning Unit and any other government agencies whose functions are closely related to the university's activities to intervene.

For the above reasons, USM would like implement autonomy with accountability by handing over the authority to create new businesses and start-ups to MOHE

3-Transferring money from one fund to another:

MOHE previously made several inquiries regarding the new Section 55 (2) because the APEX USM Constitution allows the Board to:

- transfer any part of moneys assigned to one item of annually recurrent expenditure to other annual recurring expenses;
- transfer any part of moneys assigned to one item of annual expenditure to another annual capital expenditure;
- with the consent of the Minister according to subsection 11 (2) AUKU 1971, transfer any particular portion of the money not used for annual recurrent expenditure of the university to the item of capital expenditure;
- transfer any remaining annually recurrent expenditure funds to the annual recurrent expenditure funding for the following year;
- transfer any remaining capital expenditure to one or more items of capital expenditure the following year.

4 - Government Circular

Section 45 of the USM APEX Constitution states that "Subject to any written law, the Board may adopt such modifications as it deems fit on any regulations, rules, circulars and directives enacted or issued by the

Federal Government."

USM has submitted that it is essential for the above provision to be inserted into the USM APEX Constitution as it reflects the autonomy granted to the university.

Furthermore, the words "subject to any written law" means that all Acts of Parliament including Act 605 and the Audit Act will always apply to the university.

As such, if any circular, instruction or subsidiary legislation made under any law is applicable to the university, the circular will be legal and USM will be compliant with no exceptions.

However, if a circular or directive is not from the law but from administrative policy, and directed to any department of the Federal Government or is clearly in violation of provisions of the AUKU 1971, the circulars or instructions will not be automatically applied to statutory bodies such as USM.

The rationale for drafting Section 45 is to allow USM to choose whether to accept or reject the Federal Government circulars.

5 – Incentives

Section 4 (1) of the USM APEX Constitution allows the University to establish rules regarding the service, salary scale, promotion, leave, etc. and also grant incentives.

Section 4 (1)(t) is similar to the provision in AUKU 1971. Addition have been made to the first Schedule Section 4(1)(m) & (n) by including the word "incentive"

An autonomous university must be allowed to award promotions, scholarships and study leave (all have financial implications on the Annual Budget).

Incentive and giving rewards are useful as an encouragement on excellent service, studies and research achievement in the university. There are many innovative autonomy provisions in the Constitution USM which were drafted to generate system of governance and accountability in an APEX University.

Among the provisions are:

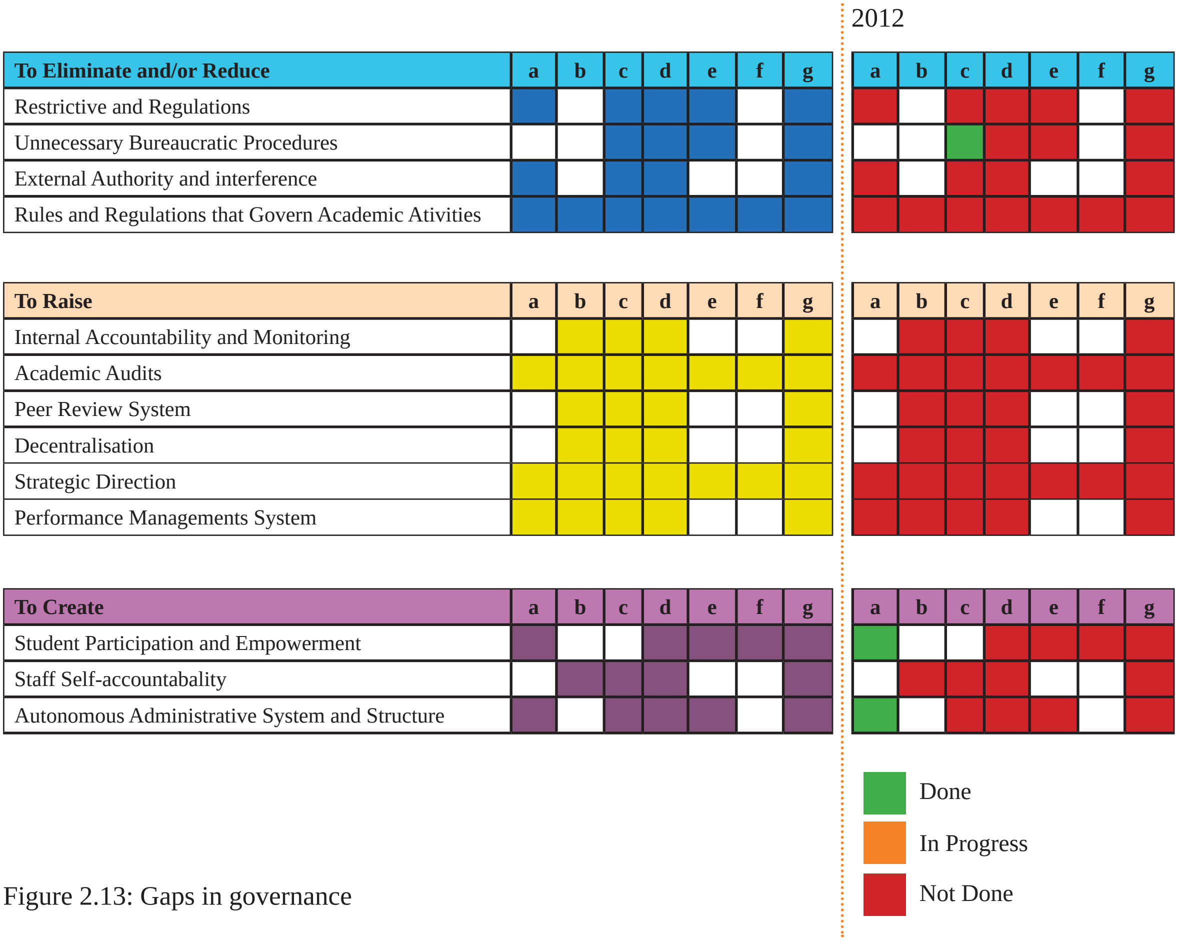
1. The appointment of a Complaint Officer to the university - Section 60.
2. Appointment of an Internal Auditor - Section 60 (3) as well as external auditor s of the existing Section 60 (1).
3. Power of Board to undertake any audit - Section 52.
4. Protection of the Information, also known as whistleblower protection - Section 81.
5. Campus Management Committee (Section 28), School of Academic Council (Section 30), the School Management Committee (Section 31), Welfare Committee (Section 34) and the Student Welfare Committee (Section 35).
6. Consultation process in the appointment of Dean, Deputy Deans as well as heads of Centres of Excellence.
7. Fair number of senators appointed in the University’ Senate.
8. Student’s Parliament.

With the Constitution, USM has power and discretion in the following matters:

- Liberty in applying income generation money.
- Student Parliament.
- Appointment of Professors in Senate (elected members are equal in number with the anumber ppointed).
- Two independent representatives of senate members to be in LGU (elected).
- Appointment of Heads of PTJs through voting.
- Unlock certain important financial bureaucracy.
- Liberty to USM to create posts.
- All the DVCs are now ex-officios of LGU.
- Any person can attend LGU's meeting upon invitation by the Chairman (e.g. KKA, PKAP, students' leaders etc.).
- Creation of Internal Auditors, Legal Advisor and Ombudsman to ensure check and balance, accountability, transparency and transformation are achieved.
- Whistleblower Protection.
- Student admission.

Summary of ERRC Grid According to Activities and Relevence to the Seven Thrusts of MOHE’s National Higher Education Action Plan

Supportive Governance



								2012						
To Eliminate and/or Reduce	**a**	**b**	**c**	**d**	**e**	**f**	**g**	**a**	**b**	**c**	**d**	**e**	**f**	**g**
Restrictive and Regulations	🟦		🟦	🟦	🟦		🟦	🟥		🟥	🟥	🟥		🟥
Unnecessary Bureaucratic Procedures			🟦	🟦	🟦		🟦			🟩	🟥	🟥		🟥
External Authority and interference	🟦		🟦	🟦			🟦	🟥		🟥	🟥			🟥
Rules and Regulations that Govern Academic Ativities	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟥	🟥	🟥	🟥	🟥	🟥	🟥

To Raise	**a**	**b**	**c**	**d**	**e**	**f**	**g**	**a**	**b**	**c**	**d**	**e**	**f**	**g**
Internal Accountability and Monitoring		🟨	🟨	🟨			🟨		🟥	🟥	🟥			🟥
Academic Audits	🟨	🟨	🟨	🟨	🟨	🟨	🟨	🟥	🟥	🟥	🟥	🟥	🟥	🟥
Peer Review System		🟨	🟨	🟨			🟨		🟥	🟥	🟥			🟥
Decentralisation		🟨	🟨	🟨			🟨		🟥	🟥	🟥			🟥
Strategic Direction	🟨	🟨	🟨	🟨	🟨	🟨	🟨	🟥	🟥	🟥	🟥	🟥	🟥	🟥
Performance Managements System	🟨	🟨	🟨	🟨			🟨	🟥	🟥	🟥	🟥			🟥

To Create	**a**	**b**	**c**	**d**	**e**	**f**	**g**	**a**	**b**	**c**	**d**	**e**	**f**	**g**
Student Participation and Empowerment	🟪			🟪	🟪	🟪	🟪	🟩			🟥	🟥	🟥	🟥
Staff Self-accountabality		🟪	🟪	🟪			🟪		🟥	🟥	🟥			🟥
Autonomous Administrative System and Structure	🟪		🟪	🟪	🟪		🟪	🟩		🟥	🟥	🟥		🟥

🟩 Done
🟧 In Progress
🟥 Not Done

Figure 2.13: Gaps in governance

The letters next to each item represent approximate relations and relevence to the seven (7) thrusts of MoHE’s (2007) National Higher Education Plan - 2007-2010. These are: a = Widening access and enhancing equity; b = Improving the quality of teaching and learning; c = Enhancing research and innovation; d = Strenghting the institution; e = intensifiying internalization; f = Enculturation of lifelong learning; and g = Delivery system

Definition of ERRC

Eliminate = what is redundant, outdated or trivial and providing no value
Reduce = what is not providing enough value
Raise = what has the potential to add more value
Create = what is not available yet but can bring more value

Conclusion

USM believes that good governance and integrity are important pillars in the management of any entity including the university. In relation to that, USM's transformation plan of governance includes all aspects of nurturing and learning activities, research and innovations, services and resources as well as students development. USM proposes a supportive governance autonomous university with strong accountability and transparency which promotes quality teaching, research and effective management. It is particularly important for USM to establish clear governing principles which include administrative representation, students' representation and external entities representation. USM Legal Office has drafted new and updated statutes based on the APEX Constitution. These new and updated statutes are essential to reflect the change of governance of the university as well as to adapt to the changing times and challenges faced by the university. To achieve good governance and integrity in the university ecosystem, USM has established a "complaint officer" that has been included in the USM APEX Constitution to ensure that the complaints officer or 'Ombudsman' to be an important element and act as the integrity officer. The office of the Ombudsman is an independent, impartial, confidential and informal alternative channel for communication of concerns. The existence of the Ombudsman Office signals that the university cares about its people and recognises the value of providing informal dispute resolution for members of the campus community.

3

Resources

Financing and the Transformational Agenda

DEWAN BUDAYA
UNIVERSITI SAINS MALAYSIA

Financing APEX: Towards Governance Enhancement and Financial Sustainability

Background

Financial management is one of the most important aspects of supporting and realising the aspirations of the university. Bursary Department aims to become the center of financial management through the development of sustainable technology systems and services with integrity, while developing innovative human capital more wisely to achieve financial sustainability for tomorrow. Since USM was acknowledged as APEX university in 2008, the Bursary Department has drawn up a new direction in order to ensure that the mission and vision of the APEX achieved. This includes strengthening administrative, increase the delivery of financial services and increase financial sustainability (Figure 3.1).

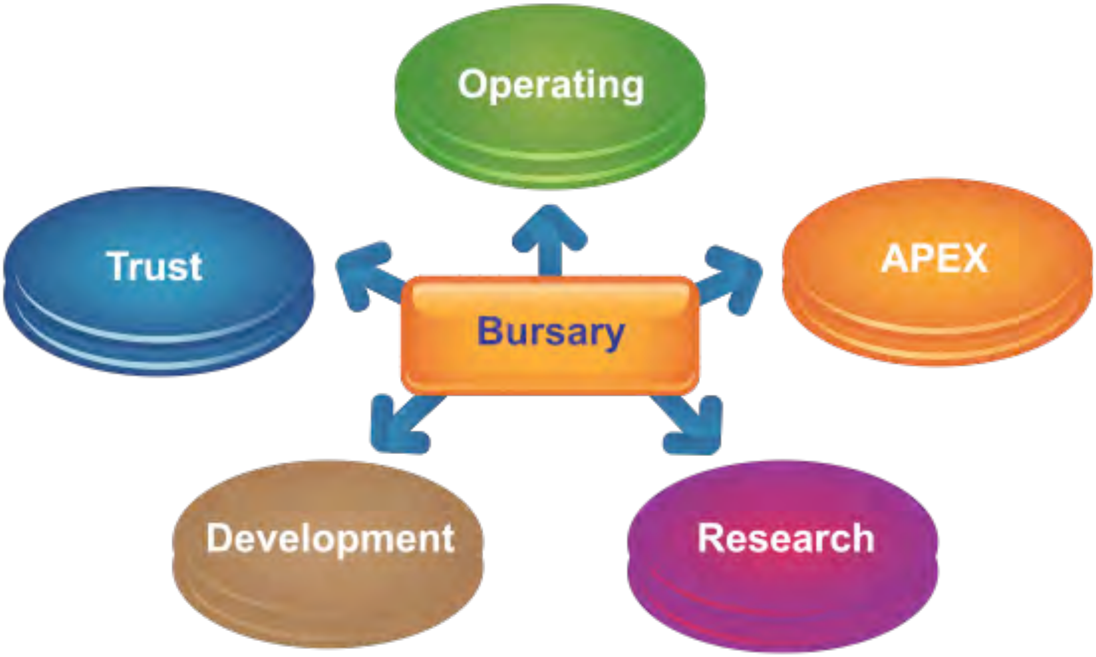


Figure 3.1 The Bursary framework

The Objectives

- Strengthening the financial services and planning system through an effective and efficient process of budgeting, procurement, asset and loan management, in consonance with the university's goals.
- Improving the quality of financial resources and income management efficiently and effectively towards the university's sustainable development.
- Managing the spending of financial resources according to the allocation of resources, guided by acts, policies and procedures enforced.
- Strengthening the implementation of work procedures through sustainable work process in accordance with good governance practices, focusing on delivering excellence to the customers.
- Continuous improvement of financial reporting to support effective dissemination of information for good decision making process.

H23 SEKTOR PERKHIDMATAN PELAJAR
SEKSYEN HASIL DAN KEWANGAN PELAJAR - JABATAN BENDAHARI
Bangunan H23
Selamat Datang
PELAJAR-PELAJAR KE SEKSYEN HASIL DAN KEWANGAN PELAJAR

KPI

As resources (finance) are crucial for the success of the transformation plan, the following outcomes and KPIs (Figure 3.2) are envisaged:

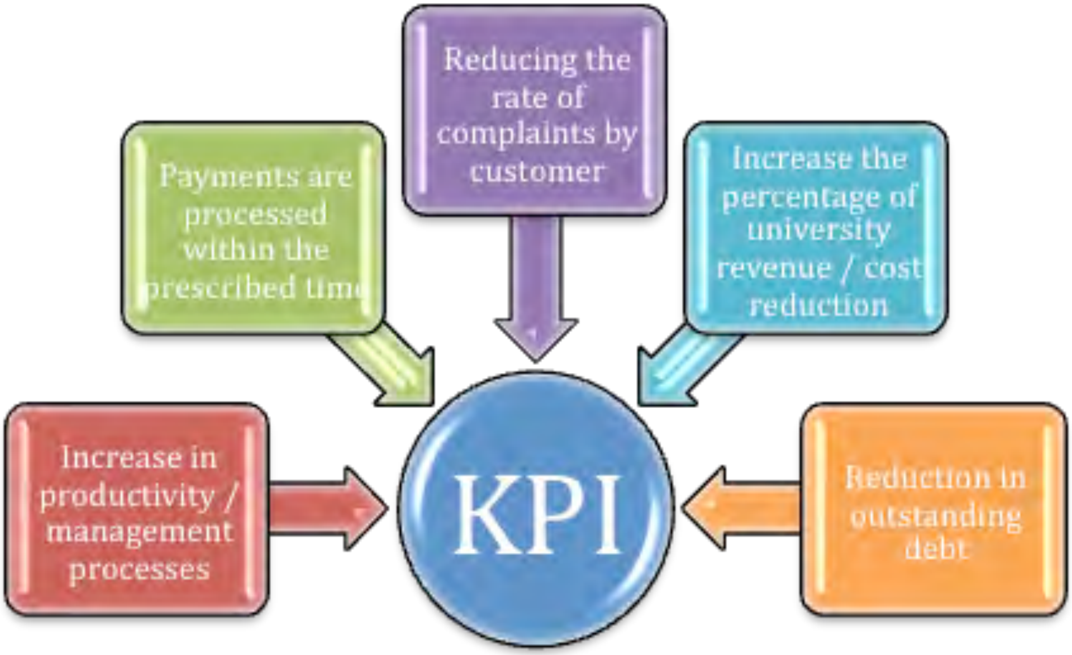

Reducing the rate of complaints by customer
Payments are processed within the prescribed tim
Increase the percentage of university revenue / cost reduction
Increase in productivity / management processes
KPI
Reduction in outstanding debt

Figure 3.2 Outcome and KPI framework

Initiatives

Since USM was acknowledged as APEX University in 2008, the Bursary has drawn up a new direction in order to implement the APEX transformation plan and financial resources. This includes strengthening administrative, increase the delivery of financial services and increase financial sustainability.

For cost-saving initiatives, there are regular in-house training for the relevant staff, and e-meetings to reduce costs, and preventive maintenance. Direct purchases require the PTJ to obtain at least three quotations from suppliers in order to procure best value for money. Bursary has also been making effort to embed value for money in all capital project contracts. In all it does, USM tries to secure and negotiate for the lowest price. USM also implements this policy and procedures by acknowledging quality products/services with value for money; it reviews the vendors/contractors profile in terms of experience, effectiveness in deliverables and strong financial background; checking on price negotiations with suppliers (where applicable) to drive cost down; and monitoring the project's progress periodically including timelines in delivery (Figure 3.3).

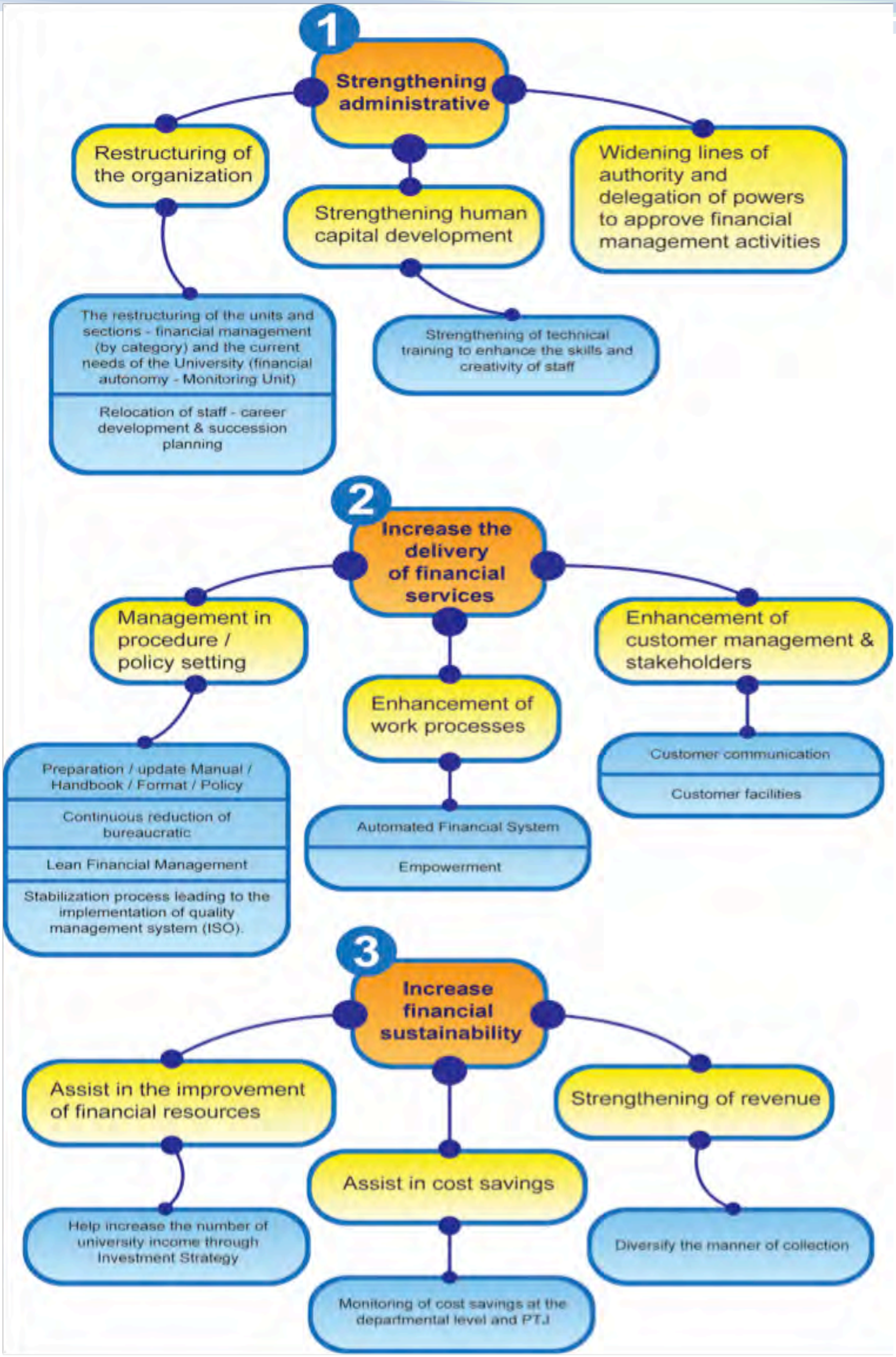
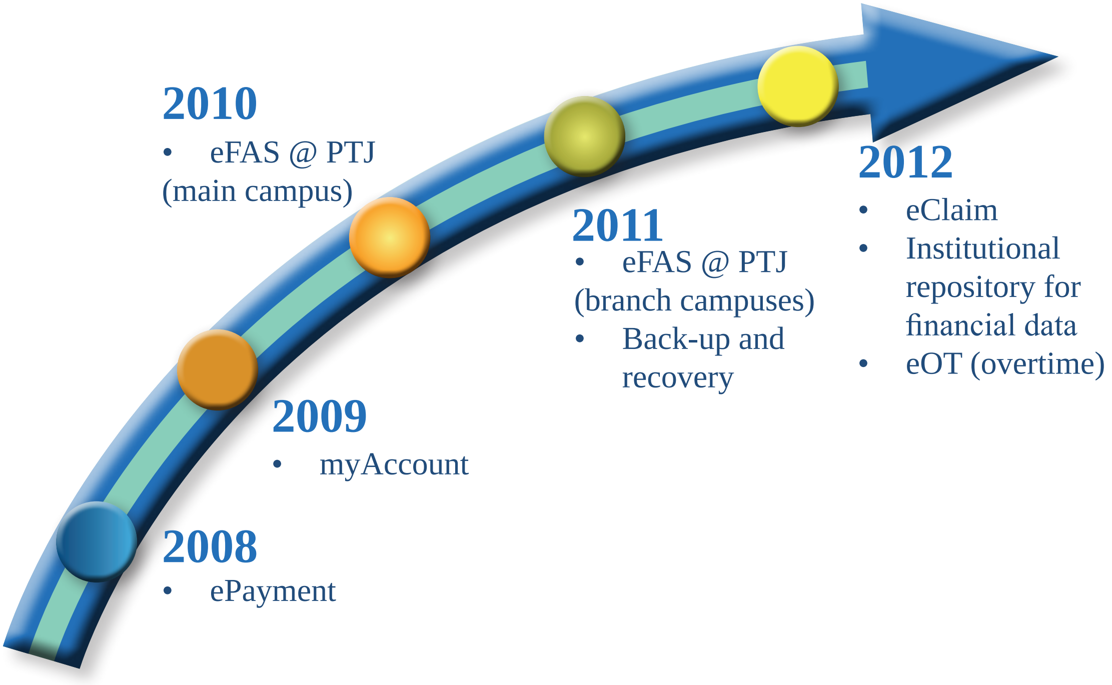

1
Strengthening administrative
Restructuring of the organization
Strengthening human capital development
Widening lines of authority and delegation of powers to approve financial management activities
The restructuring of the units and sections - financial management (by category) and the current needs of the University (financial autonomy - Monitoring Unit)
Relocation of staff - career development & succession planning
Strengthening of technical training to enhance the skills and creativity of staff
2
Increase the delivery of financial services
Management in procedure / policy setting
Enhancement of work processes
Enhancement of customer management & stakeholders
Preparation / update Manual / Handbook / Format / Policy
Continuous reduction of bureaucratic
Lean Financial Management
Stabilization process leading to the implementation of quality management system (ISO).
Automated Financial System
Empowerment
Customer communication
Customer facilities
3
Increase financial sustainability
Assist in the improvement of financial resources
Assist in cost savings
Strengthening of revenue
Help increase the number of university income through Investment Strategy
Monitoring of cost savings at the departmental level and PTJ
Diversify the manner of collection

Figure 3.3 New direction and structural framework



2010
- eFAS @ PTJ (main campus)

2011
- eFAS @ PTJ (branch campuses)
- Back-up and recovery

2012
- eClaim
- Institutional repository for financial data
- eOT (overtime)

2009
- myAccount

2008
- ePayment

Figure 3.4 Choronology of achievements

Challenges

In order to ensure that the transformation outline are accomplished and successful, certain challenges are required to be resolved. Among the challenges identified are:

- Bureaucracy of Central Agency – Process to simplify procedures that take time
- Thinking outside the box through the Blue Ocean Strategy vs. compliance with regulations
- Enhance skilled human capital and talent
- Ensure financial sustainability of the university
- Budget: application vs. reality

Achievements

USM Electronic Financial and Accounting System (eFAS)

The developed computerised system (eFAS) caters to the needs of the management, stakeholders and other relevant parties. It provides systematic and efficient monitoring in numerous areas. It smoothens and speeds up the process to meet the deadline. Systematic monitoring via :

1. Information on suppliers being registered in advance for better monitoring

2. Purchase order issuance through eFAS

    a. expedites purchase processes

    b. consolidates bulk order for similar item

    c. improves control on budget spending

    d. provides central control by Bursary for timelines and fulfillment to requirements

Invoices, purchase orders, delivery orders and other documents received are registered in the eFAS systems, thus improving effectiveness and efficiency. It expedites the disbursement process, provides better monitoring and control by PTJ and provides opportunity to invoke and monitor payment status.

Table 3.1 Schedule of eFAS implementation

PERIOD	IMPLEMENTATION PHASE
October 2009	Bursary, Main Campus
January 2010 – January 2011	PTJ Main Campus
December 2010	Bursary, Engineering Campus
January 2011	Bursary, Health Campus
March 2011	PTJ Engineering Campus
February 2011 - May 2011	PTJ Health Campus

Among recent product launches are eClaim that was developed using in-house expertise of USM for total convenience electronic financial services generated for all USM staff. The eClaim offers computational claims according to individual rates, multi-currency transactions and effective status report.

ATM
ATM
ALL CARDHOLDERS ARE WELCOME

SAGA (Standard Accounting System for Government Agencies) Compliance Certificate

SAGA (Standard Accounting System for Government Agencies) is a concept of developed computerised accounting system or accounting package in the market, which was adapted according to the criteria set by the government and meet all the requirements of generally accepted accounting principles of financial reports. Agencies that have had his own accounting system must obtain a SAGA certificate of compliance from the Accountant General Department.

SAGA Compliance Committee (JKSC) consisting of JANM, Ministry of Finance, Malaysia, National Audit Department and Malaysian Administrative Modernisation and Management Planning Unit (MAMPU) has made an assessment of the USM eFAS and found that it meets the criteria set out in the *Pekeliling Kemajuan Pentadbiran Awam* No. 1 Year 2011.

On 15 December 2011, the SAGA Steering Committee, chaired by the *Akauntan Negara Malaysia* has recognised USMeFAS and awarded a SAGA certificate of compliance to USM.

Future Financial Planning, Control, Reporting And Monitoring

The financial plan of the university is guided by the APEX Black Book (APEX's strategies), the KPI guidelines for a Research University strategies, the operating budget of the university and five year plan for development (capital expenditure) budget. The APEX allocations are derived based on the APEX three-pronged strategies of talent, governance and resources and approved by the top management. In turn, the RU allocations are managed and monitored by the Research and Innovation Division. The operating and development budget are prepared based on the PTJ's objectives and aligned with the overall university's objective.

APEX Budget

Table 3.2 APEX budget

Year	Annual Budget Requested (RM)	Approved Budget From Central Agencies (RM)
2009	124,500,000	124,500,000
2010	210,000,000	30,000,000
2011	290,000,000	80,000,000
2012	165,000,000	80,000,000
2013	40,500,000	-
Total Requested/Approved Budget	**830,000,000**	**314,500,000**

The university made a budget request totaling RM789.5 million for the fiscal year 2009 to 2012 of which RM314.5 million was granted. The shortfall of RM475 million or 60.2% has affected the university's plans towards achieving its target.

The total expenditure for the period 2009 till September 2012 amounts to RM245 million, indicating an achievement of 78% of APEX funds received from the central agency for the said period.

Future Financial Plans

1. Strengthening the quality of service management system
    a. Enhance the provision of infrastructure for financial services to the customer
    b. Work process improvement and continuous reduction of bureaucracy
    c. Strengthening networking and communication with stakeholders

2. Green office automation through the expansion of financial management
    a. Strengthening the existing system
    b. Development/implementation of new systems that are relevant to the customer
    c. Integration of financial systems with other relevant university system

3. Strengthening the financial risk management
    a. Strengthening policies regarding financial risk management
    b. Preparation of financial risk profiling
    c. The establishment of financial management monitoring functions

4. Assist in managing income generation/university cost savings
    a. Revision of student fees (postgraduates)
    b. Revision of rental rate from time to time
    c. Help increase the university's income through Investment Strategy
    d. Monitoring of cost savings at the departmental level and PTJ
    e. Diversify the revenue collection methods

Transformation: Mobilising the Institutional and Organisational Transformational Agenda

The word "TRANSFORMATION" is the essence of the APEX agenda, as the Vision of USM states that "USM shall transform higher education for a sustainable tomorrow". Figure 3.5 shows the ecosystem in which the APEX agenda of USM shall be delivered. Whilst the intention is eventually to transform higher education, USM knows the importance of transforming within, especially when the expectation of the APEX programme is for USM to accelerate towards excellence. This is exemplified by the need to ensure that the three fundamental elements: governance, talent and resources, be in the most optimum state. The ERRC grid of Figure 3.6 exemplifies this intention.

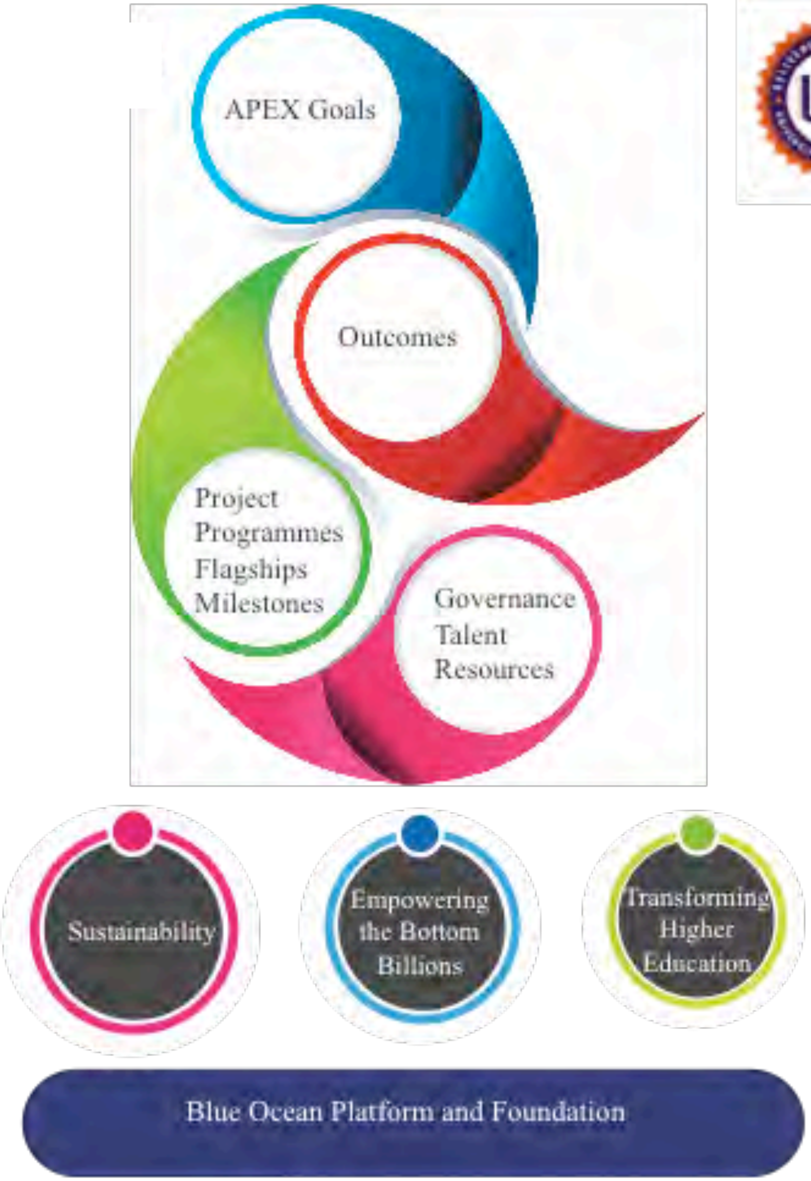

APEX Goals
Outcomes
Project
Programmes
Flagships
Milestones
Governance
Talent
Resources
Sustainability
Empowering the Bottom Billions
Transforming Higher Education
Blue Ocean Platform and Foundation

Figure 3.5 The USM APEX agenda

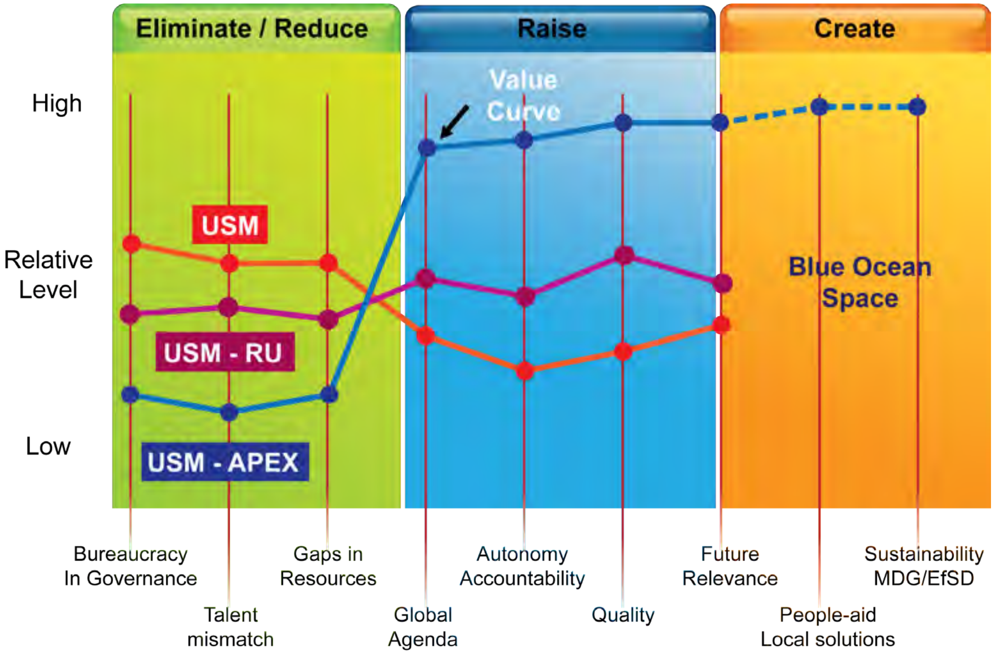


Figure 3.6 The ERRC strategic grid for USM's APEX agenda

The first three years of APEX (2009 – 2012) have been about "laying the foundation", and focused on the "Raise" and "Create" sectors of the said grid in Figure 3.6. These have worked well for USM, and have enabled USM to position itself better. However, USM has realised that there are factors that have hampered its quest for an accelerated progressed. These are primarily represented in the "Reduce/Eliminate" sectors of the ERRC Grid.

As the APEX agenda enters its second phase of Delivering Excellence, USM has dedicated the year 2012 and 2013, to transform internally, especially towards addressing the needs to "reduce" and "eliminate":

a. Talent mismatch
b. Bureaucracy in governance
c. Gaps in resources

A newly formed Transformation Office was entrusted to mobilise the institutional and organizational transformational agenda, and Figures 3.7 and 3.8 may best summarise its work. A redefinition of priorities was made, and core activities of USM were categorised as being related to matters of:

a. Academic

b. Research and Innovation and

c. Positioning

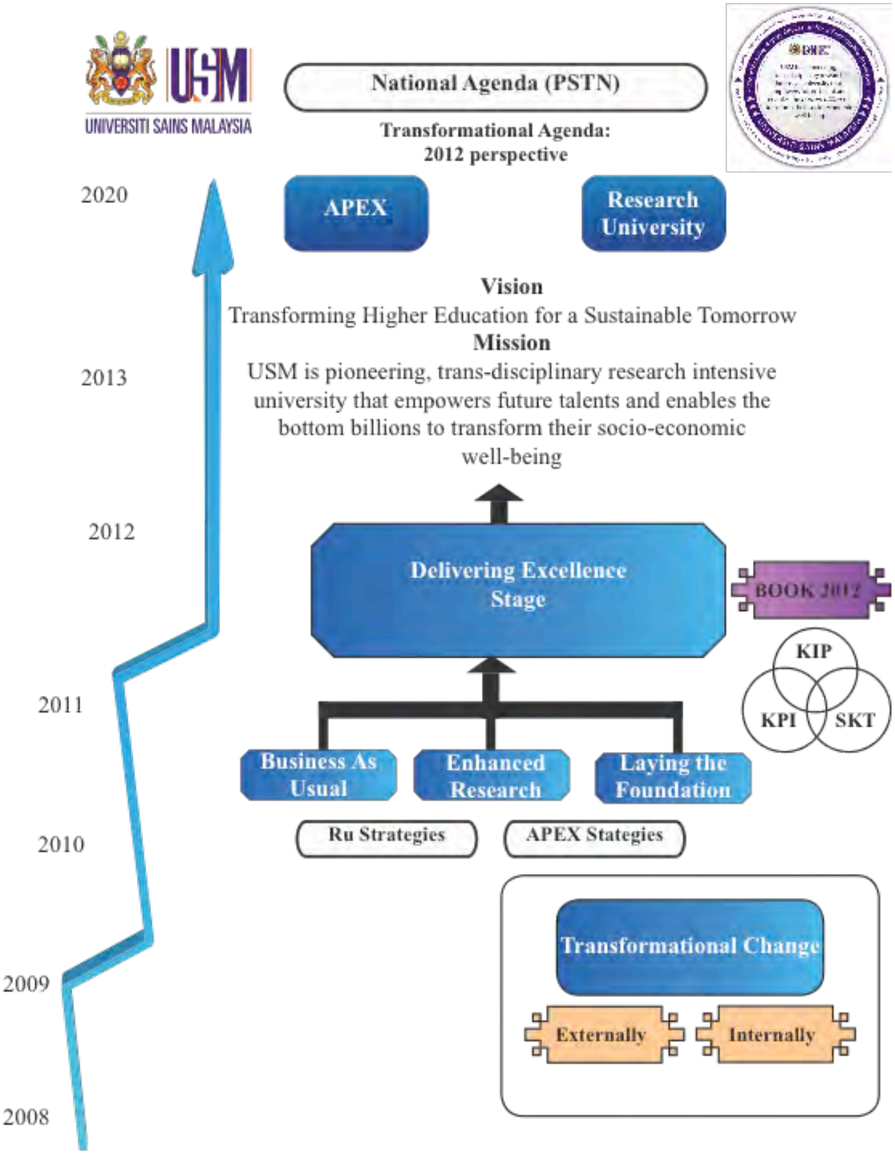

USM
UNIVERSITI SAINS MALAYSIA
National Agenda (PSTN)
Transformational Agenda:
2012 perspective
2020
APEX
Research
University
Vision
Transforming Higher Education for a Sustainable Tomorrow
Mission
2013
USM is pioneering, trans-disciplinary research intensive
university that empowers future talents and enables the
bottom billions to transform their socio-economic
well-being
2012
Delivering Excellence
Stage
BOOK 2012
KIP
KPI
SKT
2011
Business As
Usual
Enhanced
Research
Laying the
Foundation
2010
Ru Strategies
APEX Stategies
Transformational Change
2009
Externally
Internally
2008

Figure 3.7 2012 internal transformational agenda

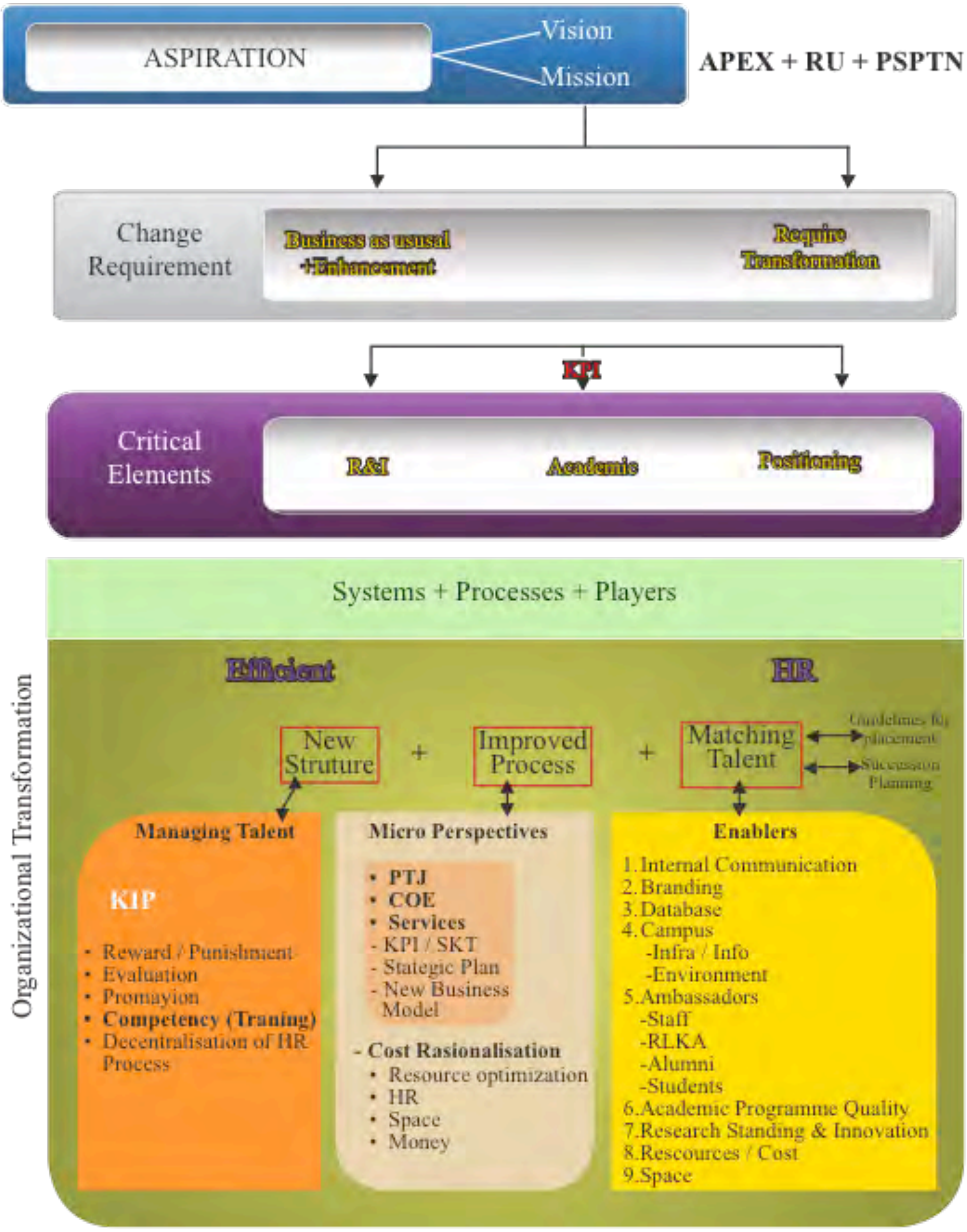

ASPIRATION
Vision
Mission
APEX + RU + PSPTN
Change Requirement
Business as ususal +Enhancement
Require Transformation
KPI
Critical Elements
R&I
Academic
Positioning
Organizational Transformation
Systems + Processes + Players
Efficient
HR
New Struture
+
Improved Process
+
Matching Talent
Guidelines for placement
Succession Planning
Managing Talent
KIP
• Reward / Punishment
• Evaluation
• Promayion
• Competency (Traning)
• Decentralisation of HR Process
Micro Perspectives
• PTJ
• COE
• Services
- KPI / SKT
- Stategic Plan
- New Business Model
- Cost Rasionalisation
• Resource optimization
• HR
• Space
• Money
Enablers
1. Internal Communication
2. Branding
3. Database
4. Campus
-Infra / Info
-Environment
5. Ambassadors
-Staff
-RLKA
-Alumni
-Students
6. Academic Programme Quality
7. Research Standing & Innovation
8. Rescources / Cost
9. Space

Figure 3.8 2012 Transformational framework

The transformational framework in Figure 3.8 shows that matters at both institutional as well as micro-levels had to be dealt with, and central to the agenda are matters related to the three fundamental elements of the university, namely governance, talent and resources. The excerpts from the following projects are also given to provide illustration for the effort:

a. Cost rationalisation activities
b. Transforming the Annual Performance Appraisal System
c. Study on institutional bureaucracy
d. Issues related to procurement system and practices
e. Transformation of training and capacity building

Cost Rationalisation Activities

University operating expenditure has seen a continuous increase over the years. The university has identified several PTJs as the biggest annual financial recipient, namely the Institute of Postgraduate Studies (IPS), the Library, the Centre for Knowledge, Communication & Technology, the Registry and the Advanced Medical and Dental Institute (IPPT). For this purpose, a dedicated team was formed for each of this department. Each team has identified critical issues, not exclusively to financial issues, but has also included governance and operational issues in the respective PTJs. The outputs of these studies were critical for the Transformation Office to carry out follow ups, especially when it warrants a transformational change.

The Transformation Office was tasked to carry out the cost rationalisation study for the Registrar. The most expensive activities under the Registrar were identified, and they were correlated with the received yield or outcome. Five activities have been identified as the biggest spender, namely: the Academic Staff Training Programme (RLKA), Plan of Higher Education for General Staff (RPTKA), emolument for temporary and contract staff, the cost for sabbatical leave and study leave.

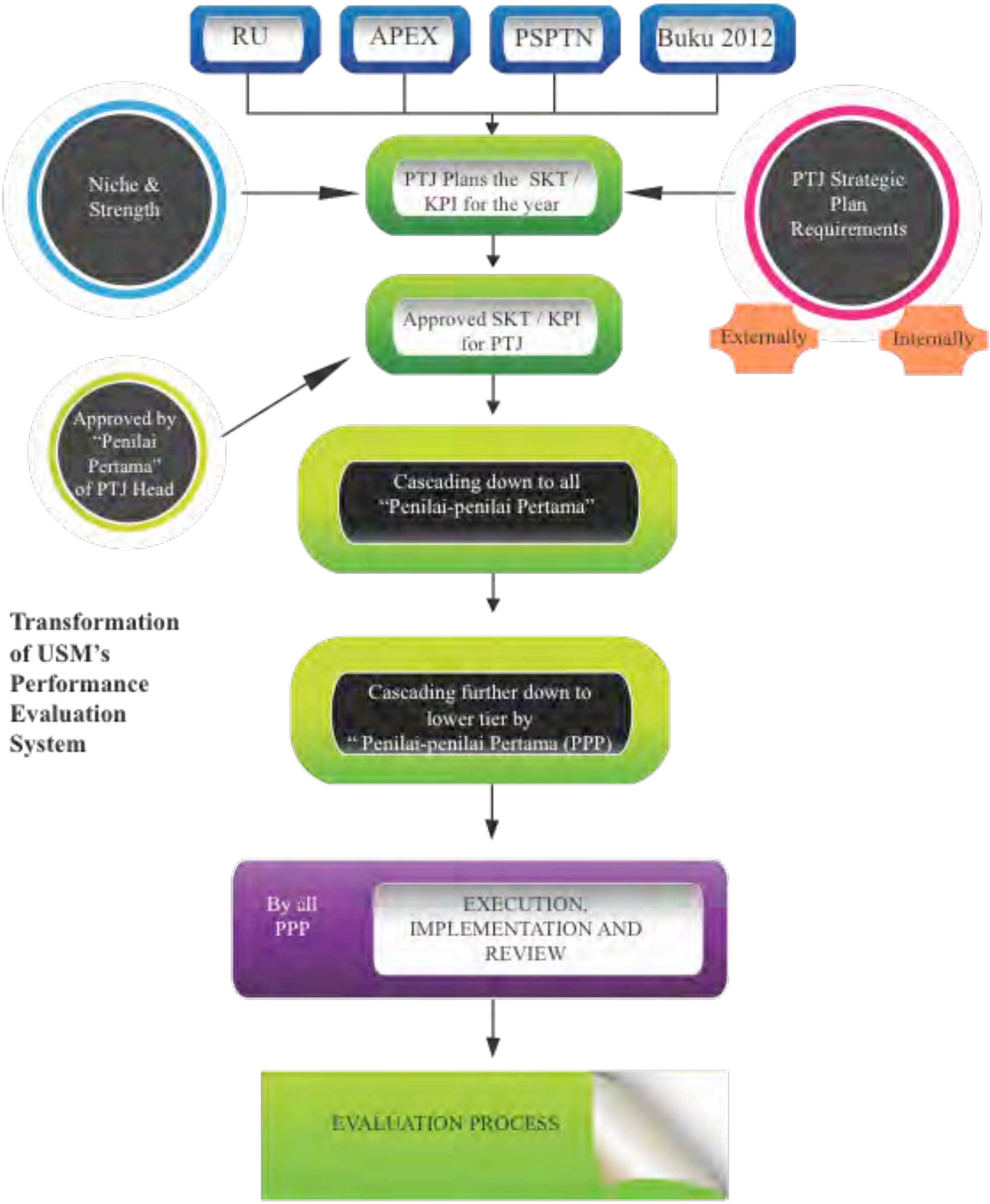
The objective of the cost rationalisation study is to find an appropriate rate of return on investment (ROI), for the university. In addition, it is to obtain and improve the efficiency of spending and to ensure the effectiveness of the expenses incurred by the university.

Issues on RPTKA and RLKA programme are the main focus of the university in the context of cost efficiency as they form part of the succession planning model for academic staff in the university. This cost rationalisation study has shown weaknesses in RLKA programme monitoring systems and data management.

Transforming the Annual Performance Appraisal System

The transformation team has identified that the common source of ills associated with the human capital of USM is related to the annual performance appraisal system. Two dedicated teams undertook a study on performance appraisal report; one for the academic and the other for non-academic staff. Suggestions to improve the weaknesses that exist in the annual performance appraisal system with USM were made and exercised beginning with the 2012 appraisal. The alignment between performance appraisal with the VISION and MISSION of USM is a key success factor.

The evaluation manner of the first and second evaluators were also reviewed and improved. Training programmes for performance assessors were also carried out by the Transformation Office with the Human Resource Department of the Registry. Figure 3.9 illustrates the framework that governs the transformation of the annual performance appraisal system.


RU
APEX
PSPTN
Buku 2012
Niche & Strength
PTJ Plans the SKT / KPI for the year
PTJ Strategic Plan Requirements
Externally
Internally
Approved SKT / KPI for PTJ
Approved by "Penilai Pertama" of PTJ Head
Cascading down to all "Penilai-penilai Pertama"
Cascading further down to lower tier by " Penilai-penilai Pertama (PPP)
By all PPP
EXECUTION, IMPLEMENTATION AND REVIEW
EVALUATION PROCESS

Transformation of USM's Performance Evaluation System

Figure 3.9 Transformational framework of the annual performance appraisal system

Study on Institutional Bureaucracy

A strategic requirement of USM's APEX agenda is to reduce "Bureaucracy in Governance". In order to have a clearer picture of the situation, a study team was commissioned by the university. The team focused on departments (PTJs) which are known to be directly involved, namely the Promotion Unit of the Human Resource Department, the Institute of Post Graduate Studies, The Bursary, the Development Department and the International Office. The team approached the hosts and discussed relevant issues as they were explored, and understood, especially on matters relating to work processes. The team also verified their understanding with the respective officers from the PTJs.

The team has identified that despite having good and transparent work process, the understanding of the procedures and processes are not up to the mark. There are also issues of lack of manpower in several critical activities. The team has also identified several opportunities for transformation and will go into phase two to go deeper into the issues and to provide more holistic solutions.

Transforming Training and Capacity Building

Training and capacity building is one of the most important enablers to ensure the avoidance of talent mismatch and to ensure that their competency is continuously enhanced. Figure 3.10 is the transformed training ecosystem by which USM builds its capacity building programmes. The effectiveness of training in USM is aided by the MyCPD System which is directly related to the Human Resource Management System (HCMS). As part of the annual performance exercise at the end of the year, superiors will evaluate staff's involvement and effectiveness in training through the MyCPD system. The transformation of USM training programmes are centered towards achieving outcomes, than just going through the processes.

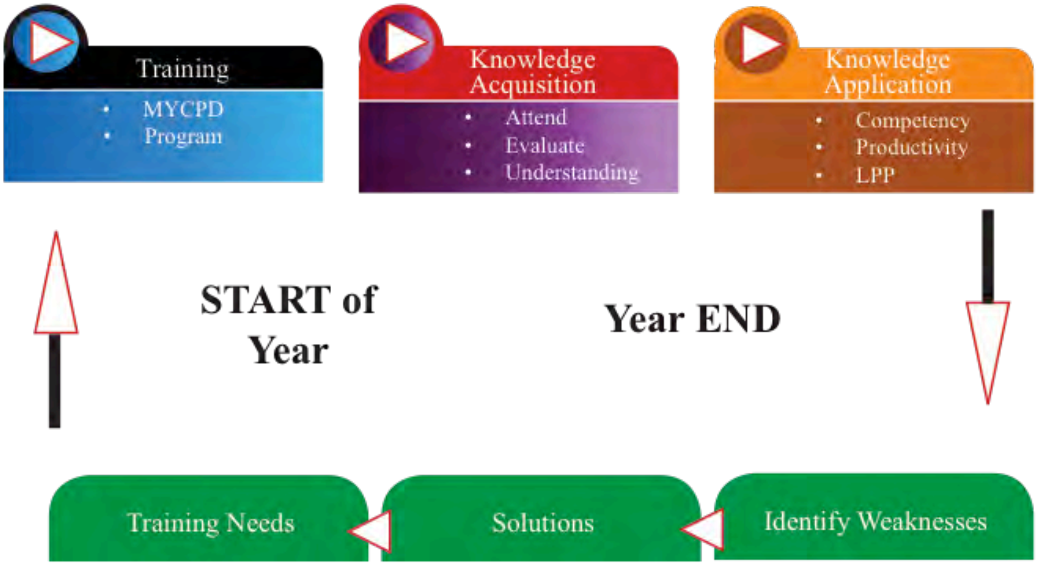

Training
MYCPD
Program
Knowledge Acquisition
Attend
Evaluate
Understanding
Knowledge Application
Competency
Productivity
LPP
START of Year
Year END
Training Needs
Solutions
Identify Weaknesses

Figure 3.10 The transformed trainning eco-system of USM framework

Issues Related to Procurement System and Practices

Procurement is a critical item in USM's operation and will be critical in ensuring the state of matters regarding the "gaps in resources" situation. Being allocated with large amounts of annual financial assistance, USM must ensure that its procurement system and practices are flawless and thus deliver the intended outcomes.

For this purpose, a team was tasked to look into the present procurement practices. The team conducted a study covering two aspects of the Bursary, namely budget management and procurement management. The team met and interviewed important players and stakeholders, which included deans, researchers, administrative officers, science officers and administrative assistants directly involved with financial affairs of their respective departments.

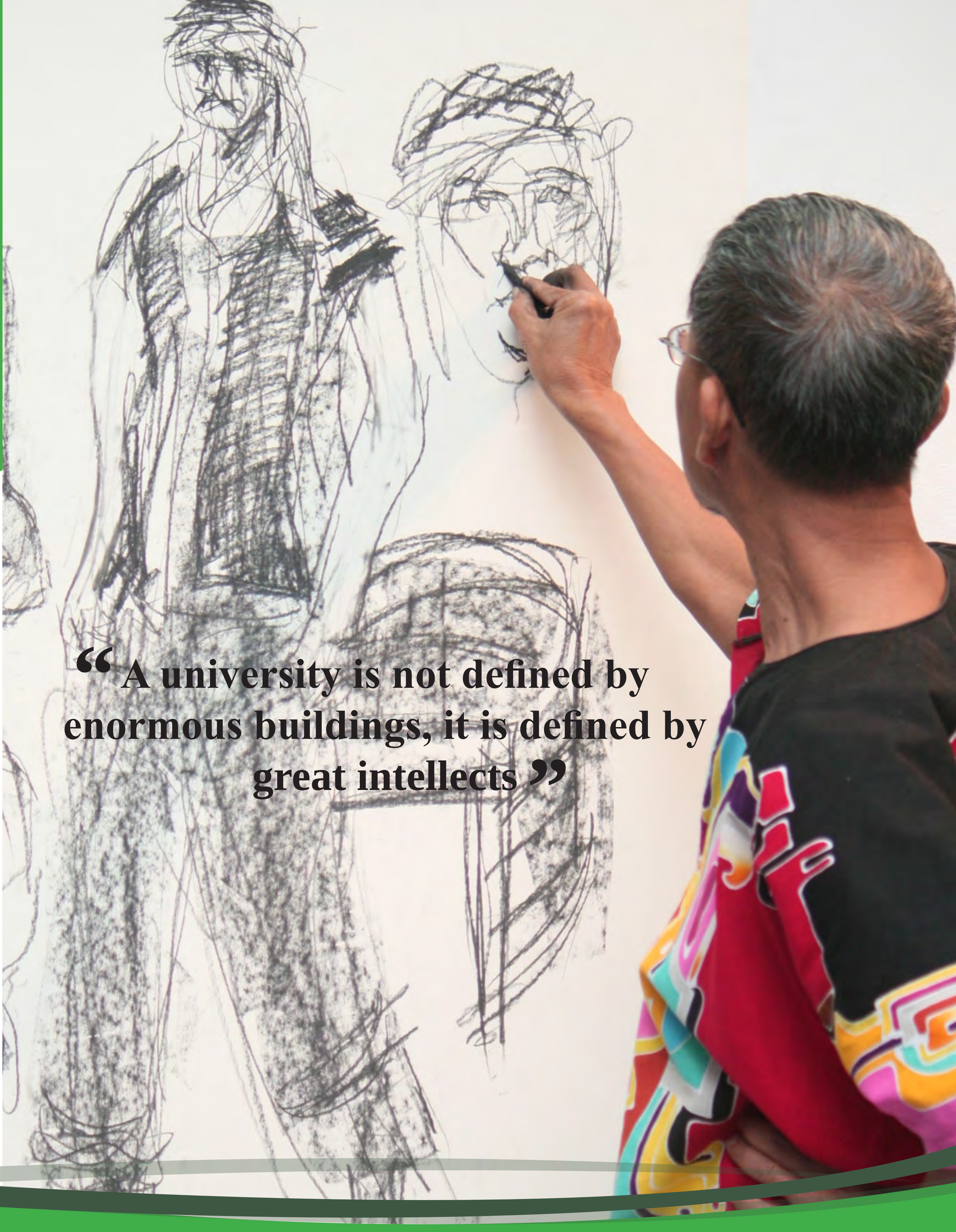
The scope of study covered issues from budget planning, procurement planning and up to actual procurement process.

Issues raised by the team cover the treasury regulations, implemented IT system (eFAS), understanding and integrity among suppliers, financial managers and consumers and financial practices in each department. Communication issues between the Bursary, departments and individual consumers or financial manager are important issues that need to be resolved.

Pictures manipulati

4

Talents: Staff and Student



“A university is not defined by enormous buildings, it is defined by great intellects”

Staff Talents

Introduction

The transformation of USM as an APEX University was identified as a matter of top priority and integral in changing the landscape of higher education in Malaysia. To realise the aspiration of delivering the targeted goals of APEX, USM laid out eight transformation plans illustrated in its *APEX Strategic Plan – Transforming Higher Education for a Sustainable Tomorrow* or the Black Book.

One of the stated transformation plans is, Transforming the Concentration of Talent. To act on the transformation plan, the following strategies were adopted, categorised and put to task. In the context of the ecosystem of the best talent, there are four (4) phases outlined. Figure 4.1 shows the phases involved. These phases are the key to talent management in USM.

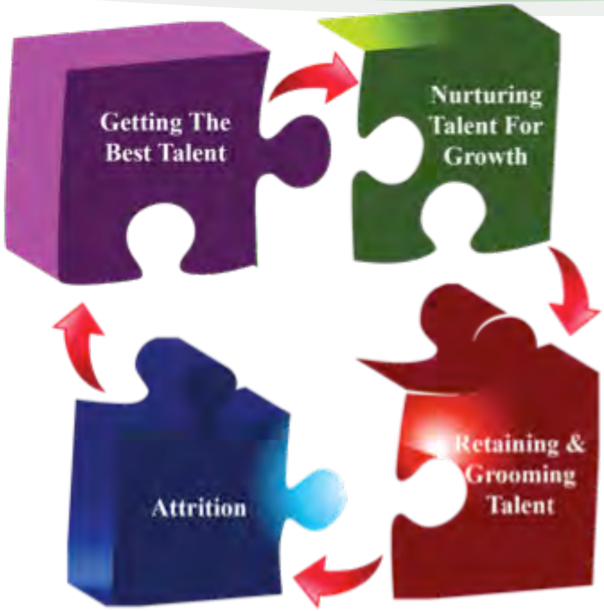

Getting The Best Talent
Nurturing Talent For Growth
Retaining & Grooming Talent
Attrition

Figure 4.1 Ecosystem of the best talent (human resource)

A summary of the strategy canvas for concentration of talent is illustrated below:

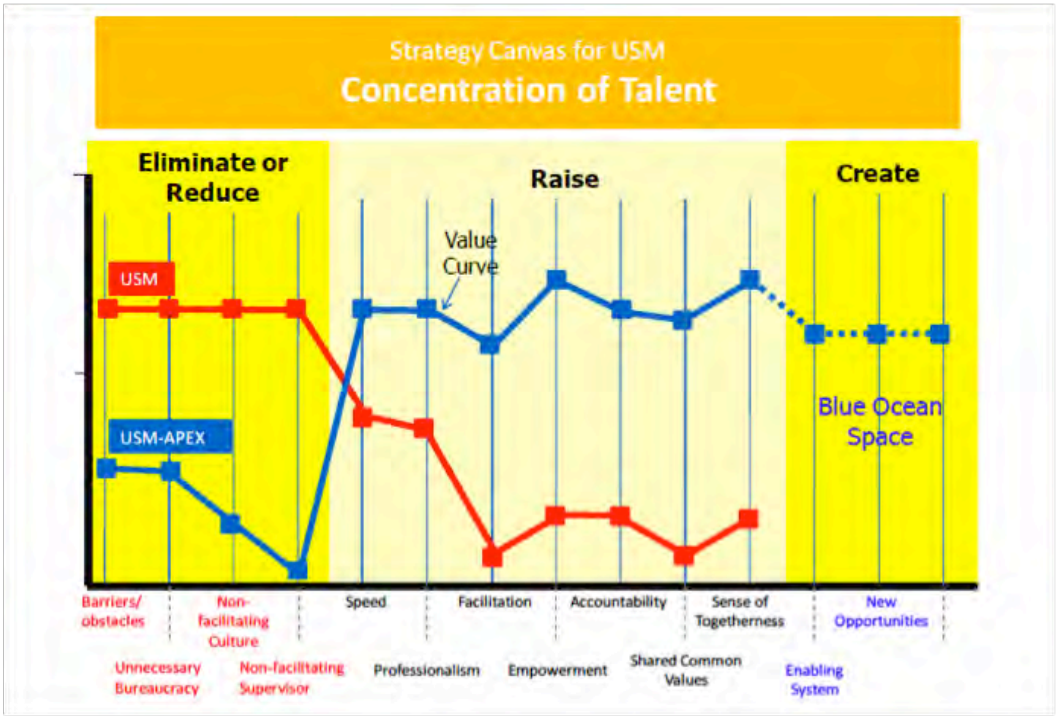
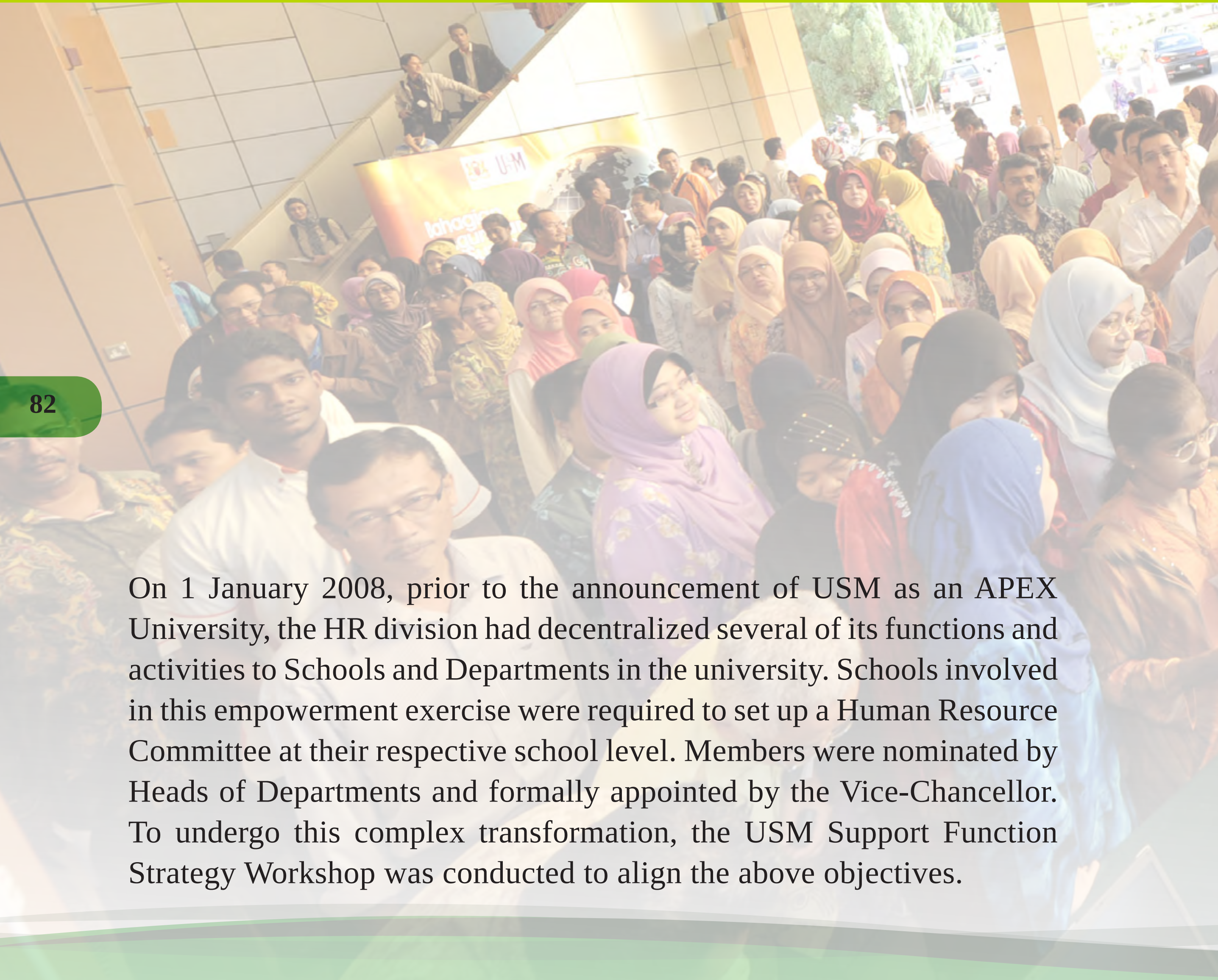


Figure 4.2 The strategy canvas for concentration of talent

> “ Schools involved in this empowerment exercise were required to set up a Human Resource Committee at their respective school level ”



On 1 January 2008, prior to the announcement of USM as an APEX University, the HR division had decentralized several of its functions and activities to Schools and Departments in the university. Schools involved in this empowerment exercise were required to set up a Human Resource Committee at their respective school level. Members were nominated by Heads of Departments and formally appointed by the Vice-Chancellor. To undergo this complex transformation, the USM Support Function Strategy Workshop was conducted to align the above objectives.

> “Talents are not only limited to staff or principal investigators but also support staff and students”

Strategies

The main challenge confronting universities is how to accurately anticipate and most effectively foster innovation in research and teaching. Creative and innovative people normally stay at places that are more in tune to their needs. The diversity of researchers among USM staff can be raised and retained through the creation of more fellowships and chairs that will attract researchers from around the world to spend time at USM. Talents are not only limited to staff or principal investigators but also support staff and students. The key toward creating a blue ocean is to boldly go where no man has ventured before. This can be made possible by the following ERRC grid:

i. Diversity of talents. The main challenge, confronting universities is how to accurately anticipate and most effectively foster innovation in research and teaching. Creative and innovative people normally stay at places that are more in tune to their needs. The diversity of researchers among USM staff can be raised and retained through the creation of more fellowships and chairs that will attract researchers from around the world to spend time at USM. Talents are not only limited to staff or principal investigators but also support staff and students.

ii. Quality of staff should be further raised as this is an essential factor towards producing high quality research. This can be done by recruiting the best possible, high quality candidates to USM as well as improving the calibre of the current researchers.

iii. Publication infrastructure (such as editorial assistance and linkages) is also an important component to increase the amount and quality of research output. For example, editors of high ranking international journals should be invited to provide regular training in scientific writing as well as to personally guide researchers on their manuscripts (on a consultancy basis).

iv. International collaboration on the world's most complex problems should be enhanced and this can be done by getting them fully involved in international linkages, consortia and in support of global agenda. Sustainability is one such agenda. The university should encourage and facilitate such endeavours as these undertakings will normally snowball into much greater benefits at all levels of research and innovation.

v. Freedom of inquiry is without doubt the fundamental nature of the mind of every researcher. We must take steps to facilitate freedom of enquiry as failure to do so will damage the pursuit of knowledge.

vi. Support for fundamental research should be increased. As elaborated earlier, fundamental research has demonstrated its value over time and universities have always been the beacon of basic research. As long as universities are dynamic and their researchers are free to follow the truth wherever it may lead, there will always be a surge of new knowledge.

vii. Shared and integrated facilities to enable all kinds of interactions, intersections, collaborations and weaving should be allowed to happen all the time.

viii. Chair to attract “towering professors”. USM should endeavour to invite more “towering professors” to bring research of the university up to the next level. Among their roles will be to establish a proper research system and culture to perform the highest quality research within this university.

i. Outreach programmes to schools (local and regional) to uncover talents from different backgrounds.

ii. International fellowships and scholarships to recruit high quality staff and students.

iii. Pilot programmes with a research focused curriculum (rather than traditional teaching-focused) with exit points at all three levels. Students will be taken into a pilot programme designed "to teach science the way you do science" as promoted by the Howard Hughes Medical Institute. Students in this programme will be engaged in the process of discovery and be transformed into future researchers, in this case toward sustainability.

iv. New research horizons are an important aspect of a living institution especially with respect to sustainability. This must be a constant constituent within the population of researchers. A dynamic amoeboid-like generation of ideas will keep USM at the forefront at all times and will ensure a continuous flow of discoveries and innovations.

v. Individual research accountability goes to the university rather than to the Schools or Centres of Excellence. This novel suggestion requires a change in governance. Under this system, the schools will only be involved with the teaching of their curricula. Responsibility regarding research, however, is directed back to between the researcher and the university. This means that the university finally evaluates the annual performance of the researcher rather than the dean or director. The heads of departments will evaluate just the teaching performance and services.

vi. Performance-based one-line budget in which researchers are also evaluated on their past records.

vii. Employment towards research needs rather than

teaching needs as dictated by the schools.

viii. A new flexible salary structure to attract good researchers is imperative if we are to compete at the global level. Undoubtedly an adjustment is needed towards the current salary structure to entice good post-doctoral trainees and towering personalities to come to Malaysia.

ix. Management system or structure for every research cluster will facilitate the operations of the group. An experienced research manager who knows every aspect of research activity is needed to run the strenuous motion of doing research inter alia with the community.

x. Sustainable community involvement in research projects is an important aspect of research as in the end, it is the community which funds our research and it is also the community which will benefit from it. As part of the transdisciplinary approach, innovation originating from the community can be just as remarkable and this has often been seen, and vice versa.

xi. Imprinting or branding of USM as a unique research venue is an essential aspect within the mindset of researchers. The uniqueness of the USM main campus as well as our location on the beautiful island of Penang will entice many top researchers in the world to set up linkages and collaborate with us. USM's unique atmosphere of sustainability research and living-learning "university in a garden" campus can be used as an attractive stance to lure top notch scientists.

Initiatives

In tandem with the various changes in the university's strategies, a HR plan has been drawn up to support the HR needs of the prevailing strategies. The formation of the Talent Management Committee in October 2008 ensured that HR actions and activities are aligned with the KPI of a Research and APEX university. The following initiatives focusing on talent management and development were initiated and discussed by the Talent Management Committee. They are:

a. Post-Doctoral Fellow Appointment Guideline

b. *Skim Saraan Universiti* APEX [SSUA]

c. APEX Leadership Programme
d. Standing Committee on Assessment

e. Performance-Based Bonus

f. Appointment of Non-Academic Staff As Academic Staff and Sabbatical Leave Privilege.

g. Academic Staff Recruitment (Head Hunting) local and overseas.

h. New Visiting and Associates Position Appointment Scheme

i. Incentive and Criteria for Appointment of Deans/Head of Centres of Excellence

j. The setting of remuneration for professors above the existing grade based on expertise / field and distinguished staff incentives

k. Multi-Tasking Allowance

l. Review of Academic Staff

Training Scheme and Academic Staff Higher Education Scheme.

m. Academic and Non-academic Staff Profiling through Human Capital Management System [HCMS].

n. Succession Plan for Management and Professional Officers.

o. USM Rain Maker Professors

Four (4) new committees were formed in 2011 with special focus on:

a. Mobile Workforce
b. Institutional Repository (IR)
c. Three-track Promotion
d. PIMPIN II

There are four (4) phases of transformation of Human Resources Activities in USM.

HR policies and procedures are widely communicated to staff through:

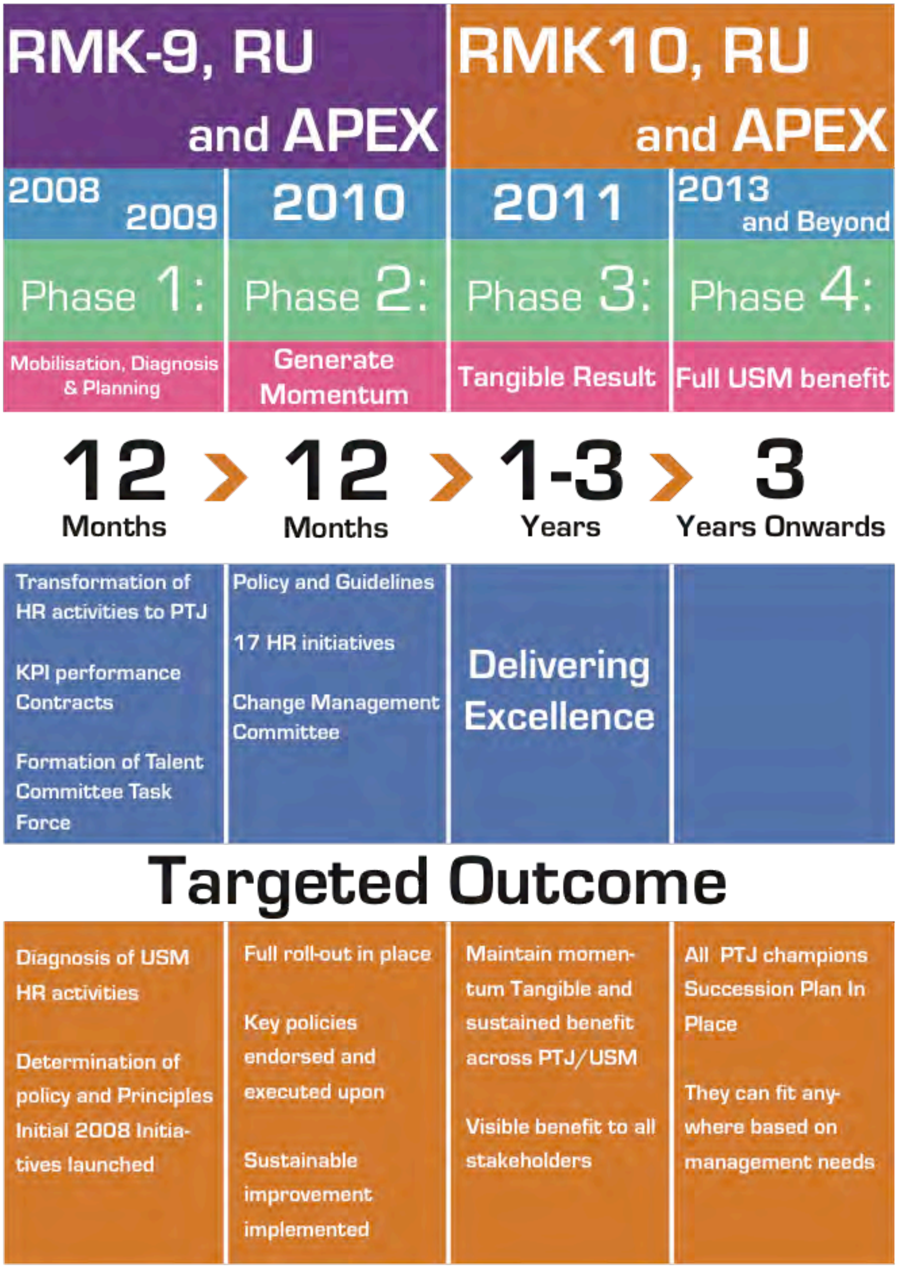
a. Memorandum/Circulars
b. Road shows
c. HR Manuals
d. Training
  - MyCPD
  - Induction Courses
  - Websites
  - registry.usm.my
  - BPSM
  - assist.usm.my
  - e-document

e. Meetings/Discussion with Schools
f. University-level Management Forum

“ The formation of the Talent Management Committee in October 2008 ensured that HR actions and activities are aligned with the KPI of a Research and APEX university ”

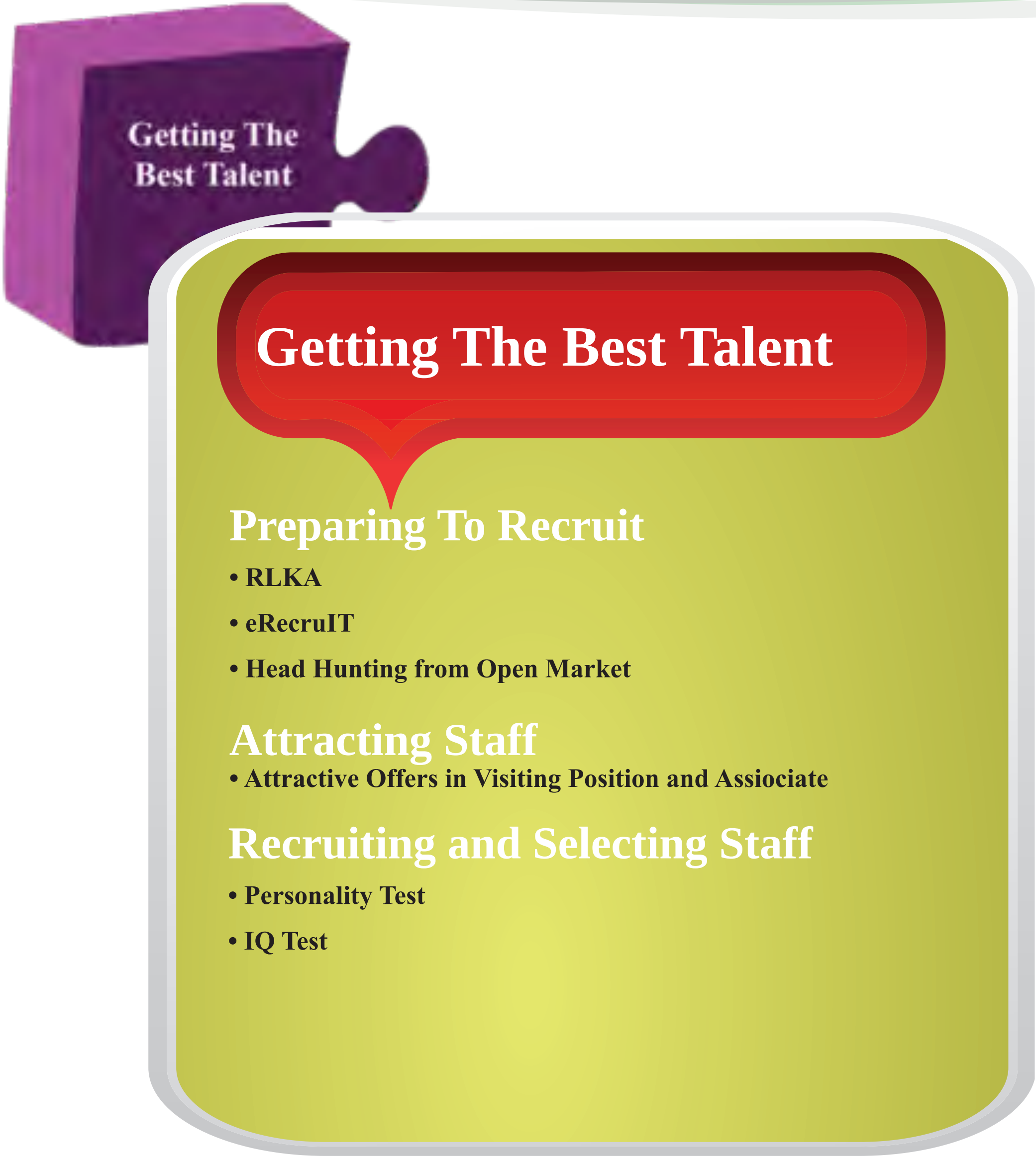
Getting the Best Talent

Workforce Planning is a critical step in planning to get the best talent. It is the first step in the human resource planning cycle and links up to preparing to recruit, attracting staff, recruiting and selecting staff (Figure 4.3, 4.4).



RMK-9, RU and APEX		RMK10, RU and APEX	
2008 2009	2010	2011	2013 and Beyond
Phase 1:	Phase 2:	Phase 3:	Phase 4:
Mobilisation, Diagnosis & Planning	Generate Momentum	Tangible Result	Full USM benefit
12 Months	12 Months	1-3 Years	3 Years Onwards
Transformation of HR activities to PTJ KPI performance Contracts Formation of Talent Committee Task Force	Policy and Guidelines 17 HR initiatives Change Management Committee	Delivering Excellence	
Targeted Outcome			
Diagnosis of USM HR activities Determination of policy and Principles Initial 2008 Initiatives launched	Full roll-out in place Key policies endorsed and executed upon Sustainable improvement implemented	Maintain momentum Tangible and sustained benefit across PTJ/USM Visible benefit to all stakeholders	All PTJ champions Succession Plan In Place They can fit anywhere based on management needs

Figure 4.3 Four phases of transformation of human resource



Getting The Best Talent

Preparing To Recruit

- **RLKA**
- **eRecruIT**
- **Head Hunting from Open Market**

Attracting Staff

- **Attractive Offers in Visiting Position and Assiociate**

Recruiting and Selecting Staff

- **Personality Test**
- **IQ Test**

Figure 4.4 Getting the best talent

Attracting and Retaining Talents

Talent consists of those individuals who can make a difference to organisational performance, either through their immediate contribution or in the longer-term by demonstrating the highest level of potential.

Recruitment, Selection and Promotion Procedures

As a whole, the university's staff recruitment, selection and promotion policy is in line with the university's strategic objectives, i.e. getting the best talent in terms of:

a. quantity and quality of researchers

b. quantity and quality of lecturers

c. quantity and quality of administrative and professional staff

d. quantity and quality of technical and supporting staff

The alignment of the above policy is carried out by the Talent Management Committee which was formed in 2008. For administrative professional, technical and supporting staff, USM observes the current scheme as set out in the government's guidelines and circulars.

Recruitment and Selection

In line with the university's APEX status, and to obtain the best talents, USM has introduced and implemented several criteria as stated below:

a. Appointment of Lecturers only with Ph.D. (appointment of Lecturer Grade 51 upon fulfilling 4 extra criteria) *Lembaga Pengarah Universiti dalam mesyuarat ke 62, pada 27 Mei 2008 telah bersetuju meluluskan pelantikan terus Pensyarah ke Gred 51, tertakluk kepada mereka yang memenuhi syarat berikut :*

Memperolehi kepujian Bahasa Malaysia/Bahasa Melayu (termasuk lulus Ujian Lisan) pada peringkat Sijil Pelajaran Malaysia atau kelulusan yang diiktiraf setaraf dengannya oleh kerajaan dan telah menyempurnakan satu penyelidikan yang berkualiti dan telah menghasilkan makalah dalam jurnal atau penulisan bab dalam buku atau artikel dalam prosiding dan telah membentangkan kertas kerja *dalam persidangan berkaitan bidang kepakaran atau pengalaman lain yang berkaitan.*

Recruitment of academic staff has been empowered to respective Schools/Centres (PTJ) effective 2008. This empowerment is to speed up the process of acquiring the best talent that fulfills the needs of the PTJ.

(b) Appointment of Research Officers with experience are at a higher grade.

(c) For certain non-academic appointments, USM has embarked on using special assessment to short-list the best candidates. The appointment of academic staff is based on APEX ratio as below:

1 Lecturer : 4 post-graduate students
1 Lecturer : 2 non-academic staff

Promotion Procedure

Procedures for staff promotion are categorized into two (2) components: procedures for **academic** and **non-academic** staff.

(a) Academic staff

Promotion for academic staff is a continuous process. Academic staff that fulfill the university's requirements will be promoted upon approval by the university. The policy, criteria and process for promotions are outlined in the *Buku Panduan Kenaikan Pangkat Staf Akademik* which was approved at the 61st Board Meeting of LPU on 1 April 2008. There are eight (8) levels of promotion in the USM academic hierarchy.

(i) Senior Lecturer
(ii) Associate Professor
(iii) Professor - Special Grade C
(iv) Professor - Special Grade B
(v) Professor - Special Grade A
(vi) Eminent Professor – *Turus III*
(vii) Eminent Professor – *Turus II*
(viii) Eminent Professor – *Turus I*

All documents, including application forms, templates and promotion criteria are made available in the website under the *Seksyen Kenaikan Pangkat* for easy retrieval by all academic staff. In addition, following the advertisement of a promotion exercise, roadshows are held in all three (3) campuses to ensure potential applicants are well informed. All applications for promotion are vetted to select qualified and suitable candidates by the Standing Committee on Assessment (Cluster Committee), approved at the 71st Board Meeting of the LPU on 7 December 2009.

For promotion of levels (i) to (v), candidates are assessed based on five (5) criteria:

- Research and Publication
- Teaching and Supervision
- Academic Recognition and Leadership
- Consultancy
- Service to the University and Community

Successful candidates are approved by the University Board as stated in University Statute X (A), X (B) and XI Amendment 2008. All applicants are notified on their status of application. Promotion criteria for academic staff are being reviewed to ensure its relevance and validity.

Teaching and Supervision -TAS
Research and Publication - REAP
Community and Social Engagement – CASE
Academic Recognition and Leadership - ARAL

(b) Non-academic

Promotion exercises for non-academic staff are subject to availability of post and based on the following criteria:

- output of core function
- innovation/creativity
- enhancement of knowledge and skill
- recognition of expertise and consultancy
- service to the university and community

All related documents are available in the university website under *Seksyen Kenaikan Pangkat* and roadshows are held in all three (3) campuses to ensure all applicants are well informed.

Procedures for Recruitment, Selection and Promotion

USM exercises fair and transparent practices in its recruitment, selection and promotion procedures which are in accordance with the government's Acts, General Orders and Circulars. USM launched an electronic recruitment system known as e-recruIT in 2003 with an enhanced version (e-recruIT EV02) in 2004. This system is fair and user-friendly. The procedure for recruitment and selection are as follows:

(a) Advertisement – Besides advertising in the local newspapers, advertisements is also placed in e-recruIT (USM web-site (http://eregistry.usm.my/hr/erecruit/)

(b) Application – The system can be accessed anytime, anywhere in the world. Applicants can also continuously update their curriculum vitae on this system.

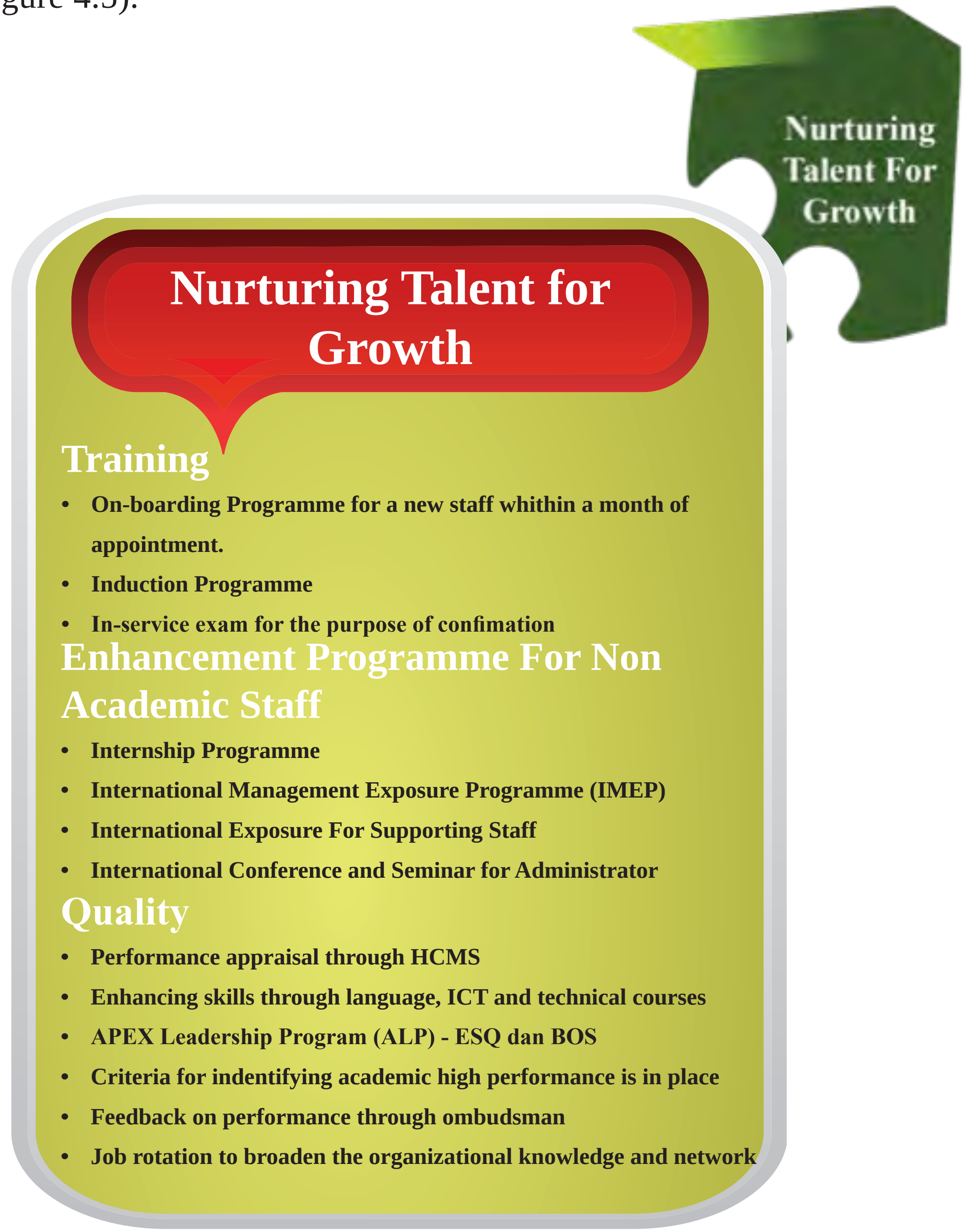
(c) Short-listing –Short-listing of candidates is empowered to the Centre of Responsibility (PTJ) based on individual needs.

(d) Interview –CVs of candidates can be downloaded from the system by the Selection Committee (paperless).

With regard to promotion exercise, applications for promotion will be evaluated by the Standing Committee on Assessment (Cluster Committee), which comprises independent Senior Officers who are non-Heads of Departments. Only candidates who pass the cut - off point will be invited for an interview by the Selection Committee. As a whole, selection and recruitment procedures are strictly adhered to. All minutes are endorsed by the university's Board of Directors/ Top Management in accordance with the university's Constitution. Modules for guidelines on recruitment and promotion procedures are given to all PTJs. Meetings and discussions between the Human Resource Management Division and PTJs also ensure that all procedures are observed and implemented.

Nurturing Talent for Growth

In order to ensure sustainability of staff development and training, nurturing talent for growth was implemented to enhance the quality of staff (Figure 4.5).



Nurturing Talent for Growth

Training

- On-boarding Programme for a new staff whithin a month of appointment.
- Induction Programme
- In-service exam for the purpose of confimation

Enhancement Programme For Non Academic Staff

- Internship Programme
- International Management Exposure Programme (IMEP)
- International Exposure For Supporting Staff
- International Conference and Seminar for Administrator

Quality

- Performance appraisal through HCMS
- Enhancing skills through language, ICT and technical courses
- APEX Leadership Program (ALP) - ESQ dan BOS
- Criteria for indentifying academic high performance is in place
- Feedback on performance through ombudsman
- Job rotation to broaden the organizational knowledge and network

Figure 4.5 Nurturing talent for growth

Performance Management

Performance management is a process which contributes to the effective management of individuals and teams in order to achieve high levels of organizational performance. USM practices three (3) levels of performance management which are (Figure 4.6):

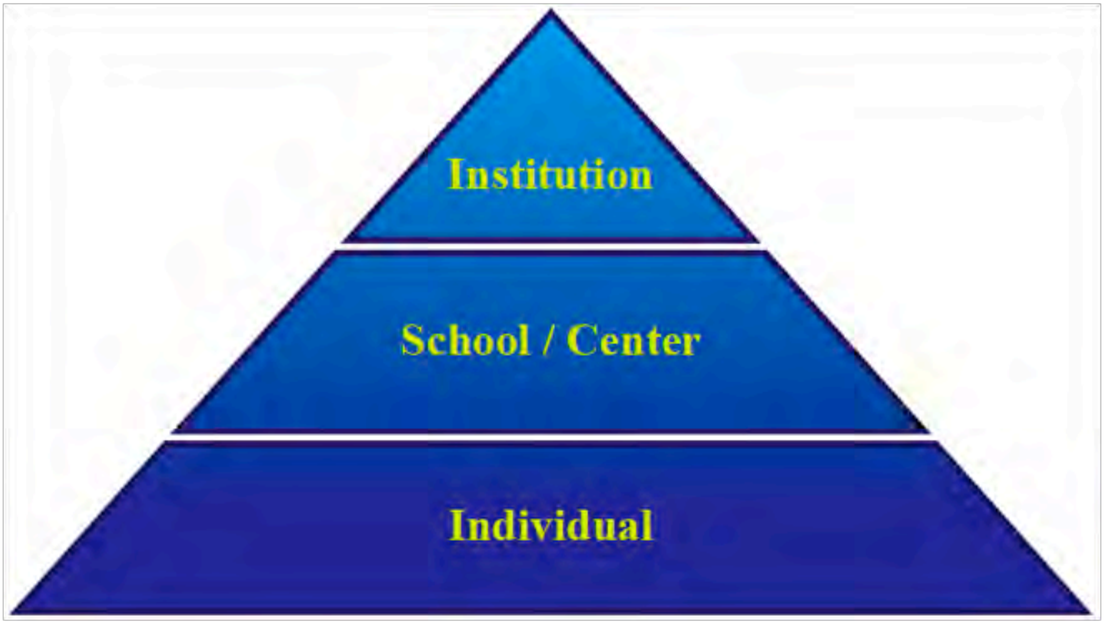


Figure 4.6 Three levels of performance management

A high-performing individual contributes to the elevation of the school's performance and ultimately fulfils the organisation's objectives. All these are in line with RU and APEX as well as the National Strategic Plan. All staff are evaluated yearly as part of the Yearly Performance Appraisal which is based on job description and *Sasaran Kerja Tahunan* (SKT). Schools/Centres are evaluated on Key Performance Indicator (KPI) and Key Intangible Performance (KIP) which are contributing factors to the overall performance of the organisation.

Job descriptions create objectives that add value to the university's goals. The university has set up an Apex Talent Management Committee to look into the enhancement of the staffs' Job Discription. A profile has been developed for academic and non-academic staff and these profiles are translated as Staff Job Discription to be used for promotion exercise. The academic and non-academic staff profiling are:

Academic Staff Profiling:

- Research and publication
- Teaching and supervision
- Academic recognition and leadership
- Consultancy
- Service to the university
- Service to the community

Non-Academic Staff Profiling:

- Core function implementation
- Innovation/creativity
- Knowledge and skill enhancement
- Consultancy and expertise recognition
- Service to the university and community

The job description, therefore, does not concentrate only on an individual's primary task but also includes the commitment of the staff towards innovation/creativity/quality movements and knowledge enhancement and any other contribution to the university and society. In addition to the staff's profiling, the university also focuses on multi-tasking among its staff.

Job descriptions are developed with input from internal and external stakeholders. All JDs are developed and reviewed with input from Heads of Departments (PTJ) and in consultation with members of the Staff Union (*Persatuan Kakitangan Akademik & Pentadbiran and Kesatuan Kakitangan Am*). Input is also obtained from each head of the scheme's sector.

University's Performance Appraisal System

To ensure the effectiveness of the Performance Appraisal System the university has set up two (2) separate committees, one at the PTJ level and the other at the University level. These committees are trusted to ensure that staff are assessed objectively and fairly based on their *Sasaran Kerja Tahunan* (SKT), Mid Term Review and Year End Assessment. All staff, including those on study leave are required to complete and submit the Performance Appraisal.

This system has been further enhanced to incorporate:

(a) New elements such as Continuous Professional Development or MyCPD.

(b) With effect from 2011, USM has implemented an on-line system known as Human Capital Management System (HCMS). The purpose of this system is to enhance and ensure the effectiveness of the performance appraisal. HCMS takes into account staff's JD, SKT, LPP, MyCPD and Curriculum Vitae (CV). Performance appraisals are used for confirmation of service, study leave, promotion, disciplinary action and other important service decisions.

Accountability of Heads of Department (HoDs)

HoDs are held accountable for developing a high performance culture for:

(a) Setting of Mission, Vision and Goals

(b) Setting of Key Performance Indicators (KPI's)

(c) Monitoring of staff performance

USM has developed and attained a high performance culture through quality activities such as ISO 9001: 2008, *Kumpulan Inovatif & Kreatif* (KIK) and 5S, and other quality activities.

Talent Development

For the assessment of strength of its Talent Pool, USM has developed two information systems, namely, Malaysia Continuous Professional Development (MyCPD) and the Human Capital Management System (HCMS). Both systems which support the aspirations of the 'Mobile Workforce' implementation inspired by the APEX Talent Management Committee, are web-based and can be accessed from anywhere.

MyCPD System

MyCPD is a lifelong learning process to develop and improve an individual's competency and at the same time strengthen the talent pool in USM. Implemented in 2008, the MyCPD system was set to improve the then Competency Level Assessment which had been in use since 2003 in all Government Agencies. On January 2008, the nation's Chief Secretary, Tan Sri Mohd Sidek Hassan launched the MyCPD programme in USM in conjunction with the IPTA.

Since 2008, USM has used the MyCPD programme not only as an improved system to the Competency Level Assessment, but as a handy tool for appraisals. MyCPD is considered an innovative element in human resource development. The programme is also used to educate and encourage all staff of USM to enrich themselves in attitude, knowledge and skills.

In general, the MyCPD programme recognizes the development of competency in a staff to:

- Understand and apply new knowledge and skills in the field of their respective positions.
- Face the changes and challenges in career development.
- Acknowledge moral values and positive attitudes.
- Encourage and enhance self-development and characteristics.
- Encourage the use of knowledge, skills, creativity

and innovation.
- Strengthen a learning organization
- Implement competency-based human resource management

Human Capital Management System (HCMS)

Besides MyCPD, USM has also used the Human Capital Management System (HCMS) since March 2011. This system has been designed to keep all records of the staff's contributions in professional development. By using HCMS, the USM management team is able to obtain and identify staff talent information. The objective of HCMS is to nurture and groom talent for growth by achieving a list of criteria set by USM's top management. HCMS is a mechanism where a staff can upload all of his achievements from the day he begins service with the University.

Other than MyCPD and HCMS, the strengths of the staff can be captured and accessed via performance appraisals and annual staff KPIs. Initiative to Encourage Innovation & Creativity in its Talent Pool. (is this meant to be a heading? If it is then I suppose you need to bring it down into a new line. If it is not a heading then this has to be connected to the next sent. It can be done this way: 'To encourage innovation and creativity in its talent pool, the university has provided various avenues for staff to develop their competencies and enhance capabilities through the following avenues:

- sabbatical leave programme
- cross-functional job programmes or projects
- job rotation
- attachment programmes
- on-the-job training
- professional development training conducted by external bodies
- attendance at academic conferences

To ensure staff competency improvement and to inculcate the organizational learning culture in the University, training has been tied up with staff performance reports. MyCPD uses the merit points system under which every hour of training attended will be allocated specific points. From time to time, the staff and their Heads of Department are able to plan, monitor and measure their training performance throughout the year. MyCPD has incorporated the assessment component of “Knowledge and Skill Enhancement” from the Annual Appraisal Report. Since 2008, all staff who have attended the competency development programmes have been awarded with MyCPD merit points according to their grade of service.

By setting up minimum points required, it is the onus and the responsibility of each staff to upgrade his knowledge and self-development. This is a motivating factor for the staff to enrich their knowledge in a continuous manner. Indirectly, it supports the spirit of lifelong learning among the staff of the university. From time to time, the training course syllabus undergoes revampment in order to make it relevant to current job needs. Every year, representatives from each service scheme will identify and determine the competency needs through the annual Training Needs Analysis (TNA) workshop. From the TNA reports and feedback of previous programmes, new and improved training modules will be conducted the following year.

Besides this, the University Competency Board has identified specific competencies that need to be implemented via training programmes. For instance, the university has decided that all staff members in Grades 17-26 will need to collect five points from the ICT competency to fulfill the minimum points they require in a year.

Organisation-wide Sharing of Talent and Knowledge

The university has provided training programmes which cover the generic and functional competencies needed by each group of staff. The university allocated RM2.4 million in 2011 for in-house training programmes covering the entire service scheme and departments in USM. Apart from internal training programmes organized by the Training Unit, PTJs and departments also conduct their own training programmes. In 2011, the university allocated RM640,000 for the academic staff and RM500,000 for the administrative staff to enable them to attend career-related programmes. Upon completion of such programmes, the relevant staff are required to share the knowledge they have gained with the university community.

Affiliation of staff with professional and career-related interest groups

Through HCMS activities, staff members are encouraged to involve themselves in professional and career-related interest groups by fulfilling the "Expertise Recognition" requirement element from HCMS.

For example, nurses in Hospital USM are encouraged to do their "Annual Practising Certificate" and "Post Basic Training" incorporated with the MyCPD programme while obtaining their professional recognition/ certificate. Medical Officers who are involved with professional bodies such as the Medical Malaysia Association will also be given points in HCMS.

Academic and administrative staff are encouraged to attend and present academic papers locally and abroad through some allocations provided from the Research & Creativity Management Office (RCMO).

Retaining and Grooming Talent

In order to ensure that staff continue to provide the best service to the university, appreciation in the form of awards, promotions and facilities are provided for continued satisfaction (Figure 4.7).

Retaining &
Grooming
Talent

Retaining & Grooming Talent

Award

- **APEX Performance Based Training Incentive - 2%**
- ***Sanggar Sanjung***

Kenaikan Pangkat

- **Criteria for identifying high performance among non-academic is implace in year 2011**

Benefit

- **Medical Benefit**
- **Inspiring work environment through SEROJA (*Sejahtera Rohani dan Jasmani*)**

Figure 4.7 Retaining and grooming talent

Compensation Management

Competitive and Financially Sustainable Compensation Packages

Compensation Management for USM staff is currently based on SSM. The university under its APEX status has proposed the "*Skim Saraan Universiti APEX*" (SSUA) which encompasses better salary schemes, bonus incentives and other perks. This proposal has been submitted to the relevant agencies and approved but has been put on hold until such time when USM can generate its own income. As a whole, the university will ensure that the staff compensation package is competitive and does not offer less than what the government has agreed upon.

Rewards for Performance

Besides job promotions, the university rewards excellence in performance through:

- *Anugerah Perkhidmatan Cemerlang* (APC).
- *Anjakan Gaji*.
- "*Anugerah Sanjungan Budi*" for those who have served the University for 25 years.
- "*Majlis Jasamu Dikenang*" is organized annually at the University level to appreciate and recognize would-be retirees.
- "*Anugerah Sanggar Sanjung*" is organized annually at the University level in appreciation and recognition of academics and non-academics for their innovations and creative ideas/inventions.
- Sabbatical leave for academic and non-academic staff (only for P & P).
- Study leave for academic and non-academic staff.
- A performance-based bonus.

On the other hand, staff with less satisfactory performance will be referred to the *Sekretariat Warga Sejahtera* for motivation and counselling sessions. Staff with low performance and disciplinary problems are referred to the Staff Disciplinary Board under the Legal Office in the Chancellory Department.

Leadership Programmes

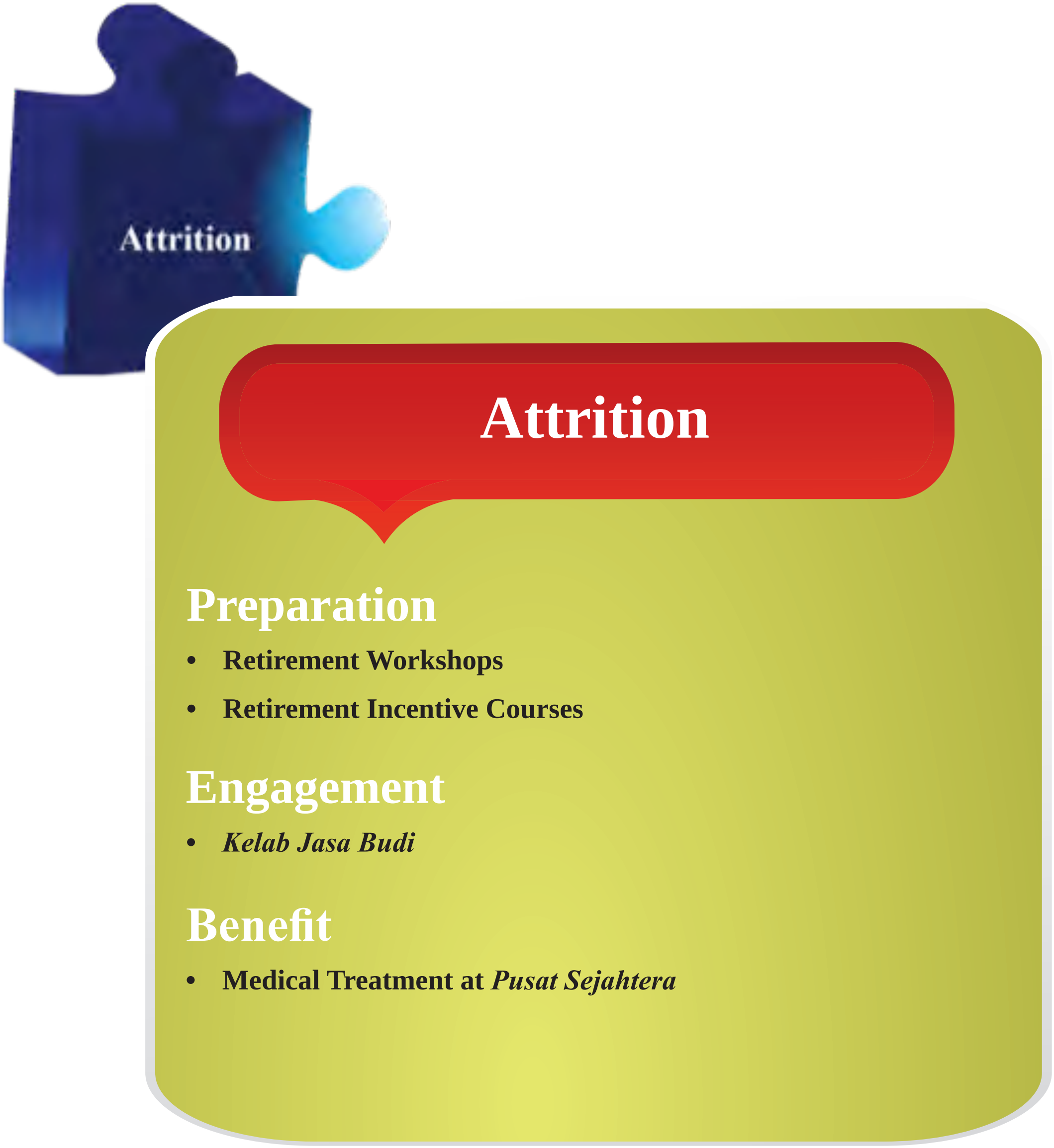
Leadership Development

In 2010, the university implemented the APEX Leadership Programme consisting of a series of "Blue Ocean Strategy" (BOS) workshops for all Deans and Heads of Departments. Some of the Deans and Heads of Departments were directed to attend programmes organized by *Akademi Kepimpinan Pengajian Tinggi* - AKEPT. In other instances, to nurture future leaders, a group of selected young lecturers was sent to the "Young Lecturer Leadership Course" (*Kursus Kepimpinan Pensyarah Muda*) organized by *Institut Tadbiran Awam Negara* – INTAN. In order to ensure that future leaders would be imbued with intangible values, the university also identified staff who attended "Emotional Spiritual Quotient" (ESQ) Leadership programmes in 2010.

This year, the university is planning to run a series of "Human Capital Enabling Intensive Programme II" called PIMPIN II for Heads of Departments and future leaders. Besides the above, there is a list of training programmes planned for future leaders focusing on Grade 52 and above under the "Succession Plan" training programmes that will be executed in 2011.

Attrition

In line with the concept of sustainability campus, USM has drafted and implemented programmes for staff who are retiring which consist of three main stages, namely, preparation, engagement and welfare (Figure 4.8).



Attrition

Preparation

- **Retirement Workshops**
- **Retirement Incentive Courses**

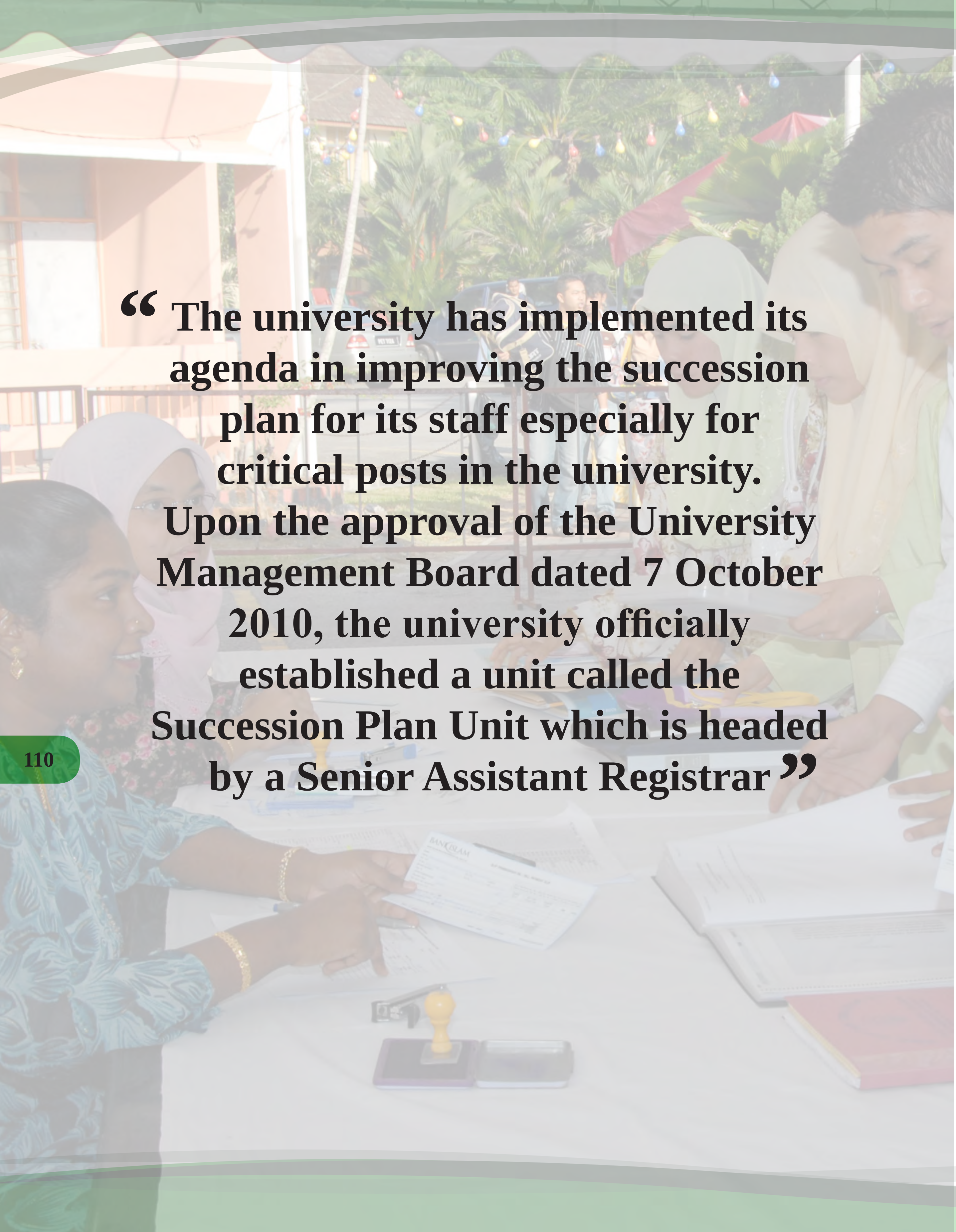
Engagement

- ***Kelab Jasa Budi***

Benefit

- **Medical Treatment at *Pusat Sejahtera***

Figure 4.8 Attrition



> “The university has implemented its agenda in improving the succession plan for its staff especially for critical posts in the university. Upon the approval of the University Management Board dated 7 October 2010, the university officially established a unit called the Succession Plan Unit which is headed by a Senior Assistant Registrar”

Achievement

The succession plan is a process to identify and train potential officers to take over critical posts when needed. The university has implemented its agenda in improving the succession plan for its staff especially for critical posts in the university (Figure 4.9).

The first step taken by the university was to initiate a workshop involving HR staff from various universities in the country. All input from the workshop was shared among IPTA's; USM then finalised the paperwork to set up a Succession Plan Unit to further enhance the structure of the plan in the university under the Talent Management Committee. Upon the approval of the University Management Board dated 7 October 2010, the university officially established the unit called the Succession Plan Unit which is headed by a Senior Assistant Registrar (Figure 4.12).

The Succession Plan of the university is monitored by the Competency Development and Succession Plan Board chaired by the Vice-Chancellor. The scope of functions of the Board is as listed below:

(a) To decide on the policy and guidelines of implementation.

(b) To identify the relevant training for succession.

(c) To ensure the quality and the effectiveness of the programme.

(d) To ensure compliance to existing policies and circulars from the government.

(e) To approve the annual budget for the Succession Plan Unit.

In order to ensure the success of the agenda, the university has also formed a working committee to act on the following tasks:

(a) To profile the criteria for critical posts in USM.

(b) To identify potential

candidates to be trained.

(c) To suggest the training needed, posting of the candidates and appropriate exposure for the identified candidates.

(d) To observe the performance of trained candidates.

(e) To provide reports on candidates' performance.

Apart from the working committee, the Succession Plan Unit itself is responsible for the following tasks:

(a) To plan and schedule the meetings of the board and working committee for succession planning.

(b) To prepare the documents, information, etc. that are needed by the board and working committee.

(c) To prepare the minutes of meetings and to act upon the decisions made by the board and working committee.

(d) To assist the board and working committee in observing the training, postings, placements and exposure that are appropriate for the candidates selected.

(e) To retrieve reports from parties involved, e.g. the Training Unit on the development of candidates after they have been sent for training or attachment.

(f) To assist assessment management through staff profiles via the Human Capital Management System.

(g) To take note of current policies and rulings connected to the roles and responsibilities (RnR) of the board and working committee.

(h) To plan the annual budget of the Unit.

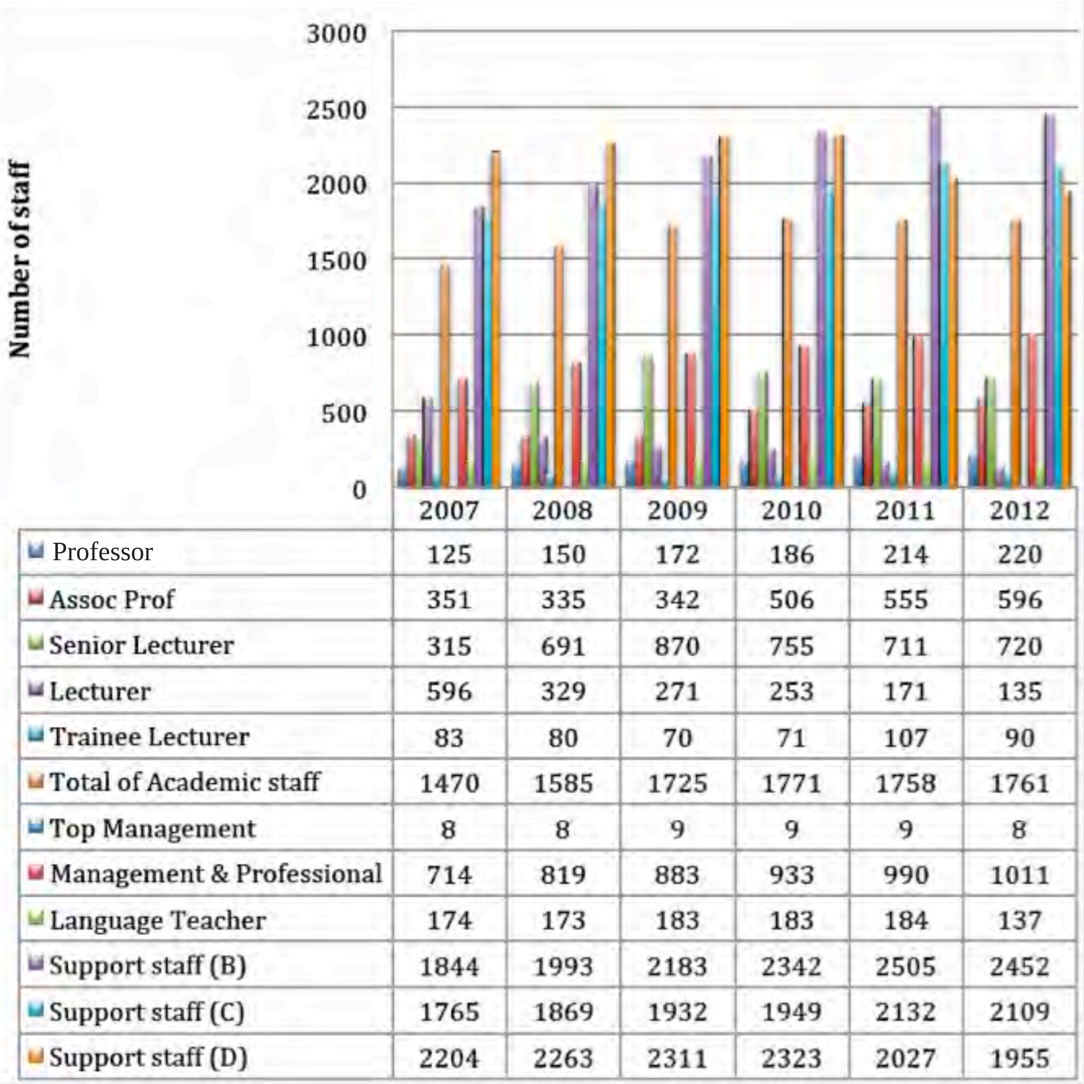
(i) To manage the appointment or extension of the board and working committee members.

(j) This report is valid as of 28 February 2010.

(k) Way forward to ensure that the sustainability of leadership in the university is maintained and developed accordingly.

No	Date	Achievement
1	1992	USM established a *Majlis Bersama Jabatan* in adherence to *Pekeliling Perkhidmatan Bil. 2 Tahun 1992*
2	2002	*Surat Pekeliling Perkhidmatan Bil 3 Tahun 2002* to enhance the relationship and nurture effective interaction between the University's management and all levels of staff through their respective representatives.
3	2003	USM launched an electronic recruitment system known as e-recruIT in 2003 with an enhanced version (e-recruIT EV02) in 2004.
4	2008	Since 2008, USM has used the MyCPD programme not only as an improved system to the PTK, but as a handy tool for appraisals.
5	2008	*Buku Panduan Kenaikan Pangkat Staf Akademik* was approved at the 61st Board Meeting of LPU on 1st April 2008.
6	2008	Recruitment of academic staff has been empowered to respective Schools/Centres (PTJ) effective 2008.
7	2008	Appointment of Lecturers only with Ph.D. (appointment of Lecturer Grade 51 upon fulfilling 4 extra criteria) The University Board of Directors 62nd Meeting on May 27, 2008 agreed to endorse the appointment of lecturers to Grade 51, subject to the terms and conditions that have been set.
8	2008	Talent Management Committee was formed in year 2008.
9	2009	All applications for promotion are vetted to select qualified and suitable candidates by the Standing Committee on Assessment (Cluster Committee), approved at the 71st Board Meeting of the LPU on 7 December 2009.
10	2010	APEX Leadership Program (ALP), was implemented in January 2010
11	2010	In 2010, the University implemented the APEX Leadership Programme consisting of a series of "Blue Ocean Strategy" (BOS) workshops for all Deans and Heads of Departments.
12	2010	Post-doctoral Fellows Guidelines was implemented on 1st March 2010.
13	2010	Academic staff recruitment "Head Hunting" local and overseas was implemented on 1st March 2010.
14	2010	The appointment as "Visiting Position" and "Associates" (honor/visiting) Retaining Fees & New scheme was implemented on 1st March 2010.
15	2010	Retaining Fees & New scheme was implemented on 1st March 2010.
16	2010	7 October 2010, the University officially established the unit called the Succession Plan Unit which is headed by a Senior Assistant Registrar.

No	Date	Achievement
17	2011	USM began using the Human Capital Management System (HCMS) commencing March 2011.
18	2011	2011, USM implemented an on-line system known as Human Capital Management System (HCMS).
19	2011	PIMPIN II- TOT Train the Trainers, targeted group Facilitator, implementation from 1st -3rd April 2011.
20	2011	PIMPIN II series 01/2011, targeted group Grade 1-17, implementation from 22nd -24th April 2011.
21	2011	PIMPIN II series 02/2011, targeted group Grade 17-29, implementation from 11th -13th May 2011
22	2011	PIMPIN II series 03/2011, targeted group Grade 27-41, implementation from 27th -29th May 2011
23	2011	PIMPIN II series 04/2011, targeted group Grade 1-41, implementationfrom 10th -12th June 2011
24	2011	PIMPIN II series 05/2011, targeted group Grade 27-41 & Academic DS51, implementation from 24th -26th June 2011
25	2011	PIMPIN II series 06/2011, targeted group Grade 17-41, implementationfrom 12th -13th July 2011
26	2011	The appointment of the Non-Academic Staff to Academic posts and Sabbatical Leave Facilities, implemented in January 2011
27	2011	Emotional Spiritual Quotient (ESQ), implemented on 27th January 2011
28	2011	*Program Sentuhan Qalbu: INSANIVERSITI Makmurkan Nilai Kemanusiaan Dalam Universiti*, implemented on 19th May 2011
29	2011	*Program Sentuhan Qalbu: INSANIVERSITI Memantap Potensi Mengenal Diri*, implemented on 28th June 2011
30	2011	ESQ Leadership *Seminar*, implemented from 29th - 30th June 2011.
31	2011	*USMku Gemilang Gred 1 – 26* APEX: Status & Directions, implemented on 21st April 2011.
32	2011	*USMku Gemilang Gred 1 – 54* (INSANIVERSITI), implementedon 12th Mei 2011.
33	2011	Induction Course Gred 17 – 26, implemented on 8th April 2011.
34	2011	Induction Course Gred 1 – 16, implemented on 15th April 2011.
35	2011	Induction Course Gred 27 – 41 & Academic staf, implemented on 27th May 2011.



	2007	2008	2009	2010	2011	2012
🟦 Professor	125	150	172	186	214	220
🟥 Assoc Prof	351	335	342	506	555	596
🟩 Senior Lecturer	315	691	870	755	711	720
🟪 Lecturer	596	329	271	253	171	135
🟦 Trainee Lecturer	83	80	70	71	107	90
🟧 Total of Academic staff	1470	1585	1725	1771	1758	1761
🟦 Top Management	8	8	9	9	9	8
🟥 Management & Professional	714	819	883	933	990	1011
🟩 Language Teacher	174	173	183	183	184	137
🟪 Support staff (B)	1844	1993	2183	2342	2505	2452
🟦 Support staff (C)	1765	1869	1932	1949	2132	2109
🟧 Support staff (D)	2204	2263	2311	2323	2027	1955

Figure 4.9 USM number of staff

2011

Postdoctoral Fellows

Engineering Campus	2
Health Campus	1
Main Campus	25
Total	**28**

Visiting Academic

Engineering Campus	1
Health Campus	1
Main Campus	17
Total	**19**

2010

Engineering Campus	11
Health Campus	12
Main Campus	50
Total	**73**

Engineering Campus	1
Health Campus	5
Main Campus	55
Total	**62**

2009

Engineering Campus	4
Health Campus	1
Main Campus	68
Total	**73**

Engineering Campus	0
Health Campus	0
Main Campus	21
Total	**21**

Figure 4.10 Statistics of USM postdoctoral fellowship appointments

> **“ The main challenge confronting universities is how to accurately anticipate and most effectively foster innovation in research and teaching. Creative and innovative people normally stay at places that are more in tune to their needs ”**

Challenges to complement APEX

- Ratio of non-academics to academics: The current non-academic to academic ratio of 4.5:1 should be further reduced to a level closer to the ratios being practised by most world-class universities. A lower ratio can be achieved in several ways such as by encouraging non-academic staff to multi-task and pursue higher degrees, recruiting more academic staff and reducing academic staff involvement in non-academic positions and activities such as becoming a *penggawa* (hostel warden).

- Science teachers: They should be encouraged to get directly involved in research and publications. Practical classes that are now being taught by science teachers should be taken over by graduate assistants to give the latter some experience in teaching while at the same time providing them with financial support throughout their studies.

- Technicians and laboratory assistants: They should have at least the minimum of a first degree. This will create more opportunities for postgraduate students to work as part-time technicians under research grants.

- Redundancies: A special committee should be formed to review overlapping structures and functions in the university to ensure the optimisation of funds and manpower. PTJs must continue to formulate and implement the most suitable structure, function and system of governance to push USM towards higher KPIs and KIPs.

- Roles and functions of the University Board: Several issues pertinent to the University Board need to be addressed. For example, the Vice-Chancellor's function and job descriptions should be reviewed to resemble those of presidents of highly ranked universities worldwide. Some of the job functions should be taken over by the Deputy Vice-Chancellors to allow the Vice-Chancellor ample opportunity to communicate, deal and "rub shoulders" with alumni, donors, sponsors, funding agencies and relevant authorities. Concurrently, the roles and functions of the Deputy Vice-Chancellors need to be reviewed to eliminate overlapping roles and functions. Many support the idea of having a Provost for each branch campus to allow wider autonomy and reduce dependency on the main campus.

- Governance of the PTJs: It is proposed that the management and individuals at each PTJ be given more autonomy in deciding its own management team. It is suggested that the top management gets to select the management team based on names (which can be internal or external to the PTJ or USM) that have been nominated by the staff. Additionally, each PTJ should have the flexibility to develop its own business plans that are directly linked to the KPIs and KIPs and negotiate a budget with the top institutional management.

- Staff performance: A comprehensive system must be developed to monitor and evaluate staff performance at the individual level, which when aggregated will contribute towards the PTJ-level performance and subsequently, the institutional-level performance. Every staff should adhere to and follow the guidelines that have been provided in preparing his/her own KPIs and KIPs at the beginning of the year that reflect the requirements of USM as an APEX university.

USM should emulate the more transparent system in “hiring and firing” of academic staff that is being practised at top-ranking universities where the faculty board members have the right (vote) to hire and fire their own faculty members.

- A paperless university: USM must seriously pioneer reducing the use of paper in internal communication and circular.

Conclusion

In order to strengthen and transform talent, Universiti Sains Malaysia has and is implementing initiatives that have been drafted in the APEX programme. In fact, planning to strengthen talent had commenced since before APEX. Creating great intellects is a continuous challenge, particularly in creating a conducive work environment in an effort to encourage potential workforce to remain and continue to contribute to the success of the university in particular and the country as a whole. From the strategies and initiatives that have been drafted and the accomplishments from their implementation, it is clear that USM has been trying to change for the sustainability of national higher education, in line with the goals outlined in APEX.

Undergraduate: Grooming The Best Talent

Philosophy

In transforming USM for the APEX programme, the university is reviewing its activities in all areas, including nurturing and learning, research and innovation, consultancy and services, students and alumni. This review will particularly address the seven thrusts of the National Higher Education Action Plan (MOHE 2007), which consists of:

a. widening access and enhancing equity
b. improving the quality of teaching and learning
c. enhancing research and innovation
d. strengthening the institution
e. intensifying internationalisation
f. enculturation of lifelong learning
g. delivery system

On the other hand, USM's constructivist paradigm constitutes four pillars which are:

a. learning to know
b. learning to do
c. learning to live together
d. learning to be

The transformation plan amalgamates MOHE's seven thrust plan with USM's constructivist paradigm.

The transformation plan through nurturing and learning improves innovativeness and creativity, creating a student-centered environment leading to market relevance.

Theater Programme for the Spastic

STRATEGIES

The strategies for nurturing and learning (commonly referred to as teaching and learning) will involve the eliminate-reduce-raise-create grid (ERRC) as illustrated in the following strategy canvas:

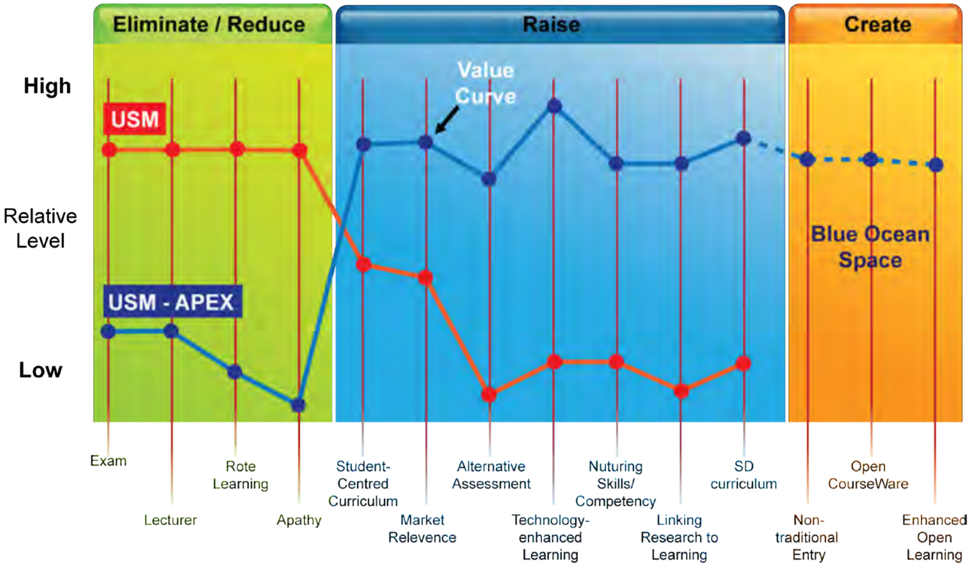


Figure 4.11: A strategy canvas for nurturing and learning

a. Eliminate and/or Reduce
  - Examinations
  - Lectures
  - Rote Learning
  - Apathy

b. Raise
  - Student-centered Curricula
  - Market Relevance
  - Alternative Assessment
  - Technology-enhanced Learning (TEL)
  - Nurturing Skills/ Competencies
  - Linking Research to Learning
  - Sustainability Development (SD) Curricula

c. Create
  - Non-traditional Entry
  - OpenCourseWare (OCW)
  - Enhanced Open Learning

Arja Lee and Azmeer: School of Arts’ first *Warga Budaya* to graduate.

Admission Channels

After being accorded the APEX status, USM has admitted students into its Bachelor's Degree Programmes (Full Time) from the 2009/2010 Academic Session without them having to go through the MOHE system via its student Management and Admission Division. Applications for studies in USM can be made online through the website https://pohon.usm.my. The USM Student Admissions Section will place advertisements in mainstream newspapers according to these seven categories:

a. Main Channel (Matriculation / STPM / Diploma/Equivalent Holders)

- Main Intake.

b. Alternative Channels

- Second Channel
  Student intake via the second channel is specifically meant for working adults who have not had the opportunity to pursue their studies at tertiary level and earn a degree. The programmes offered are Civil Engineering; Technology; Special Education; HBP (Housing, Building and Planning); and Health Sciences.
- Special Admission
  Special Admission is a special intake programme for government staff to further their studies in either Project Planning and Management or Social Work. Apart from these two programmes, USM also offers Architecture (Part 2) specifically for Bachelor of Science (Housing, Building and Planning) graduates with a specialisation in Architecture.
- Lifelong Learning Programme (Senior Citizens, Sports and Culture Personalities)
  The aim of this programme is to provide those interested in seeking knowledge the opportunity to fulfill their dream of obtaining a degree, enhance the quality of education in the country and raise the intellectual capacity of Malaysians.

c. Distance Learning Channel

d. Foreign Students Channel

e. USM-KLE International Medical Channel
- This off-shore programme in collaboration with *Karnataka Lingayat* Education (KLE) University in Belgaum, Bangalore, India was first offered at the 2010/2011 Academic Session. Under this channel, students study in India for five years and are conferred a USM Doctor of Medicine Degree after completing their studies. Applications for this channel are open in March every year.

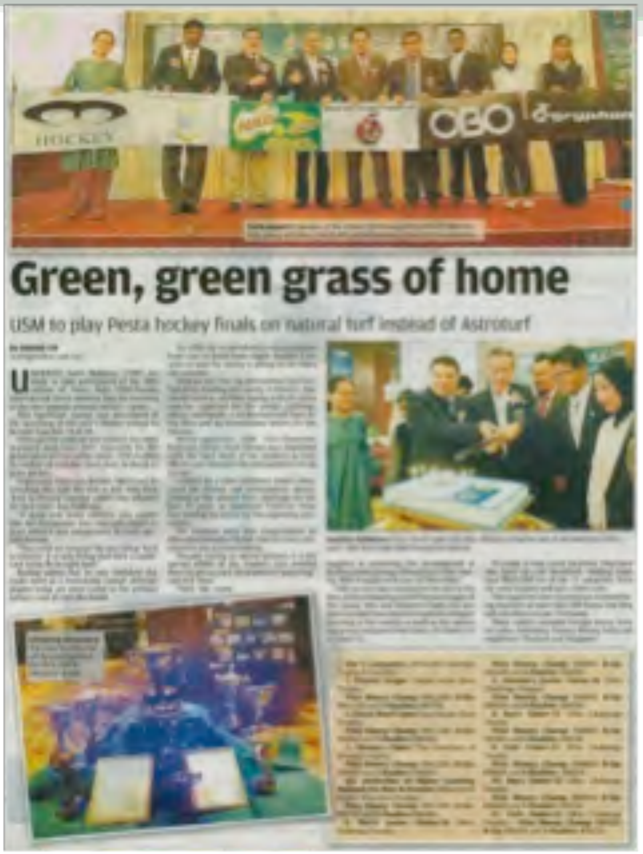
f. Smart Partnership Channel (private colleges)

g. Diploma in Nursing Channel
- The Diploma in Nursing Channel is a professional course focusing on academic education and clinical training to train professional nurses skilled in modern, safe and effective clinical nursing practices. This channel is open to all Malaysian Certificate of Education (SPM) holders.

*For Education programmes in USM, candidates have to apply via the Student Intake Management Division (BPKP), Ministry of Higher Education (http://upu.mohe.gov.my)

Mitra Buana

International Traditional Cultural Show



Green, green grass of home

USM to play Pesta hockey finals on natural turf instead of Astroturf

International Hockey Festival
Source, *The Star*, October 31 2011

Best Practices

The admission processes are managed and carried out in stages through the Student Admissions Section. All requirements are adjusted before a new session opens in order to consolidate the pohon @USM.

In the early stages of recruitment, USM does not charge for processing the application as an APEX university status promotional strategy. However since 2012, the university has started to impose a charge of RM40 per application for the main channel to cover the cost of processing that has increased since its implementation in 2009, in particular the cost of implementing MUnSyI test that has been implemented with the collaboration of the Malaysian Examinations Council (MEC).

The charges of RM 40 will indirectly allow USM to accept applications only from candidates who are really interested in USM as a destination for higher learning.

Before the onset of APEX applications for admission, the university had already begun to implement the online application method and the candidate does not have to submit an application in 'Hard Copy' form. These measures have contributed towards saving paper and printing costs. The candidate's data will be kept in the database and managed by USM University-Student Information System when the candidate is offered a place in USM.

Policies and procedures for the selection of each of the Academic Council is jointly decided in the University Admission Council which is chaired by the Vice-Chancellor. USM basically has adopted the system of meritocracy in the selection of students based on 90% academic and 10% curricular activities. However, USM is still subject to the general terms and conditions prescribed by MOHE.

USM has been given a free reign of its own admission requirements. Thereby USM has set a minimum CGPA of 3.00 for admission to the programmes of study in the Sciences and 2.67 for the programmes of study in the Arts s. This is to focus on enrolling top students.

USM has also opened up more opportunities for those with other qualifications such as A-levels, the International Baccalaureate (IB), Australian Matriculation (AUSMAT), South Australian Matriculation (SAM), Canadian Pre-University (CPU) and others that are not accepted by other local universities. The rationale was that these groups should be given the same opportunities because they are equivalently qualified to pursue higher education.

In addition, USM has adopted a psychometric instrument which is the Malaysian University Selection Inventory (MUnSyI) test. Each applicant must take the MUnSyI test which is coordinated by the Malaysian Examinations Council (MEC). This instrument is capable of measuring personality, interests and career suitability to identify programmes that suit the applicant. The selection of suitable candidates to the programme will ensure the birth of human capital required in the global job market. Effective from the 2013/2014 Academic Session, MunSyI has been postponed until a study on its effectiveness has been conducted.

Several programmes that require special tests and interviews have been identified in order to select candidates who are qualified and suitable for the programme.

Outreach and promotion programmes have also been implemented on an ongoing basis to ensure that all information relating to admission to USM can be delivered directly to all levels of society in general and in particular target groups.

The Student Admissions Section has also implemented measures to deal with multiple offers between USM and other Research Universities including:

a) An SMS Blast to all candidates via telephone with instructions on printing offer letters and online confirmation of acceptance / rejection of the offer on the USM website.

b) Congratulatory greetings and brief announcement by the Vice-Chancellor with the online offer letter.

c) Providing detailed information and guidelines on registration of new students simultaneously on the first day of announcement.

d) Through newspaper advertisement.

e) Contacting candidates via telephone to ensure that students have received the offer and confirm acceptance.

f) Sending emails and making phone calls to the candidates who have not responded to the offer for follow-up by the respective Schools.

2008-2009 USM is still under MoHE intake

2009-2012 USM given autonomy to have first pick of students. Left over names are sent back to MOHE. Once USM has picked the students, no other universities can make an offer.

Projected	3783
Intake	3540
Total	(-) 243

2008-2009

Projected	3594
Intake	3006
Total	(-) 588

2009-2010

Initiatives	
Malaysia's first	• MUnSyI's psychometric instrument (2009) • Student Parliament (Oct 2010) • MyCSD (2009) • *Pimpin Siswa* • GreenLung/Eco Campus Sejahtera/ White Coffin/ No Plastic Bag • NRIC (National Research International Competition) • Bachelor of Technology Majoring in Environment • CoRIC

2012/2013 Students can apply both via USM and MOHE. They can decide to accept offers from USM or any other RU universities.

Projected	3553
Intake	2876
Total	(-) 677

2010-2011

Projected	3756
Intake	3645
Total	(-) 111

2011-2012

Projected	3643
Intake	3743
Total	(-) 100

2012-2013

Initiatives	
Admissions Department	• One Stop centre • Call Centre • 10 extra phone lines • 5 staff • Workshops • Client-Based System Application for Admission (pohon@usm) • MunSyI (Malaysian University Selection Inventory) • Outreach Programmes
Centres of Excellence	• Cultural Development Centre (formerly a unit) • Sports Centre (formerly a unit)
Programmes (Students' Affair and Development)	• *Keusahawanan Siswa* • International Industrial Attachment
Cultural Programmes	• IMTGT • *Mantra Buana* • Jazz Band Orchestra
Excellent Sports Programmes	• Penang International Hockey Festival • ASEAN University Games

Figure 4.12 Chronology for undergraduate talent nurturing and learning: and initiatives

MOHE : The 7 Thrusts of PSPTN, Higher Education Action Plan

- Widening access and enhancing equity
- Improving the quality of teaching and learning
- Enhancing research & innovation
- Strengthening the institution
- Intensifying internationalisation
- Enculturation of lifelong learning
- Delivery system

APEX : 4 Pillars

- - Learning to know
- - Learning to do
- - Learning to live together
- - Learning to be

Firsts

In these five years of transforming higher education for a sustainable tomorrow through nurturing and learning with the guidance of the seven Thrusts, USM has achieved a number of feats that have not been done by any other university in Malaysia or the world.

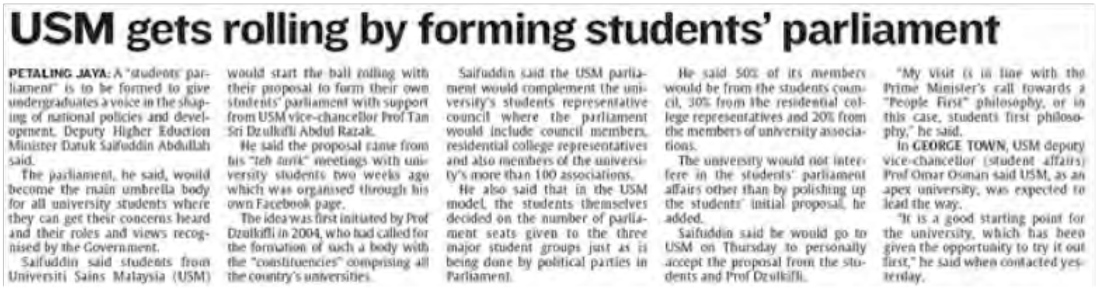
- The MUnSyI test is an instrument developed to obtain information on the intrinsic quality of the candidates. The information (The instrument includes questions on career interests, personality, values, integrity, emotional intelligence and patriotism). Information obtained from these measurements is used to select candidates for admission to various programmes offered by the universities in Malaysia.

USM
Program Ijazah
Sarjana Muda
(penuh masa)

Malaysian University Selection Inventory (MUnSyI) test

Student Led:

- The Student's Parliament is one of the best platforms to convey the views and opinions of students in discussions during the decision-making process for their respective universities.



USM gets rolling by forming students' parliament

PETALING JAYA: A "students' parliament" is to be formed to give undergraduates a voice in the shaping of national policies and development, Deputy Higher Eduction Minister Datuk Saifuddin Abdullah said.

The parliament, he said, would become the main umbrella body for all university students where they can get their concerns heard and their roles and views recognised by the Government.

Saifuddin said students from Universiti Sains Malaysia (USM) would start the ball rolling with their proposal to form their own students' parliament with support from USM vice-chancellor Prof Tan Sri Dzulkifli Abdul Razak.

He said the proposal came from his "*teh tarik*" meetings with university students two weeks ago which was organised through his own Facebook page.

The idea was first initiated by Prof Dzulkifli in 2004, who had called for the formation of such a body with the "constituencies" comprising all the country's universities.

Saifuddin said the USM parliament would complement the university's students representative council where the parliament would include council members, residential college representatives and also members of the university's more than 100 associations.

He also said that in the USM model, the students themselves decided on the number of parliament seats given to the three major student groups just as is being done by political parties in Parliament.

He said 50% of its members would be from the students council, 30% from the residential college representatives and 20% from the members of university associations.

The university would not interfere in the students' parliament affairs other than by polishing up the students' initial proposal, he added.

Saifuddin said he would go to USM on Thursday to personally accept the proposal from the students and Prof Dzulkifli.

"My visit is in line with the Prime Minister's call towards a "People First" philosophy, or in this case, students first philosophy," he said.

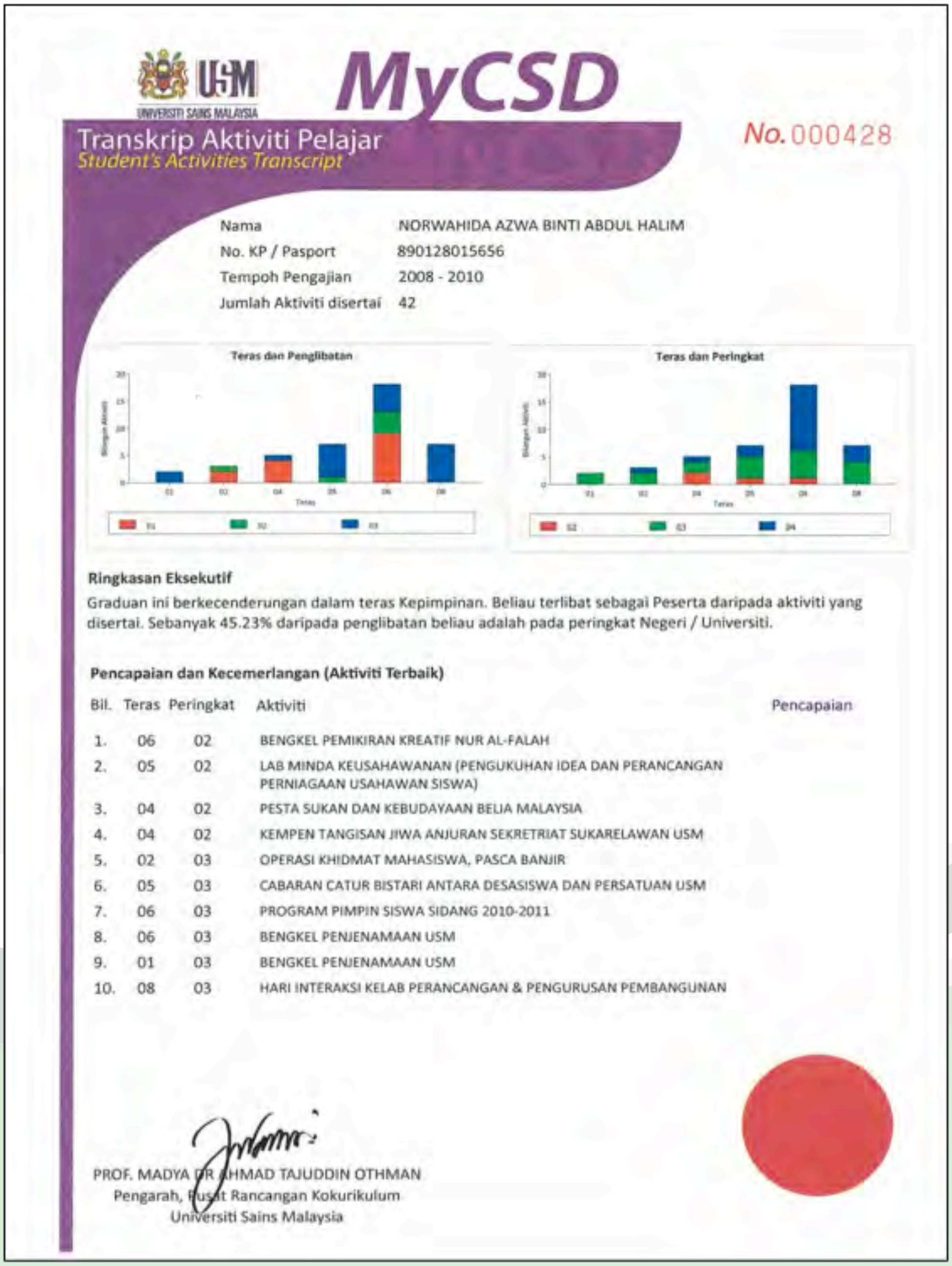
In **GEORGE TOWN**, USM deputy vice-chancellor (student affairs) Prof Omar Osman said USM, as an apex university, was expected to lead the way.

"It is a good starting point for the university, which has been given the opportunity to try it out first," he said when contacted yesterday.

Source, *The Star*, January 4 2010

USM
MESYUARAT
DEWAN PERUNDINGAN PELAJAR
23 OKTOBER 2010

- Continuous Student Development Programme (MyCSD) is specially designed to give recognition to student involvement through student development programme that they follow during the study period and recorded systematically and consistently oriented programmes


Teras dan Penglibatan
Teras
Teras dan Peringkat
Teras

USM
UNIVERSITI SAINS MALAYSIA

MyCSD

Transkrip Aktiviti Pelajar
Student's Activities Transcript

No. 000428

Nama	NORWAHIDA AZWA BINTI ABDUL HALIM
No. KP / Pasport	890128015656
Tempoh Pengajian	2008 - 2010
Jumlah Aktiviti disertai	42

Ringkasan Eksekutif

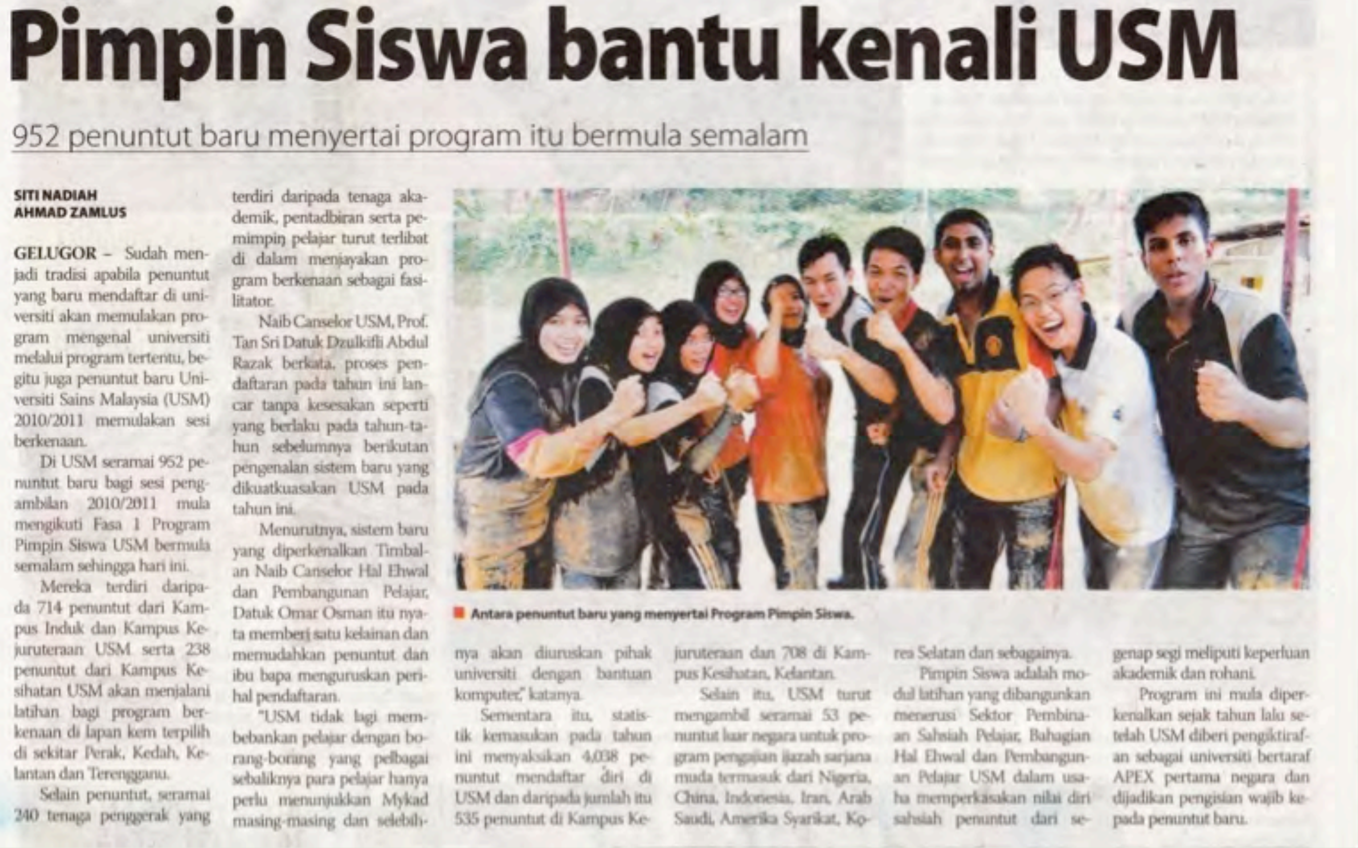
Graduan ini berkecenderungan dalam teras Kepimpinan. Beliau terlibat sebagai Peserta daripada aktiviti yang disertai. Sebanyak 45.23% daripada penglibatan beliau adalah pada peringkat Negeri / Universiti.

Pencapaian dan Kecemerlangan (Aktiviti Terbaik)

Bil.	Teras	Peringkat	Aktiviti	Pencapaian
1.	06	02	BENGKEL PEMIKIRAN KREATIF NUR AL-FALAH	
2.	05	02	LAB MINDA KEUSAHAWANAN (PENGUKUHAN IDEA DAN PERANCANGAN PERNIAGAAN USAHAWAN SISWA)	
3.	04	02	PESTA SUKAN DAN KEBUDAYAAN BELIA MALAYSIA	
4.	04	02	KEMPEN TANGISAN JIWA ANJURAN SEKRETRIAT SUKARELAWAN USM	
5.	02	03	OPERASI KHIDMAT MAHASISWA, PASCA BANJIR	
6.	05	03	CABARAN CATUR BISTARI ANTARA DESASISWA DAN PERSATUAN USM	
7.	06	03	PROGRAM PIMPIN SISWA SIDANG 2010-2011	
8.	06	03	BENGKEL PENJENAMAAN USM	
9.	01	03	BENGKEL PENJENAMAAN USM	
10.	08	03	HARI INTERAKSI KELAB PERANCANGAN & PENGURUSAN PEMBANGUNAN	

PROF. MADYA DR AHMAD TAJUDDIN OTHMAN
Pengarah, Pusat Rancangan Kokurikulum
Universiti Sains Malaysia

- Implemented in 2009, PIMPIN SISWA is a programme where every first-year student is required to attend a 3-day weekend workshop when they first enter the campus to provide them with their first university- level engagement on issues and ideas for sustainable development.



Pimpin Siswa bantu kenali USM

952 penuntut baru menyertai program itu bermula semalam

SITI NADIAH AHMAD ZAMLUS

GELUGOR – Sudah menjadi tradisi apabila penuntut yang baru mendaftar di universiti akan memulakan program mengenal universiti melalui program tertentu, begitu juga penuntut baru Universiti Sains Malaysia (USM) 2010/2011 memulakan sesi berkenaan.

Di USM seramai 952 penuntut baru bagi sesi pengambilan 2010/2011 mula mengikuti Fasa 1 Program Pimpin Siswa USM bermula semalam sehingga hari ini.

Mereka terdiri daripada 714 penuntut dari Kampus Induk dan Kampus Kejuruteraan USM serta 238 penuntut dari Kampus Kesihatan USM akan menjalani latihan bagi program berkenaan di lapan kem terpilih di sekitar Perak, Kedah, Kelantan dan Terengganu.

Selain penuntut, seramai 240 tenaga penggerak yang terdiri daripada tenaga akademik, pentadbiran serta pemimpin pelajar turut terlibat di dalam menjayakan program berkenaan sebagai fasilitator.

Naib Canselor USM, Prof. Tan Sri Datuk Dzulkifli Abdul Razak berkata, proses pendaftaran pada tahun ini lancar tanpa kesesakan seperti yang berlaku pada tahun-tahun sebelumnya berikutan pengenalan sistem baru yang dikuatkuasakan USM pada tahun ini.

Menurutnya, sistem baru yang diperkenalkan Timbalan Naib Canselor Hal Ehwal dan Pembangunan Pelajar, Datuk Omar Osman itu nyata memberi satu kelainan dan memudahkan penuntut dan ibu bapa menguruskan perihal pendaftaran.

"USM tidak lagi membebankan pelajar dengan borang-borang yang pelbagai sebaliknya para pelajar hanya perlu menunjukkan Mykad masing-masing dan selebihnya akan diuruskan pihak universiti dengan bantuan komputer," katanya.

Sementara itu, statistik kemasukan pada tahun ini menyaksikan 4,038 penuntut mendaftar diri di USM dan daripada jumlah itu 535 penuntut di Kampus Kejuruteraan dan 708 di Kampus Kesihatan, Kelantan.

Selain itu, USM turut mengambil seramai 53 penuntut luar negara untuk program pengajian ijazah sarjana muda termasuk dari Nigeria, China, Indonesia, Iran, Arab Saudi, Amerika Syarikat, Korea Selatan dan sebagainya.

Pimpin Siswa adalah modul latihan yang dibangunkan menerusi Sektor Pembinaan Sahsiah Pelajar, Bahagian Hal Ehwal dan Pembangunan Pelajar USM dalam usaha memperkasakan nilai diri sahsiah penuntut dari segenap segi meliputi keperluan akademik dan rohani.

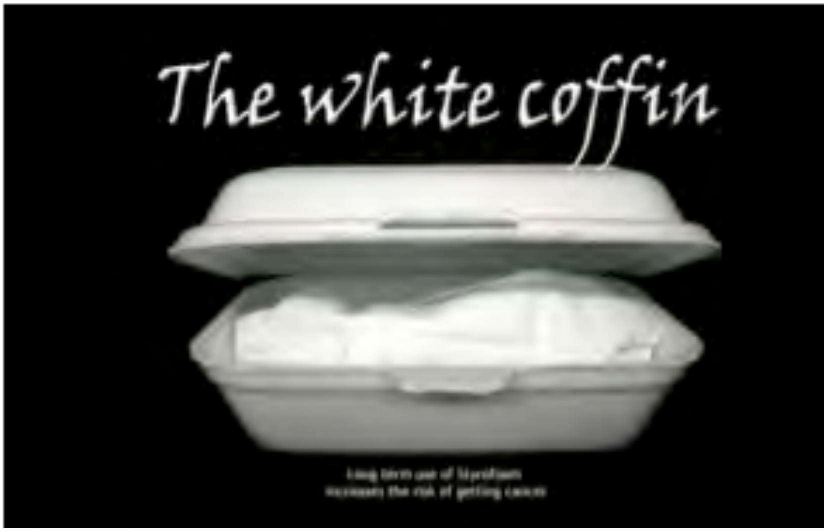
Program ini mula diperkenalkan sejak tahun lalu setelah USM diberi pengiktirafan sebagai universiti bertaraf APEX pertama negara dan dijadikan pengisian wajib kepada penuntut baru.

■ Antara penuntut baru yang menyertai Program Pimpin Siswa.

Source, *Sinar Harian*, July 11 2010

- The ‘White Coffin’ and ‘Say No to Plastic Bags’ is a student- led campaign organized by the Healthy Campus (*Kampus Sejahtera*). Both these campaigns instill the effects of synthetic waste on the human body and also the environment. Both campaigns have been huge successes. The use of polystyrene containers is now banned inside USM and other local universities have also implemented this concept. Furthermore, the state of Penang has implemented the ‘No Plastic Bag’ since January 2011, and as the first APEX university in Malaysia, USM has the responsibility in molding the future for a sustainable tomorrow.

SAY NO TO
PLASTIC BAGS
KURANGKAN PLASTIK DI USM
USM


The white coffin

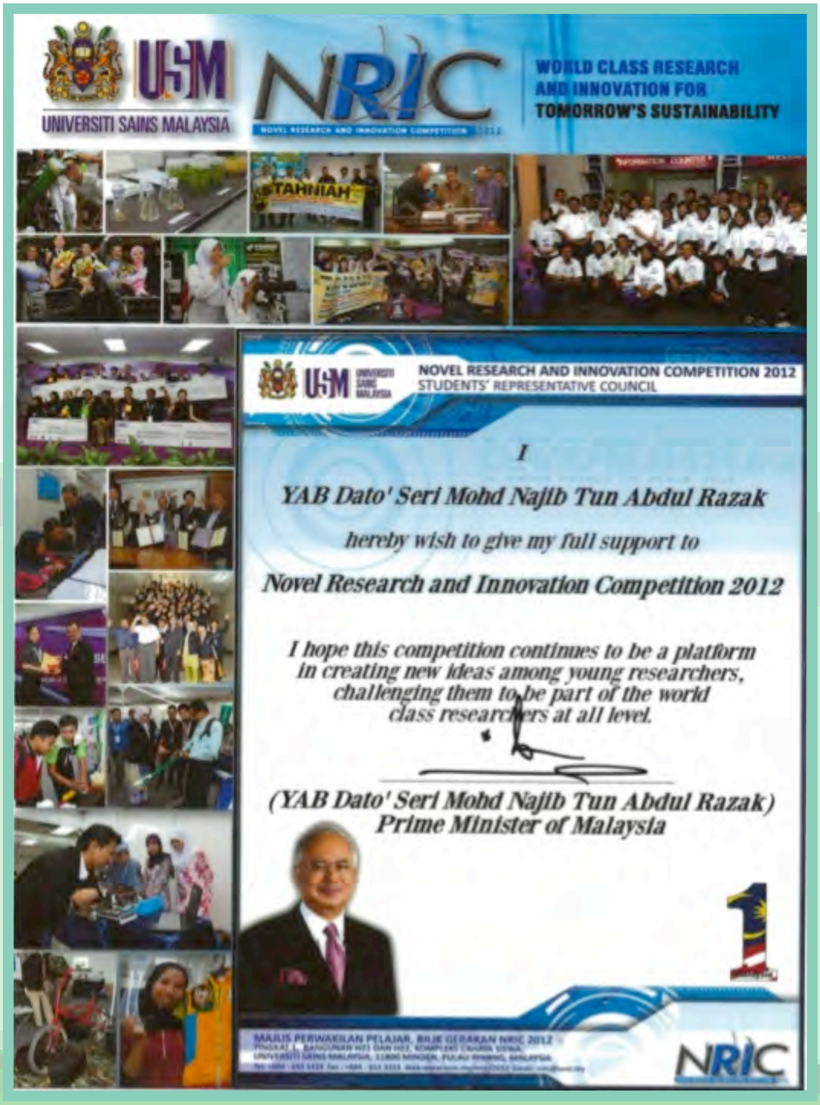
GReen
LUNG
support a tobacco free environmen
TOBACCO FREE

The white coffin

- NRIC

Implemented in 2007, the National Research and Innovation Competition or NRIC in short, is organised by the Student Representative Council of Universiti Sains Malaysia. This event provides a platform for the best final- year projects from local and private universities to compete under a single banner besides being exhibited to the public.

It is hoped that this initiative will provide an opportunity for undergraduates to develop their creative and innovative talents by designing and developing environmentally-friendly products of world-class standards that will enhance the quality of life.



USM
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NRIC
NOVEL RESEARCH AND INNOVATION COMPETITION 2012

WORLD CLASS RESEARCH
AND INNOVATION FOR
TOMORROW'S SUSTAINABILITY

USM UNIVERSITI SAINS MALAYSIA
NOVEL RESEARCH AND INNOVATION COMPETITION 2012
STUDENTS' REPRESENTATIVE COUNCIL

I

YAB Dato' Seri Mohd Najib Tun Abdul Razak

hereby wish to give my full support to

Novel Research and Innovation Competition 2012

I hope this competition continues to be a platform
in creating new ideas among young researchers,
challenging them to be part of the world
class researchers at all level.

(YAB Dato' Seri Mohd Najib Tun Abdul Razak)
Prime Minister of Malaysia

MAJLIS PERWAKILAN PELAJAR, BILIK GERAKAN NRIC 2012
UNIVERSITI SAINS MALAYSIA, 11800 MINDEN, PULAU PINANG, MALAYSIA

NRIC

Volunteerism

Volunteers: A caring society by fostering a sense of belonging and mutual-aid among students in USM
TaHa (Pilgrimage)

BRIDGED
SUKARELAWAN
USM
JEMAAH HAJI MALAYSIA

Homeless

Natural Flood Disaster in Perlis

Natural Flood Disaster in USM Health Campus, Kubang Kerian, Kelantan

Orphanage Home (Community)

KEMPEN TANGISAN JIWA IV
Kita PRIHATIN
Bayi maut tersedak susu soya
Angkara dendam
BERSAMA-SAMA
MENJAGA ANAK
DENGAN PRIHAT
SUKARELAWAN
KEMPEN
TANGISAN JIWA
USM
UNIVERSITI SAINS MALAYSIA
B:HEP
ADIKARMA

Cultural

Student led cultural initiative that looks at preserving, nurturing and inculcating the traditional art performances in the form of dance, theatre and music.

Sports Excellence

The participation of students in sports activities in the form of socio-cultural identity and the spirit of unity.

Best Sportsman and Sportswoman Awards SUKIPT 2012

USM Netball Festival - Penang International 2012

International Hockey Festival

Cycling Through Life

- Sustainable ride to Lake Banding

• Entrepreneurship

Student Entrepreneurial Development Initiatives Agenda (SEDIA) to educate and encourage students involved in entrepreneurship.
Lab Minda

Entrepreneurial Culturing ‘*Pembudayaan keusahawanan*’

Temasya Olahraga Tahunan (TOT)

'Teh Tarik' Session

Uptown USM

Industrial Attachment

A group of students was selected to participate in the IIA program held in Intel Corporation based in Bangalore, India, from 9th of December to the 15th of December 2012. The group comprised ten (10) students selected from three different schools of different courses in USM as follows: four students from the School of Computer Sciences, four students from the School of Electrical and Electronic Engineering and two students from the School of Management.`

USM
UNIVERSITI SAINS MALAYSIA
intel
INTERNATIONAL INDUSTRIAL ATTACHMENT 2012
INTEL BANGALORE
9 - 15 DEC 2012

• Bachelor of Technology Majoring in Environment

This programme is specially designed to enable graduates to the various environmental issues integrating the ecology, economy, and social dimensions in line with the APEX agenda. Some of the syllabus highlighted within this programme are:

- Introduction to Environmental Technology
- Solid Waste and Scheduled Waste Management
- Equipment Design for Water Treatment
- Air Pollution Control Technology
- Environmental Health, Safety and Legislation
- Society and Environment

Table 4.2 Student affairs and development overall statistics based on students' involvement according to specific core

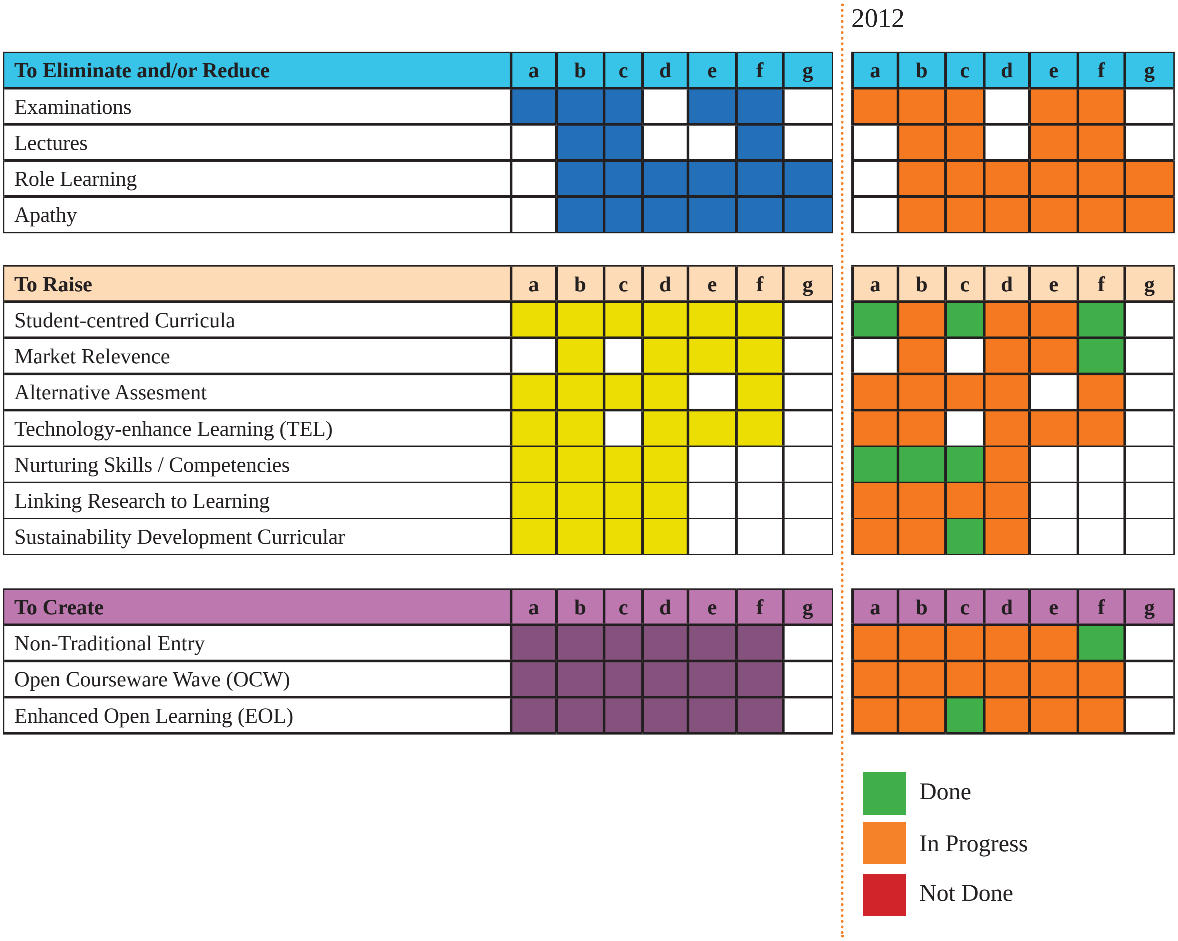
CAMPUS	CORE	2009/2010		2010/2011		2011/2012		2012/2013 (MID SEMESTER 1)	
		PROGRAMME	PARTICIPANT	PROGRAMME	ARTICIPANT	PROGRAMME	PARTICIPANT	PROGRAMME	PARTICIPANT
MAIN ENGINEERING MEDICAL	DESIGN AND INNOVATION	35	1408	66	2400	35	1669	13	1075
	COMMUNITY SERVICES	82	3043	133	8548	229	18271	3	168
	DEBATE	22	313	44	810	340	26357	2	138
	VOLUNTEERING/ SECRETARIATE AND EXIBITION	73	7127	136	10837	167	13929	30	2611
	ENTREPRENUER/ CONVEX	48	1902	85	2664	95	4238	20	5044
	LEADERSHIP	169	10835	388	33956	85	4913	31	4948
	CULTURAL	111	5334	161	11865	37	1655	22	1274
	SPORTS/ RECREATIONAL/ SOCIAL	318	10611	438	16330	587	27358	83	6196
	TOTAL	858	40573	1451	87410	1575	98390	204	21454

Table 4.3 List of inbound and outbound students according to country in the year 2011

No	Country	Number	
		Inbound students	Outbound students
1	Australia	1	10
2	Austria	4	1
3	Belgium	3	-
4	Brunei	16	-
5	Cambodia	2	-
6	Canada	8	11
7	Finland	34	1
8	France	3	-
9	Germany	20	5
10	Hong Kong	2	-
11	Indonesia	18	5
12	Iran	1	-
13	Japan	2	27
14	Korea	12	13
15	Mexico	10	1
16	Netherlands	1	-
17	Norway	2	-
18	Pakistan	4	-
19	Switzerland	14	-
20	Taiwan	1	7
21	Thailand	15	9
22	Sweden	-	4
23	Singapore	-	5
24	USA	-	1
TOTAL		**173**	**100**

Summary of ERRC grid according to activities and relevence to the seven thrusts of MOHE’s National Higher Education action plan

Nurturing and Learning



2012

To Eliminate and/or Reduce	a	b	c	d	e	f	g	a	b	c	d	e	f	g
Examinations	🟦	🟦	🟦		🟦	🟦		🟧	🟧	🟧		🟧	🟧	
Lectures		🟦	🟦			🟦			🟧	🟧		🟧	🟧	
Role Learning		🟦	🟦	🟦	🟦	🟦	🟦		🟧	🟧	🟧	🟧	🟧	🟧
Apathy		🟦	🟦	🟦	🟦	🟦	🟦		🟧	🟧	🟧	🟧	🟧	🟧

To Raise	a	b	c	d	e	f	g	a	b	c	d	e	f	g
Student-centred Curricula	🟨	🟨	🟨	🟨	🟨	🟨		🟩	🟧	🟩	🟧	🟧	🟩	
Market Relevence		🟨		🟨	🟨	🟨			🟧		🟧	🟧	🟩	
Alternative Assesment	🟨	🟨	🟨	🟨		🟨		🟧	🟧	🟧	🟧		🟧	
Technology-enhance Learning (TEL)	🟨	🟨		🟨	🟨	🟨		🟧	🟧		🟧	🟧	🟧	
Nurturing Skills / Competencies	🟨	🟨	🟨	🟨				🟩	🟩	🟩	🟧			
Linking Research to Learning	🟨	🟨	🟨	🟨				🟧	🟧	🟧	🟧			
Sustainability Development Curricular	🟨	🟨	🟨	🟨				🟧	🟧	🟩	🟧			

To Create	a	b	c	d	e	f	g	a	b	c	d	e	f	g
Non-Traditional Entry	🟪	🟪	🟪	🟪	🟪	🟪		🟧	🟧	🟧	🟧	🟧	🟩	
Open Courseware Wave (OCW)	🟪	🟪	🟪	🟪	🟪	🟪		🟧	🟧	🟧	🟧	🟧	🟧	
Enhanced Open Learning (EOL)	🟪	🟪	🟪	🟪	🟪	🟪		🟧	🟧	🟩	🟧	🟧	🟧	

🟩 Done
🟧 In Progress
🟥 Not Done

The alphabets next to each item represent approximate relations and relevence to the seven (7) thrusts of MoHE’s (2007) National Higher Education Plan - 2007-2010. These are: a = Widening access and enhancing equity; b = Improving the quality of teaching and learning; c = Enhancing research and innovation; d = Strenghting the institution; e = intensifiying internalization; f = Enculturation of lifelong learning; and g = Delivery system

Definition of ERRC

Eliminate = what is redundant, outdated or trivial and providing no value
Reduce = what is not providing enough value
Raise = what has the potential to add more value
Create = what is not available yet but can bring more value

Through the transformation plan of nurturing and learning we have eliminated, raised and achieved a few ‘firsts’ and numerous initiatives that improve innovativeness and creativity creating a student centered environment leading to market relevance as seen in ERRC, lifting or in support of the seven thrusts of MOHE and as an APEX university.

UNIVERSITI SAINS MALAYSIA
USM

Post Graduate Education: Towards Ensuring Sustainable Intellectual Talents

Framework and Strategies

The strong emphasis on sustainability in education and research has made postgraduate studies in USM even more important. One of its key aims is to attract and retain talented postgraduates to support USM's aggressive research agenda following the APEX announcement. In fortifying its role in strategising, managing and monitoring all matters pertaining to postgraduate study programmes, USM has outlined a 10-year strategic roadmap based on four pillars: student quantity, student quality, academic environment and student support services. The roadmap delineates a holistic approach in postgraduate training that infuses quality at the input level and a continuous student enhancement programme at the process level so that the graduates at the output level are versatile, innovative and highly employable. Thus outcomes from this USM postgraduate education contribute directly to sustained economic growth and societal development.

In realising the postgraduate studies of the APEX agenda, USM has developed a framework and strategies for postgraduate education as in Figure 4.13.

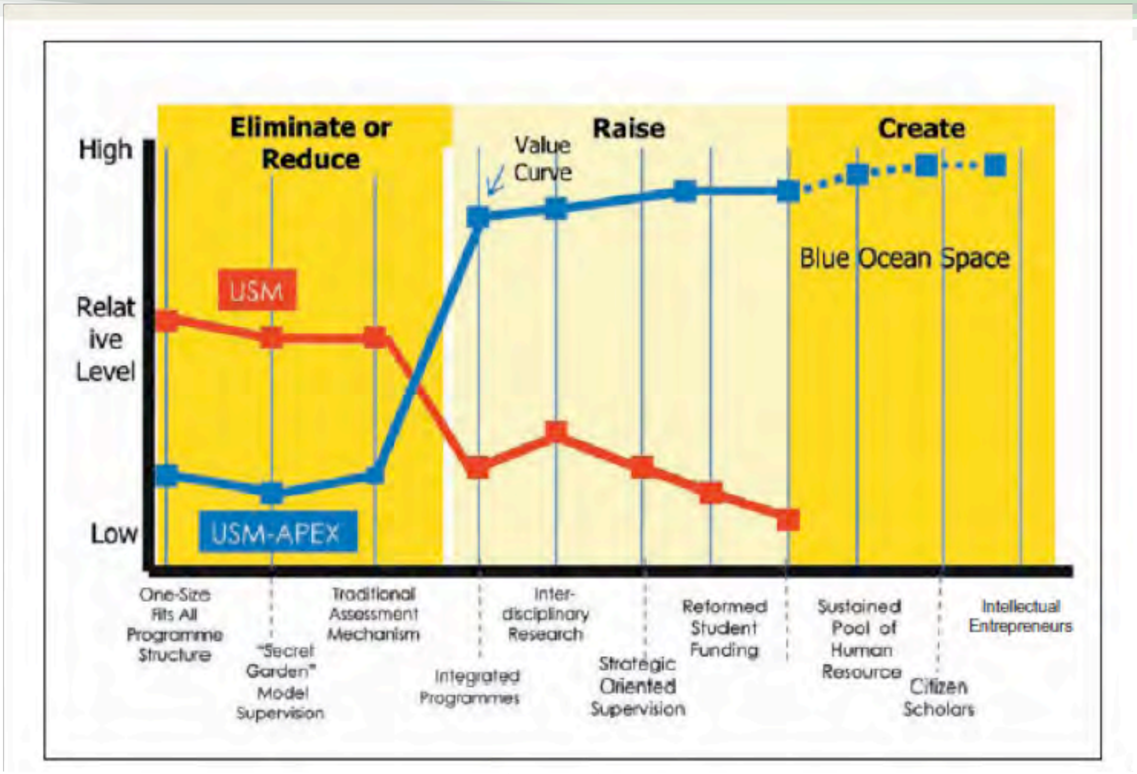


Figure 4.13 A strategy canvas for transforming postgraduate studies

Hence for the advancement in postgraduate education, it is essential to eliminate and/or reduce rigid programme structures which are intolerant to flexible approaches and time frame; the student-supervisor working relationship needs to be transparent with accountability from both the supervisor and research student; as well as to revise the traditional assessment mechanism (theses) which can undermine creativity and impartiality in areas where a treatise is not appropriate.

In the framework, it is imperative to raise or introduce integrated programmes as a means for the preparation of postgraduates for employment by also providing professional and personal development skills and interdisciplinary research whereby researchers are able to dissect traditional boundaries between disciplines as well as between theoretical knowledge and the broader world. It is also crucial to formalized and institutionalised strategically-oriented approaches to postgraduate supervision as well as to reform student funding by addressing the gaps resulting from present unequal funding mechanism.

Ultimately USM would create or produce a sustained pool of trained human resource which is central to the development of an APEX university (Table 4.4); diverse postgraduates that match specific research niche areas; citizen scholars with enhanced cultural awareness, skills and expertise who could connect their disciplinary knowledge with the needs of society; as well as to create intellectual entrepreneurs equipped with skills and knowledge of the real world.

Also in realising the APEX agenda for postgraduate education/studies, strategies were planned based on the four important broad institutional pillars that form the foundation of USM's postgraduate education i.e. Student Number and Intake, Student Quality, Academic Environment and Student Support and Services.

Student Number and Intake

Objectives:

i. To increase postgraduate intake.

ii. To achieve an effective, positive image, in the minds of prospective students.

iii. To make courses/programmes more accessible to local and international markets.

iv. To diversify the postgraduate student profile.

v. To create a sustainable competitive advantage through differentiation on an increasing agglomerate market, where students are more discerning towards the offers.

Postgraduate Enrolment and Intake

Table 4.4 Postgraduate Statistics from 2008-2012

Data	Year				
	2008	2009	2010	2011	2012
Postgraduate Enrolment	6,363	7,468	8,443	9,057	11,314
Postgraduate Intake	2,939	3,413	3,123	2,944	2,269
International Postgraduate Enrolment	1,582	1,856	2,154	2,323	2,711
International Postgraduate Intake	833	913	841	671	389
International Postgraduate Intake (Research)	373	455	445	299	279
Postgraduate Enrolment (Research)	3,556	4,542	5,309	5,828	5,512
International Postgraduate from Bottom Billion Countries	201	271	283	272	326

* Data at 22 November 2012
Source: IPS, 2012

Doctor of Philosophy (Ph.D) Enrolment and Intake

One of the main objectives of the APEX agenda is to achieve a high Ph.D intake. From an intake of 169 Ph.D candidates in 2007, the number has been growing tremendously since 2008 when USM was accorded the APEX status (Table 4.5).

Table 4.5 Ph.D Intake from 2008-2012

Data	Year				
	2008	2009	2010	2011	2012
Ph.D enrolment (Research)	1,927	2,380	2,839	3,302	3,876
Ph.D enrolment in S&T (Research)	1,605	1,969	2,352	2,724	3,188
Ph.D intake	527	688	650	906	583
Ph.D intake in S&T (Research)	263	229	585	742	473

Source: IPS, 2012

Country of Origin

The postgraduate population now comprises an international community with students originating from 55 countries as near as Indonesia to as far as the United States of America. The 14 countries with the highest number of postgraduate students are shown in Figure 4.14.

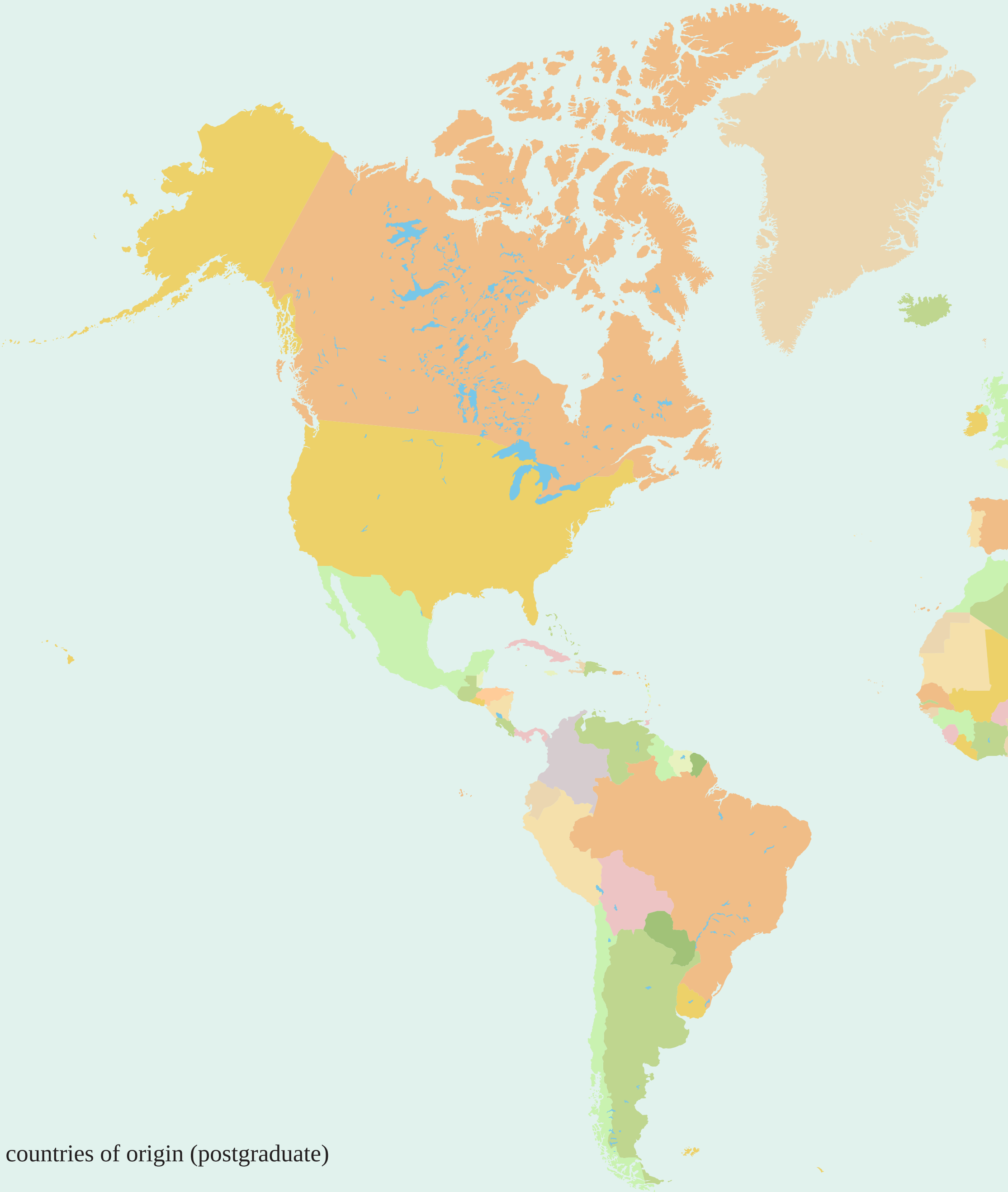
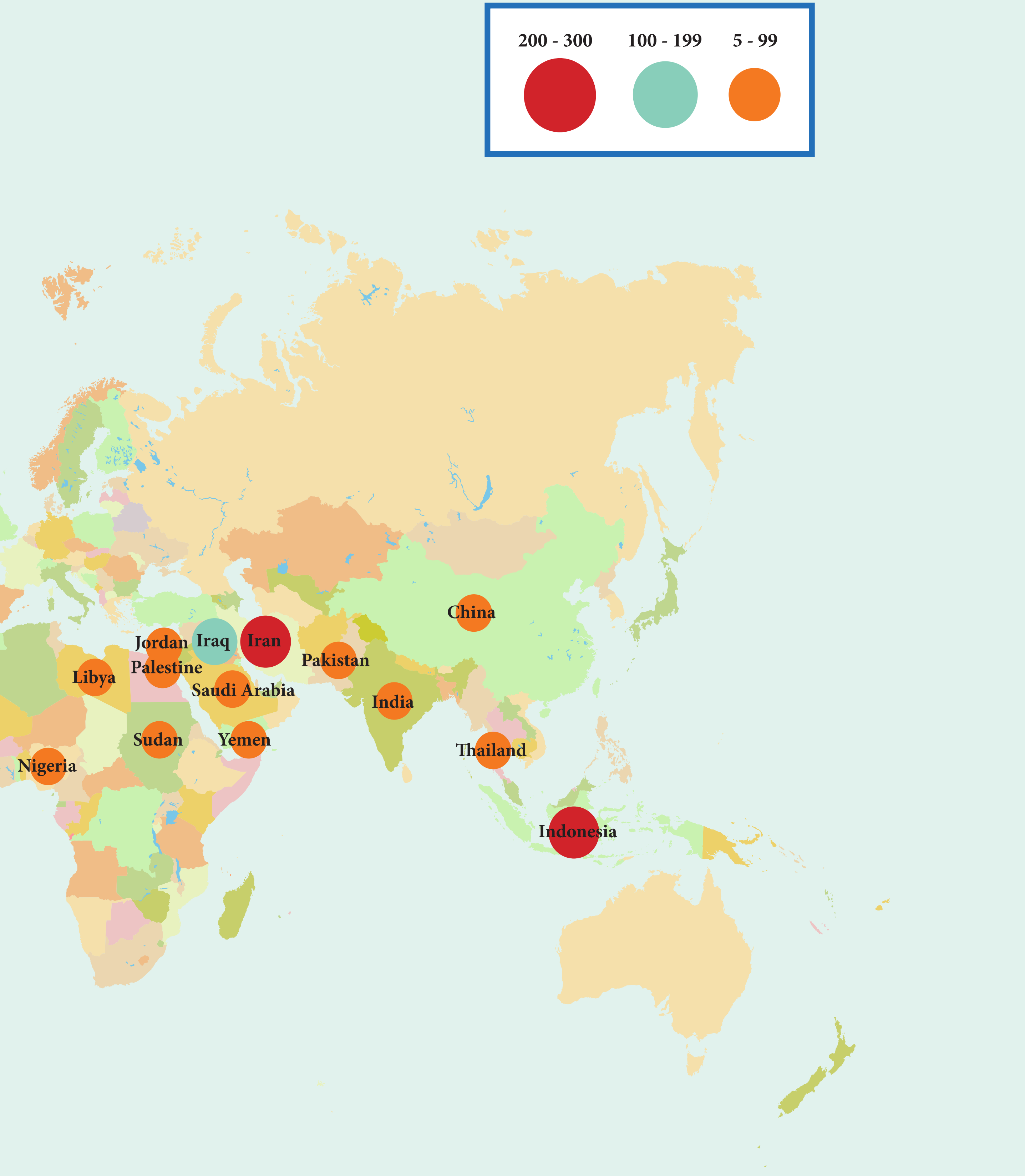


Figure 4.14 Top countries of origin (postgraduate)


200 - 300
100 - 199
5 - 99
China
Jordan
Iraq
Iran
Pakistan
Libya
Palestine
Saudi Arabia
India
Sudan
Yemen
Thailand
Nigeria
Indonesia

Student Quality

Quality is the basis for USM to achieve its aspirations and therefore quality should be the principle for the successful development of postgraduate studies. Upholding quality is the combined responsibility of the Schools/Centers (academic excellence), Institute of Postgraduate Studies as well as the entire academic community.

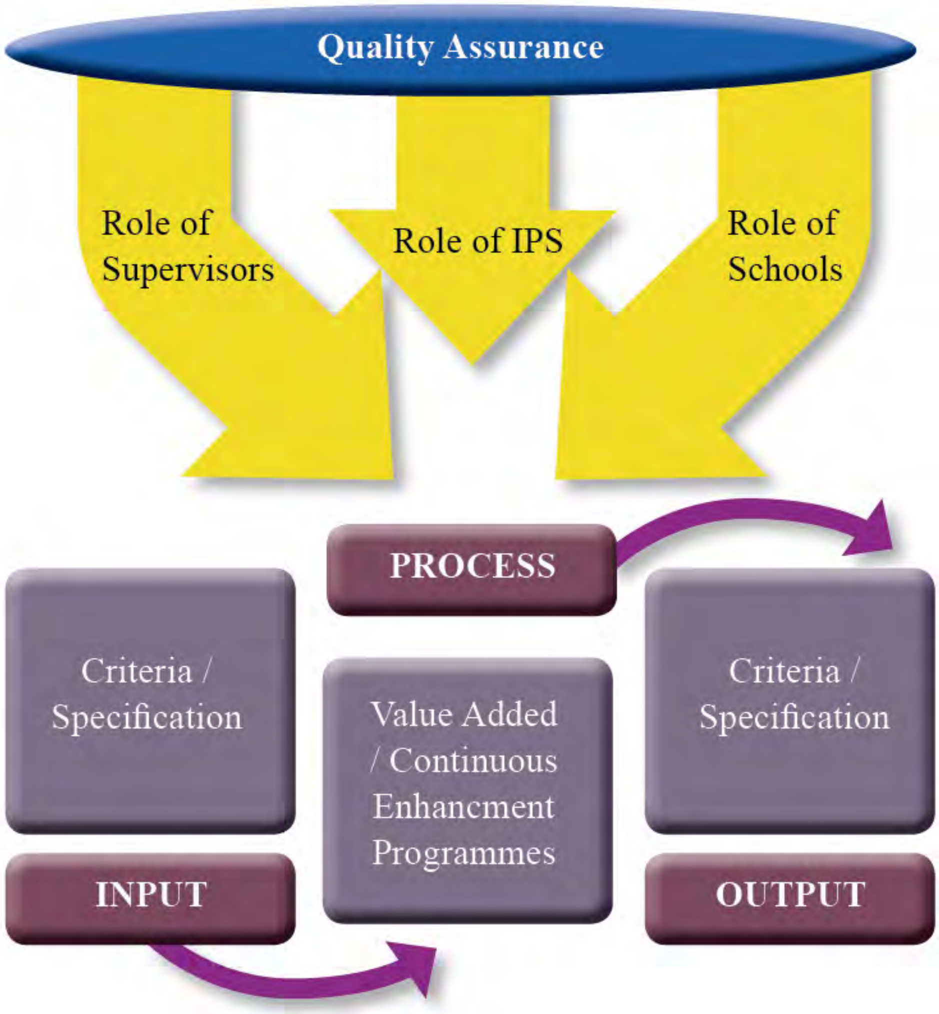

Quality Assurance
Role of Supervisors
Role of IPS
Role of Schools
PROCESS
Criteria / Specification
Value Added / Continuous Enhancment Programmes
Criteria / Specification
INPUT
OUTPUT

Figure 4.15 Defining and achieving quality of postgraduates
Source: 10- year Strategic Plan 2010-2020 for postgraduate education in USM

Objectives

i. To produce citizen scholars with high employability.
ii. To produce high quality postgraduates especially Ph.D students.
iii. To set defined quality criteria for student admission.
iv. To inculcate a research culture among the student community.
v. To introduce outreach programmes that embed elements of sustainable human development and environmental conservation.

Quality Criteria for Student Admission

In line with the notion of focusing on high quality students, Master's degree applicants need to have a minimum CGPA score of 3.00. However, flexible admission criteria for applicants who are unable to fulfill this were introduced and applicants need to meet the following requirements:

- CGPA of 2.75 or equivalent
- Working and/or research experience in the relevant field of study, and/or
- Have published a minimum one publication in a peer-reviewed journal',or
- A minimum of 2 paper presentations in conferences or seminars.

Table 4.6 Postgraduates with CGPA > 3 on admission

	Year				
	2008	**2009**	**2010**	**2011**	**2012**
Postgraduate Enrolment	6,363	7,468	8,443	9,057	11,314
Postgraduates with CGPA > 3.00	5,066	6,421	7,720	8,745	N/A

Postgraduates Graduated – APEX Cohort

The number of Ph.D candidates who have graduated according to their year of intake is Table 4.

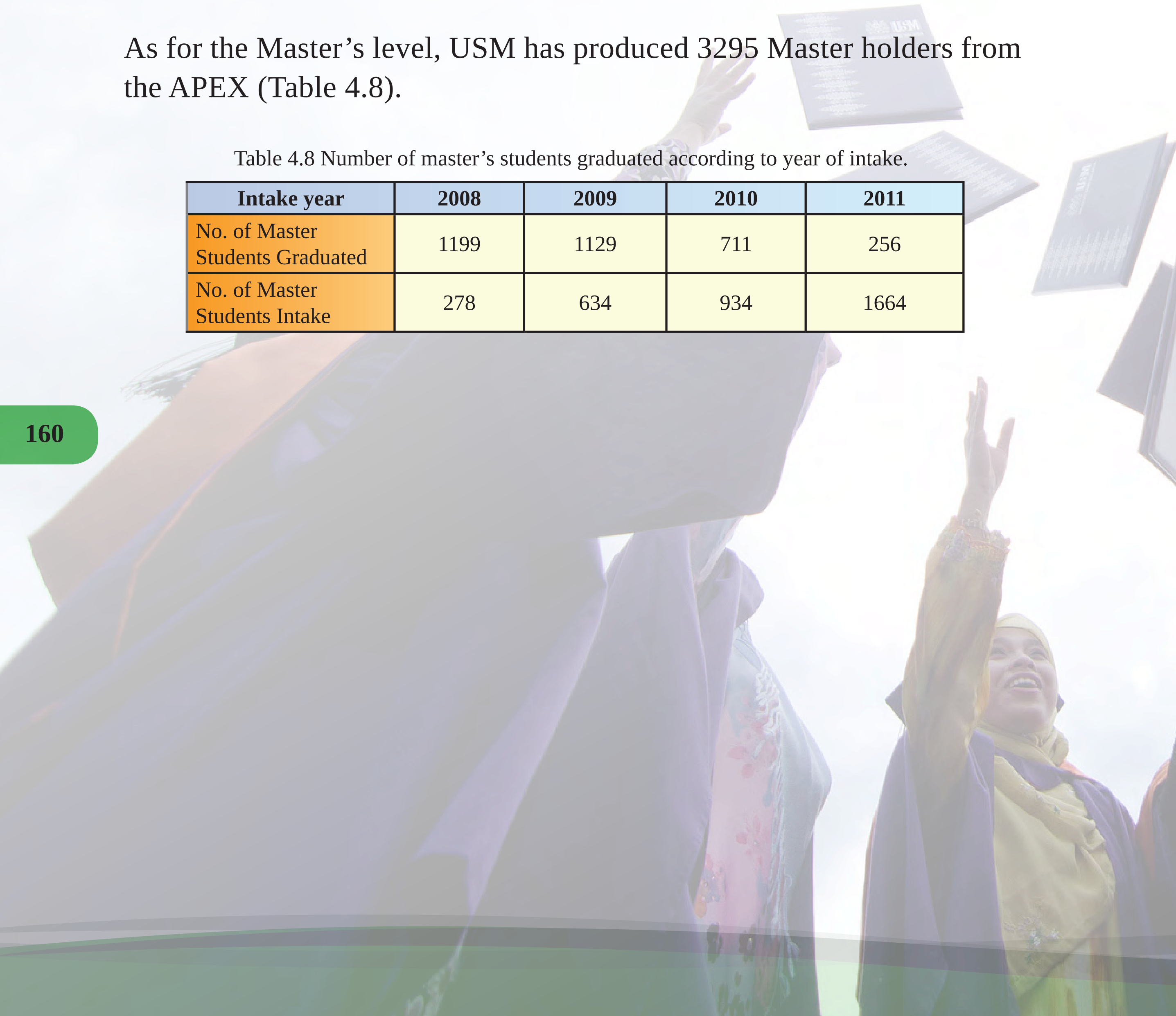
Table 4.7 Number of research-mode Ph.Ds graduated according to year of intake.

Intake year	2008	2009	2010	2011	2012
No. of Ph.D Intake	527	688	650	906	583
No. of Ph.D Graduated	115	143	199	307	297

As for the Master’s level, USM has produced 3295 Master holders from the APEX (Table 4.8).

Table 4.8 Number of master’s students graduated according to year of intake.

Intake year	2008	2009	2010	2011
No. of Master Students Graduated	1199	1129	711	256
No. of Master Students Intake	278	634	934	1664



Graduation on Time

One of the targets set by the university is to ensure students would graduate in the duration allocated for the study without extension. The duration for the Ph.D students is 7 semesters whereas for the Master level is 5 semesters. Table 4.9 and figure 4.16 shows the number of Ph.D students who have graduated and those graduated on time (GOT).

Table 4.9 Number of Ph.D students graduated and the number and percentage graduating on time according to year (based on MYRA 2 audit).

Intake year	2010	2011	2012
No. of Ph.D Students Graduated	199	307	297
No. graduated on time (%) (GOT)	44 (22.1)	52 (16.94)	56 (18.86)

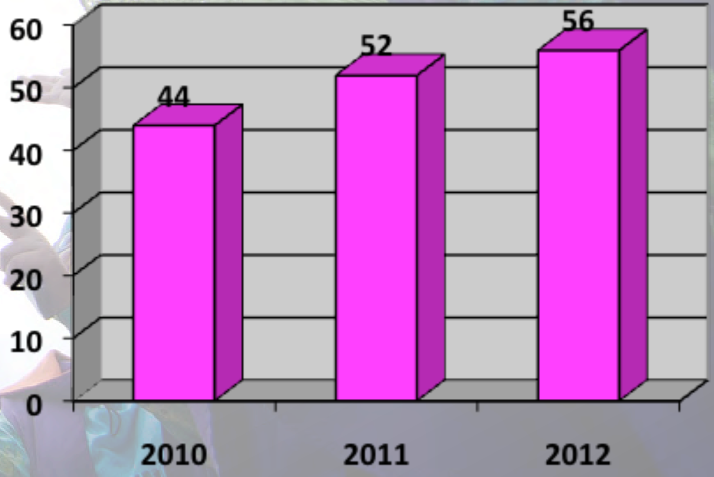
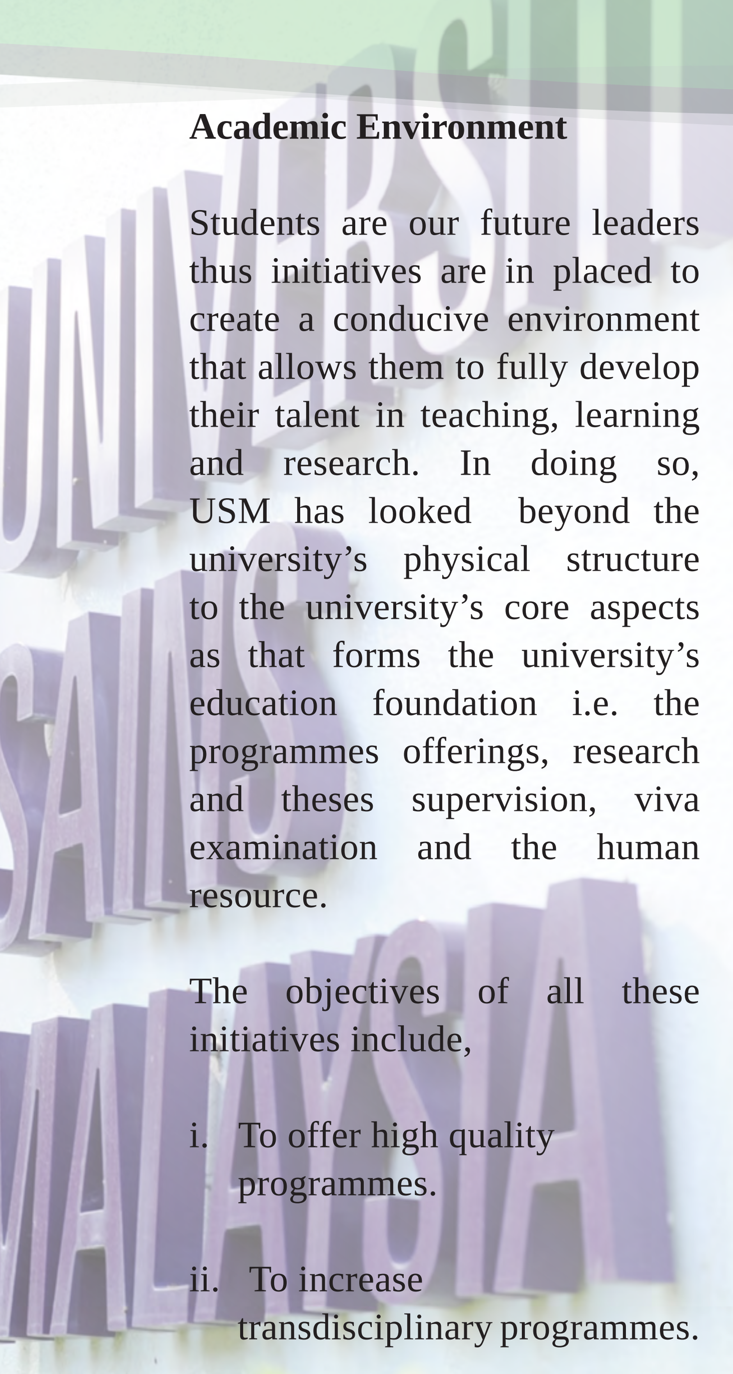


Figure 4.16 Graduation on time for Ph.D candidates

Professional and Personal Development Programme (PPD)

Apart from increasing the number of postgraduates enrolled and graduated, USM also aims to produce quality postgraduates with strong academic credentials complemented with soft skills. To achieve this aim, IPS has introduced a comprehensive range of workshops under the Professional and Personal Development Programme (PPD). The workshops are tailored to student needs to help them develop a broad range of skills in research, to enhance their personality, and to prepare them for their future careers. This personal and professional development programme is also an effort to promote postgraduates to be citizen scholars. All of the workshops are organised in the three USM campuses. The workshops are grouped into 3 areas which are personal development, responsible research conduct, and research development and management skills.

The students would decide on the kind of PPD and learning experience they want to acquire and are given a transcript after completing each workshop. One hundred and sixty seven (167) workshops involving 4502 participants and 194 workshops involving 5443 participants have been conducted in 2011 and 2012 respectively.



Academic Environment

Students are our future leaders thus initiatives are in placed to create a conducive environment that allows them to fully develop their talent in teaching, learning and research. In doing so, USM has looked beyond the university's physical structure to the university's core aspects as that forms the university's education foundation i.e. the programmes offerings, research and theses supervision, viva examination and the human resource.

The objectives of all these initiatives include,

i. To offer high quality programmes.

ii. To increase transdisciplinary programmes.

iii. To offer alternative methods for postgraduate assessment.

iv. To improve current supervision practices in USM.

v. To ensure smooth viva voce process in USM.

vi. To diversify postgraduate assessment.

vii. To achieve a good balance in the quantity and quality of staff.

Various actions have been put into action as to achieve these objectives. These include conducting continuous assessment to ensure quality of programmes, conducting curriculum overhaul, implementing a more flexible programme structure, encouraging transdisciplinary research, ensuring number of academic staff matches the number of student accordingly, improved monitoring procedures, introduced alternative tracks for Ph.D and Masters assessment as well as expedite examiners selection process and return of reports.

In addition, Introduction of the Plagiarism Policy and Supervision Modules for New Academic Staff were introduced to strengthen the academic quality and integrity of USM.

Introduction of the Plagiarism Policy

The reputation of an academic institution depends on the ability to achieve and sustain academic excellence through the exercise of academic integrity. Academic integrity is based on honesty, trust, fairness, respect, responsibility and accountability, which form the basis of all academic work. These values guide the behaviour of everyone in the university community which includes but not limited to students, lecturers, researchers and administrators.

One aspect of the loss of academic integrity is plagiarism which is the act of representing the published and unpublished ideas, writings, works or inventions of others in any form, as one's own original intellectual endeavours without clear acknowledgment of the author or source. This policy is intended to guide USM staff, students and other relevant stakeholders to identify acts related to plagiarism that may occur during their association with USM. Where plagiarism takes place, it should be clear that the university regards it as a serious offence that will be penalised severely. All persons/ parties involved in the plagiarism process are equally guilty.

Given that a substantial portion of academic work is in written form, USM is committed to deter plagiarism by allocating resources and investing in a workable software solution for detection of plagiarism. This policy is drafted with the following objectives:

1. To create and instill awareness among the university community on academic and research integrity, ethical values and good practices. The staff and students must be able to recognize that plagiarism is an infringement on academic integrity and can tarnish the reputation of the institution. The university has an obligation with regard to plagiarism, and initiate educative and preventive measures which are more effective and hence training of staff and students shall constitute an important component of this policy.

2. To guide the university

staff and students to identify issues in relation to plagiarism and academic misconduct that may arise in their employment or association with the university. It is designed to inform the academic community of their obligations to prevent plagiarism in academic works. All staff and students must be aware of and observe this policy. Anyone deemed to be in breach of this policy shall be subjected to the disciplinary action.

3. To record and maintain acts of plagiarism in the USM Academic Integrity Register for:

- Students - entry of offence shall be kept and maintained on the register for ten or five years after graduation/termination, whichever is later.
- Staff - entry of offence shall be kept and maintained on the register for his/her duration of service and for the minimum of five years after retirement/resignation/termination.

This policy applies to all students, former students, staff and former staff. Staff of the university includes fellows, post-doctorates, visiting scholars, as well as academic, non-academic, research, contract and temporary staff. All members of the university community must be notified and updated about the university's stand against plagiarism through continuous awareness and education courses/seminars/workshops. The appointment letter (academic and non academic staff), letter of undertaking (student), invitation letter (visiting scholar, post-doctorate, fellow) must include a signed declaration which states that they understand and will abide by the terms outlined in this policy.

Supervision Modules for New Academic Staff

IPS conducted a series of workshop known as the "Postgraduate Supervision Workshop Series for Academic Staff" for lecturers with less than 5 years of active service to introduce them to supervision skills. Table 7 lists the modules of the workshops.

Table 4.10 Modules of postgraduate supervision workshop series

Module 1	Selection of Candidates, Supervision and Students' Acknowledgement
Module 2	Research Framework
Module 3	Progress of Research
Module 4	Writing a Thesis and Preparation for Viva

International Collaboration

In ensuring the quality and credibility of USM as an international research university, IPS has played a prominent role in two international collaborations, the Co-Tutelle agreement between USM and Universite Henri Poincare (UHP) in France (the first for a Malaysian public university) and the USM-RIKEN Joint Graduate School Programme. The collaborations encourage long-term and sustainable research activities between the universities as well as foster the development of tools, facilities and equipment for research.

Student Support and Services Objectives

i. Provide quality services to the postgraduate students.

ii. Foster a cohesive, international postgraduate community.

iii. Provide sufficient facilities for postgraduate students.

Financial Assistance for Postgraduates

USM provides financial assistance to local as well as foreign students especially those from the developing and underdeveloped countries. For these students, USM has initiated three key fellowship programmes, namely, the USM-CMLV Fellowships that are open to applicants from Cambodia, Laos and Myanmar, the USM-VIED (Ministry of Higher Education, Vietnam) Joint Fellowships that are offered to doctoral candidates from Vietnam and the USM-TWAS Fellowships for those from developing countries such as Bangladesh, India, Nigeria, Sudan, Uganda, Ghana, Palestine and Yemen. Another important fellowship that is being offered is the Tun Sri Lanang Fellowship and Research Grant that has been created to encourage research on Tun Sri Lanang, a renowned scholar on the history of the Malay Archipelago. Other financial aids available are the Vice-Chancellor's Award, USM Fellowships, Graduate Assistant (GA) Scheme and Research Grants, Graduate Fund, Postgraduate Grant Scheme (PRGS) and USM-Global Fellowship.

Vice-Chancellor Award

This award offers generous monthIy allowances and tuition fees are waived. Vice-Chancellor's awardees receive a monthly allowance for a maximum of 3 years. The Vice-Chancellor Awardees are expected to devote their time to research and publishing articles as well as participate in the IPS events/ School/ Centre's assignments and activities. They should be actively engaged in various non-academic activities (e.g. community activities, charity work, educational services, etc.) and demonstrate their leadership potential within these activities. This award is only for current Ph.D candidates in USM.

USM Fellowships

USM Fellowships are offered to academically outstanding local and international students who demonstrate excellent research skills and leadership qualities. Fellowship holders are assigned to various projects and duties by their respective schools/ institutes/centres/units for a minimum of 6 hours per week. They are also required to publish academic articles. The benefits covered under the fellowship include tuition fees, examination fees and monthly allowances.

Graduate Assistant (GA) Scheme

The Graduate Assistant (GA) Scheme was introduced to enable postgraduates to enhance their skills by assisting in various events and activities in their respective Schools/CoEs. The GA would be assigned duties for a minimum of 6 hours per week. With the exception of semester breaks, the Scheme supports the recipients with monthly allowance of RM900.00 for master and RM1,100.00 for Ph.D students.

Graduate Fund

This fund provides financial support for research-mode postgraduate students with a grant of not more than RM10,000.00 to assist with research activities. The Graduate Fund also provides funding for conference oral presentations and research attachments.

Research University Postgraduate Grant Scheme (PGRS)

This is offered under USM Research University initiative and is open to full-time research students. This scheme provides grants up to RM10,000.00 for Masters and RM20,000.00 for Ph.D candidates.

USM-Global Fellowship

USM Global Fellowship was launched by YB Dato' Seri Mohamed Khaled Nordin, Ministry of Higher Education Malaysia on 30 July 2012 to ensure a bright future for Malaysia through attracting bright talents from all parts of the world to come and study their Ph.D at USM. This fellowship is an indication that Malaysia is ready to acknoweldge and celebrate knowledge and experience with the world. The USM Global Fellowship aspires to enhance nation building, synergise global talents, and to boost a greater knowledge society through the global talents USM have engaged. The USM Global Fellowship is open to all nationalities across the globe who aspire to pursue full time doctoral studies in various research fields.

Postgraduates External Fundings

Although USM does provide various funding, more of the postgraduates enrolling are with external funding. The number or percentage of the postgraduates' enrollment and intake with external grants increased from 2008 to 2012. As for the enrollment it has increased from 0.3% in 2008 to 27.0% in 2012 whereas the postgraduates' intake with external grants increased from 1.2% in 2008 to 21.2% in 2012. The increase trend is also seen for research mode postgraduate student intake (Table 4.11).

Table 4.11 External funding of postgraduates

	Year				
	2008	2009	2010	2011	2012
Research-mode postgraduates with external funding (Enrolment)	12 (0.34%)	78 (1.7%)	168 (3.1%)	737 (12.6%)	1490 (27.0%)
Postgraduates (Intake)	2,939	3,413	3,123	2,944	2,269
PGs with external funding (Intake)	36 (1.2%)	99 (2.9%)	246 (7.9%)	674 12.3%)	482 (21.2%)
International postgraduates (Intake)	833	913	841	671	389
International postgraduates with external funding (Intake)	12 (1.4%)	43 (4.7%)	28 (3.3%)	41 (6.1%)	33 (8.5%)
Research- mode postgraduates with external funding (Intake)	35	97	221	439	270
Local research mode postgraduates with external funding (Intake)	23	55	196	404	249
International research mode postgraduates with external funding (Intake)	12	42	25	35	21

*Data as of 22 November 2012
Data: IPS, 2012

Postgraduate Academic Support Service (PASS)

Qualified statistician and editing expert are available to assist students in achieving accuracy in their analyses and clarity in their writing via the statistical and editorial advisory services, respectively. They acted as advisors providing critical comments and feedback on writing and referencing conventions, thereby helping postgraduate students to improve quality of their thesis or research paper writings. PASS is provided at all the three campuses.

IPS also provides Turnitin, leading academic plagiarism detector software used to trace plagiarism and to ensure the integrity of students' academic writings and publications.

The USM Postgraduate Student Ambassador Programme

IPS has initiated an interactive programme to bridge the university and the international students through the setting up of the USM Student Ambassador Programme in March 2009. This programme is specially designated to nurture further understanding of cultures among postgraduate students. Student Ambassadors are expected to introduce the USM postgraduate life to their fellow countrymen via various activities and platforms.

INSTITUT PENGAJIAN SISWAZAH
INSTITUTE OF POSTGRADUATE STUDIES

Summary of Initiatives Undertaken for Postgraduate Education to meet the PSPTN, RU and APEX Agenda

Below are the criteria and initiatives undertaken by IPS in order to address the PSPTN, RU and APEX agenda (Table 4.12).

Table 4.12 Summary of initiatives undertaken for postgraduate education

CRITERIA	SUB-CRITERIA	INITIATIVES
Student Quality and Quantity	Intake/ Enrolment	1. Streamlined entrance requirement according to academic achievement 2. Introduced the International Equivalent Grade Guide 3. Expanded Recognition of English Language proficiency other than TOEFL (550) and IELTS (Band 6)
Examination	Thesis Quality	Editorial and Statistical Services under the Postgraduate Academic Support Services (PASS) Unit Editorial Services
	Plagiarism	Plagiarism Policy Introduced in USM in 2012
	Ph.D Route	Alternative Track for Submission of Ph.D Thesis
	Graduation on Time	Decentralisation of Scheduling of Viva to 20 PTJs has improved the time between submission and viva voce
Academic / Research	Supervision	Supervision Workshop for New Academic Staff
		Compulsory for students to present research proposal within 1 year of registration
		Compulsory for supervisor and student to submit progress report to re-new registration
	Programmes	Introduced Flexibility in the number of units for coursework (16 – 20 units) and research components (20 – 24 units)
		Approval for Joint Masters Programme with International Partners: i. MSc in Molecular Parasitology and Vector Biology ii. Masters in Development Project
	Internationalization	Increased number in joint supervision, research attachment and attendance in conferences

USM Achievements on Postgraduate Education

Eight (8) key performance indicators (KPI) have been set for the postgraduate studies in achieving the APEX agenda. All, except for the KPI regarding ratio of academic staff to Ph.D intake and percentage of international enrolment from the bottom billion, are fulfilled. These are as depicted in Figures 6 to 14.

(1). Ratio of Ph.D Postgraduates to Academic Staff (KPI: 1 Ph.D to 5 academics)

The ratio has decreased markedly from 1:12.3 during the first year of APEX to the targeted benchmarked ratio of 1:5 (See Figure 4.17).

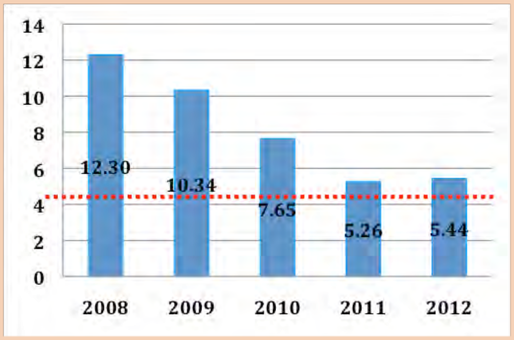


Figure 4.17 Ratio of Ph.D graduate to academic staff

(2). Ratio of Academic Staff to Ph.D Intake (KPI: 1 academic to 2 Ph.Ds) (Figure 4.18)

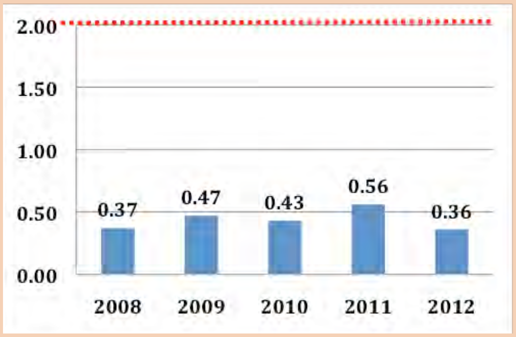


Figure 4.18 Ratio of academic staff to Ph.D intake

(3). Ph.D Enrolment in Science and Technology (KPI: 50%)

The percentage of Ph.D students enrolled in the science and technology has been above 80% from the first year of the APEX. This is above the benchmark of 50% .

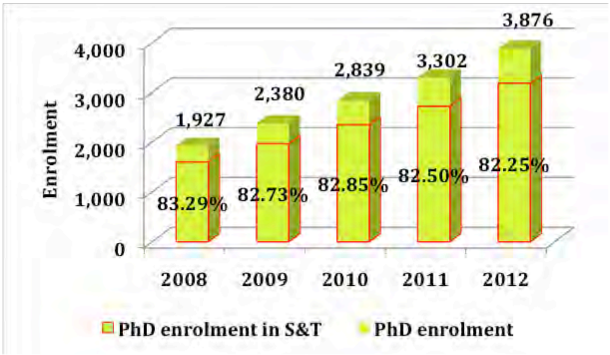


Figure 4.19 Ph.D enrolment in science and technology

(4). Ph.D Intake in Science and Technology (KPI:50%)

The benchmark of 50% for the Ph.D intake to be in science and technology has been achieved since 2010.

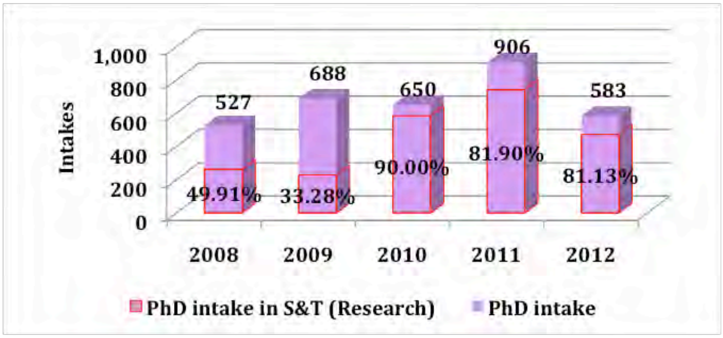


Figure 4.20 Ph.D intake in science and technology

(5). Ratio of Postgraduate to Undergraduate Graduation (KPI: 1 to 3) (Figure 4.21)

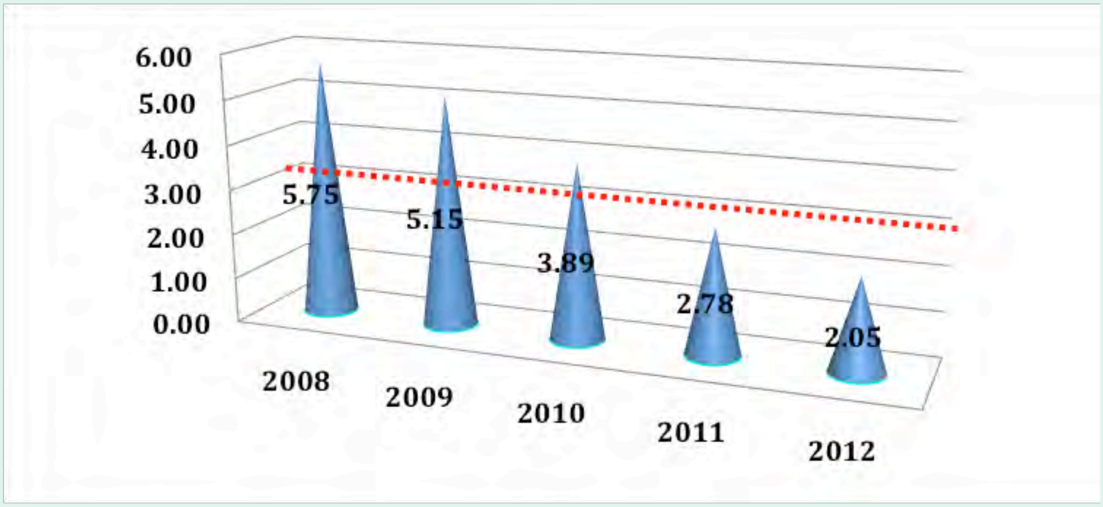


Figure 4.21 Ratio of postgraduate to undergraduate graduation

(6) International Postgraduate Intake (KPI: 20%)

The total number of USM postgraduates' intake from 2008 to 2012 were 14,688 and 3647 (24.8%) of these students were international intake. Thus the KPI set has been fulfilled (Figure 4.22).

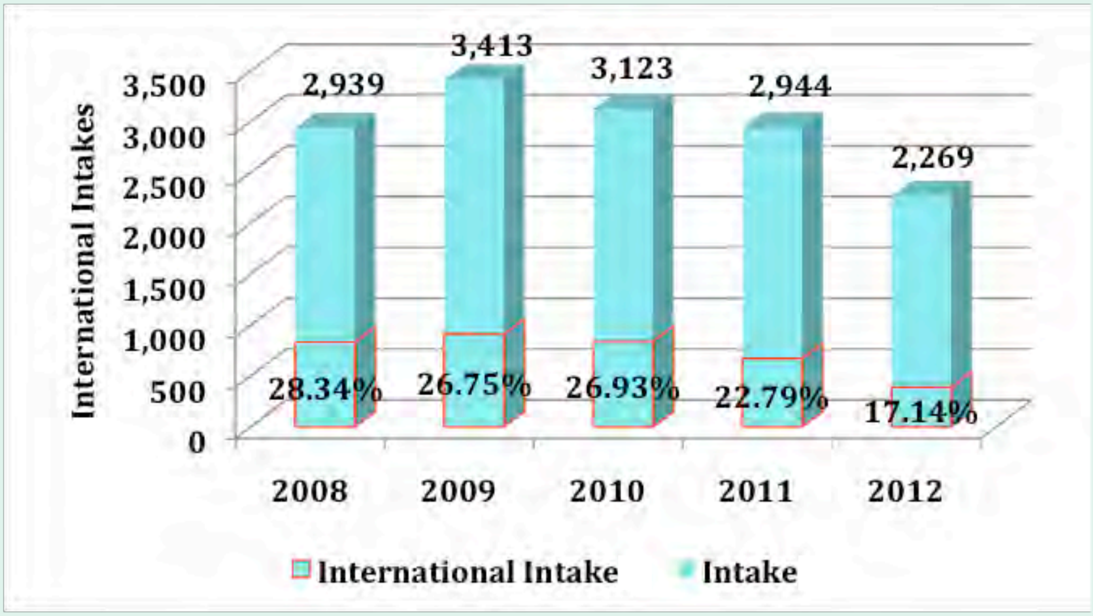


Figure 4.22 International postgraduate intake

(7). Research-Mode Postgraduate Enrolment with External Funding (KPI=20.0%)

The percentage of research-mode postgraduate enrolment with external funding in USM increased in a steady rate annually from the first year of APEX in 2008 (0.34%) to 2012 (27.03%) (Figure 4.23).

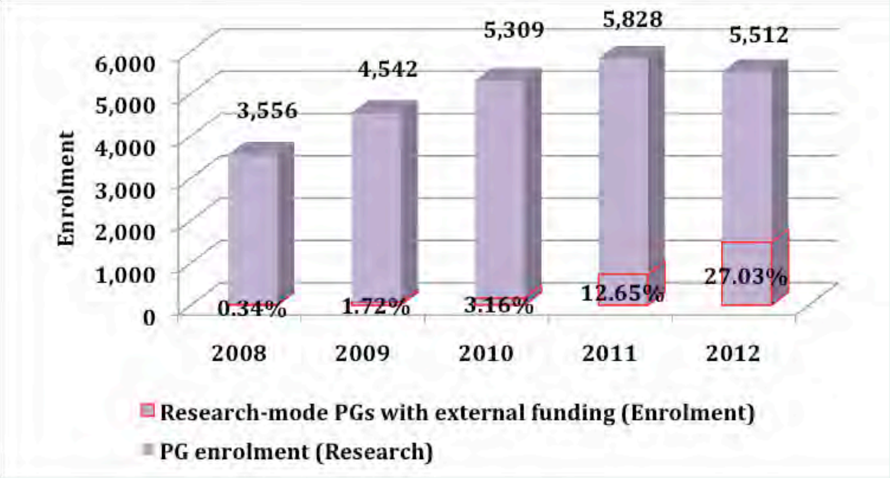


Figure 4.23 Research-mode postgraduate enrolment with external funding

(8). International Research-Mode Intakes with External Funding (KPI: 60%).

Although the proportion of the international postgraduates research-mode students increase over the years as compared to 2008, it is still below the determined KPI of 60% (Figure 4.24).

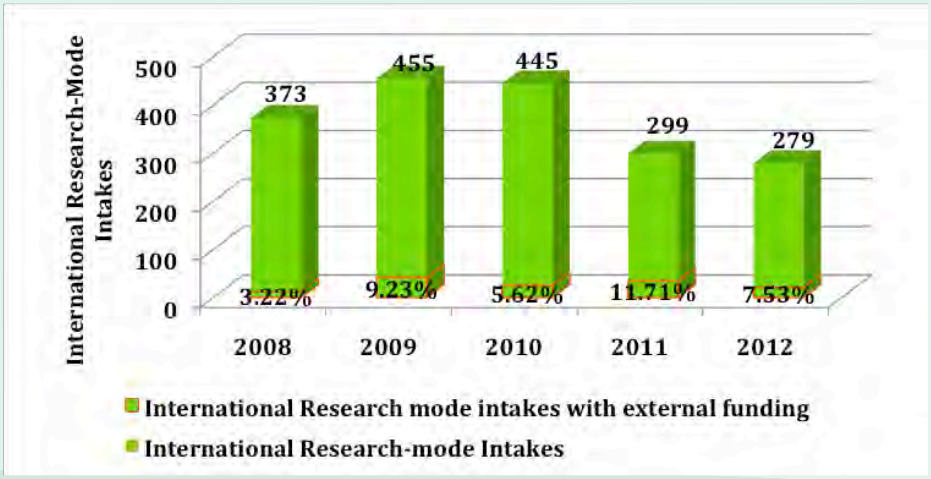


Figure 4.24 International research-mode intakes with external funding

(9). Postgraduate Enrolment with a CGPA of 3.00 or equivalent (KPI=70.0%)

Postgraduate enrolment with a CGPA of 3.00 or equivalent can be defined as quality enrolment. There is an increasing trend from year to year i.e. from 79.6% in 2008 to to 93% in 2012. This increasing percentage of quality enrolment is indeed a promising healthy trend for this KPI (Figure 4.25)..

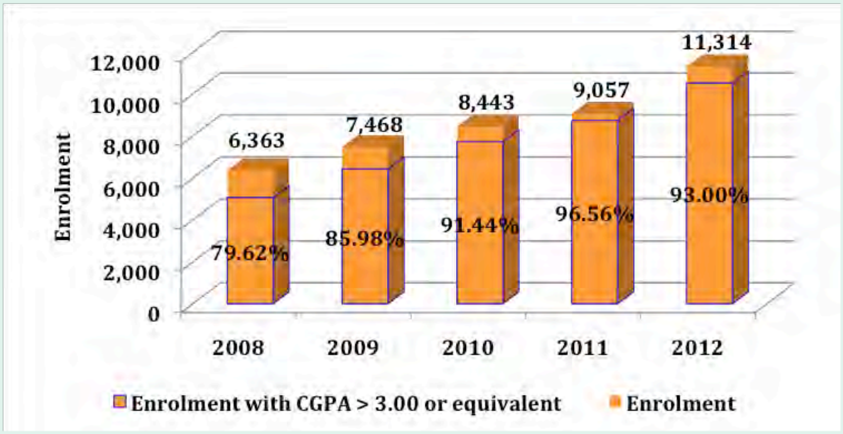


Figure 4.25 Postgraduate enrolment with a CGPA of 3.00 or equivalent

(10). Percentage of International Postgraduate Enrolment from the Bottom Billion (KPI: 10%)

The percentage of international enrolment from the bottom billion from 2008 to 2012 remained at the consistent level which is approximately 3%. More initiatives or plan need to in order to achieve the benchmark of 10% (Figure 4.26).

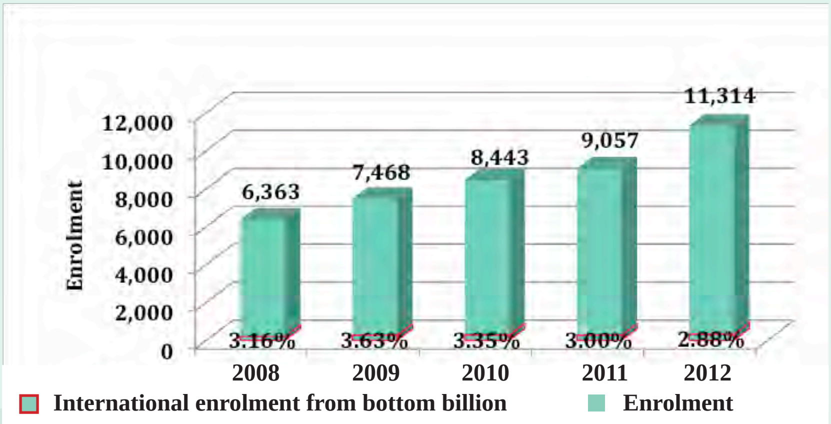


Figure 4.26 Percentage of international postgraduate enrolment from the bottom billion.

Challenges

Some of the challenges in postgraduate educations are:

i. To increase the ratio of academic staff as the main supervisors.

ii. To increase further transdisciplinary programmes which are currently schoolcentric.

The Way Forward

A postgraduate degree is now a channel and a source of training for meeting the human resource demands of a flexible and vibrant economic sector. In USM, providing postgraduate education is envisaged on a global stage with worldwide exposure and expansion to present our own brand of philosophy of education that is based on sustainability. These impetus and efforts have been further accelerated when the university was awarded with the Accelerated Programme for Excellence (APEX) in 2008 by the Ministry of Higher Education, Malaysia.

Against this postgraduate education landscape, USM will further enhance the promotion and propagation of a student-centred integrated programme approach that would culminate in a holistic student experience. Rising to this challenge, in the coming years, USM is set to provide a platform for collaboration and synergising efforts between schools/centres within USM as well as with institutions outside USM. In addition. USM will strive to facilitate for transdisciplinary research that would provide an opportunity for cross-sectorial linkages thus paving the way for increased student mobility, innovative impact on current trends in research and towards problem solving focused research. These measures are set to increase the international positioning of postgraduate.

5

Quality Agenda

Quality Agenda for USM, the APEX University Doing it Well and Doing it Right the First Time

Providing academic programmes and related services of the highest quality is a critical agenda for any respectable university particularly in areas considered as its core business. In the pursuit of excellence, whether it is in the area of teaching, research, provision of services or any other related activities, the quality level of services provided will determine the stature of a university, enhancing its worthiness and sustainability in the eyes of community-at-large.

Academic services, being the oldest core business for most universities are generally well equipped with various quality assurance (QA) processes to ensure the quality of the programmes offered. Quality assurance processes such as periodic review of the curriculum, appointment of external assessors and examiners, and programme accreditation process are well established practices in academic QA. The other aspects of operations in a university such as management of research activities, human resource and facilities management may still lack well-established processes and procedures for QA. It is in these areas that a university needs to explore ways and means of implementing existing and innovative QA processes to enhance the quality environment of the university as a whole.

In addition to the main campus on Penang Island, USM is fortunate to have two campuses specially designated for two distinct academic areas namely, the Health Campus in Kubang Kerian and the Engineering Campus in Nibong Tebal. Due to the professional courses offered at those two campuses, the academic QA aspects are consistently being monitored by the respective professional bodies. As a consequence of the strict and continuous QA processes undergone by the staff of these two campuses, the QA culture in these two campuses has spread to both the academic and non-academic aspects such as administration and service provisions.

Quality Initiatives - Health Campus

The Health Campus has been at the forefront in getting ISO certifications for various categories such as ISO 9001:2008, ISO 14001:2004, MS ISO 15189:2007, MS ISO/IEC 17025:2005 and ISO 1900:2005. The quality initiatives at the Health Campus are focused towards its transformation into a significant center of learning based on the premise that such an outcome would need the support of visionary leadership, world class facilities, recognised management systems and a creative, productive workforce as shown in Figure 5.1. In addition, the campus has been very consistent with Innovative and Creative Circles (ICC) activities for the past 25 years resulting in the campus being awarded *Persijilan ICC Organisasi* by Malaysian Productivity Corporation (MPC) in 2011. Of late, the campus too has been active in the promotion of quality environment via 5S activities, and it has been awarded campus-wide 5S Certification also by MPC in 2011.

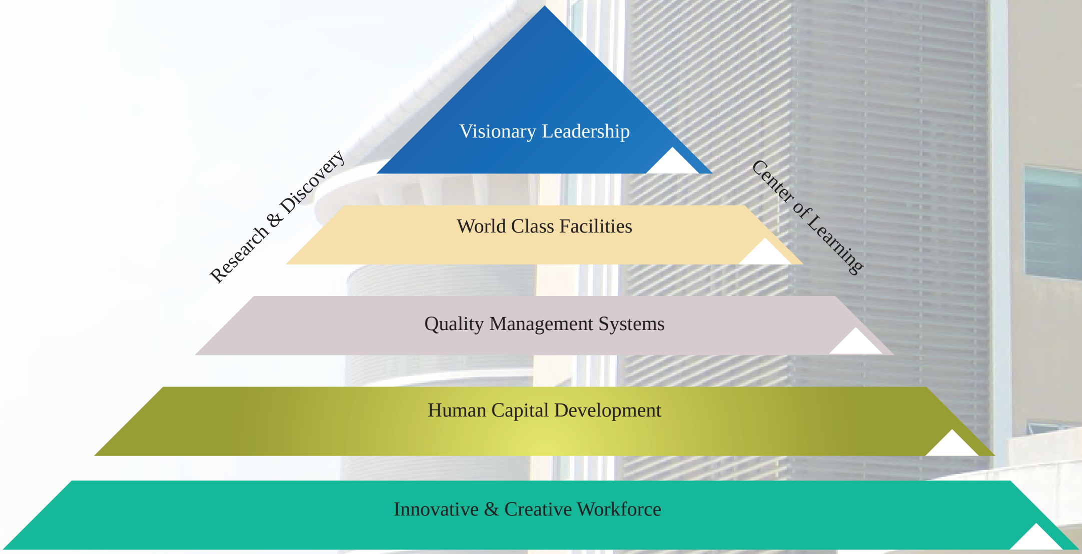

Visionary Leadership
Research & Discovery
Center of Learning
World Class Facilities
Quality Management Systems
Human Capital Development
Innovative & Creative Workforce

Figure 5.1 Concept for quality initiatives

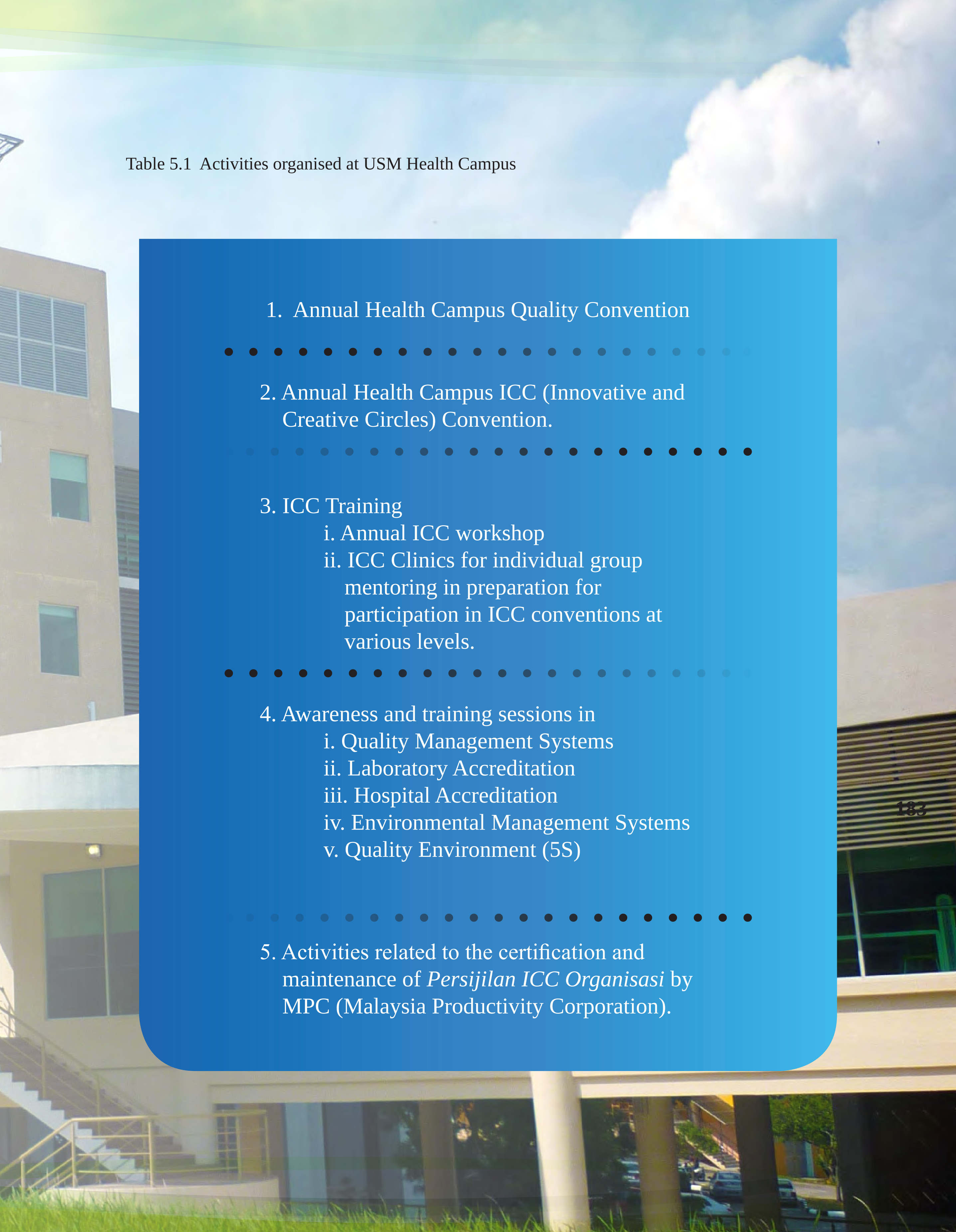


Table 5.1 Activities organised at USM Health Campus

1. Annual Health Campus Quality Convention
2. Annual Health Campus ICC (Innovative and Creative Circles) Convention.
3. ICC Training
   - i. Annual ICC workshop
   - ii. ICC Clinics for individual group mentoring in preparation for participation in ICC conventions at various levels.
4. Awareness and training sessions in
   - i. Quality Management Systems
   - ii. Laboratory Accreditation
   - iii. Hospital Accreditation
   - iv. Environmental Management Systems
   - v. Quality Environment (5S)
5. Activities related to the certification and maintenance of *Persijilan ICC Organisasi* by MPC (Malaysia Productivity Corporation).

World Class Facilities for Research

The laboratories at Health Campus have been generally designed in accordance to international requirements. Many among these laboratories are actively involved in multi-centre clinical trials. Health Campus is also recipient to international funding for research. To ensure the credibility of results issued by the laboratories, the leadership embarked on the implementation of internationally recognised laboratory management systems through the laboratory accreditation process. This is also in compliance to the requirements of a Research University. Accreditation of laboratories also promotes the lucrative commercialisation of services.

MS ISO 15189:2007

•Eight laboratories from HUSM were accredited by Standards Malaysia in 2010 as listed in Table 5.2.

•Medical laboratories have extended the scope of service from eight to nine laboratories to include the Endocrinology Laboratory with has been through Compliance Audit of Standards Malaysia and National Centre for Research (NCR) is awaiting a response from Standards Malaysia.

MS ISO/IEC 17025:2005

Two laboratories at Health Campus have achieved ISO 17025:2005 accreditation namely:

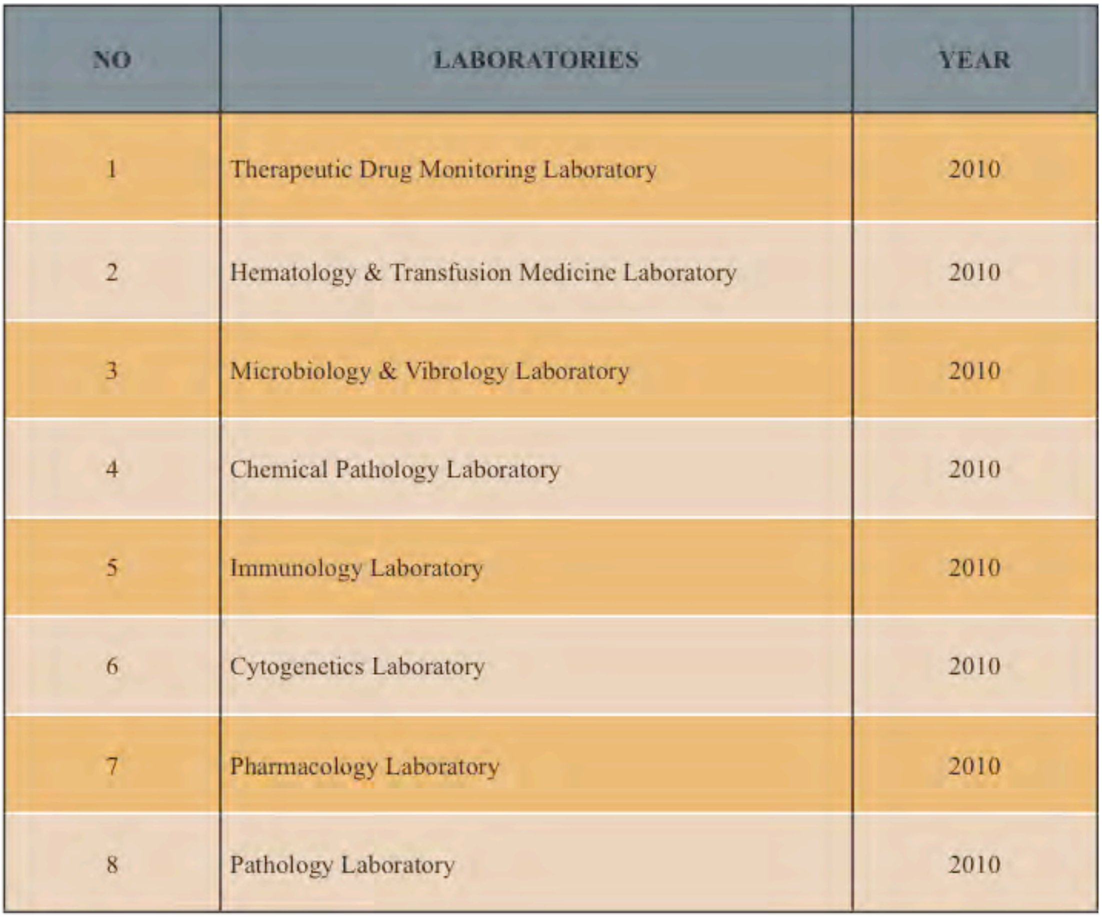
1. CAL Laboratory (Engineering Division) in 2010.
2. Human Identification/DNA Laboratory (*Pusat Pengajian Sains Kesihatan*; PPSK) in 2012.

MS ISO 13485:2006 (Medical Devices): Tissue Bank PPSP

The Tissue Bank is currently pursuing MS ISO 13485:2006 Certification for Medical Devices. The stage 2 audit by SIRIM was held in November 2012.

GMP (Good Manufacturing Practice): The Tissue Bank of PPSP was awarded GMP Certification by the National

Table 5.2 HUSM Laboratories accredited by Standards Malaysia



NO	LABORATORIES	YEAR
1	Therapeutic Drug Monitoring Laboratory	2010
2	Hematology & Transfusion Medicine Laboratory	2010
3	Microbiology & Vibrology Laboratory	2010
4	Chemical Pathology Laboratory	2010
5	Immunology Laboratory	2010
6	Cytogenetics Laboratory	2010
7	Pharmacology Laboratory	2010
8	Pathology Laboratory	2010

Pharmaceutical Bureau, Ministry of Health on 4th October 2012.

ISO 14001:2004

Spearheaded by the Engineering Division, the launching ceremony for ISO 14001:2004 for the environment took place at the 2011 Annual Quality Convention on 9th January 2012. Documentation is currently in progress.

5S (Quality Environment): Health Campus achieved campus-wide 5S Certification by MPC in 2011. The scope of certification has widened this year to include 20 zones from eight institutions.

Quality Management Systems

(ISO 9001:2008): The Campus Director's Complex, PPSP, PPSG, PPSK, Hospital USM and INFORMM have achieved ISO 9001:2008 Certification and have successfully sustained it. Activities are on-going for the continual improvement of the system.

ISO 1900:2005 (QMS & Islamic Principles): Tissue Bank,PPSP

The aim of the standard is to ensure that organizations are managed in accordance with universally accepted Islamic values and is developed based on the ISO 9001 standard. The stage 2 audit by SIRIM was held in November 2012.

Human Capital Development

While the development of skills and competence were dealt through core programmes, quality initiatives focused on the development of intangible skills such as creativity, innovativeness and team spirit. The concept of ICC facilitated by MPC has been implemented extensively at Health Campus to realise this agenda. Many of the projects and innovations from the campus have achieved recognition at ministry, national and international platforms.

Achievements in 2012 include:

1. Overall Champion by MOHE Annual ICC Convention (6-8 March 2012) for ICC Group Infinity Rehabilitation (Hospital USM)

2. *Anugerah Inovasi Negara* for ICC Group Lestari (PPSK)

3. International Convention for Quality Control Circles

(ICQCC). Two groups from Health Campus qualified to represent Malaysia at the ICQCC. They were ICC Group Infinity Rehabilitation (Hospital USM) and ICC Group I Administration (PPSK)

4. International Exposition on Team Excellence - Singapore (IETEX). The ICC Group Lestari (PPSK) was placed among the top ten groups.

5. MPC National ICC Convention (15-17 Oct 2012). Eight ICC groups from Health Campus qualified and represented USM at the convention. Seven of these groups were awarded Gold 3 Stars.

Engineering Campus – Quality and Accreditation

World leaders acknowledge that ‘Quality’ is getting the best results by optimising the usage of all available resources in the institution especially human capital. The significance of ‘Accreditation’ is to benchmarked academic excellence of the institution to be of world class. Since academia and the engineering profession are always acknowledged as the catalyst of any nation striving for industrialised and developed nation status, a very high global standard is expected of aspiring engineers graduating from any university worldwide.

With globalisation and the mobilisation of experts worldwide being a reality, the importance of international quality assurance of university resources and a holistic benchmark for the accreditation of engineering academic programmes is most critical towards sustainability of the world class standards for any institutions of higher learning and their graduates. USM is most fortunate to be appointed by the MOHE as the pioneer APEX University in Malaysia and also recognised as the Regional Centre of Excellence on Education for Sustainable Development with the noble theme ‘Transforming

Higher Education for a Sustainable Tomorrow' which is another impressive milestone of academic excellence for Malaysia and the global community.

USM as the leader in APEX needs to confidently promote their high-impact expertise overseas and actively support various community-centered projects towards global sustainability. The proactive Quality and Accreditation Division, under the auspices of the USM Engineering Campus Director, aims to be the de-facto academic benchmark for the global community to showcase the latest innovative quality and accreditation best practices to propel the academic and industrial sector to another level of world class excellence. The Engineering Campus in turn has been at the forefront of Outcome Based Education (OBE) since 2005 due to their involvement in ensuring its programmes fulfill the various requirements of the Washington Accord and Board of Engineers Malaysia. All the engineering programmes offered by USM has since then been accredited by the Board of Engineers Malaysia, and by extension fulfil the Washington Accord requirements.

The readily available USM world class engineering experts and workforce conversant in the latest state-of-the-art industrial practices and technological innovations, complemented by sustainable savvy aspects, would be a great asset to USM as this holistic technical experts can be easily mobilised anywhere to help the global community in time of need and also to solve any engineering challenges worldwide. USM's Quality and Accreditation Division's aspiration is to act as an invaluable platform for all in the university and the community to network, exchange ideas and provide suggestions to elevate any community's concerns and challenges. Professionalism in the academic and industrial sector via the conferment of the renowned Professional Engineer (PEng) or Chartered Engineer (CEng) recognition, a very important international criteria, is defined as the status of competence, quality of work and level of experience of any individual with respect to his/her global expectations in sustainable development, safety, health and environmental standards and best practices in academic and the industry. The strategic enhancement of the quality and accreditation expectations of the university academic and administrative staff will further enhance USM's image in the global community.

On the International Engineering Alliance-Washington Accord (IEA-WA) international accreditation of the USM engineering programmes, congratulations are due to the Chancellory, academics, management and students of USM on obtaining accreditation for all the nine academic engineering programmes during the recently concluded 2010 IEA-WA/EAC Accreditation Visit namely:

- Bachelor of Engineering (Hons) Civil Engineering

- Bachelor of Engineering (Hons) Electrical Engineering

- Bachelor of Engineering (Hons) Chemical Engineering

- Bachelor of Engineering (Hons) Materials Engineering

- Bachelor of Engineering (Hons) Aerospace Engineering

- Bachelor of Engineering (Hons) Mechanical Engineering

- Bachelor of Engineering (Hons) Electronics Engineering

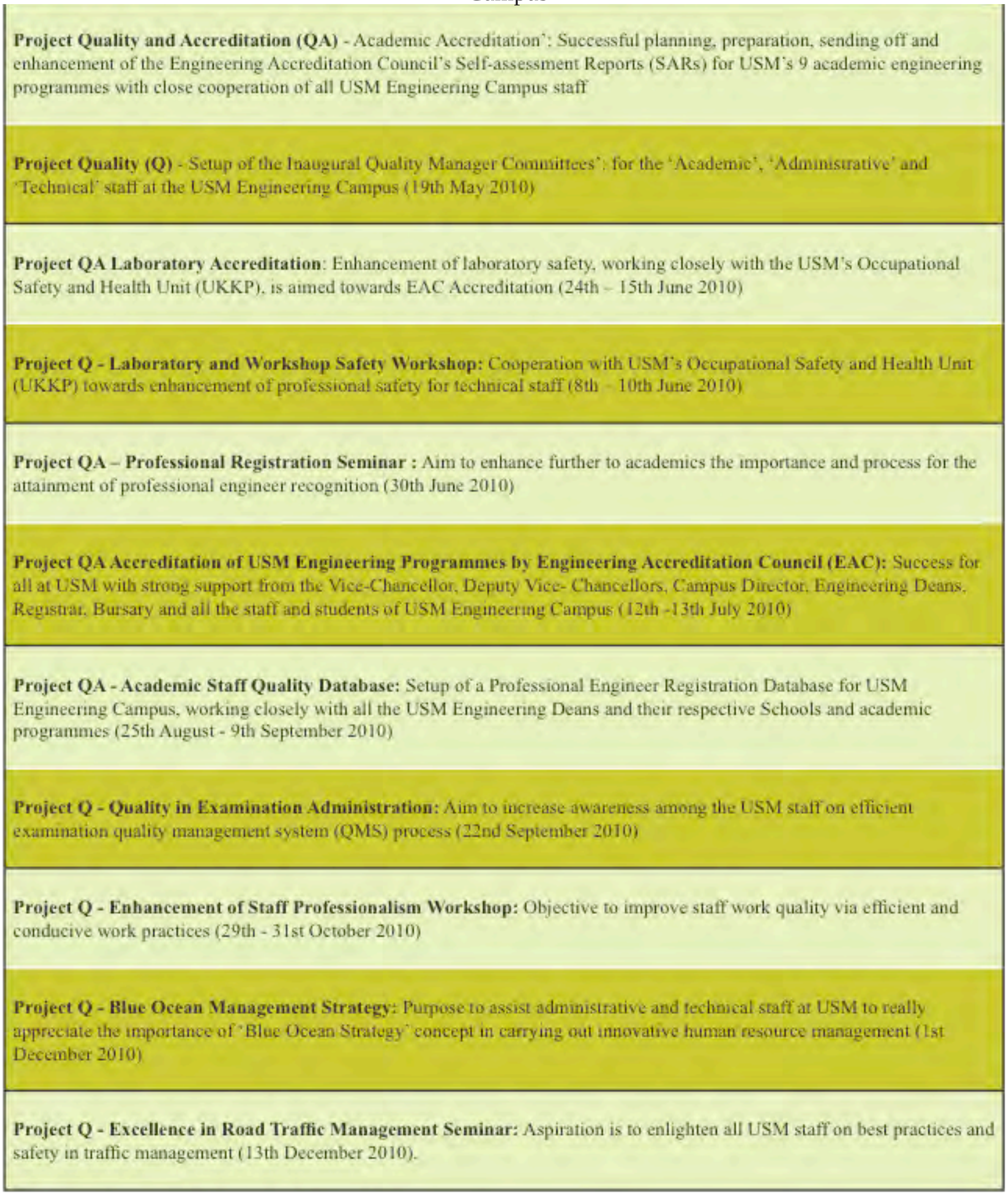
- Bachelor of Engineering (Hons) Mineral Resources Engineering

- Bachelor of Engineering (Hons) Manufacturing Engineering with Management

With respect to quality recognitions, in 2010 Engineering Campus has been conferred with the following international and national recognitions:

- World Academy WASET’s International Outstanding Science, Engineering and Technology Excellence Award for academic and industrial excellence.

Table 5.3 Major accomplishments of the USM’s quality and accreditation of the Engineering Campus



Project Quality and Accreditation (QA) - Academic Accreditation’: Successful planning, preparation, sending off and enhancement of the Engineering Accreditation Council’s Self-assessment Reports (SARs) for USM’s 9 academic engineering programmes with close cooperation of all USM Engineering Campus staff
Project Quality (Q) - Setup of the Inaugural Quality Manager Committees’: for the ‘Academic’, ‘Administrative’ and ‘Technical’ staff at the USM Engineering Campus (19th May 2010)
Project QA Laboratory Accreditation: Enhancement of laboratory safety, working closely with the USM’s Occupational Safety and Health Unit (UKKP), is aimed towards EAC Accreditation (24th – 15th June 2010)
Project Q - Laboratory and Workshop Safety Workshop: Cooperation with USM’s Occupational Safety and Health Unit (UKKP) towards enhancement of professional safety for technical staff (8th – 10th June 2010)
Project QA – Professional Registration Seminar : Aim to enhance further to academics the importance and process for the attainment of professional engineer recognition (30th June 2010)
Project QA Accreditation of USM Engineering Programmes by Engineering Accreditation Council (EAC): Success for all at USM with strong support from the Vice-Chancellor, Deputy Vice- Chancellors, Campus Director, Engineering Deans, Registrar, Bursary and all the staff and students of USM Engineering Campus (12th -13th July 2010)
Project QA - Academic Staff Quality Database: Setup of a Professional Engineer Registration Database for USM Engineering Campus, working closely with all the USM Engineering Deans and their respective Schools and academic programmes (25th August - 9th September 2010)
Project Q - Quality in Examination Administration: Aim to increase awareness among the USM staff on efficient examination quality management system (QMS) process (22nd September 2010)
Project Q - Enhancement of Staff Professionalism Workshop: Objective to improve staff work quality via efficient and conducive work practices (29th - 31st October 2010)
Project Q - Blue Ocean Management Strategy: Purpose to assist administrative and technical staff at USM to really appreciate the importance of ‘Blue Ocean Strategy’ concept in carrying out innovative human resource management (1st December 2010)
Project Q - Excellence in Road Traffic Management Seminar: Aspiration is to enlighten all USM staff on best practices and safety in traffic management (13th December 2010).

- Institute of Quarrying (Malaysia)'s IQM Award of Excellence in recognition of outstanding contributions to the quarrying industry.

Major accomplishments of the USM's Quality and Accreditation of the Engineering Campus are shown in Table 5.3.

Campus Networking - Improving Quality of Services

Centre for Knowledge, Communication and Technology (PPKT as it is known in Bahasa Malaysia) was established in December 2002, which is responsible for the ICT services of the three USM campuses with its operational support encompasses:

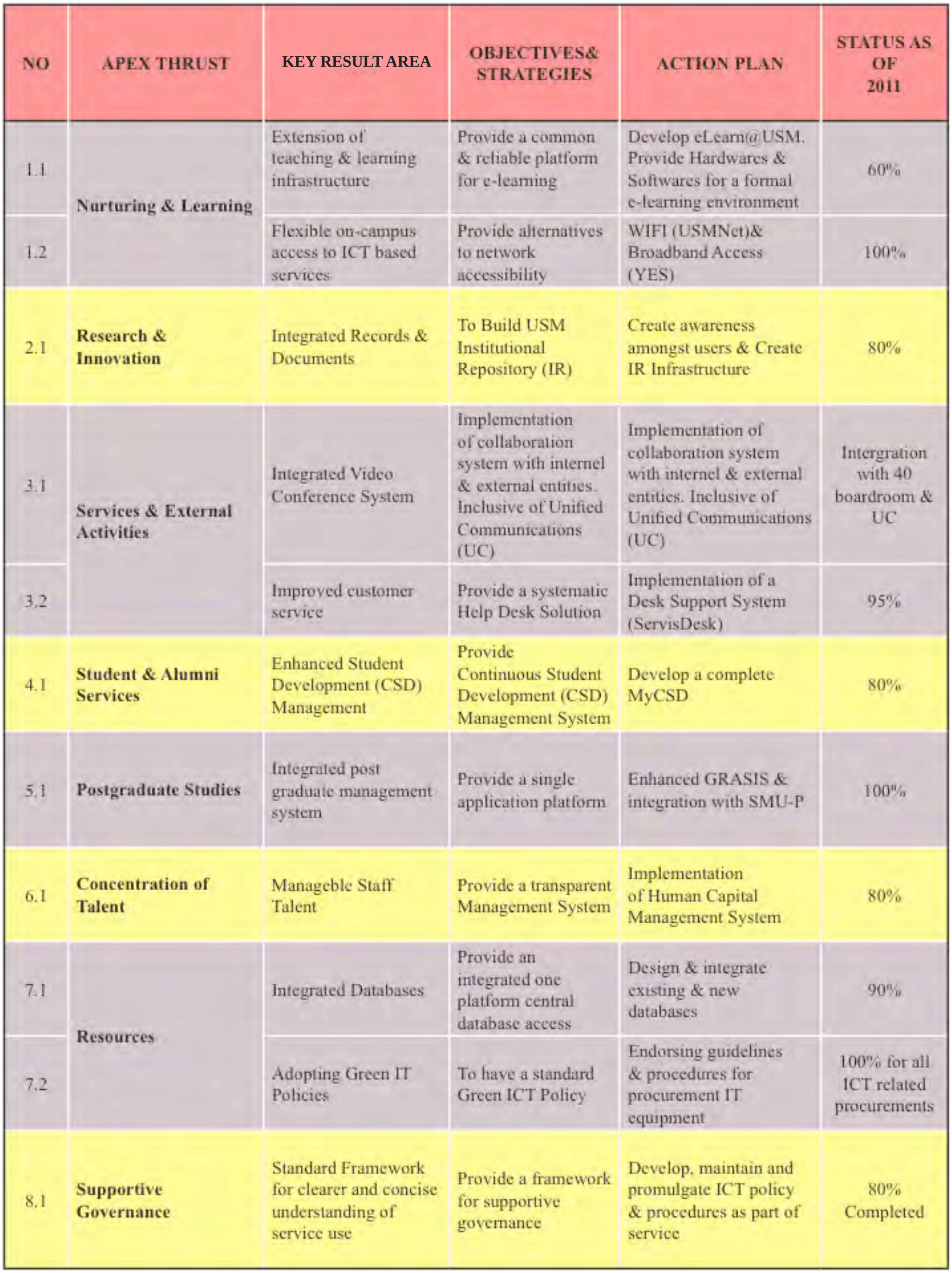
- The campus network and telecommunications infrastructure
- Administrative computer applications
- Computer facilities and support services

As the premier ICT service provider in USM, PPKT has a mission to create a competent, high quality and efficient customer-oriented support service in the context of :

- Teaching and Learning
- Research and Innovation
- Business Processes

The centre provides high performance and secure ICT infrastructure, telecommunications and support services within USM (Table 5.4). Ninety percent of the applications utilised for administrative and academic purposes are developed and maintained by PPKT. Training continues to be one of the key responsibilities of the centre and it is done on a continuing basis for all levels of staff members, students and the general public.

Table 5.4 Objectif, strategies and action plans of the Centre for Knowledge, Communication and Technology (PPKT)



NO	APEX THRUST	KEY RESULT AREA	OBJECTIVES& STRATEGIES	ACTION PLAN	STATUS AS OF 2011
1.1	Nurturing & Learning	Extension of teaching & learning infrastructure	Provide a common & reliable platform for e-learning	Develop eLearn@USM. Provide Hardwares & Softwares for a formal e-learning environment	60%
1.2		Flexible on-campus access to ICT based services	Provide alternatives to network accessibility	WIFI (USMNet)& Broadband Access (YES)	100%
2.1	Research & Innovation	Integrated Records & Documents	To Build USM Institutional Repository (IR)	Create awareness amongst users & Create IR Infrastructure	80%
3.1	Services & External Activities	Integrated Video Conference System	Implementation of collaboration system with internel & external entities. Inclusive of Unified Communications (UC)	Implementation of collaboration system with internel & external entities. Inclusive of Unified Communications (UC)	Intergration with 40 boardroom & UC
3.2		Improved customer service	Provide a systematic Help Desk Solution	Implementation of a Desk Support System (ServisDesk)	95%
4.1	Student & Alumni Services	Enhanced Student Development (CSD) Management	Provide Continuous Student Development (CSD) Management System	Develop a complete MyCSD	80%
5.1	Postgraduate Studies	Integrated post graduate management system	Provide a single application platform	Enhanced GRASIS & integration with SMU-P	100%
6.1	Concentration of Talent	Manageble Staff Talent	Provide a transparent Management System	Implementation of Human Capital Management System	80%
7.1	Resources	Integrated Databases	Provide an integrated one platform central database access	Design & integrate existing & new databases	90%
7.2		Adopting Green IT Policies	To have a standard Green ICT Policy	Endorsing guidelines & procedures for procurement IT equipment	100% for all ICT related procurements
8.1	Supportive Governance	Standard Framework for clearer and concise understanding of service use	Provide a framework for supportive governance	Develop, maintain and promulgate ICT policy & procedures as part of service	80% Completed

Leveraging the Scenario

Leveraging on the extensive experience of the Health Campus and Engineering Campus, USM main campus will be embarking on similar activities to enhance various quality aspects in the Penang Island campus. The reorganisation of the management structure of the University Quality Centre (UQC) was done in mid-2012, with the mandate to plan, implement and coordinate the various quality related activities in all the three campuses.

With the stuctural reorganisation, UQC is expected to play a more active and comprehensive role in quality related activities in all the three campuses particularly in spearheading the quality agenda at the main campus in Penang. While being mindful of the relatively advanced stage of QA practices in the Engineering and Health Campuses, UQC will seek to address the issue of intensifying QA activities that are relevant and sustainable in USM main campus. Consultation with various stakeholders has been started and a comprehensive strategy on QA is being formulated.

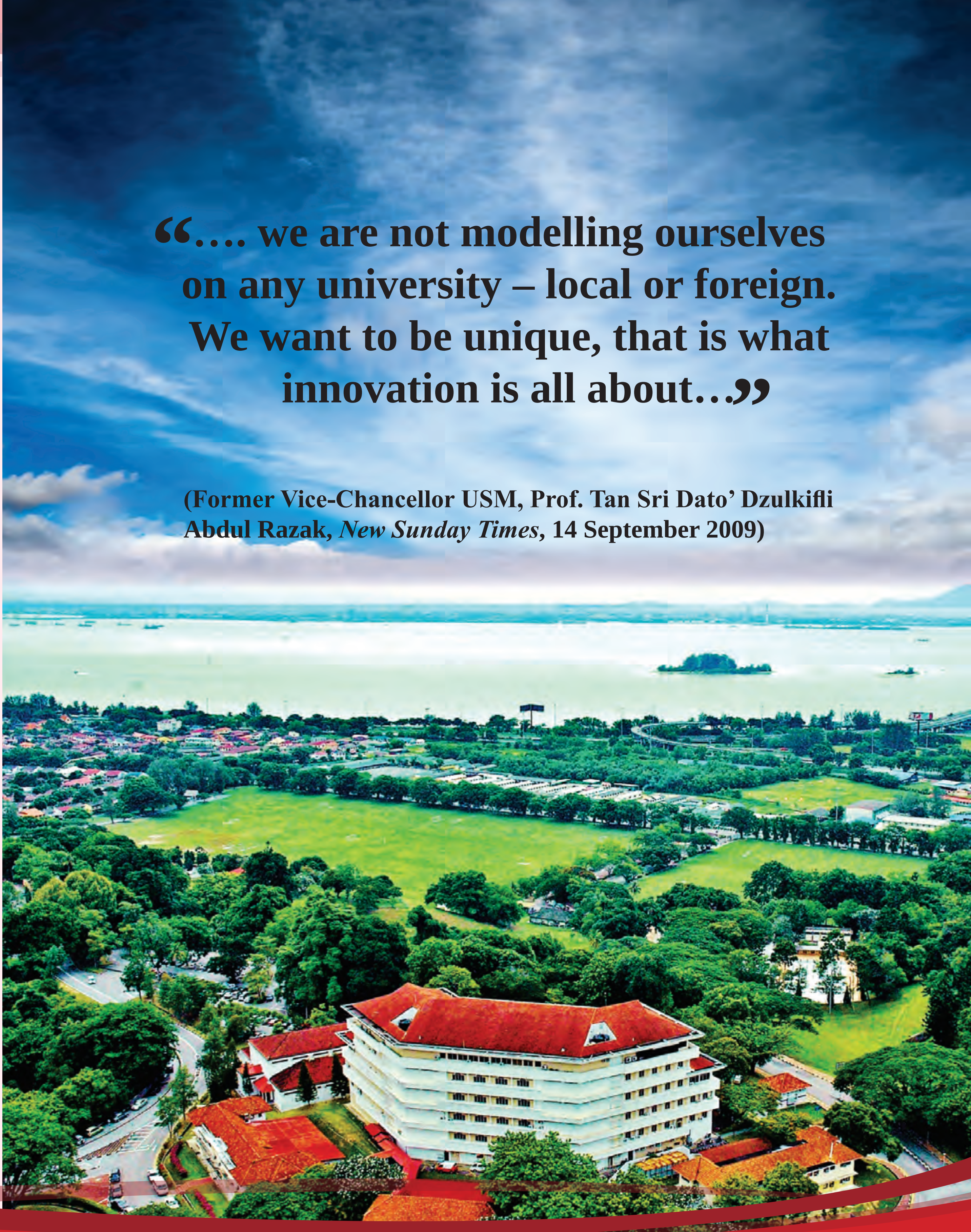
The extensive experience at the Health Campus and Engineering Campus will be shared in various planning and implementation stages. To start, the following aspects of university operation will be revisited, QA processes strategised and concrete steps formulated:

- Academic programmes management
- Non-academic programmes management
- Research and Innovation management
- Human Resources management
- Support Services (both staff and students support) management, and
- Infrastructure management.

In the end, it is expected that the QA agenda in the three USM campuses will be fully synergised to support the overall APEX Agenda of USM.

6

Research@USM



> “…. we are not modelling ourselves on any university – local or foreign. We want to be unique, that is what innovation is all about…”

(Former Vice-Chancellor USM, Prof. Tan Sri Dato’ Dzulkifli Abdul Razak, *New Sunday Times*, 14 September 2009)

Research@USM: Generating New Knowledge in Transforming the World and Humanity

Introduction

USM is known for its strengths in the areas of fundamental and applied sciences, translation studies, services, as well as arts, culture and heritage. In accordance with its status as an APEX and a Research University, research at USM is research with a difference. Research at USM is to help carve a strong image of USM on being "world-renowned for sustainability" with the tagline "transforming higher education for a sustainable tomorrow". Researchers at the university focus on ways to balance in making an impact academically and creating one to the society, which is in line with university's tagline of 'Brains to Business to Humanity' (Prof. Dr. Asma Ismail, Former Deputy Vice-Chancellor, Research and Innovation at USM).

Brains to Business to Humanity

This chapter outlines the plan, initiatives, challenges, achievements, gaps and future of research at USM in its APEX transformational journey.

Plan

The university has created research programmes which are structured and organised along multidisciplinary clusters (including integrating the arts and the sciences) with borderless facilities. Some clusters that have existed include those under the social transformation (which clusters the social sciences and the humanities), medical, life sciences, health sciences, engineering & technology, information techonology and communication, and fundamental research.

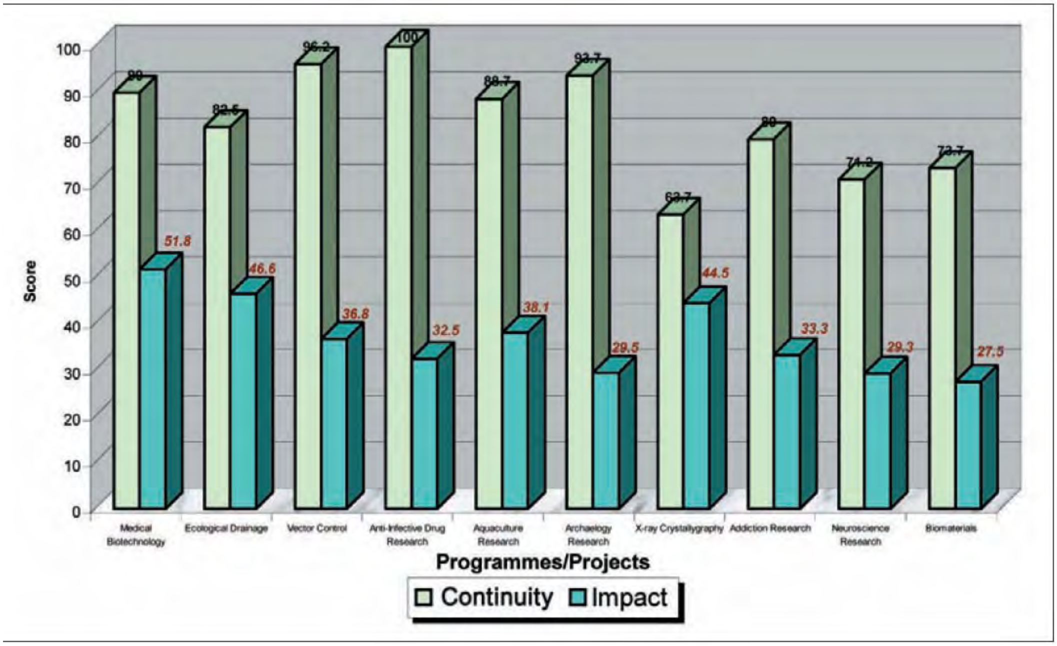
Transforming Research and Innovation

The initiative to reinvigorate research and innovation (R&I) activities at USM started in December 2000. An extensive and comprehensive exercise was conducted to audit all research programmes and projects with the aim of formulating a strategy to acculturate and nurture programmes which have the potential to become world class and incubate those which show the potential to reach this level.

The outcome of this audit shows that USM has several niche areas which could anchor its path for excellence in R&I. The top five areas which have reached or are on the verge of world class standing are medical biotechnology, ecological drainage technology, vector control, anti infective drug research and aquaculture research, most of which dealt with the underlying theme of sustainability.

One critical lesson learned from this audit conducted seven years ago, and as shown in Table 6.1 is that research activities at USM are relatively strong in their continuity outlook (i.e., they have sizeable research teams, sufficient research grants, adequate resources and extensive networks). However, they are relatively weak for impact, i.e., in publications, patents/commercialisation, technology transfer, impact on policy/consultancies and awards and recognition.

Table 6.1 Audited top-10 rangking R&I programmes in USM according to continuity and impact



Strategic Research Initiatives

As a result of this audit exercise and to overcome some of the impediments, several recommendations were made and subsequently implemented to improve R&I programmes and activities of the university. They include:

- The creation of a research management office known as the Research Creativity and Management Office (RCMO) to act as a one-stop centre for R&I, providing management and administration needs as well as support, liaise and sustain R&I activities of the university.

- The establishment of research clusters in terms of borderless platforms to promote and encourage multi-disciplinary research and to increase collaboration and cooperation among researchers.

- The establishment of Research Dean positions for the following research platforms: social transformation (for social sciences and humanities), engineering and technology, information technology and communication, life sciences, health and biomedicine, clinical sciences and fundamental sciences. Their roles include congregating researchers from different disciplines, grooming research champions, seeking grants as well as evaluating research proposals through their scientific committees.

- The setting up of a Research Endowment Fund to supplement the inadequacy of the grants provided by the public and private sectors, especially for basic and fundamental research. This is based on the belief that fundamental research is the beacon of basic research and it is the fountain of knowledge and understanding and contributes to a search of new knowledge.

- The university has also expanded research incentives to include international travel grants, a larger quantum of research grants, honorariums to researchers, awards and fellowships, attendance at conferences and participation in international conferences.

- In order to promote and market its research products and services, the university has created several units for this purpose, including to establish network and collaborate with the industry and other reputable universities. For the industry, USM initially established the University-Industry Liaison (before it was formalised as *Bahagian Jaringan Industri dan Masyarakat* or BJIM), to promote cooperation, collaborations and partnerships between the two entities. For the purpose of enhancing better research relations, the university set up the Science and Engineering Research Centre (SERC) and Medical Innovation and Technology Development (MITD) units to spearhead innovations in the fields of engineering and medicine. It has also since then introduced the Industry Community Advisory Panel (ICAP) for all the schools.

- With the aim of attracting a pool of “towering personalities” (i.e. persons who are eminent and whose performance and achievement could and should be emulated by others), the university created more professorial chairs and other special schemes to commensurate with it. This allows the university to explore uncharted research destinies (including sustainability) and provide the direction and guidance to young staff members to conduct value-added and knowledge discovery research.

- USM has some of the best research facilities that others can only envy. Our desire to be among the finest means we have to constantly acquire state-of-the-art research infrastructure to remain competitive.

Based on the foundation laid to transform the research environment at USM, research at USM has successfully placed USM at its highest position where the business is to provide service to the bottom billion. Figure 6.1 presents details of research at USM in helping to embark on a research journey that would transform lives and give impact to society.

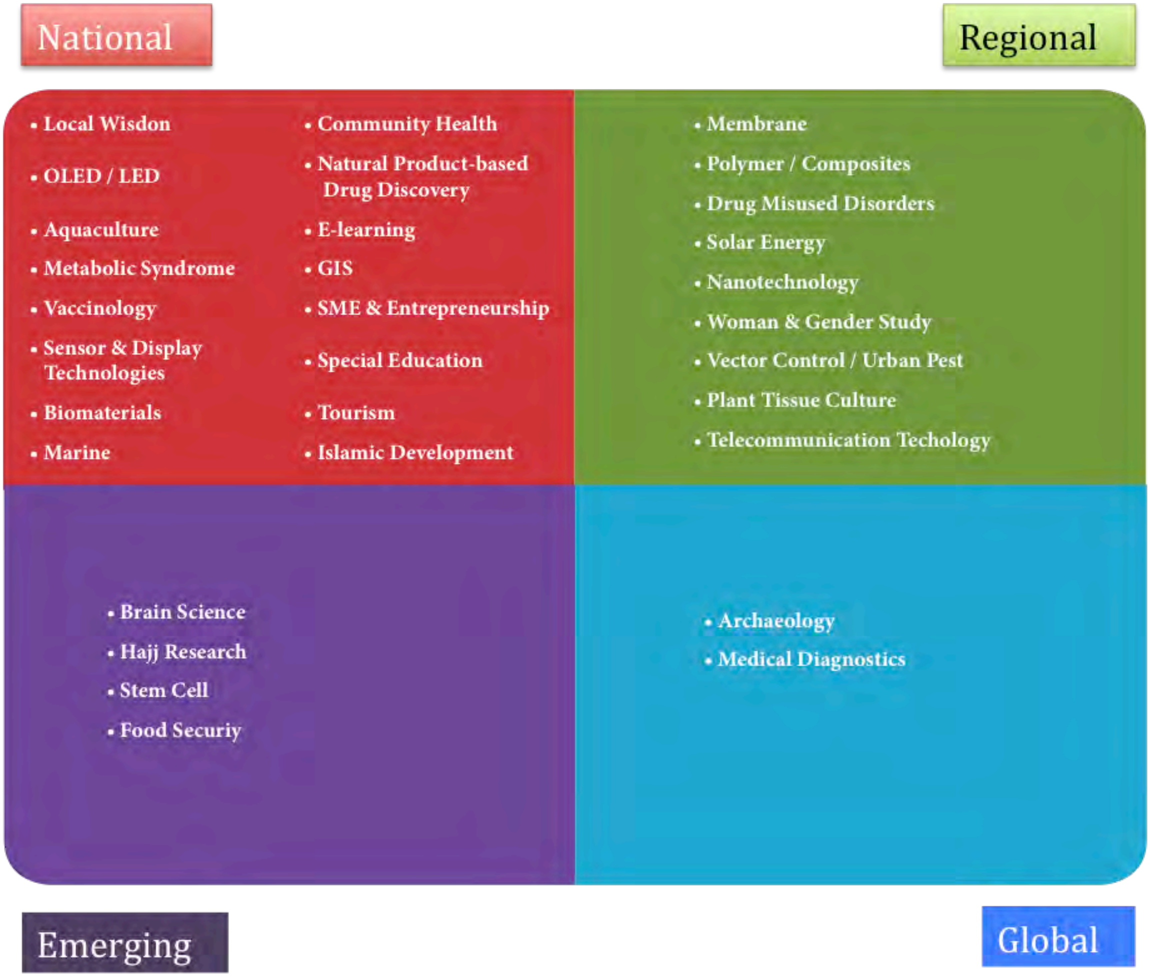
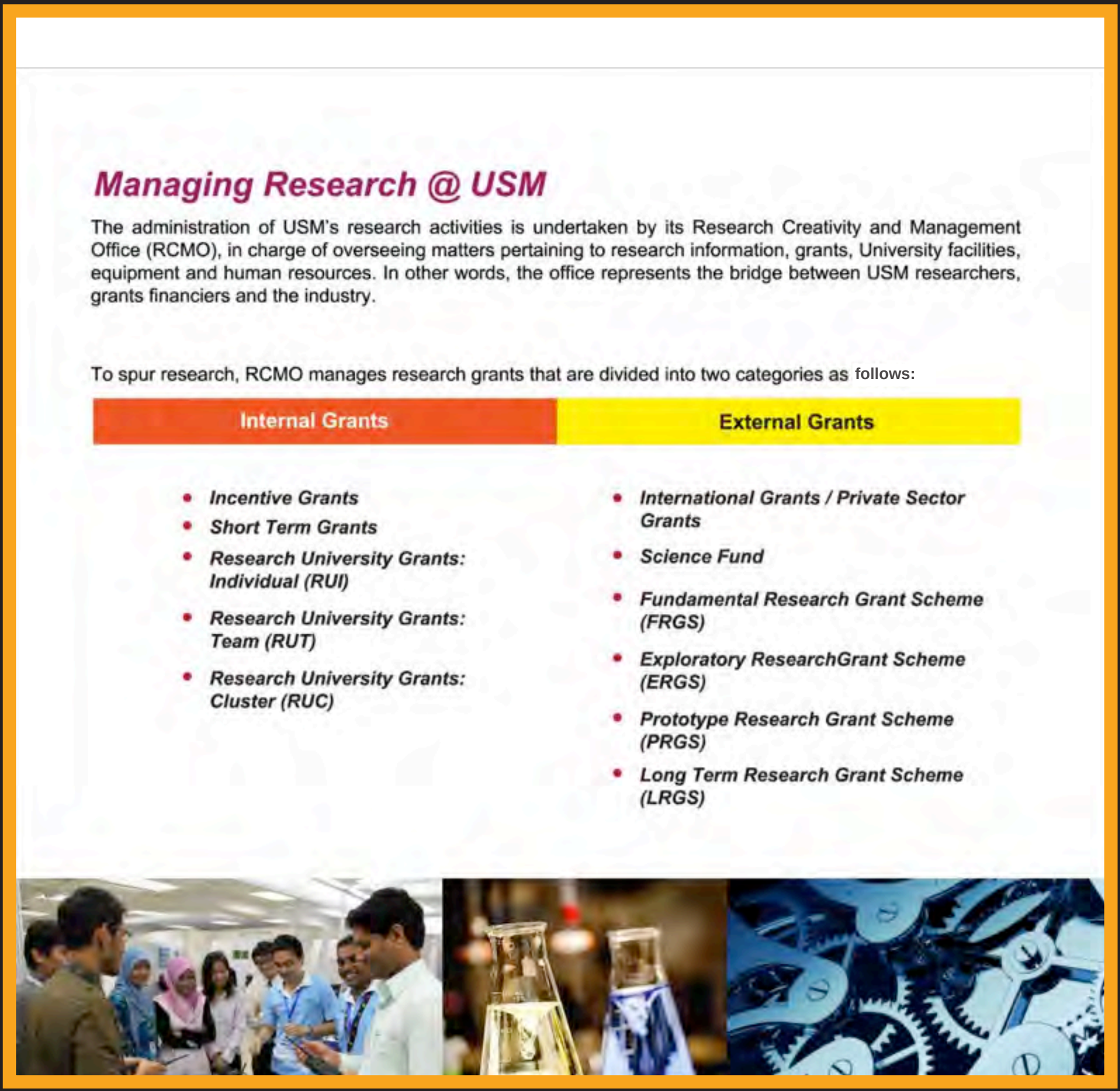

National
Regional
• Local Wisdon
• OLED / LED
• Aquaculture
• Metabolic Syndrome
• Vaccinology
• Sensor & Display Technologies
• Biomaterials
• Marine
• Community Health
• Natural Product-based Drug Discovery
• E-learning
• GIS
• SME & Entrepreneurship
• Special Education
• Tourism
• Islamic Development
• Membrane
• Polymer / Composites
• Drug Misused Disorders
• Solar Energy
• Nanotechnology
• Woman & Gender Study
• Vector Control / Urban Pest
• Plant Tissue Culture
• Telecommunication Techology
• Brain Science
• Hajj Research
• Stem Cell
• Food Securiy
• Archaeology
• Medical Diagnostics
Emerging
Global

Figure 6.1 Map of USM research strengths



Managing Research @ USM

The administration of USM's research activities is undertaken by its Research Creativity and Management Office (RCMO), in charge of overseeing matters pertaining to research information, grants, University facilities, equipment and human resources. In other words, the office represents the bridge between USM researchers, grants financiers and the industry.

To spur research, RCMO manages research grants that are divided into two categories as follows:

Internal Grants

- *Incentive Grants*
- *Short Term Grants*
- *Research University Grants: Individual (RUI)*
- *Research University Grants: Team (RUT)*
- *Research University Grants: Cluster (RUC)*

External Grants

- *International Grants / Private Sector Grants*
- *Science Fund*
- *Fundamental Research Grant Scheme (FRGS)*
- *Exploratory ResearchGrant Scheme (ERGS)*
- *Prototype Research Grant Scheme (PRGS)*
- *Long Term Research Grant Scheme (LRGS)*

THE UNIVERSITY'S 17 MAJOR RESEARCH INSTITUTES, CENTRES AND UNITS

- **Institute for Research in Molecular Medicine (INFORMM) (HICoE)**
- **Centre for Drugs Research (CDR) (HICoE)**
- **Advance Medical and Dental Institute (AMDI)**
- **Centre for Chemical Biology (CCB)**
- **Centre for Doping Control**
- **Centre for Global Archeological Studies (PPAG)**
- **Centre for Global Sustainability Studies (CGSS)**
- **Centre of Marine & Coastal Studies (CEMACS)**
- **Centre for Policy Research & International Studies (CenPRIS)**
- **National Advanced IPv6 Centre (NAv6)**
- **National Poison Centre**
- **Peace & Conflict Resolution Research Unit**
- **River Engineering & Drainage Research Centre (REDAC)**
- **Vector Control Research Unit**
- **Women's Development Research Centre (KANITA)**
- **Centre for Engineering Excellence (CEE)**
- **Neuroscience@USM**

In addition, two of USM's research centres, namely Institute for Research in Molecular Medicine (INFORMM) and Centre for Drugs Research (CDR) have been accorded the status of Higher Institution Centres of Excellence (HICoE) in the country. The creation of HICoE is meant to encourage the growth of expertise and the sharing of resources in local higher learning institutions, as well as to minimise dependence on government funding by increasing external funding from collaboration with such centres.

Achievements

Among the achievements are:
Universiti Sains Malaysia (USM) received a 6-star rating from the Malaysian Research Assessment Instrument (MyRA) for its research, development and commercialisation activities.
Increased number of grants awarded to researchers
Increased number of Academic Staff involved as Principal Investigators
Balanced staff research experience so as to achieve a 40:35:25 ratios for 10 years & below, 11-20years & 21years & above by 2011.
200 recognitions attained by academic staff, of which at least 40% was at the international level,
As a first indicator of research output, each academic staff would publish at least 2.00 papers/year in a citation-linked journal, OR attain an institutional annual cumulative impact factor of 1,200, OR attain an institutional annual cumulative citation Index of 10,000 by 2011.
As a second indicator of research performance, each academic staff will have an annual research grant of RM70, 000/- of which 10% will be from international funding bodies, and 5% from private sector by 2011
The appointment of at least 70 active Postdoctoral fellows annually by 2011
Ensure that 70% of the annual research grants are utilised (expended) according to the plan of work by 2011
Have at least cumulatively 200 active patents, or commercialised products, or technology-licensing agreements or original writings generated by 2011.
Established at least 3 action-oriented research programs to address issues of the population at the bottom of the socio-economic pyramid in the country (and globally).

Flagships

Flagships that were listed in the APEX Black Book have been implemented effectively. The following are the successful flagship projects:

- Out-of-Malaysia: Putting Malaysia on the Map of Human Development
- Collaborative Research the CCB@USM Way
- Partnering Mindanao through Peace Negotiations
- USM E-Motorcycles Towards Sustainable Mobility
- Sustainable Urban Insect Pest Management
- Nanotechnology: A Big Future for a Small World
- Sustainable Tourism
- Eureka! The Oldest Civilisation Complex in Southeast Asia Discovered
- A *Halal*, Affordable Meningococcal ACYW-135 Vaccine for Pilgrims and the Bottom Billion
- *Halal* Food-Grade Collagen from Sheepskin
- Malay Braille for the Sighted: Facilitating Braille Education
- The Rubber Genome Project; Decoding a Billion Dollar Global Industry
- Deciphering Ancient Architecture: Rewriting Southeast Asian History
- Cleft Care: Addressing the Needs of the Bottom Billion
- Local Knowledge
- Enhancing Hajj Performance: Novel Crowd Management System and Reduction of Related Health Problems

Conceptualising Local Knowledge: A Study on Sustainable Values of Local Wisdom and Indigenous Science

PERSIDANGAN SERANTAU
EARIFAN TE PATAN 2012
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Kearifan Tempatan: Pengalaman Nu
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Kosmologi
Adat Isti
Kearifan Tempatan: Pengalaman Nusantara
Jilid 1
Berasal dari Akar
Editor
Nazarudin Zainun
Rahimah A. Hamid
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Tradition for
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Malaysian Experience
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Nurul Farhana Low Abdullah
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ce of Science
al Knowledge

Delivering Excellence

Higher Institution Centres of Excellence (HICoE)

INFORMM

Centre for Drugs Research (CDR)

Awards and Honour

a. *Sanggar Sanjung* Awards

The *Sanggar Sanjung* awards are presented annually by USM to honour its research personnel and fellows in recognising their excellent achievements in various research and innovation and also outstanding commitment in their service throughout the year. The ceremonial *Malam Sanggar Sanjung*, in which the awards are presented, is one of the most prominent event held by the university. Commenced first in 2001, the *Sanggar Sanjung* now comprises nine award categories, namely the Distinguished Individuals, Journal Publications, Book Publications, Research Product, Patent, Creativity, Quality, International Research Grant and Chancellor Awards. These awards are meant to embolden the university's personnel to continue to strive for excellence in their service and future research endeavour.

b. Awards

1. USM Scientists Among The Best in Malaysia - “Top Research Scientist Malaysia”
2. USM Wins Top Award at MyGOSS 2012
3. Research Award: USM Bags 10 Gold Medals at British Invention Show
4. USM Don Wins MTSF Science and Technology Award
5. Students’ Research Grab Two Awards in India
6. USM Researchers Win Rotary Research Gold Medal Awards

Sijil Penghargaan

AKADEMI SAINS
2012 CONFERMENT OF FELLOWSHIP
OF THE ACADEMY OF SCIENCE MALAYSIA

Bukit Bunuh Complex as the new unit of stratigraphy in the Lenggong Valley.

Global Excellence

a. Centre for Global Archaeological Research (CGAR)

Bukit Bunuh, Lenggong is one of the key archaeological research sites for USM. Bukit Bunuh has the records of the earliest hominid presence thus far known in Southeast Asia at 1.83 million years ago, with the discovery of some of the oldest hand axes in the world and other tools embedded in suevite – a rock type formed under high pressure and temperature that resulted from a meteorite impact dated by the fission track technique to 1.83 million years ago.

Research at Bukit Bunuh has been conducted since 2001. Until 2007, the primary research is focused mainly in the field of archeology. One of the excavated sites has been dated to 40,000 years ago, using an OSL dating technique. The site revealed its function as a workshop to produce Palaeolithic tools. Excavation has also exposed hand axes, the first instance of discovery in the valley and Malaysia in general. To date, there are not many record of in situ of discovery hand axe in this region, and Bukit Bunuh is remarkably one of the sites with huge archaeological potential.

Since then, more research has been undertaken in the area, especially from the archaeogeological perspective. On April 2011 a meeting among archaeogeological experts was held among USM, Universiti Kebangsaan Malaysia, Universiti Malaya, Universiti Teknologi Petronas and Department of Mineral and Geoscience to evaluate the results of research and to plan future systematics and scientific research in Bukit

Bunuh. On May 13, 2011, Bukit Bunuh was declared as a new Quaternary unit in Malaysian geology formation, by the Department of Mineral and Geoscience Malaysia.

Bukit Bunuh Complex as the New Unit of Stratigraphy in the Lenggong Valley.

Field observation, and petrographic study have shown that the pre-impact rocks, which are dominated by quartzite, quartz dykes, argillaceous metasediments and the underlying medium-grained porphyritic biotite granite have been transformed to impact melt rocks, suevite and polymictic breccias, in decreasing degree of shock metamorphism.

The impact melt rocks are holohyaline-hypohyaline, with more than 50% impact material, almost free of clasts and in places resemble pseudotachylite. Suevite is breccia with partly melted fragments and fine-grained to glassy matrix. Suevite of metasediment and granite origin are easily recognisable; partially melted rock fragments and traces of foliation are common in the former. The polymictic breccia shows partly melted matrix with deformed, but unaltered fragments. The vesicle and metal-free impactite show significantly higher S.G. of 2.9 – 3.3, than ordinary silicate rocks.

Meteorite enters the earth’s atmosphere at a very high velocity and on impact, releases a very huge amount of energy that is transformed into heat and shock waves. Depending on the amount of energy released, variable varieties of melted rock, recrystallised minerals and mechanically deformed rock materials could be found. Among the new earth material produced from the impact are the polymorphs of quartz, namely stishovite and coesite. The two minerals are related to ordinary quartz by pressure and temperature and have been previously discovered from several impact sites. Hence finding these two minerals may prove to be a very important evidence for the impact. However, based on preliminary studies, coesite and stishovite do not appear in XRD patterns; it is believed that the high density, meta-stable minerals have reverted back to α-quartz, thus making Bukit Bunuh an important impact site in the world.

Shatter cones occur in some outcrop. Whole-rock XRF analyses of the impactite show notable amount of Se, Ru, La and W. SEM has captured images of planar deformation features (PDF) in quartz. Fission track technique has given an impact age of 1.83Ma to the suevite; distinct it from the widespread Permian volcanic of Peninsular Malaysia.

All this evidence has led to the realisation of the importance of Bukit Bunuh to the contribution of global knowledge on archaeogeology.

The Bukit Bunuh data was obtained using a newly established CGAR's Earth Material Characterisation Laboratory, housing state-of-the-art equipment such as SEM, XRD and XRF machine. This laboratory aimed to generate a world class data, and further accelerate more scientific discovery from archaeological sites in Malaysia.

Archaeological Heritage of the Lenggong Valley: UNESCO's World Heritage Site

CGAR has been in the forefront in securing the status of World Heritage Site for the Lenggong

Valley. The nomination dossier was submitted to UNESCO in February 2011. On June 30, 2012, Lenggong Valley has been declared as the World Heritage Site in Saint Petersburg, Russia.

Bridging Academia and Industry in an APEX University: School of Aerospace Engineering (USM) and Spirit Aerosystems

The School of Aerospace Engineering at USM provides a quality education in the field of aeronautics and astronautics through comprehensive learning and research activities to meet the nation's aerospace demands. The school offers an accredited Bachelor of Engineering (B. Eng.) in Aerospace Engineering as part of building human capitals of aerospace engineers for the country and fulfilling the APEX agenda where teaching and research excellence are equally important, and that both must have a direct impact to the industry or community at large.

The school has very strong ties with the local aerospace industries which not only serve as industrial training placements for the students but more importantly as one of the stakeholders which are constantly providing feedback to improve our curriculum and as avenues where academic knowledge can be translated into industrial practice. One of the aerospace companies is Spirit Aerosystems, a global aerospace company which manufactures aircraft components and a major supplier for Airbus and Boeing. Spirit Aerosystems established a local operation plant in Subang in 2008 and since then have formed a successful partnership with the School of Aerospace Engineering (USM). As a result of having a close collaboration with Spirit Aerosystems, the school has made composite materials to be one of its niche areas in terms of teaching and research.

Being the only local university that has collaboration with Spirit Aerosystems merits a unique privilege. Currently, the School of Aerospace Engineering provides a special opportunity for talented students to go for internships at this aerospace establishment under the Undergraduate Attachment Programme (UGAP). Selected students beginning from first year will undergo training in between each semester break every year during the four year period. This provides the students with valuable hands-on knowledge and working experience in aerospace composites manufacturing which cannot be taught in the classroom. By the end of the students' four-year education, they are well versed and exposed to the overall expectation in the industry of aerospace manufacturing, which is currently the second largest aerospace industry in Malaysia after Maintanence, Repair and Overhaul (MRO).

In addition, excellent fourth year students can also participate in Spirit Aerosystem's Global Design Competition (GDC). The GDC programme was an annual event organized in 2009-2011 which gave the students a chance to collaborate with other undergraduate students from universities abroad to produce out-of-the-box concepts in aircraft design and manufacturing. The participating universities include Universiti Sains Malaysia, the University of Wichita (USA), University of North Carolina (USA), the University of Manchester (UK) and a few others. Some of the topics for this out-of-the-box problem are wing-drag-reduction using laminar flow control, and variable-height-horizontal-tail (VHHT) of a business jet. The students were divided into several groups in which each group must have members from each participating universities. Other than tackling open-ended projects with sometimes radical ideas, the challenge for this GDC program is that the students have to coordinate and work together and take into account different educational, social and cultural background and from various time zones. Their means of communication is mostly through internet but the students get to visit each participating university at least once during this annual event on top of visiting Spirit Aerosystem headquarters in Kansas, USA. It is only during these limited visits, the students get a chance to discuss face-to-face on their project. Our students have benefitted from this GDC program through international recognition (winning group) and that two of our former students have been selected to undertake postgraduate studies at University of Wichita (USA) with full scholarship. This GDC project can be extended as part of the students final year project (FYP) which can be continued as postgraduate research topics.

The School of Aerospace Engineering and Spirit Aerosystems have a mutual two-way relationship. The former currently have four or five of the latter’s senior staff pursuing postgraduate degree as a means to provide cutting edge knowledge, research and technology for the industry players and the number is expected to increase within the next few years. This is part of the two institutions long term collaboration plan which is predicted to go beyond 2015.

c. School of Medical Sciences (PPSP)

APEX University Transformation Plan (Eliminate – Reduce – Raise – Create)

Transformation Plan 1; Transforming teaching and learning (nurturing)

Create:

i) Learning of human anatomy using Plaster of Paris (POP) model casting.

Hampered by restricted number of teaching specimens, a new and innovative method for teaching under-graduate medical students was created by using model castings in Plaster of Paris (POP).

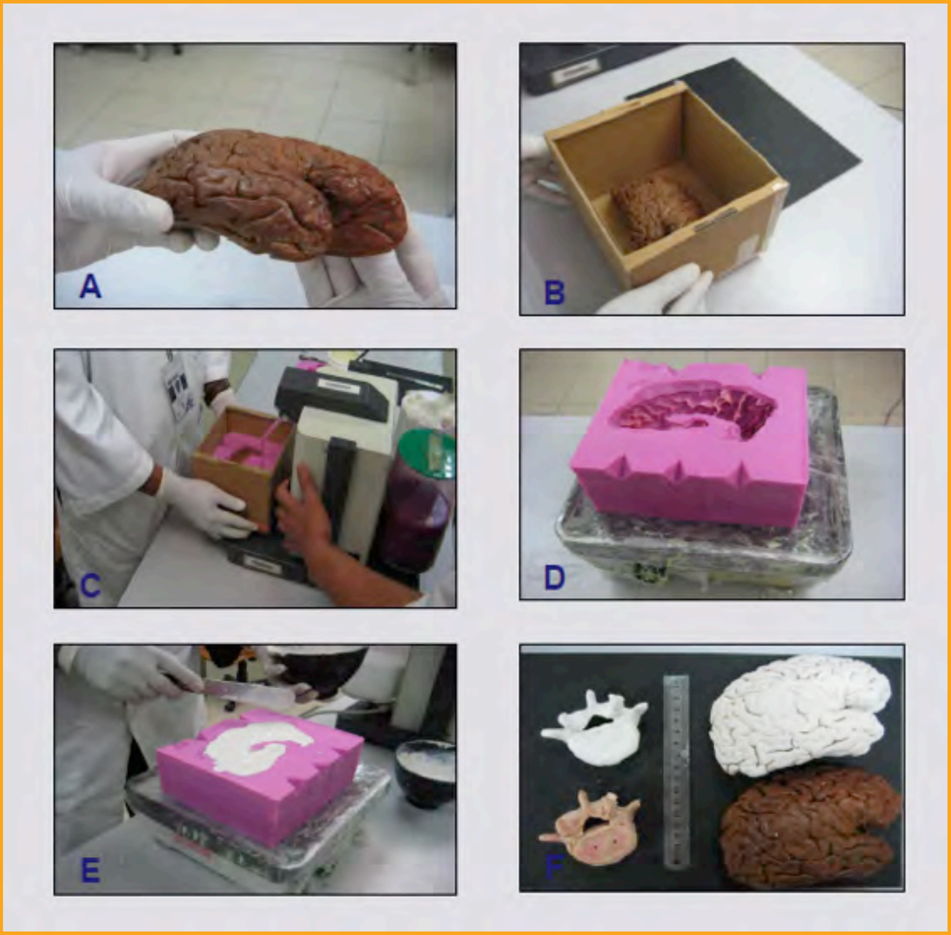


Figure 1 A: Original brain template model. **B:** Template model is placed in a box. **C:** Administration of silicone mixture. **D:** Set silicone mould ready to be used. **E**: Administration of POP paste into the mould and left to set and hardened. F: Final POP products compared with original template models (bottom row).

ii) Creation of Bioethics Unit at the School of Medical Sciences

USM School of Medical Sciences is the first public higher institution in Malaysia to establish a dedicated Bioethics Unit within the medical school which is responsible for:

1. Implementing a systematic teaching and learning activities in bioethics for both undergraduate and postgraduate programmes.
2. Encouraging and facilitating research in bioethics teaching and learning.
3. Establishing and sustaining a local and international network in bioethics.

iii)Transforming medical curriculum to produce physician scientist

Creation of a new and innovative programme that will produce physician-scientists and clinically competent medical doctors with commendable values. This transformation also involves the move from three-phase to **two-phase programme** for wider exposures of clinical training. Candidates with exceptional academic performance in the first two years of their studies will be given an opportunity to pursue a **three-year Ph.D program.** Successful candidates will graduate with an **MD-Ph.D.**

iv) Transformation of the medical programme for internationalisation/ globalization : Universiti Sains Malaysia-Kartanaka Lingayat Education Collaboration

USM School of Medical Sciences partnership with the Kartanaka Lingayat Education (KLE) Univesity, Belgaum, India is the first medical school in Malaysia to establish an offshore local (Malaysian) based medical curriculum.

Raised

Transformation of Bioethics and Communication skills, Teaching & Learning for Education of Healthcare Professionals

Raising the duration and depth for the teaching of medical ethics well across the three phases of the five-year undergraduate MD programme, via a dedicated bioethics block (Phase I and II) and a seamless integration at various clinical departments (Phase III). For the postgraduates, the Institute of Postgraduate Studies (IPS) has organized various professional development programmes that address fraud, plagiarism and other ethical issue in scientific research and publication, professionalism & ethics for health professionals, as well as workshops on Good Clinical Practice (GCP) and Research Methodology.

Transformation Plan 2; Transforming research and innovation

Raised

i. Improve facilities and space of Research Division Office
ii. Increase facilities and capacity of Central Research Laboratory by:
  - Expanding space of Central Research Laborator Additional of 2615 square feet laboratory space including
    i. molecular laboratory
    ii. general laboratory
    iii. post graduate space

  - Acquiring laboratory tools/equipments for research

      *biohazard safety cabinet
      *laminar flow
      *autoclave
      *incubator shaker
      *flake ice machine

- *CO2 incubator
- *ultra low temperature deep freezer (-80oc)
- *deep freezer (-30oc)
- *automated ELISA reader
- *RO water system
- *PCR machine
- *electrophoresis set

- Increase allocation for maintenance/service research equipments.

iii. Doubling activities to increase knowledge among lecturers / researchers:

- workshop on writing research grant proposals.
- scientific writing workshop
- books writing workshop
- grants management briefing for lecturers and RA / RO

iv. Increase collaborative research within and outside the country:

- Universiti Teknologi Malaysia
- University of Surrey, UK
- University of Alabama, USA
- Prince of Songkhla University, Thailand.

b) Created:

i. Scientific Publication Unit – this new unit was created to promote scientific writing amongst academic staff of the medical school. It also deals with the collection and collating of scientific articles written by the academic staff of the medical school.

ii. APEX's KPI Secretariat Unit - to improve the effectiveness of collecting the KPI information from lecturer

iii. PPSP APEX's KPI Committee - to assist the school in planning, implementing and monitoring activities to increase KPI

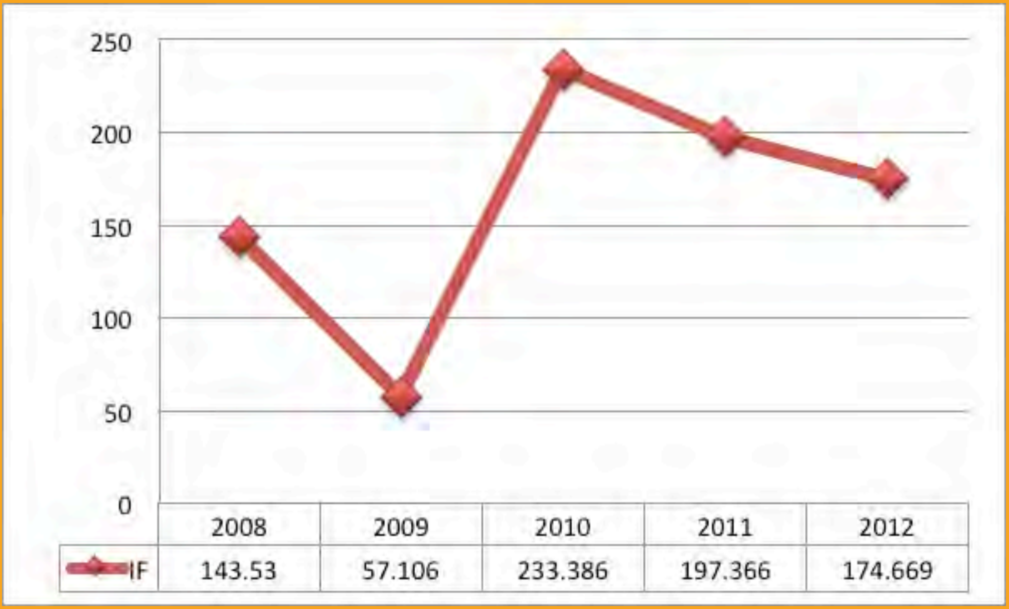
iv. PPSP Research Fund – to support research activities in relation to improving KPI.

Publication achievement

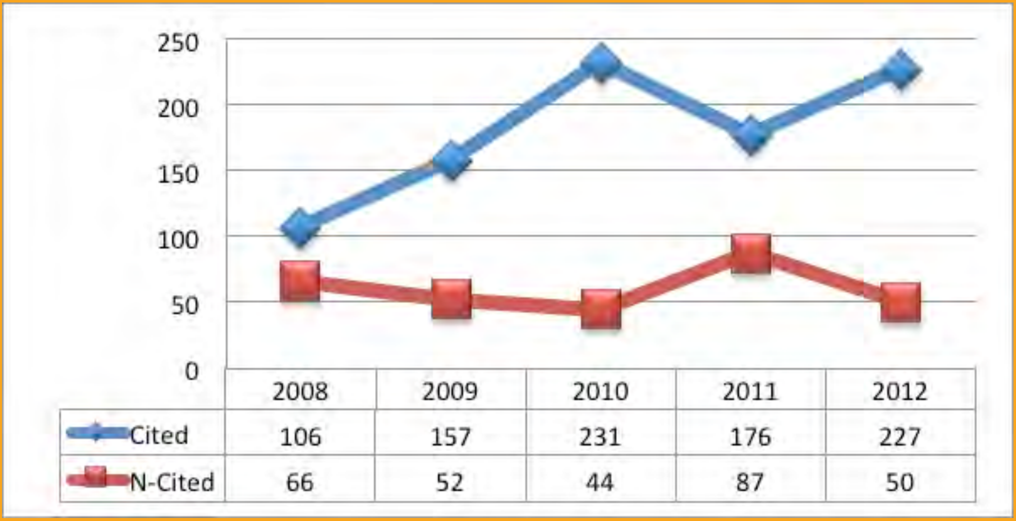
Raised:
Increment of total annual 'indexed' and 'non indexed' publications, Impact Factor and 'paper per lecturer' ratio.

Year	Impact Factor	Indexed	Non-indexed	Total Pub	Paper/ lecturer
2008	143.53	106	66	172	0.64
2009	57.106	157	52	209	0.85
2010	233.386	231	44	275	1.02
2011	197.366	176	87	263	0.97
2012	174.669	227	50	277	1.01

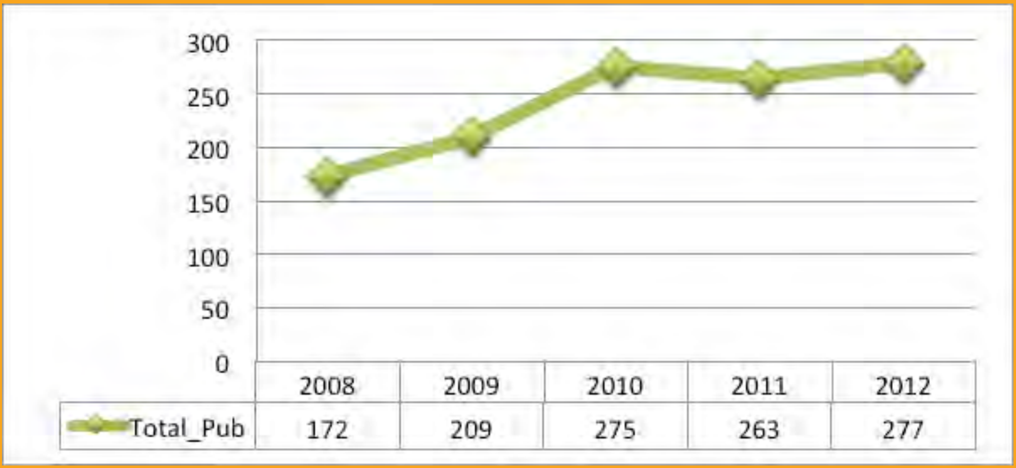
Impact Factor 2008 -2012



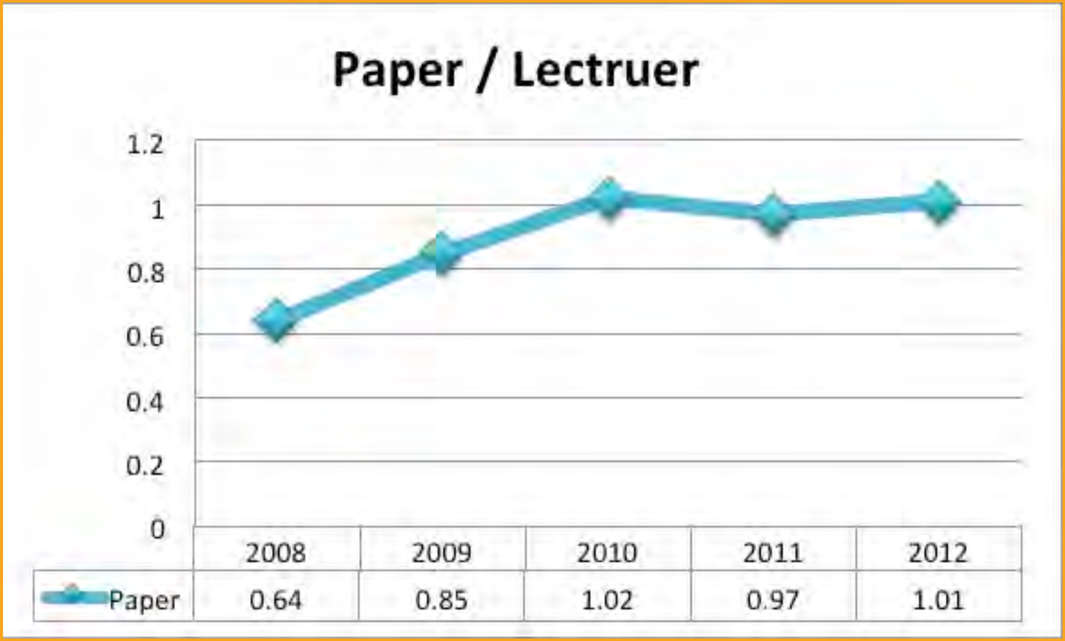
Number of indexed (“cited”) & Non- indexed (“non-cited”) journal 2008 -2012



Total number of Publication 2008 -2012



Ratio number of publication per lecturer 2008 -2012



	2008	2009	2010	2011	2012
Paper	0.64	0.85	1.02	0.97	1.01

Transformation Plan 4. Transforming Students and Alumni

Raised

Transformation in the medical Elective Programme

The presence of a unique medical Elective Programme that fosters students' interest to undertake a project in areas beyond the familiar clinical work.

Over the last few years elective projects that fall within a general theme or causal concept, there has been a shift towards research elective activities. A trend has been seen where there has been a decent growth in the number of takers for elective research programme. More student are now doing elective programme involving research activities.

Transformation Plan 5; Transforming postgraduate studies:

A. Eliminate

1. The postgraduate programmes that are not sustainable and keep only those that are popular and have adequate enrollment.
2. The postgraduate activities that do not seem to provide benefit for the student and the programme. Eliminating these activities also help to eliminate the problem of financial and time wasting.

B. Reduce

1. The number of postgraduate programmes and keep only those that are sustainable, popular and have regular adequate enrollment.
2. The steps/stages of evaluation of candidates application so that the approval/rejection of application can be made earlier.
3. The number of Conjoint Board Members for each university and the number of meetings each year so that the travelling cost on Lecturers can be reduced.

C. Raise

1. Intake (quantity) of qualified postgraduate students in all postgraduate programme modes- Research mode, Mixed mode and Course Work.
2. Quality of the postgraduate student by improvement on student selection criteria, improvement of training and supervision.
3. Services offered by the Postgraduate Section of our Medical School.

D. Create

1. New postgraduate program whereby the product would be sought after nationally and internationally.
2. “Stand alone” programmes organised in other universities to our Medical School if there is a need to increase the quantity of such specialty in the country.
3. Postgraduate activities that will enhance the postgraduate programmes.

Transformation Plan 6, 7 & 8; Transforming the Concentration of Talent, Transforming Resources and Transforming Supportive Governance:

6) Transforming the concentration of talent

a) Raised

i. The number of staff attending OSH (Occupational Safety & Health) Course.
ii. The number of Ph.D holders among academic staff by giving them study leaves (ASHES).
iii. Membership of professional bodies among academic staff with the fees paid by the university or research grant.

7) Transforming resources

a) Create

i. Research Officers position from 0 to 3 persons.
ii. Post Doctoral Fellows in various departments from 0 to 7 persons.
iii. Decentralisation of Human Resource Management activities from Registry to School.

b) Raised

i. Training courses for non-academic staff to equip them with the skills, knowledge and appropriate attitude.
ii. Electronic access door system and CCTV.
iii. Staff involvement in innovative and creative activities.
iv. New and conducive working space for academic and non-academic staff.
v. New equipments to support teaching and learning activities.

8)Transforming supportive governance

a) Reduce

i. Usage of papers by :

- Central Inventory System for application of inventory and consumables(SiP).

- Using LCD projectors during meeting.
- Using electronic customer’s feedback system (*e-aduan*).
- Using web-based ISO documentation.
- Using e-mail for meeting notification / notice.

b) Create

i. Equipment Specification Committee to assess specification before being tabled to Technical Committee.
ii. New and reviewed version of Letter of Offer for academic staff appointment and various agreements / service contract.
iii. Asset Management Committee to coordinate purchasing, usage, maintenance and disposing of equipments.

ccb@usm
Centre For Chemical Biology
Driving Inspirations into Reality

Conclusion

USM's achievement in Research and Innovation can be clearly depicted in its pool of talented researchers who have been well-trained to conduct research. The hand holding acculturation has resulted in a marked increase in the dedicated researchers in USM over the past few years. This, among others, has become an impetus to the great increase in the number of local and international grants as well as the rapid enhancement of its research outputs.

Conducive environment and ecosystems have been created for research by providing infrastructures, including central facilities, to achieve excellence through integrated and trans-disciplinary concepts; effective policies have been formulated and skilled workforce have been well-developed and trained towards a sustainability-led Research University. USM continues to play its role in educating and nurturing world class researchers capable of utilizing local products for the benefit of society with the main aim of producing output which can assist the bottom billion. By nurturing its current and future research icons, the quality of research has been well enhanced. At the same time, research areas have been strengthened by enhancing the spirit of multidisciplinary teamwork.

USM's future endeavour include efforts to acculturate undergraduates to conduct research, to prepare USM today for tomorrow and to decide on top-down research areas that are aligned to the needs of the nation. Strong networking and linkages are important to achieve excellence and increase the uptake of innovation and technology. Creating global and regional linkages, strengthening industrial linkages, and further exploring the areas of collaboration with countries involved as the university's research partners are among efforts by USM in developing substantial networking. Last but not least, the goal of branding USM and positioning itself worldwide is also achieved through a number of strategies including the positioning of sustainable R&I flagships and achievements of USM.

7

Innovation and Commercialisation

Brugia Rapid
panLF Rapid
A
B
C
panLF RAPID
Reszon Diagnostics
INTERNATIONAL
'Reasoning Possibility In Life'
Reliable
Fast
Easy
'Reasoning Possibility In Life'

Innovation & Commercialisation @ USM

Innovation

The word "innovation" relates to the creation of new ways, products and processes to bring an improvement in the quality of life, productivity and well-being. In the technological sense, "innovation" means to extend the value of inventions and newly-developed intellectual properties by ensuring that the society benefits from them. Hence, the efforts to promote innovations at Universiti Sains Malaysia (USM) were fine-tuned to serve the society at large by looking for industrial partners to facilitate these innovations such that they can be COMMERCIALISED. It is imperative that the related industries, small or/and big take this challenge (though risky, at times) in order to bring the innovations to the market place, for they know best the way to commercialise the INNOVATION.

The Plan

Universiti Sains Malaysia, as a public university, has very limited resources and expertise to carry out manufacturing and commercialisation to the fullest extent. A realistic partnership with the industry in the commercialisation of innovations by USM will bring financial benefits to the researchers and economic returns to the society at large.

Challenges

Some of the challenges identified in relation to convergence of research output and industry/market needs include the following:

- Research output is usually not a ready product and often does not immediately meet industry needs.
- Industry is looking for a ready solution from the university and is usually reluctant to spend time and money to further develop the research output to meet their specific needs.
- Communication gaps and insufficient or uneven levels of interaction to bridge the different working cultures and organisational mission between university researchers and the industrial sectors.
- Furthermore, there are also challenges in terms of better perspectives of innovation and commercialisation efforts and the role of researchers at USM. These include:
- Improvement of incentives and administrative enablers to further encourage researchers in their commercialisation efforts.
- Better understanding of innovation and commercialisation, within the scope of a university academic staff.
- Emphasis must be put on innovation in the research activities that complement each industrial sector.
- Manufacturing and related industry must be more prepared to have follow-ups on the innovations from the university.

Initiatives

USM has developed an innovation ecosystem where many of its inventions and innovations can be evaluated and tested by the commercial sector (Figure 7.1).

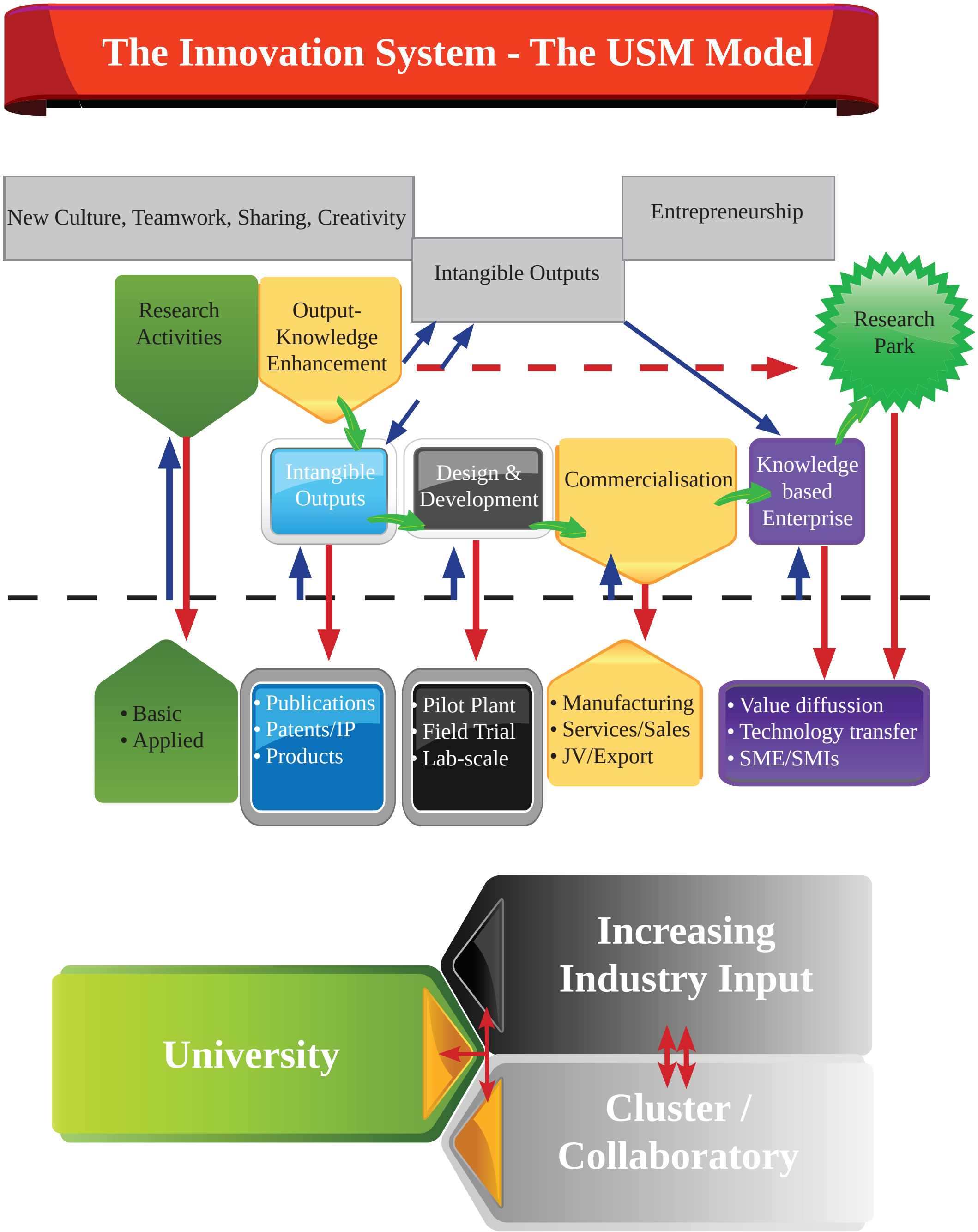
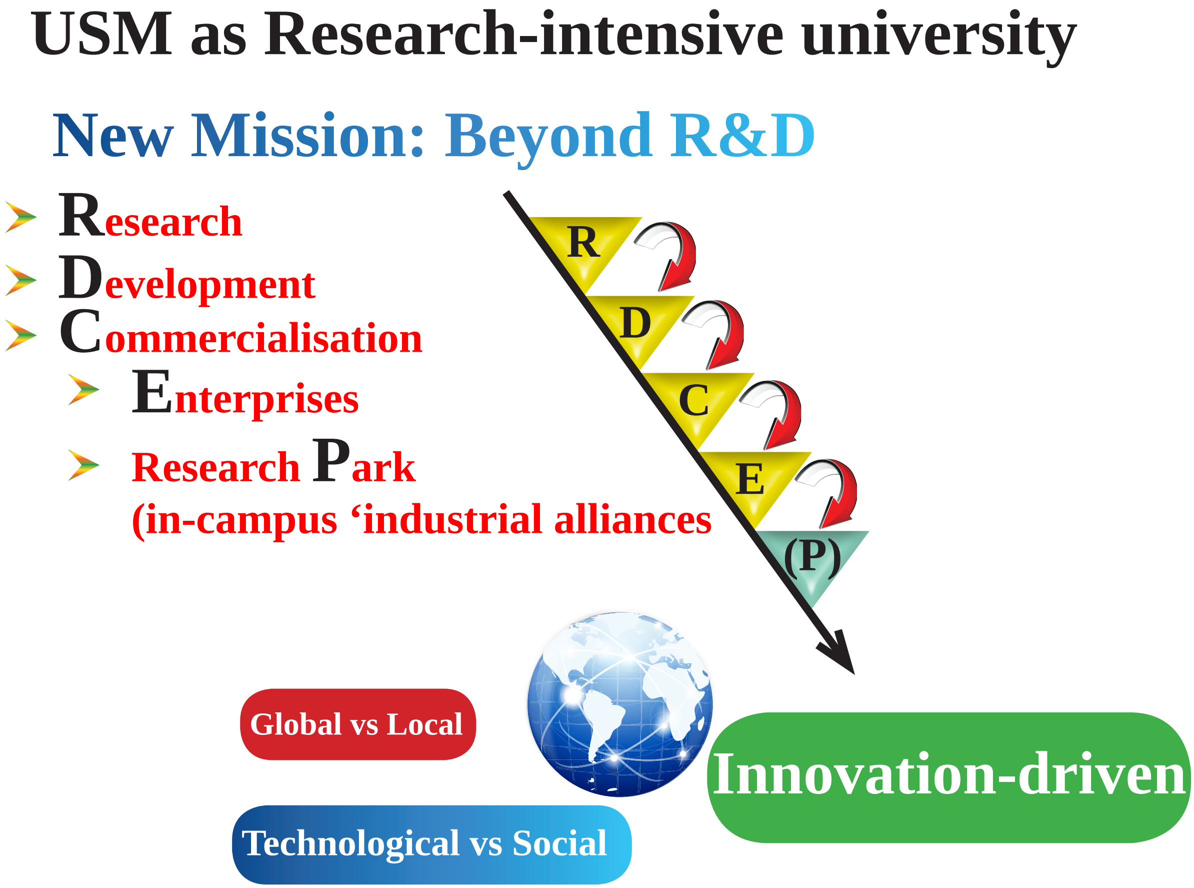

The Innovation System - The USM Model
New Culture, Teamwork, Sharing, Creativity
Entrepreneurship
Intangible Outputs
Research Activities
Output-Knowledge Enhancement
Research Park
Intangible Outputs
Design & Development
Commercialisation
Knowledge based Enterprise
• Basic
• Applied
• Publications
• Patents/IP
• Products
• Pilot Plant
• Field Trial
• Lab-scale
• Manufacturing
• Services/Sales
• JV/Export
• Value diffussion
• Technology transfer
• SME/SMIs
Increasing Industry Input
University
Cluster / Collaboratory

Figure 7.1 Innovation system framework

In order to enhance the commercialisation aspects, the USM Innovation System of Research – Development – Commercialisation (R-D-C) was extended to include the additional elements of E for enterprise and P for Innovation Park (Figure 7.2) with specific reference to the SAINS@ USM. This arrangement is designed to facilitate innovation, by allowing and encouraging the commercial sector to engage USM in the entire journey (Figure 7.3 - 7.13).



USM as Research-intensive university

New Mission: Beyond R&D

- **Research**
- **Development**
- **Commercialisation**
  - **Enterprises**
  - **Research Park**
    (in-campus ‘industrial alliances

Figure 7.2 Beyond research and development

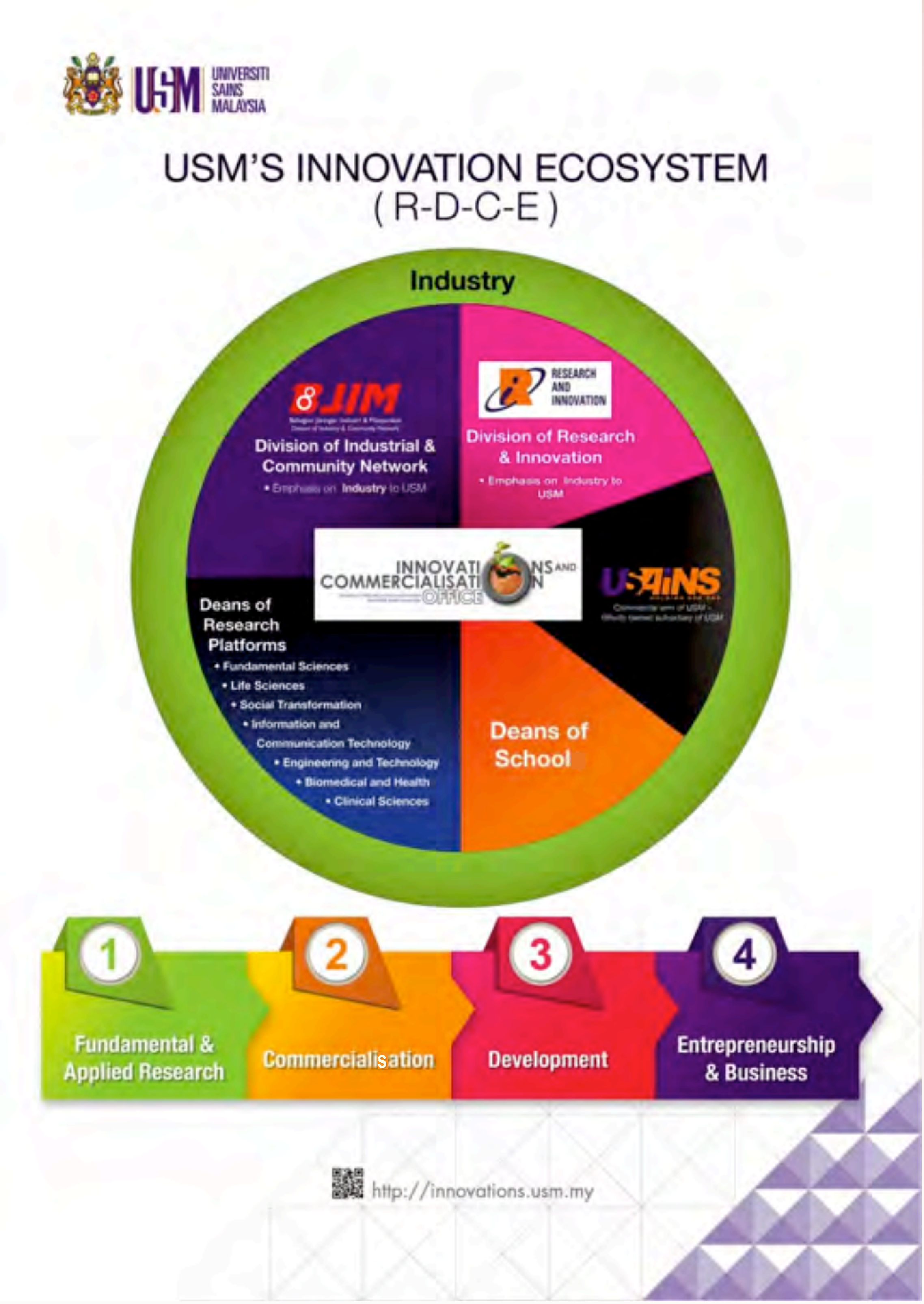

UNIVERSITI SAINS MALAYSIA
USM'S INNOVATION ECOSYSTEM
(R-D-C-E)
Industry
BJIM
Division of Industrial & Community Network
• Emphasis on Industry to USM
RESEARCH AND INNOVATION
Division of Research & Innovation
• Emphasis on Industry to USM
INNOVATIONS AND COMMERCIALISATION OFFICE
USAINS
Commercial arm of USM - Wholly owned subsidiary of USM
Deans of Research Platforms
• Fundamental Sciences
• Life Sciences
• Social Transformation
• Information and Communication Technology
• Engineering and Technology
• Biomedical and Health
• Clinical Sciences
Deans of School
1 Fundamental & Applied Research
2 Commercialisation
3 Development
4 Entrepreneurship & Business
http://innovations.usm.my

Figure 7.3 Current innovation system (2012)

Evolution of USM's Innovation Ecosystem: R-D-C-E (Beyond 2009)

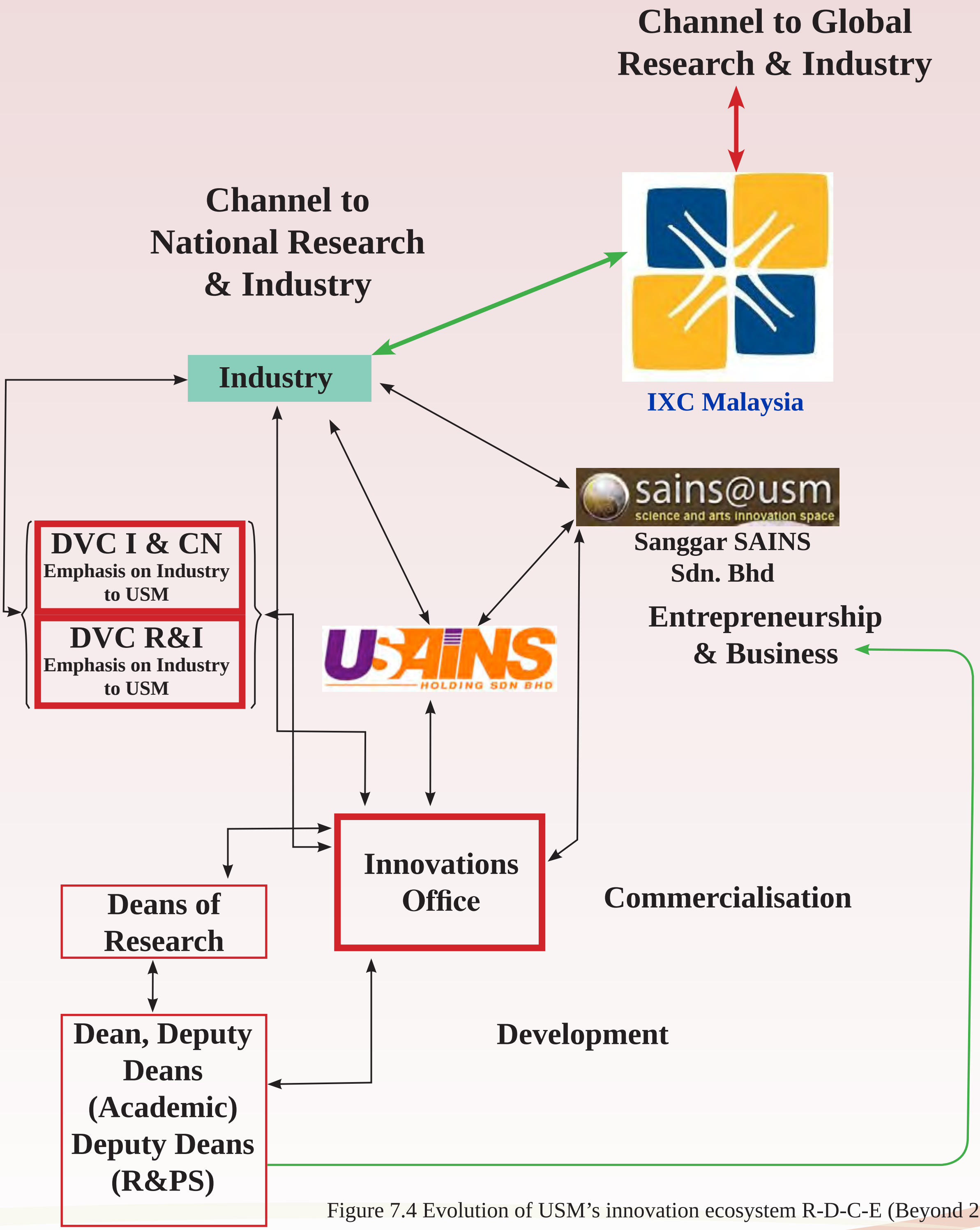

Channel to Global Research & Industry
Channel to National Research & Industry
Industry
IXC Malaysia
sains@usm
science and arts innovation space
Sanggar SAINS Sdn. Bhd
Entrepreneurship & Business
DVC I & CN
Emphasis on Industry to USM
DVC R&I
Emphasis on Industry to USM
USAINS
HOLDING SDN BHD
Innovations Office
Commercialisation
Deans of Research
Dean, Deputy Deans (Academic) Deputy Deans (R&PS)
Development

Figure 7.4 Evolution of USM's innovation ecosystem R-D-C-E (Beyond 2009)

Achievements

Overall USM's Intellectual Property
Statistics of Patents

A. Actual Patent Applications Filed and Granted From 1989-2012

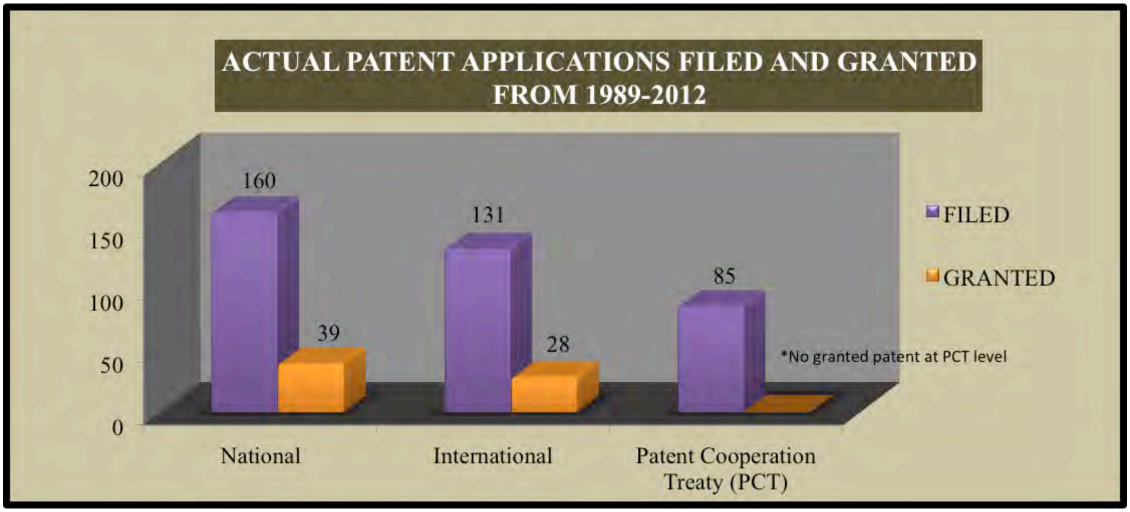


Figure 7.5 Actual patent applications filed and granted from 1989-2012
*As of 18 December 2012

Actual Patent Applications Filed by Year from 2008-2012

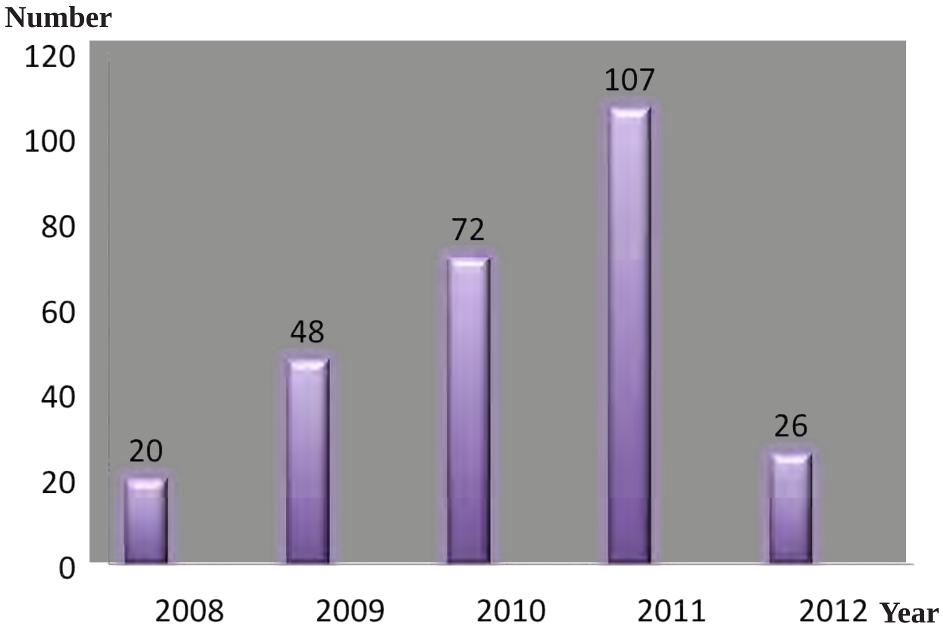


Figure 7.6 Actual patent applications filed year from 2008 - 2012
*As of 18 December 2012

Actual Patent Applications Granted by Year from 2008-2012

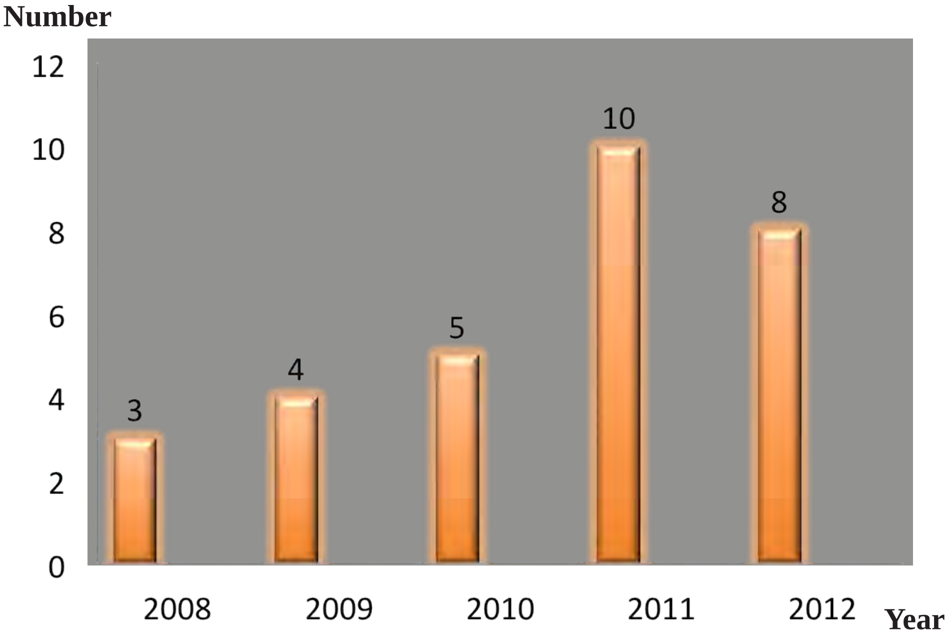


Figure 7.7 Actual patent applications granted year from 2008 - 2012
*As of 18 December 2012

B. Overall USM Patent Applications by Status from 1989 – 2012

Table 7.1 Overall USM patent applications by status from 1989 – 2012

Details	Active			Inactive			
	Filed & Pending	Granted	Total Active	Withdrawn While Pending	Granted But Not Renew	Filed/ Granted But Lapsed	Total Inactive
National	118	27	145	3	6	6	15
International	87	19	106	16	9	0	25
Patent Cooperation Treaty (PCT)	54	/	54	6	/	25	31
Total	**259**	**46**	**305**	**25**	**15**	**31**	**71**

*As of 18 December 2012

Table 7.2 Categories and Definition

Categories	Definition
Active	Active files are patent applications in categories of "filed & pending", and "granted". "Filed & pending" means applications had been filed, subject to examination, waiting for a clear report or etc. "Granted" refers to active files and subject to renewal annuity fees.
Inactive	Withdrawn while "pending" refer to inactive files due to adverse report and not proceed to next stage. Granted but not renew refers to inactive files and no renewal fees paid. Granted but lapsed refers to inactive files which have reached a 20-years period of a patent protection. No granted patents at PCT level

- a total of 365 patent applications filed.
- a total of 66 patent applications granted.
- a total of 297 patent applications that are still active, 253 pending, 44 already granted.
- a total of 68 patent applications that are inactive.

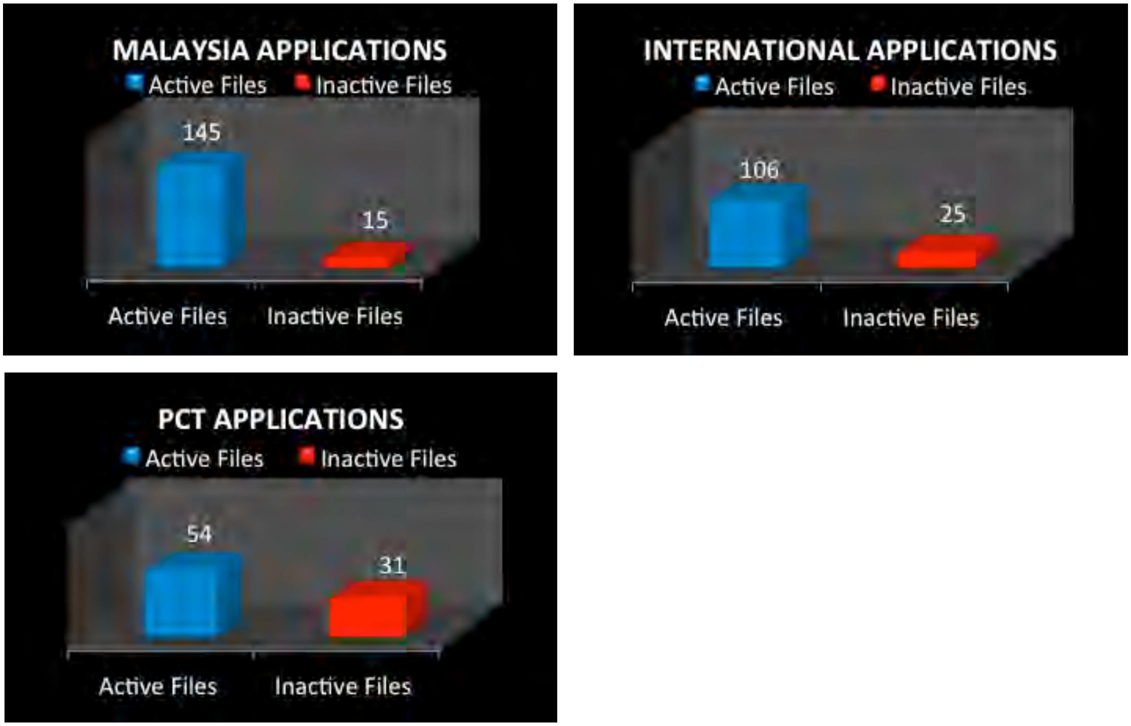


Figure 7.8 Patent applications
*As of 18 December 2012

Statistics of Trademark

A. Filed

Table 7.3 Statistics of trademark (filed)

Year / Country	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
Malaysia	12	0	0	0	0	0	6	18	9	2	47

B. Registered

Table 7.4 Statistics of trademark (registered)

Year / Country	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
Malaysia	12	0	0	0	0	0	0	0	5	16	33

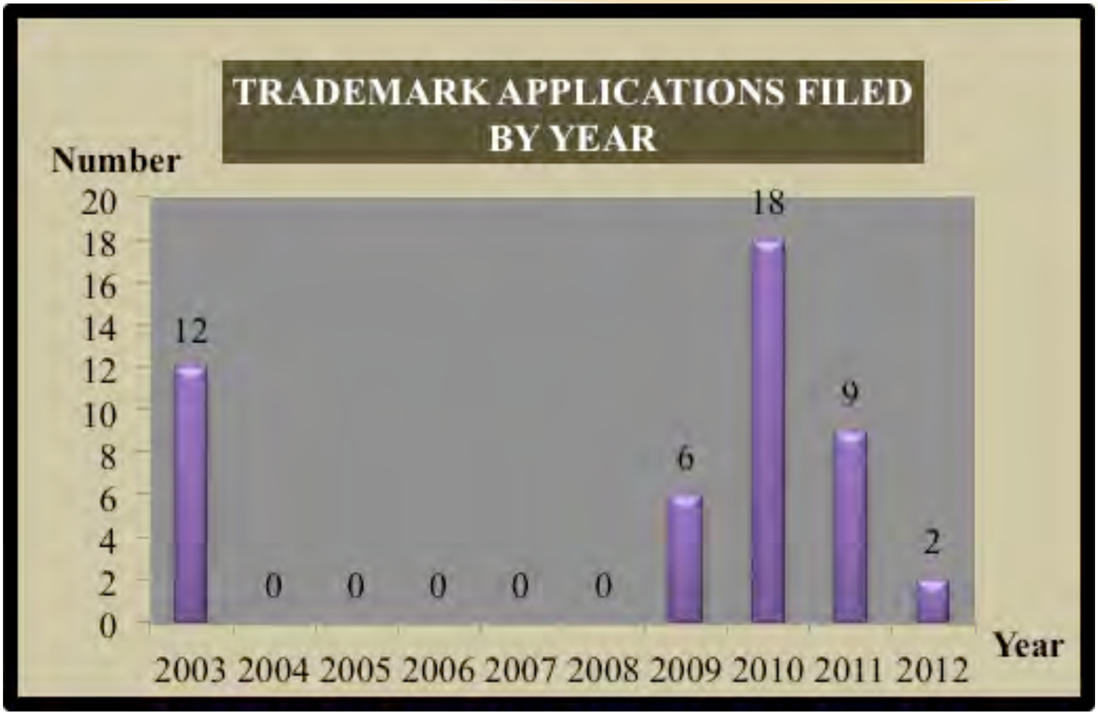


Figure 7.9 Trademark applications (filed by year)
*As of 18 December 2012

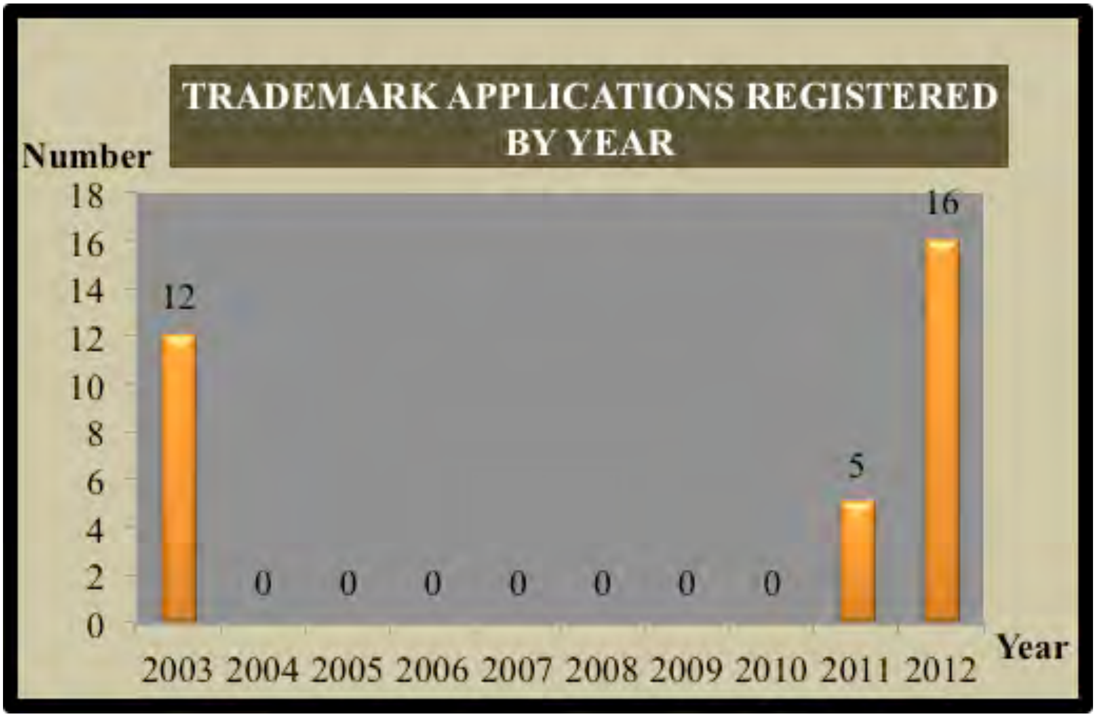


Figure 7.10 Trademark applications (registered by year)
*As of 18 December 2012

Statistics Of Industrial Design

A. Filed

Table 7.5 Statistics of industrial design (filed)

Year / Country	2009	2010	2011	2012	Total
Malaysia	6	18	9	2	47

B. Registered

Table 7.6 Statistics of industrial design (registered)

Year / Country	2009	2010	2011	2012	Total
Malaysia	0	0	5	16	33

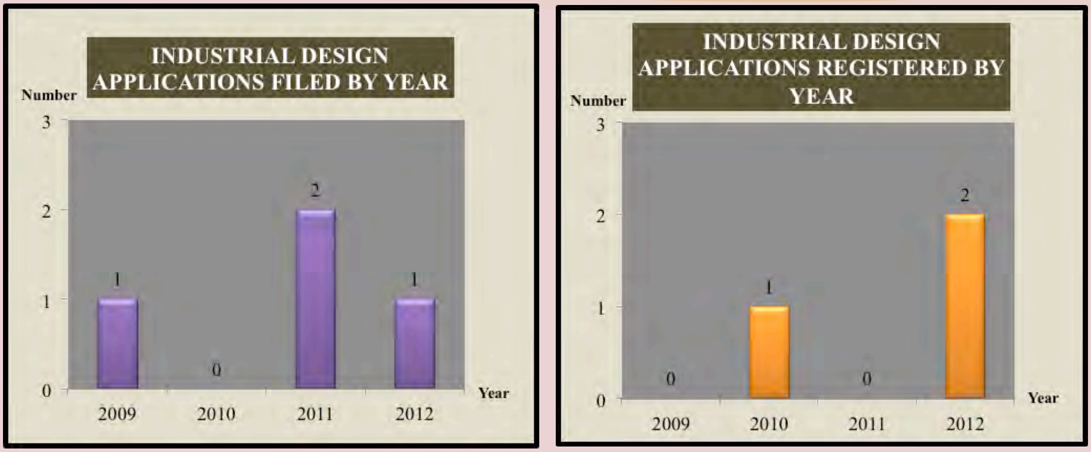


Figure 7.11 Industrial design applications

*As of 18 December 2012

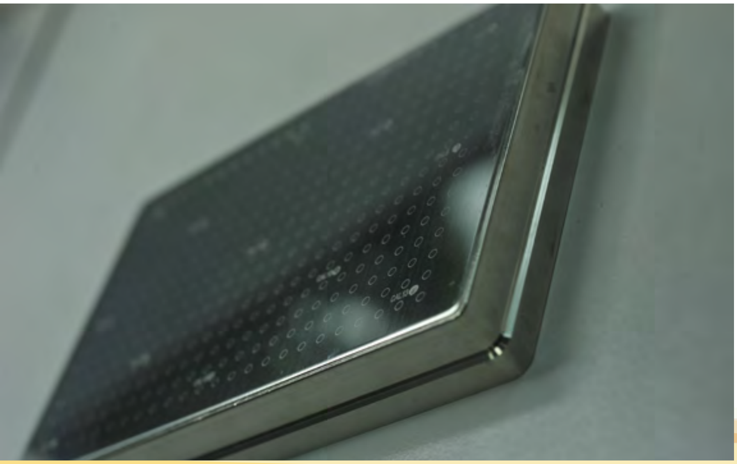
USM Commercialised Products

Table 7.7 Commercialised Products

Total number of products licensed for commercialisation	Year					
	2007	2008	2009	2010	2011	2012
	18	8	5	10	9	5 + 10*

*Symbiosis programme in collaboration with Malaysian Technology Development Corporation (MTDC) and Northern Corridor Implementation Authority (NCIA).

Sixty five (65) products have been commercialised between 2007– 2012



BRUGIA RAPID
Reszon Diagnostics
"Reasoning Possibility in Life"
Buffer

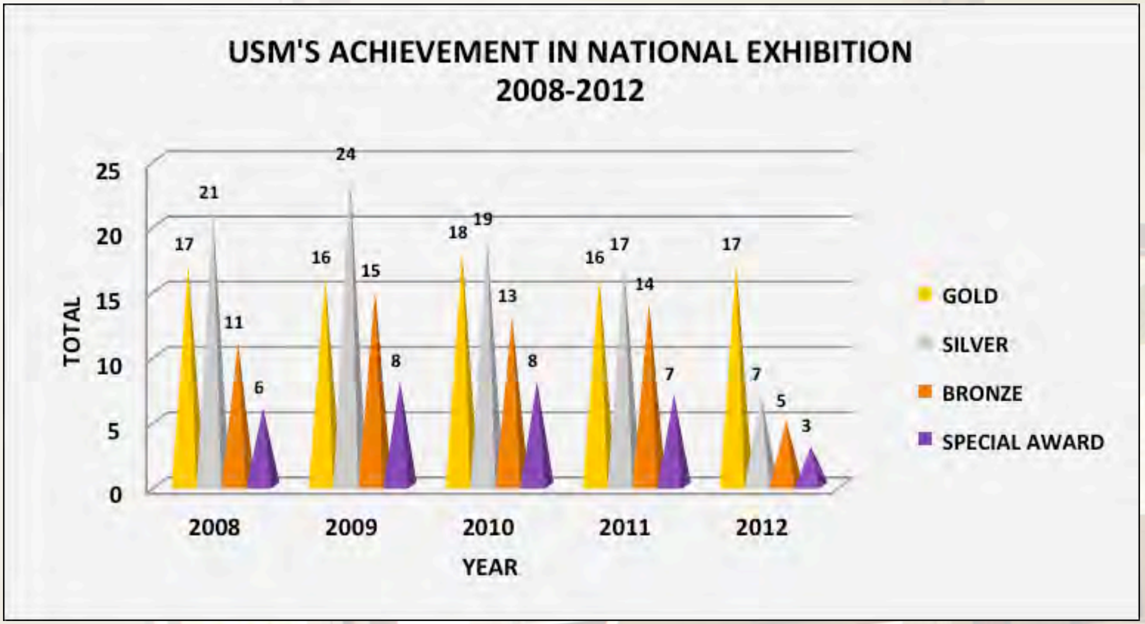


Figure 7.12 Achievement of USM in National Exhibition 2008-2012

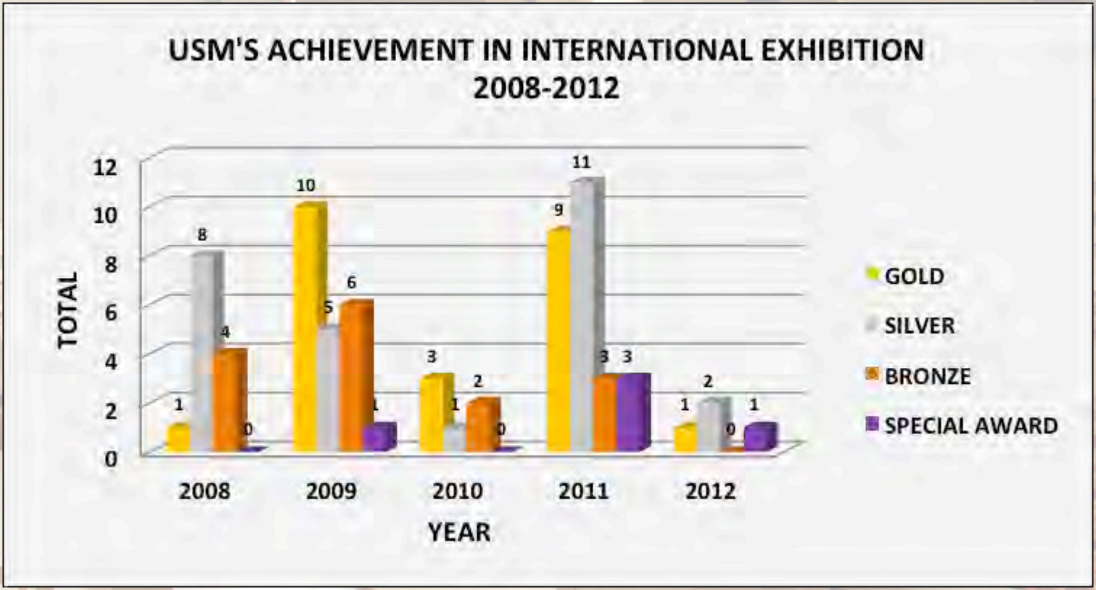


Figure 7.13 Achievement of USM in International Exhibition 2008-2012

Commercialisation

Usains Group of Companies, the Commercial Arm of USM

The Accelerated Programme for Excellence (APEX) espouses sustainability, social transformation, the bottom billion in society, challenging the status quo, returning the soul to education by enabling students to learn who they are, to search for the higher purpose of their lives, and to graduate as better human beings.

The Usains Group of Companies (USAINS), as the commercial arm of Universiti Sains Malaysia (USM) which has been entrusted to generate income for the university, is aligning itself in consonance with USM's APEX journey based on SUSTAINABILITY, and CHALLENGING THE STATUS QUO, in the context of USAINS governance, structure, processes and business activities.

Plan

USAINS as the commercial arm of USM functions primarily to assist USM in its role in promoting the advancement and dissemination of knowledge, where it appears to be requisite advantageous or convenient with the discharge of the function, exercise of powers, and with the continuation of USM's activities. It was incorporated in 1998, launched in 1999 and commenced operations in 2000.

Though incorporated under the Companies Act 1965, the Founding Charter of USAINS (the formal document that enables USM to operate companies) is the written approval from the Minister of Finance of Malaysia. The Ministry of Education on 29th July 1999 formally informed USM that the Minister of Finance has approved the setting up of

Usains Holding Sdn. Bhd. subject to the following conditions:

(a) Funding for the setting up of the Company should be borne by the university without making any specific request to the Government

(b) The activities undertaken by USAINS must be consistent and not opposed to any of the objectives of USM itself

(c) Financial Activity Reports are to be made to the Government through the Annual Financial Report of USM.

Sustainability of USAINS

The spirit and intent of the Founding Charter is for USAINS to be sustainable. A vital dimension of sustainability is financial independence. USAINS Corporate/Strategic Business Plan for 2011 to 2015 takes stock of the previous 11 years of operations involving the consolidation of USM- centric businesses and the development of new and additional USAINS-centric businesses. The plan projects USAINS to embark on a quantum expansion in all its sphere of activities during the period from 2011 to 2015. The gearing for this quantum expansion would come from USAINS' accumulated reserves over the past 12 years. These reserves would ensure a measure of independence and acceleration in venturing nationally and internationally, into new commercial activities derived from USM's knowledge base.

USAINS has also been declaring dividends from 2009, 6% in 2009, and 10% annually in 2010 and 2011. In addition as part of the cost of sale for services and expertise purchased from USM, USAINS has been contributing annually, about RM5 million each, to USM and to USM's staff (Figure 7.14 - 7.18).

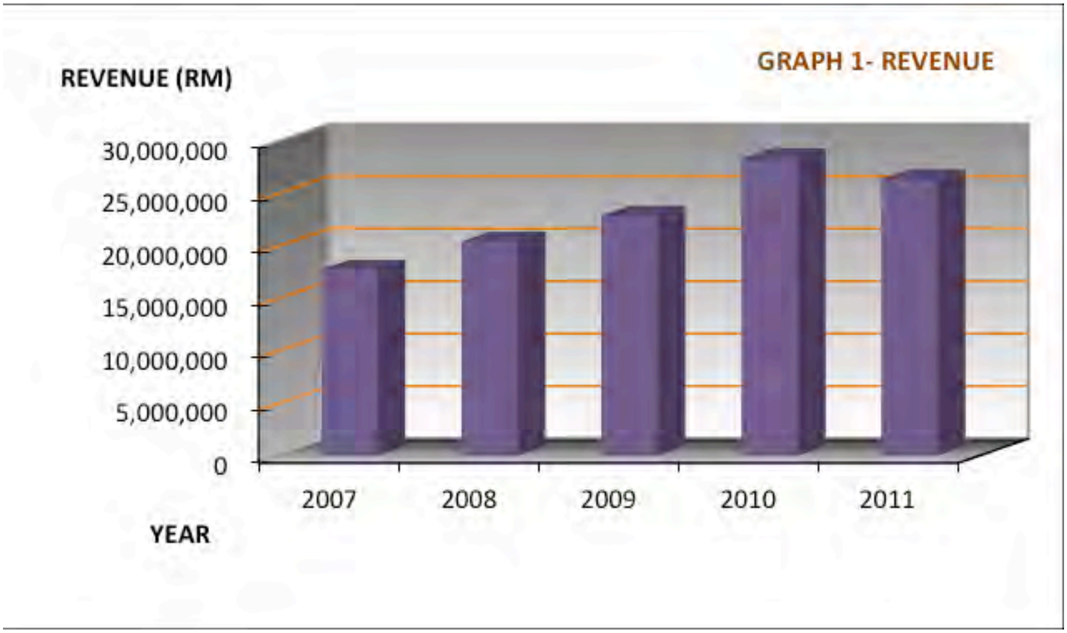


Figure 7.14 Revenue

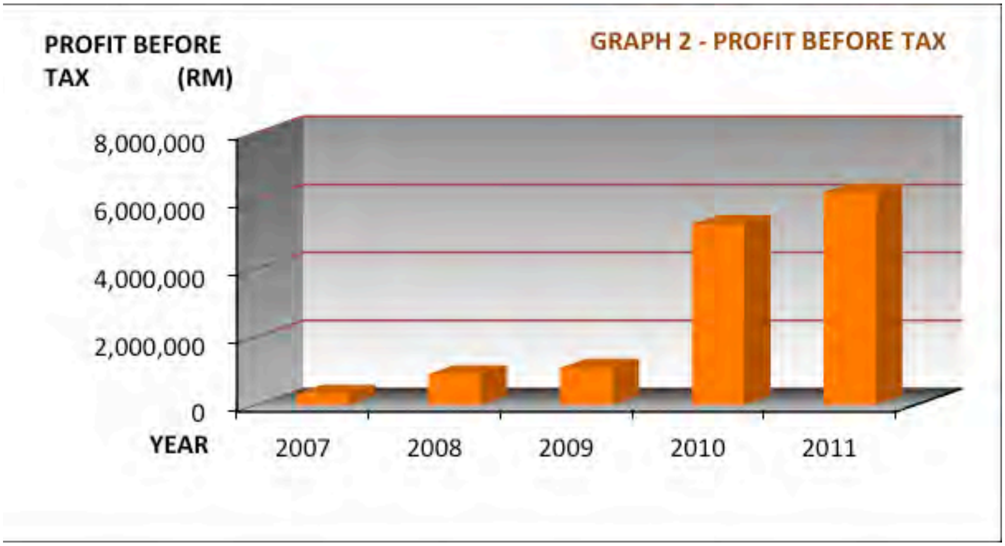


Figure 7.15 Profit before tax

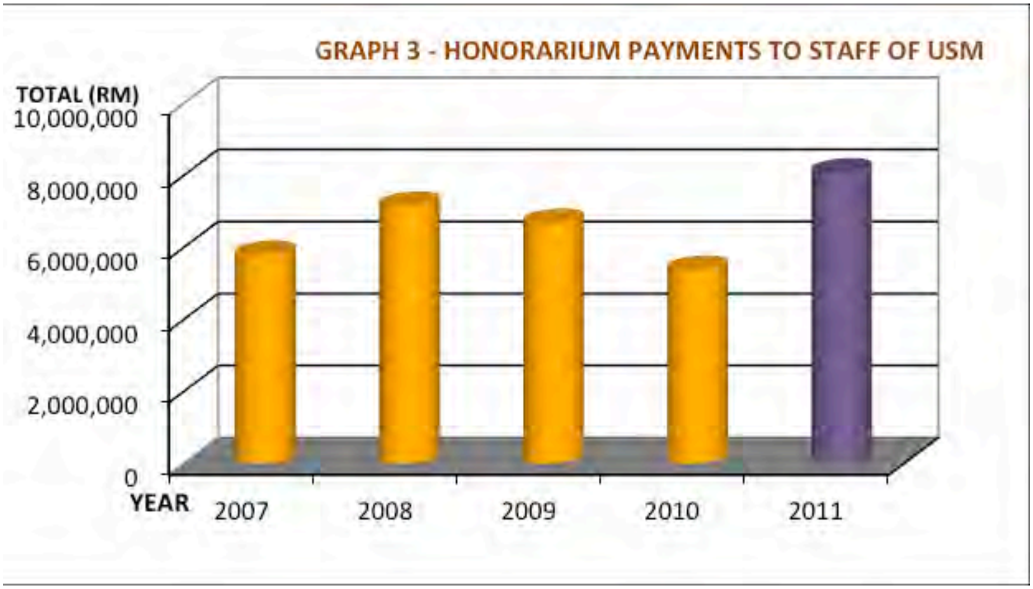
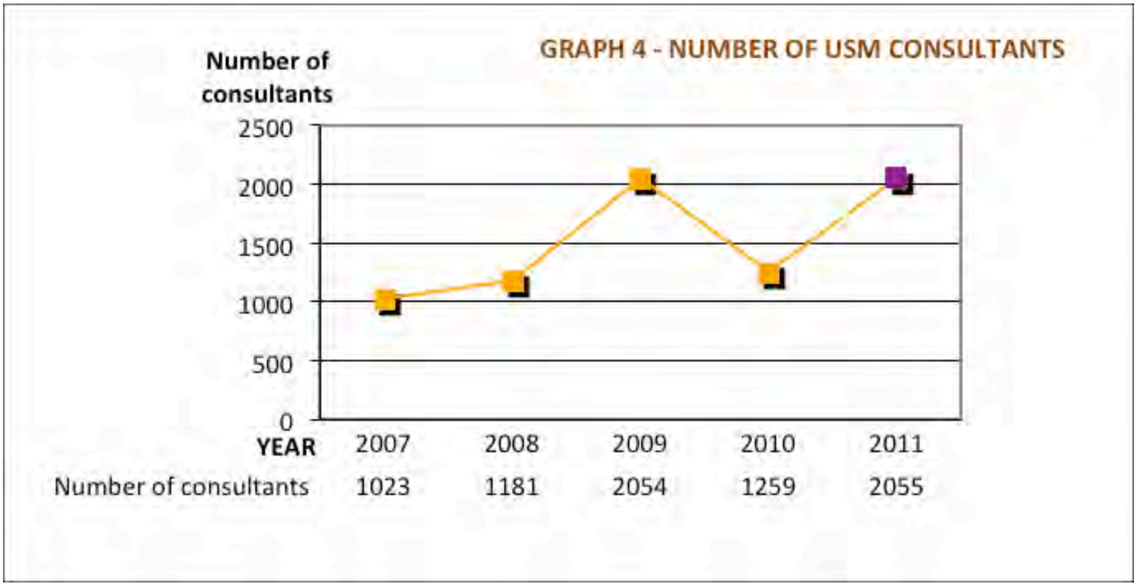


Figure 7.16 Honorarium payments to staff of USM



YEAR	2007	2008	2009	2010	2011
Number of consultants	1023	1181	2054	1259	2055

Figure 7.17 Number of USM consultants

The USAINS Board of Directors is itself enriched by having representations from the Corporate Sector (Chairman and Managing Director), from USM's own Board of Governors (LGU), and from USM Officials (whose responsibilities directly having impact on commercialisation through USAINS, on the resources and expertise of USM). The wealth of knowledge, experience and network relating to their respective professions, are all expected to benefit USAINS in venturing into even newer business activities with the full support and backing of USM, the main services and expertise provider for USAINS. The current practice of tabling the quarterly financial performances to LGU fortifies transparency and accountability to USAINS sole shareholder, USM, without unduly influencing the operational decision making processes. Furthermore, USM officials who are members of USAINS Board of Directors are also USM Corporate Representatives to all General Meetings of USAINS.

To strengthen USAINS collaboration with the industrial sector, it has established a USAINS Strategy Industry Council (USIC), drawing on members from the industry and the academia. The main function of USIC is to scan the industry environment and assess how USAINS can provide value-added services or be at the vanguard of cutting edge technological developments. USIC is also expected to forward advices on strategies and pitfalls when bidding for new projects and businesses. In short, USIC would serve as a think-tank for the University-Industry business linkages.

One other aspect of sustainability is succession planning. This is currently under review. To enable a smooth transition of the top management, it is vital to have the work processes and decision-making matrix developed thus far, documented and made transparent internally to the organisation. USM's LGU and its top management are both expediting this documentation phase by providing their full support. These documents with restricted access and circulation (so as to safe-guard business secrets and know-how) are currently being prepared and reviewed by both USAINS and USM.

Challenging the Status Quo

Thanks to prior commercialisation experiences within USM, USAINS realises that to fulfill its primary aim of generating income for USM, it has to expand its activities beyond the traditional commercialisation of Intellectual Properties (IPs) of the university. To this end USAINS strives at being resourceful based on the Blue Ocean Strategy. By developing multiple sources of revenue, USAINS is comforted in cushioning against adverse cyclical effects of diverse business activities and the uncertainties of substantial returns from most IP commercialisation.

As such USAINS, using its own and USM's resources and expertise, has ventured beyond the commercialisation of IPs, to undertake the following business activities:

- scientific and technical testing and consultancy services
- pure consultancy services
- contract research services
- educational and training services that involve pooling expertise to conduct postgraduate programmes at transnational and international levels - language courses for oversea universities from Japan, Thailand and Laos, Technology Commercialisation Programmes for ISTIC/ MOSTI/UNESCO, Radiation Protection and Safety courses for Nuclear Malaysia and International Atomic Energy Agency
- USM undergraduate degree programmes are offered offsite through private institutions of higher education
- USM's postgraduate degree programmes are offered to working adults in collaboration with their employers
- joint-venture and spin-off activities to commercialise USM's inventive products and business expertise.

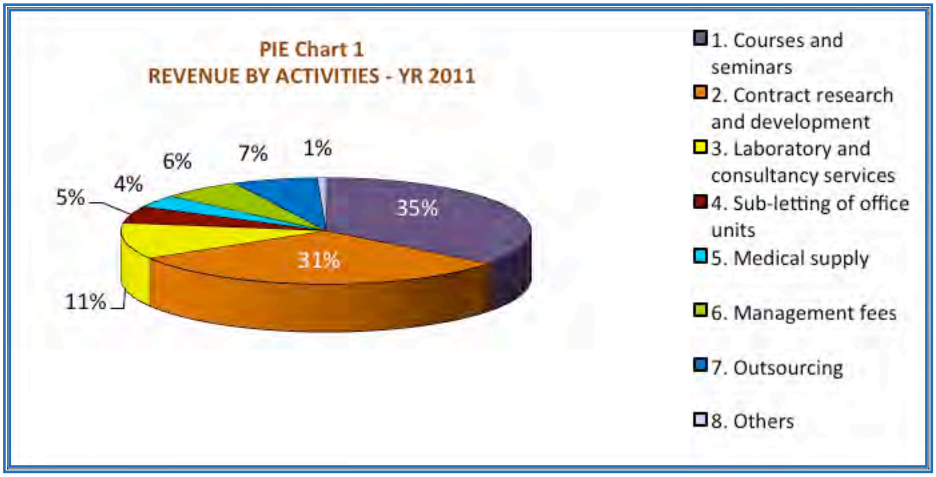


Figure 7.18 Revenue by activities

To address attrition among medical specialists from the USM Health Campus in Kubang Kerian, Kelantan, USAINS through its fully-owned subsidiary, Usains Tech Services Sdn. Bhd., collaborated with a private hospital to enable USM medical specialists to have admission rights of their patients to the private hospital. Based on this short experience, USAINS commenced managing the Executive Health and Medical Services offered to full-fee paying patients of Hospital USM (HUSM). Currently USM is considering expanding this service, which serves the needs and demands of patients of HUSM, who choose to be treated by USM medical specialists of their choice, and in more salubrious surroundings. All such treatments are provided using the medical specialists' research and consultancy leave eligibilities as approved by USM. With USAINS in control of all billings, USM is assured of full-cost recovery and the generation of additional income.

To invigorate the regional development potential of the northern region of the country, USAINS incorporated a fully-owned subsidiary, Usains Infotech Sdn. Bhd., (UISB) and collaborated with the Northern Corridor Implementation Agency (NCIA) to establish, manage and operate NCIA's Centre of Excellence for Electrical and

Electronics (CoE-E&E). Through this collaboration, UISB and CoE-E&E are serving as the catalyst for value-added development of the regional electrical and electronics industries operated by Small and Medium Enterprises (SME), and Multi- National Industries (MNI). This collaboration has matured into the provision of outsourcing engineers in specialised areas to support MNIs, Academia-Industry collaboration, producing Design Engineers with Master's Degrees from USM, and even new Product Design and Development activities.

In recognition of USAINS' involvement and successes in commercialising IPs, and in coaching technopreneurs, the International Science, Technology and Innovation Centre (ISTIC) under the auspices of UNESCO and Ministry of Science, Technology and Innovation of Malaysia, in 2010, invited USAINS to organise the very first International Technopreneurship Workshop for South-South Countries. The South-South Countries represent the bottom-billion that form one of the pillars of the APEX journey. This workshop merges technological prowess with entrepreneurial hands-on skills and business culture. The participants get to share real-life experiences of successful technopreneurs and to develop business plans for their own technologies. The overwhelming response to the first workshop has made this an annual programme of ISTIC for the past three years. USAINS has trained 80 scientists from 34 countries over this period. Recently, ISTIC has invited USAINS to assist in conducting this programme overseas in Sudan in 2012, and possibly in another country in 2013.

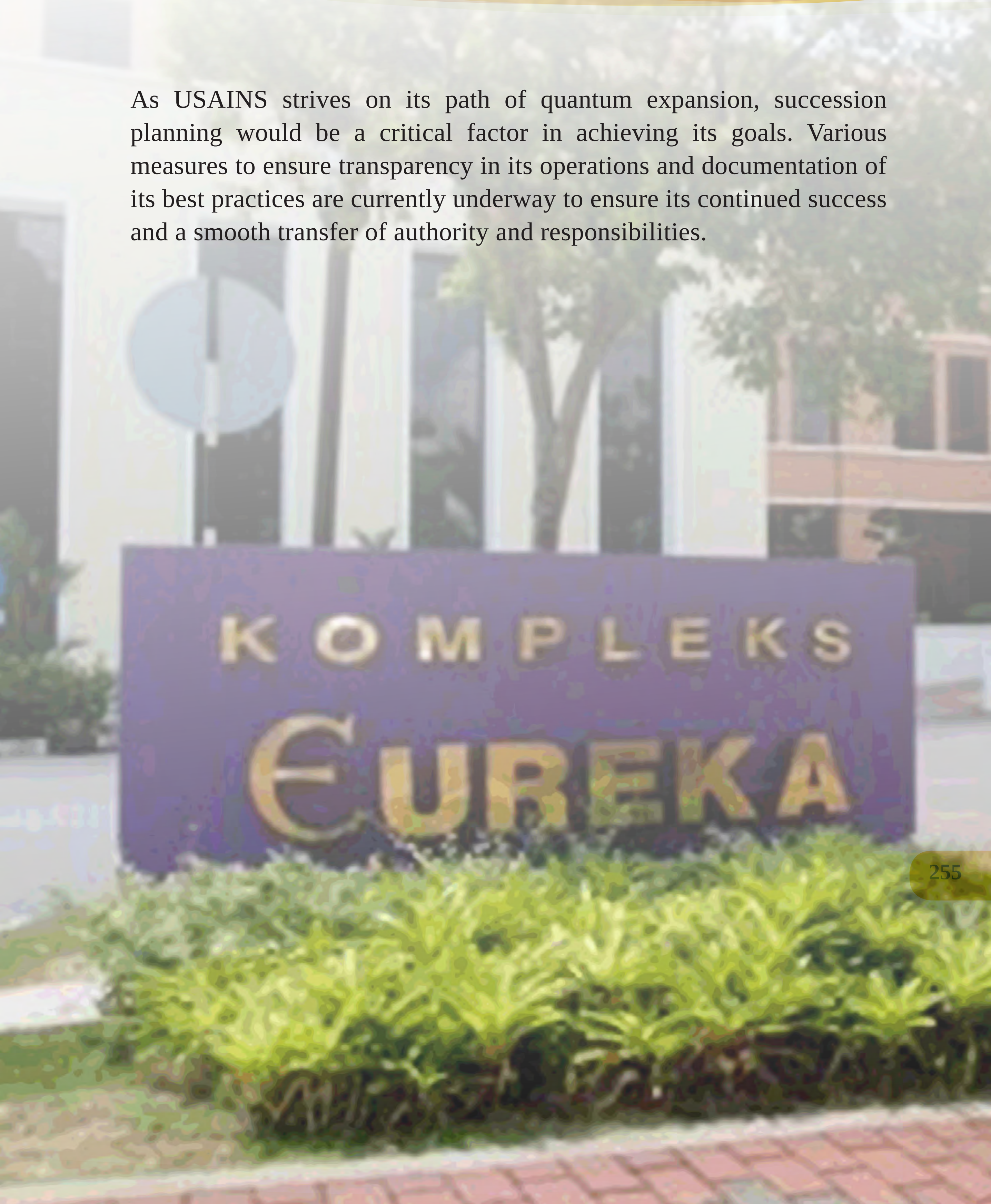
Conclusion

Innovation at USM has shown promise. With the ecosystem already in place, USM can lead the way in driving the culture of innovation and supporting the commercialisation endeavour. There has been a marked increase in the number of patents granted, trademark applications and industrial design applications registered products which have been commercialised, particularly since 2008. This positive trend can be enhanced with the consolidation of the Innovation and Commercialisation Office as the one-stop centre for all innovation and commercialisation activities in the university.

USAINS has risen from humble beginnings: starting with an operating budget of RM100,000 in 2000, USAINS has since secured over RM26 million in revenue in 2011. After over 12 years of operation, it has accumulated considerable earnings, and from its 10th year of operation in 2009 it has started paying dividends to USM, its sole shareholder. USAINS has also been contributing annually about RM5 million annually, to USM and its staff, as cost of sale for resources and expertise purchased from them. USAINS is now poised to enter a quantum expansion in activities with collaborations and ventures both nationally and internationally, in commercialising USM's knowledge and expertise.

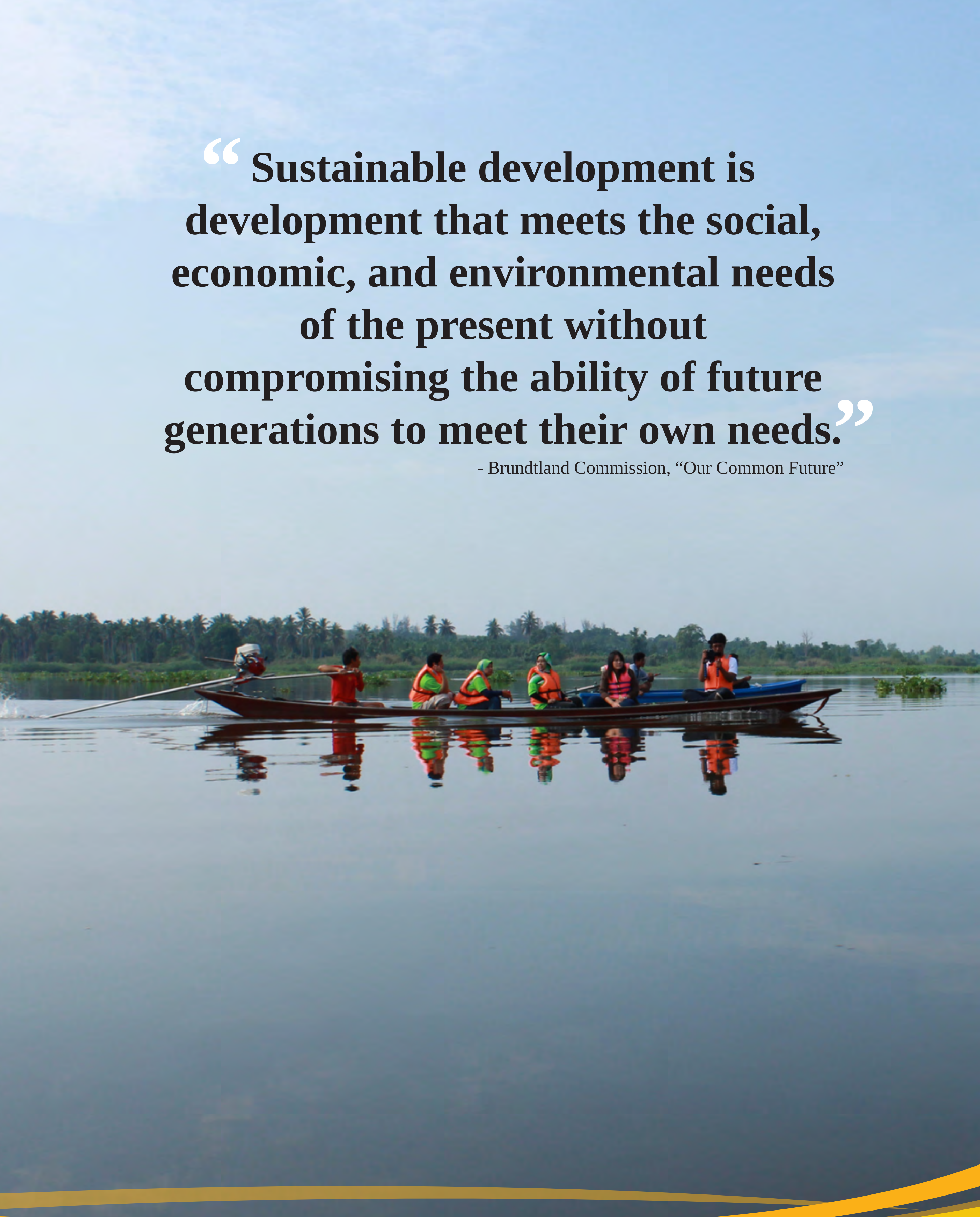
Credit for these achievements must go to the leadership, guidance and support from USM in dealing with USAINS on a 'let managers manage' basis. The USAINS Board of Directors (BOD) too has played a pivotal role in steering USAINS to think out of the box in developing many of its revenue streams. Over the past 12 years, USAINS operations have been routinely audited on two occasions by the National Auditor-General's Department, with no adverse observations or comments.

As USAINS strives on its path of quantum expansion, succession planning would be a critical factor in achieving its goals. Various measures to ensure transparency in its operations and documentation of its best practices are currently underway to ensure its continued success and a smooth transfer of authority and responsibilities.



8

Driving The Sustainability Agenda



> “Sustainable development is development that meets the social, economic, and environmental needs of the present without compromising the ability of future generations to meet their own needs.”
>
> - Brundtland Commission, “Our Common Future”

Introduction

Universiti Sains Malaysia has embraced the vision of becoming a sustainability-led university of world class standing as part of its APEX initiative. While the APEX award is a fitting recognition for the university's wide ranging and remarkable accomplishments of the past, it is also a call to excel in addressing the sustainability challenges of the future. The transformation plan entitled "Transforming Higher Education for a Sustainable Tomorrow" clearly reflects strong leadership commitment in achieving sustainability objectives which is a key success factor in the implementation process.

Universiti Sains Malaysia adopted the concept of "University in a Garden" which governs the overall process of policy drafting and implementation, and the execution of activities in the university's campus. This metaphor was later translated into Program Kampus Sejahtera (or loosely translated as the Healthy Campus Programme) which hosts most of the sustainability-related projects and activities conducted in Universiti Sains Malaysia. In June 2005, United Nations University – Institute of Advanced Studies (UNU-IAS) acknowledged Universiti Sains Malaysia as a Regional Centre of Expertise (RCE) on Education for Sustainable Development (ESD).

APEX Key Performance Indicators

One of the APEX Key Performance Indicators (KPIs) listed is to be a world renowned university for sustainability. In order to achieve this KPI, the following action plans have been put forth (Table 8.1):

a) Developing a system of sustainability indicators
b) Measuring campus wide sustainability
c) Encouraging schools/centres sustainability programs
d) Establishing networks on sustainability
e) Introducing university-wide mandatory course on sustainability

Table 8.1 KPI for world renowned university for sustainability

Activities	KPI	Operational Definition
a)Internationalizing USM system indicator of sustainability	A system of sustainability indicators	Developing indicators of sustainability for campus-wide use in teaching, research, community engagement and Kampus Sejahtera
b)Measuring campus-wide sustainability	Number of PTJ's audited	Conducting campus-wide sustainability audit based on indicators focused on teaching, research, community engagement and *Kampus Sejahtera* (CGSS) *Total=42 PTJs
c) Acculturate School/centre level sustainability program (which include the enculturation of KIP)	Number of programs related to sustainability in USM in teaching, research, community engagement and Kampus Sejahtera	Activities/ projects that contain element of sustainability and those which highlight, enhance and are aligned with the sustainability concept
d)Establishing networks on sustainability	Number of networking programs	Spearheading aspects of sustainability through relevant programs/activities-ProSPER.Net, AUA, RCE, IIAU and UCEC
e) Introducing university-wide mandatory course on sustainability	University wide course introduced	Introducing a new course on sustainability to enhance knowledge, awareness, practices and skills (KAPS) among students

The Sustainability Agenda Task Force

Since its inception as the APEX university in 2008, the university management established a Steering Committee and task forces to widen participation and involvement of the university community in charting the future of USM as the APEX university. The Sustainability Agenda Task Force is one of the nine task forces established to facilitate the realisation of the two tiered approach of the APEX framework, namely aspiring to be world renowned in sustainability and to be a sustainability-led institution of higher learning.

The Sustainability Agenda Task Force focuses on identifying framework(s) of sustainability, identifying programmes of sustainability awareness, research and university-community engagement projects. Major outcomes of the Sustainability Agenda Task Force were the APEX Sustainability Roadmap and proposing the setting up of the Centre for Global Sustainability Studies (CGSS).

GHEF
Global Higher Education Forum 2009
CGSS

The CGSS was officially launched by the Minister of Higher Education Dato' Seri Mohamed Khalid on 14 December 2009

APEX Sustainability Roadmap

Guided by its APEX mission and vision, the Sustainability Roadmap is spurred by USM's need to rapidly transform and uniquely position itself to tackle the global challenges facing humanity. Under the leadership of the Chair of the Sustainability Task Force, a multidisciplinary Sustainability Team was involved in the development of the roadmap.

The major objectives are to mainstream principles of sustainability into research, teaching/learning and community engagement.

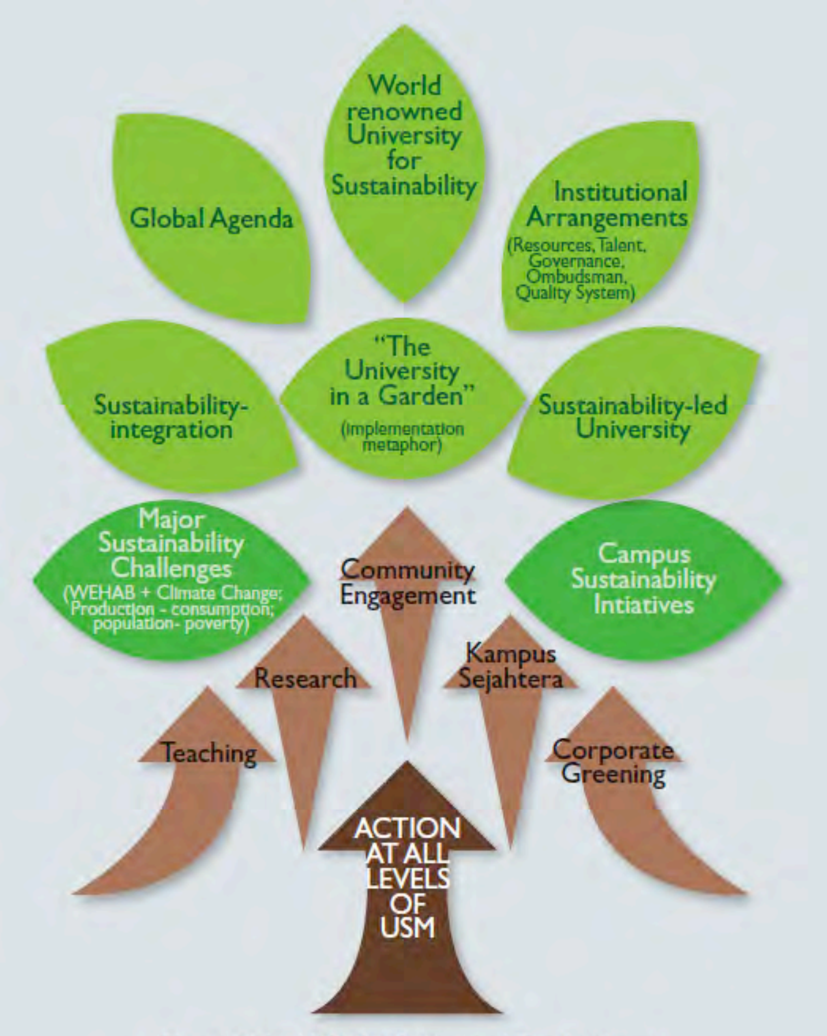

World renowned University for Sustainability
Global Agenda
Institutional Arrangements (Resources, Talent, Governance, Ombudsman, Quality System)
Sustainability-integration
"The University in a Garden" (implementation metaphor)
Sustainability-led University
Major Sustainability Challenges (WEHAB + Climate Change; Production - consumption; population- poverty)
Community Engagement
Campus Sustainability Intiatives
Research
Kampus Sejahtera
Teaching
Corporate Greening
ACTION AT ALL LEVELS OF USM

Figure 8.1 Integration of sustainability into the entire activities of the university

The APEX sustainability roadmap attempts to integrate the entire activities of the university to achieve two major goals (Figure 8.1):

- to be a university world renowned for its commitment to sustainability
- to be a sustainability-led university

The roadmap assesses the current status of sustainability across the university's mission areas as well as Water, Energy, Health, Agriculture and Biodiversity (WEHAB) and intimately relates cross-sectoral issues such as "climate change/ disaster risk management", "population/

poverty" and "production/ consumption". Teaching methods and curricula, research areas, methods, output and networking as well as green campus initiatives are reviewed in terms of their alignment with the objectives of ESD.

Centre for Global Sustainability Studies (CGSS)

Centre for Global Sustainability Studies (CGSS) was established in December 2009 to mainstream sustainability into the entire fabric and rubric of the university. This centre was designed to work with all other relevant sections of the university, regional and international sustainability organizations, national and regional governments, private sector, civil society groups and NGOs to promote sustainable development, paying particular attention to the disempowered bottom billion.

CGSS' vision is to be an Advanced Studies Centre to propel Universiti Sains Malaysia as a renowned sustainability-led university based on the fusion of the sciences and humanities in our strive for global sustainability and poverty alleviation of the bottom billions. The mission of CGSS is to contribute to scientific assessment, policy research and capacity-building via ESD and to attempt to resolve the pressing problems that confront Malaysian society and the global community both today and in the future.

The centre has teaching responsibilities in specialised sustainability areas which it will be required to deliver in the most flexible modes to reach out to the usually unreached, conduct research of a problem solving nature specifically addressing sustainability issues and policy matters, promote networks and partnerships to improve USM's connectivity and impact on the community. The Figure 8.2 illustrates the sustainability challenges to universities. The integration of sustainability into the university system links the major sustainability challenges with different educational approaches.

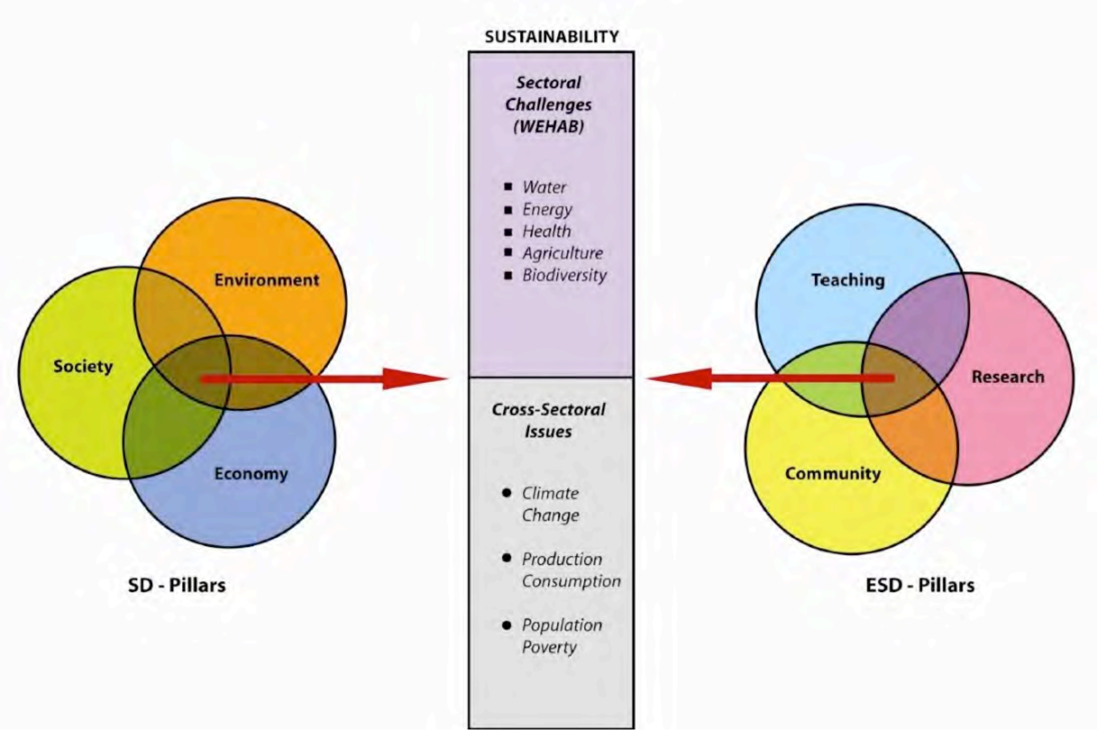

SUSTAINABILITY
Sectoral Challenges (WEHAB)
Water
Energy
Health
Agriculture
Biodiversity
Cross-Sectoral Issues
Climate Change
Production Consumption
Population Poverty
Environment
Society
Economy
SD - Pillars
Teaching
Research
Community
ESD - Pillars

Figure 8.2 Sustainability challenges of universities

In order for the university to achieve its sustainability goals, CGSS was entrusted with the responsibility to implement and integrate sustainability throughout the university. Accordingly, CGSS has produced a blueprint of sustainability structure and operational plan which encompasses teaching, research and community engagement activities as well as the formation of a sustainability office.

With regard to sustainability mainstreaming into the university, CGSS@ USM effectively identified four target areas with corresponding initiatives that were deemed pivotal in facilitating holistic sustainability integration as depicted in Figure 8.3.

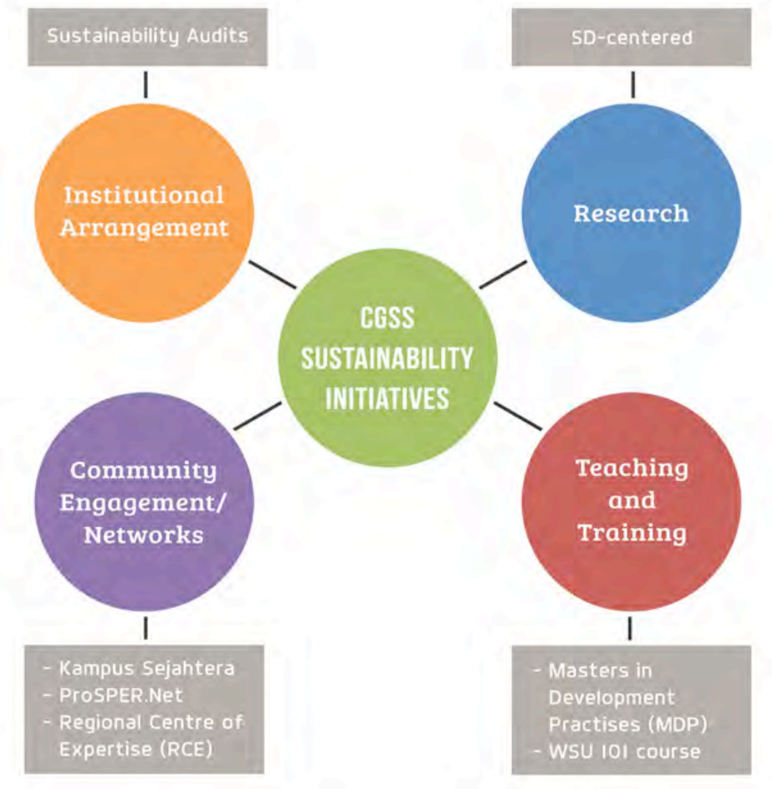

Sustainability Audits
SD-centered
Institutional Arrangement
Research
CGSS SUSTAINABILITY INITIATIVES
Community Engagement/ Networks
Teaching and Training
- Kampus Sejahtera
- ProSPER.Net
- Regional Centre of Expertise (RCE)
- Masters in Development Practises (MDP)
- WSU 101 course

Figure 8.3 CGSS sustainability initiatives

Ultimately, the key roles of CGSS are to:

1. serve as a forum for dialogue and creative new ideas
2. serve as a hub for the scholars of the international community
3. function as a bridge between the national/international academic community and the policy-makers, corporate sector and civil society
4. contribute to capacity building, particularly in Malaysia and other developing countries

Sustainability Office

The sustainability office aims to facilitate the mainstreaming of sustainability into the entire fabric and rubric of the university. Sustainability training series, sustainability auditing and dissemination of information regarding sustainability initiatives in the university are major tasks of the sustainability office. If fully operational, this office would be the reference point on sustainability of USM.

Healthy Campus (*Kampus Sejahtera*)

Initiated in 2001, Healthy Campus embodies sustainability on campus. Just as *sejahtera* signifies peace, harmony, tranquility, wellness and health, Healthy Campus embraces sustainability in all areas, including the economy, society and the environment. Healthy Campus is meant to guide the entire USM community to focus their commitment and responsibility to the university. Every individual has a proactive role to play in the development of a Healthy Campus. Teamwork is essential and must cut across departments and hierarchies to initiate new ideas to contribute to the growth of the university.

Kampus Sejahtera
Kampus Lestari
USM
UNIVERSITI SAINS MALAYSIA
http://healthycampus.usm.my

Centre for Education, Training and Research in Renewable Energy, Energy Efficiency and Green Technology (CETREE and GT)

The Centre for Training and Research Renewable Energy, Energy Efficiency and Green Technology (CETREE and GT) was established in 2000 to increase awareness on the importance of Renewable Energy, Energy Efficiency and Green Technology. This would be achieved through the process of knowledge transfer to identified target communities via education, training and research. In addition, CETREE and GT would help develop human capital and strengthen Malaysia's intellect in line with Vision 2020 which would propel Malaysia to the ranks of developed nation which realise the importance of renewable energy. This reinforced USM's core aspiration as APEX to be an institution that integrates sustainable development into the education system so that current and future generations can be sustained and work to preserve the ecology, conserve resources and build human capacity besides creating awareness.

In line with USM's thrust of sustainability, CETREE and GT will strive to implement practices in Renewable Energy, Energy Efficiency and Green Technology to ensure energy security for tomorrow's sustainability is achieved through relationships and special programmes to target groups including professional Higher Education Institutions, schools and Malaysian general public.

Among CETREE and GT's main activities in the past four years since 2008 were:

i. Developing modules on Renewable Energy and Energy Efficiency across the Curriculum for Primary Schools (2008–2011) whereby 8500 sets of modules have been developed for distribution to each school and conducting training programmes for 3000 teachers throughout Malaysia.

ii. Conduct pilot workshop on green technology for primary and secondary schools (2010) in which a total of 1635 students and teachers from 14 states including Sabah and Sarawak involved.

iii. Activities to inculcate Awareness of Energy Efficiency and Energy Audits were implemented for selected Teacher Education Institutes (IPG) (2011-2012) at three IPGs in Perlis, Kedah and Johor involving about 300 students and lecturers whereby savings of 9.34% on their electricity bills were achieved.

iv. Miri *1Komuniti 1Hijau Program* and Green Technology Tour (2012), a programme to create and conduct focused knowledge transfer on green technology to spread knowledge to target communities in Miri, Sarawak, at nine locations involving 46 schools.

v. Green School Award (2012), a competition with the theme of Green Technology applied in secondary schools, involving 23 selected schools throughout Malaysia.

vi. USM Energy Management Programme (2012), with the aim of raising awareness in Campus Energy Efficiency and identifying and reducing unsustainable energy consumption.

For 2013, CETREE and GT has been tasked by the government to expand the implementation of the Renewable Energy and Energy Efficiency training module to teachers in each school who have not yet attended the training sessions.

Renewable Energy and Energy Efficiency across the Curriculum has been developed to outstanding teachers in each school who have not attended the training conducted. Emphasis will be placed on promoting the programme in the mass media as well as monitoring the effectiveness of these modules by 2015. At the same time the Energy Efficient Schools Awards Programme will be implemented where the main focus will be given to schools in rural areas. This programme will be carried out for the duration of one year.

To date, CETREE and GT has implemented various activities involving Renewable Energy, Energy Efficiency and Green Technology. CETREE and GT is an organiser of the annual Carnival of Science and Technology held in collaboration with the Ministry of Education where competitions such as "Solar Car Race", "Solar Boat Race", "Cooking with Nature" and "Eureka Beach House" have been well received by primary and secondary school good response from the students of primary and secondary schools until now.

CETREE has also collaborated with the Ministry of Energy, Green Technology and Water – KETTHA, "Sustainable Energy Development Authority" – SEDA, the Ministry of Education, Institute of Teacher Education Malaysia – teacher training institutes, the Ministry of Science, Technology and Innovation – MOSTI, National Science Sime Darby Plantation, Malaysia Green Technology Corporation – MGTC, National Kaohsiung University of Applied Science, Taiwan and many other agencies and institutions in the dissemination of knowledge, research and consultancy.

A System of Sustainability Indicators

As part of the APEX award garnered by Universiti Sains Malaysia, a 'sustainability indicator' project was initiated. In Part I of the project, a user friendly 'sustainability assessment methodology (SAM)' was developed to assess the extent of sustainability components in existing courses (teaching subjects) and programmes. This method was applied to almost all USM courses and a selected number of research and community projects. In Part II of this project, a sustainability indicator framework and a set of worksheets had been developed and published internally to assist new sustainability initiatives to align themselves with APEX's Sustainability Roadmap. Together, SAM and the Indicator Worksheets form the basis for the monitoring and evaluation of sustainability mainstreaming within the university – 'Sustainability Audit @ USM.' Development of the 'Sustainability Assessment Model' (SAM) involved the following three major steps:

1) screening
2) identification
3) classification

It is important to bear in mind that all courses and projects included in the above classification in this step do contain SD/ESD components, but in different percentages. Thus, even the courses in the red band contain low levels of SD/ESD content. The red sign is assigned simply to alert that there is plenty of room for this band of courses to move to yellow and then to the green bands through planned sustainability re-orientation. Steps 1, 2 and 3 are summarised in Figure 8.4.

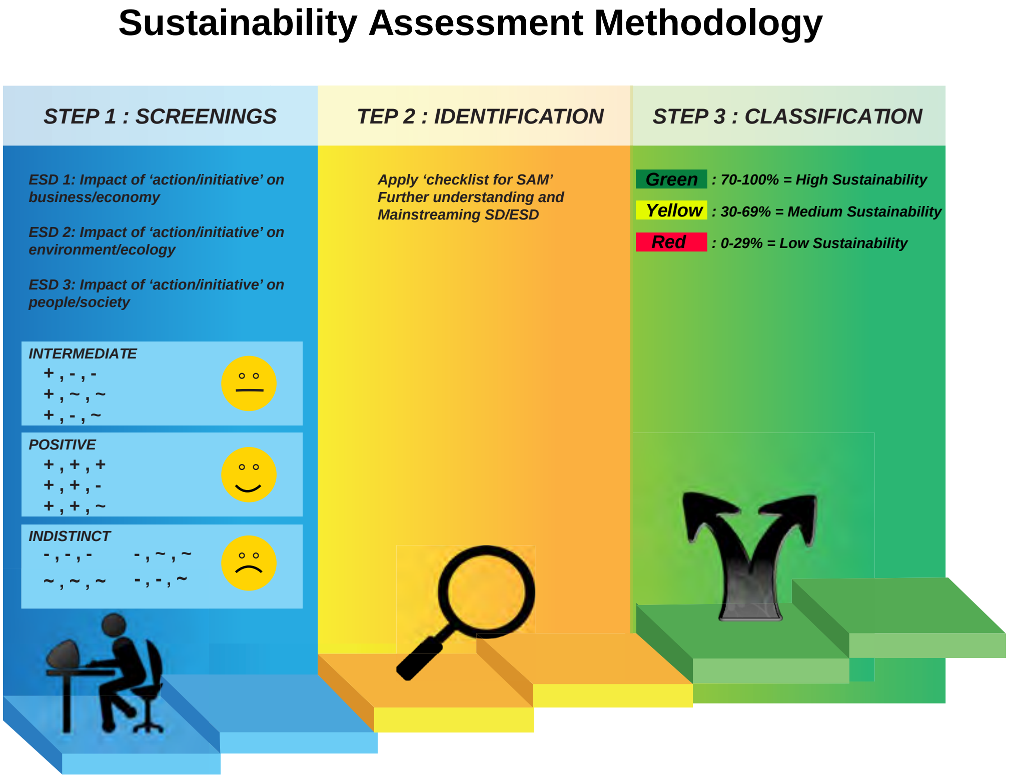

Sustainability Assessment Methodology
STEP 1 : SCREENINGS
TEP 2 : IDENTIFICATION
STEP 3 : CLASSIFICATION
ESD 1: Impact of 'action/initiative' on business/economy
ESD 2: Impact of 'action/initiative' on environment/ecology
ESD 3: Impact of 'action/initiative' on people/society
INTERMEDIATE
+ , - , -
+ , ~ , ~
+ , - , ~
POSITIVE
+ , + , +
+ , + , -
+ , + , ~
INDISTINCT
- , - , -
- , ~ , ~
~ , ~ , ~
- , - , ~
Apply 'checklist for SAM' Further understanding and Mainstreaming SD/ESD
Green : 70-100% = High Sustainability
Yellow : 30-69% = Medium Sustainability
Red : 0-29% = Low Sustainability

Figure 8.4 Sustainability Assessment Methodology (SAM)

Sustainability Audits

The sustainability audit was initiated in 2009 for the 2009/2010 academic session and involved 22 schools. The audit was carried on through 2010 for the 2010/2011 academic session, by which time it included 43 PTJs consisting of 26 schools and 17 Centres of Excellence. Based on the results gathered from the audit of the teaching component, approximately 721 of the 2047 subjects from the undergraduate programmes passed the screening process. Of the 721 subjects evaluated through the identification process, only 54 subjects received a score of 70-100% and were categorised as ‘more sustainable’ through the classification process. The other areas assessed which include the teaching component Postgraduate (Mixed mode and Course work) and Postgraduate (Research), research component and other activities, were evaluated using only the screening process. Consequently, any component that has obtained all three of the sustainability elements (social, environment and economy) during the screening process may be considered to have achieved the sustainability target.

Teaching

Undergraduate

Based on the sustainability audit conducted on 2047 undergraduate subjects from 23 schools at USM, only 35% of the subjects screened were identified as distinct (Figure 8.5). Results from identification phase conducted on these subjects (identified as distinct) showed that 65% of the subjects addressed economic issues, 62% of the subjects addressed issues concerning human capital, education, health, globalisation, culture and governance; and only 11% of the subjects addressed habitat integrity and conservation issues. The classification analysis in Figure 8.6 depicts that 7% or 54 subjects were classified as “high sustainability”, 43% (308 subjects) were classified as ‘medium sustainability’ and 50% or 360 subjects were identified as “low sustainability”.

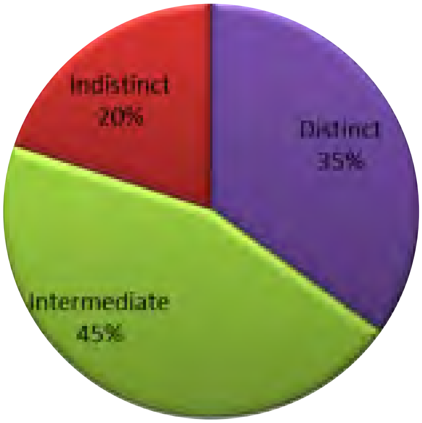


Figure 8.5 Elements of sustainability within courses of undergraduate programmes in USM

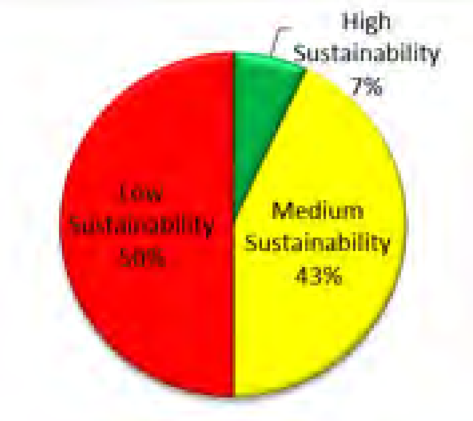


Figure 8.6 The classification analysis for undergraduate programs

Postgraduate (Mixed Mode and Course Work)

With regard to the mixed mode and course work courses at the postgraduate level, 624 subjects were evaluated using the Sustainability Assessment Methodology. 39% of the courses were identified as distinct in the screening phase. It is worth to note that 42% of the subjects were identified as intermediate and have high potential to be promoted to include more sustainability elements in the near future (Figure 8.7).

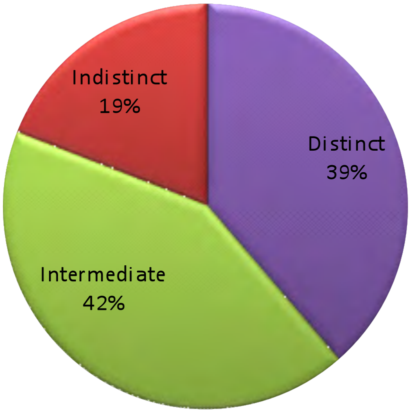


Figure 8.7 Elements of sustainability within graduate studies (mixed mode and coursework) at USM

Postgraduate (Research Mode)

Research mode programmes at the postgraduate level were assessed based on the title of Master and Ph.D theses submitted and graded during 2010 and 2011. Approximately 1171 theses from 35 schools were audited. Figure 8.8 illustrates the results of the postgraduate research mode programs. 36% of all theses evaluated were identified as distinct.

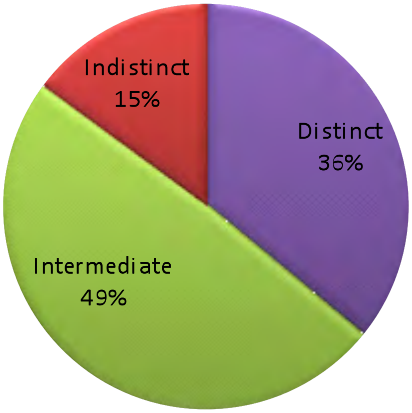


Figure 8.8 Elements of sustainability within postgraduate studies (research mode) at USM

Informal and Non-formal Teaching

In addition to the formal teaching component of school activities, informal and non-formal elements of teaching also feature widely in the school environment. These activities included talks, seminars, forums and community engagement activities. Subsequently, 1406 activities from 39 schools were screened and only 23% of the activities were identified as distinct (Figure 8.9).

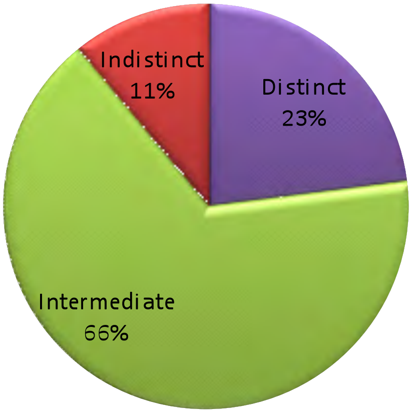


Figure 8.9 Elements of sustainability within the informal and non-formal teaching activities at USM

Research Activities

The sustainability audit was also conducted on research activities carried out by schools at USM. Approximately 2651 research activities from 40 schools were evaluated and 27% of these activities were identified as distinct (Figure 8.10).

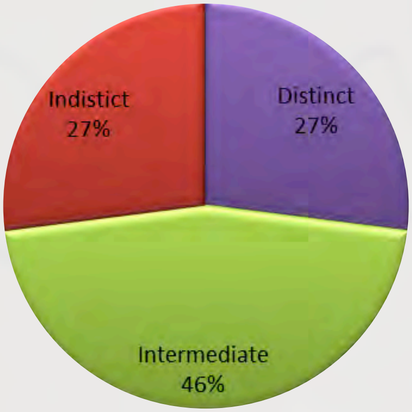


Figure 8.10 Elements of sustainability within the research activities carried out at USM

Community Engagement

Community engagement comprises of the Memorendum of Agreement (MoA) and Memorendum of Understanding (MoU) signed by PTJs as well as engagement activities between the university and the community. 343 MoU and MoA were audited. Results from the sustainability audit identified 73% of the MoU, MoAs as distinct (Figure 8.11). Sustainability elements assessed for university-community engagement activities shows 49% of community engagement activities assessed were identified as distinct and 51% of community engagement activities as intermediate.

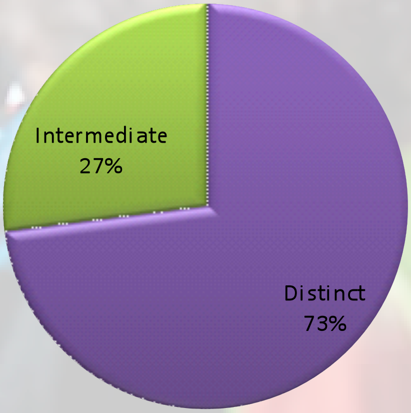


Figure 8.11 Elements of sustainability among USM's MoUs/MoAs.

Sustainability in University Programmes and Courses

To achieve USM's mission for Transforming Higher Education for a Sustainable Tomorrow, the university curriculum is under periodical assessment taking into account the sustainability challenges of society and its institutions. For this purpose, several new sustainability focused programmes and courses were developed within USM schools and centres of excellence. Some of these programmes and courses include:

Masters in Development Practice (MDP)

The programme is to be offered in Semester I, 2013/2014. This is part of a global network initiative involving the Earth Institute, Columbia University, New York and about twenty other universities across the world. This training will be tailored specifically for anyone planning to play a leadership role in the broad area of sustainability with a proper blend of theory and practice being the special feature of this programme.

The USM-MDP curriculum contains two groups of courses (interdisciplinary and transdisciplinary) which will cover all the four core competency areas, i.e. natural sciences, social sciences, health sciences and management sciences. In the interdisciplinary context, the adoption of several discipline-based perspectives in developing necessary courses is implied. The transdisciplinary courses, on the other hand, would focus on cross-cutting issues such as global warming without specific reference to any particular conventional academic discipline. The fieldwork component is an integral part of the MDP programme as it provides the student with the hands-on approach needed in dealing with real life sustainability challenges.

Masters of Science in Sustainable Cities and Communities

The aim of this graduate programme offered by the School of Humanities is to produce graduates who are able to appreciate and apply the integration of art-science (fusion) scientific knowledge to address issues of management and governance of cities and sustainable communities in the context of sustainable development and management.

The focus is also given to the intricate relationship between human and physical processes that shape the ecology and urban environment. This programme explores the social and ecological processes in a city that has complexity, conflict and diversity of its own. The programme structure is flexible to allow students the opportunities of enhancing certain field of studies by doing research topics based on their interest, ability and educational experience. This programme is offered on a full time/part time basis.

Masters of Business Administration in Sustainable Development

This programme is offered by the Graduate School of Business and seeks to develop managers who are capable of applying SD agenda in planning and implementation of projects. It will also provide training on measuring and identifying the impacts and improvements made by organizations in social and environmental issues. A unique feature of this programme is the integration of business, ecology and social sciences. This programme ensures that not only the financial performance is met but also the managers should have a strong understanding of "sustainable" business competitiveness, social responsibilities, ethics and governance.

Masters of Communication in Science and Environmental Journalism

This programme offered by the School of Communication is designed mainly to prepare students for a professional career as science and environmental writers, reporters and editors in the media industry, research institutions and environment related organisations. Even though this programme is geared towards preparing students for the professional track, most of the courses are theory-based. It is believed that a strong understanding of the media processes and practices as well as the role of science in society will enable communicators to make significant contributions to the public understanding of science and environmental issues.

Sustainability: Issues, Challenges and Prospects (WSU 101)

Undergraduate course entitled Sustainability: Issues, Challenges and Prospects (WSU 101) was introduced in the 2011/2012 Academic Session. This course introduces undergraduate students to the concept of sustainable development in order to ensure that the ability of future generations to meet their own needs is not compromised, especially with regards to their ability in handling the challenges of globalization and the rapid developments in information technology and communication. For the practical application, students are exposed to the implementation of sustainability through sustainability project work in small groups with a diversified field of knowledge. Students are encouraged to use their creativity and innovativeness to develop their own sustainability projects in campus for the benefit of the environment, social and the economy.

Sustainability Projects or Initiatives

- The White Coffin

This student-led, on-going initiative builds awareness regarding the use of polystyrene-based food containers (‘white coffins’), the long term use of which is environmentally unsustainable and may cause cancer. This programme has successfully discontinued the use

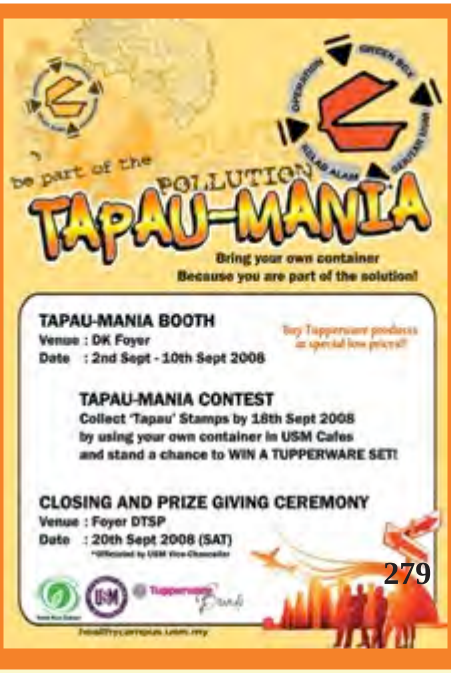
The white coffin

of polystyrene and reduced the use of plastics on campus, and has been emulated in six other local universities. The project was officially started in January 2008 in all three campuses of USM.

- *Tapau-mania*

Tapau-mania is one of the follow up activities for The White Coffin campaign. The *Tapau-mania* project encourages the campus community to bring their own container to take away food from the cafeteria. The *Tapau-mania* contest was held from 2 September to 16 September 2008 and opened to all the staff and students who bring their own container and eat at the canteen using reusable utensils.

Coexist With Earth
TAPAU-MANIA
POLLUTION


be part of the POLLUTION
TAPAU-MANIA

Bring your own container
Because you are part of the solution!

TAPAU-MANIA BOOTH
Venue : DK Foyer
Date : 2nd Sept - 10th Sept 2008

Buy Tupperware products at special low prices!

TAPAU-MANIA CONTEST
Collect 'Tapau' Stamps by 18th Sept 2008
by using your own container in USM Cafes
and stand a chance to WIN A TUPPERWARE SET!

CLOSING AND PRIZE GIVING CEREMONY
Venue : Foyer DTSP
Date : 20th Sept 2008 (SAT)
*Officiated by USM Vice-Chancellor

healthycampus.usm.my

- Say No to Plastic Bag Campaign

USM has initiated the “Say No to Plastic Bags” campaign after the success of the “White Coffin” project. The main goal of this campus-wide campaign is to lessen the use of plastic bags at all campuses of USM. This campaign aims to discourage the USM family in using plastic bags for different purposes and it is hoped that plastic bags will be treated similarly to polystyrene containers. For this purpose, a total ban on using plastic bags at USM canteens was enforced on 1st August, 2008. This campaign has been emulated by some state governments in Malaysia.

USM Kampus Sejahtera
“No to
SAY NO TO
PLASTIC BAGS

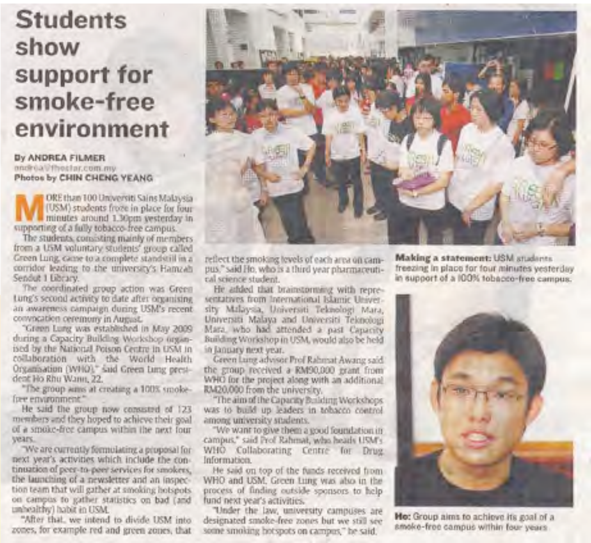
SAY NO TO
PLASTIC BAGS
KURANGKAN PLASTIK DI USM
USM
healthycampus.usm.my

- Green Lung

Green Lung is a Youth Grassroots Movement empowering youths as the agents of change in advocating a tobacco-free environment not only in campuses but also in Malaysian community as a whole. This special interest group was initiated by USM pharmacy students in May 2009. In July 2009, the name Green Lung was first introduced to USM campus and subsequently to other universities in December 2009. Green Lung was officially launched in USM on 23rd February 2010. After that, a total of four universities which are Universiti Kebangsaan Malaysia, Universiti Malaya, Universiti Teknologi MARA and Universiti International Islamic University Malaysia have shared the same vision and have joined forces to advocate for a tobacco-free environment.

SUPPORT A TOBACCO FREE ENVIRONMENT

GREEN LUNG



Students show support for smoke-free environment

By ANDREA FILMER
andrea@thestar.com.my
Photos by CHIN CHENG YEANG

MORE than 100 Universiti Sains Malaysia (USM) students froze in place for four minutes around 1.30pm yesterday in supporting of a fully tobacco-free campus.

The students, consisting mainly of members from a USM voluntary students' group called Green Lung, came to a complete standstill in a corridor leading to the university's Hamzah Sendut 1 Library.

The coordinated group action was Green Lung's second activity to date after organising an awareness campaign during USM's recent convocation ceremony in August.

"Green Lung was established in May 2009 during a Capacity Building Workshop organised by the National Poison Centre in USM in collaboration with the World Health Organisation (WHO)," said Green Lung president Ho Rhu Wann, 22.

"The group aims at creating a 100% smoke-free environment."

He said the group now consisted of 123 members and they hoped to achieve their goal of a smoke-free campus within the next four years.

"We are currently formulating a proposal for next year's activities which include the continuation of peer-to-peer services for smokers, the launching of a newsletter and an inspection team that will gather at smoking hotspots on campus to gather statistics on bad (and unhealthy) habit in USM.

"After that, we intend to divide USM into zones, for example red and green zones, that reflect the smoking levels of each area on campus," said Ho, who is a third year pharmaceutical science student.

He added that brainstorming with representatives from International Islamic University Malaysia, Universiti Teknologi Mara, Universiti Malaya and Universiti Teknologi Mara, who had attended a past Capacity Building Workshop in USM, would also be held in January next year.

Green Lung advisor Prof Rahmat Awang said the group received a RM90,000 grant from WHO for the project along with an additional RM20,000 from the university.

"The aim of the Capacity Building Workshops was to build up leaders in tobacco control among university students.

"We want to give them a good foundation in campus," said Prof Rahmat, who heads USM's WHO Collaborating Centre for Drug Information.

He said on top of the funds received from WHO and USM, Green Lung was also in the process of finding outside sponsors to help fund next year's activities.

"Under the law, university campuses are designated smoke-free zones but we still see some smoking hotspots on campus," he said.

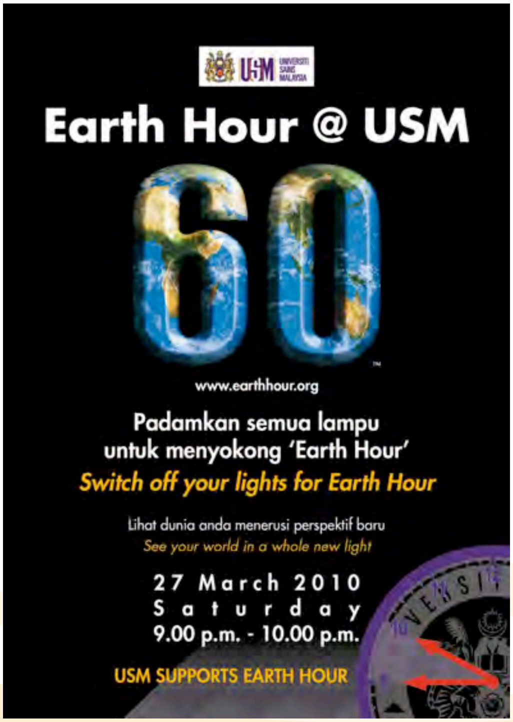
Making a statement: USM students freezing in place for four minutes yesterday in support of a 100% tobacco-free campus.

Ho: Group aims to achieve its goal of a smoke-free campus within four years.

Source, *The Star,* October 7 2009

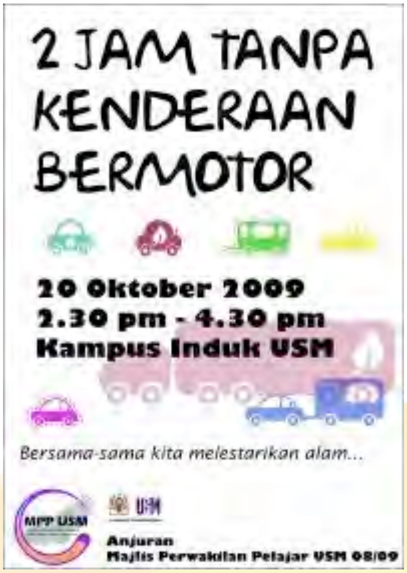
- Earth Hour

Earth Hour 2007 was a Sydney event initiated by WWF. More than twomillion people and some 2,100 businesses took part. During the one hour event, electricity consumption was reduced by about 10% which can be translated into taking 48,000 cars off the road for one hour. Every year during the Earth Hour, USM students in all hostels will turn off their room lights and other electrical appliances for one hour.


USM UNIVERSITI SAINS MALAYSIA
Earth Hour @ USM
60
www.earthhour.org
Padamkan semua lampu
untuk menyokong 'Earth Hour'
Switch off your lights for Earth Hour
Lihat dunia anda menerusi perspektif baru
See your world in a whole new light
27 March 2010
Saturday
9.00 p.m. - 10.00 p.m.
USM SUPPORTS EARTH HOUR

- Bicycle Path / Two Hours without Motor Vehicles

The campaign was initiated by the Students' Representative Council (MPP) in collaboration with the Division of Development and Student Affairs (BHEPP) of USM. During certain dates and hours, citizens of USM were encouraged not to use motorised vehicles on campus, including those in the Engineering and Health Campus except for emergency cases only. The purpose of this campaign is to spread the awareness the importance of reducing carbon emissions and ensure a sustainable environment in campus.

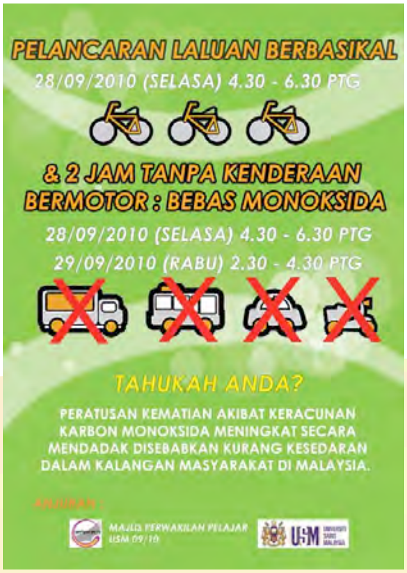


2 JAM TANPA KENDERAAN BERMOTOR

20 Oktober 2009
2.30 pm - 4.30 pm
Kampus Induk USM

Bersama-sama kita melestarikan alam...

Anjuran
Majlis Perwakilan Pelajar USM 08/09



PELANCARAN LALUAN BERBASIKAL
28/09/2010 (SELASA) 4.30 - 6.30 PTG

& 2 JAM TANPA KENDERAAN BERMOTOR : BEBAS MONOKSIDA
28/09/2010 (SELASA) 4.30 - 6.30 PTG
29/09/2010 (RABU) 2.30 - 4.30 PTG

TAHUKAH ANDA?

PERATUSAN KEMATIAN AKIBAT KERACUNAN KARBON MONOKSIDA MENINGKAT SECARA MENDADAK DISEBABKAN KURANG KESEDARAN DALAM KALANGAN MASYARAKAT DI MALAYSIA.

ANJURAN :
MAJLIS PERWAKILAN PELAJAR USM 09/10

- Tobacco-Free USM

“Tobacco-Free USM”, a collaborative effort between the Division of Industry and Community Network (BJIM) and the National Poison Centre (PRN) is a serious effort in ensuring that the three USM campuses implement the Tobacco-Free Policy in January 2013. This initiative is to ensure that everyone on campus is safe from the danger of stale cigarette smoke in all places, whether in or outside the buildings. This project is in line with the Tobacco Products Control Regulations 2004, which lists 21 non-smoking areas, and will contribute towards a healthy campus community. The PRN Quitline service line is open from Monday to Friday, 9.00 am to 4.30 pm to give advice to individuals who want to quit smoking.

WE SUPPORT
USM TOBACCO FREE CAMPUS
BJIM

- *Sejahtera* Walk

In conjunction with the World Health Day Celebration, USM has embarked on an activity known as *Sejahtera* Walk or *Jalan Sejahtera* on 7 April 2010. The aim is to encourage the campus folks to walk together on this auspicious occasion during the USM Health Week celebration. It has been proven scientifically that 30 to 45 minutes of brisk walking for three times per week will bring a lot of benefits towards human health. Other than health benefits, they also do their bit for the environment by collecting waste and litter along the way.

- Going Bananas Project

The ‘Going Bananas’ project was initiated to assist in raising the living standards of the community in Balik Pulau via the production of handmade paper from banana plants. The project goes through several stages from the processes of planting, harvesting and finally extracting the banana trunk fibres, which is then beaten into a pulp and treated until a sheet of paper is made. The sheets were then used for handicrafts, souvenirs as well as interior decorations. Handicrafts made from paper of the banana trunks and other raw materials are now a major component of the cottage industry in Malaysia. In terms of economics, banana paper also has potential to have a positive impact on commercial industrial demand for an environmentally safer source of raw material.

- Reducing flood related challenges through ESD in Kuala Nerang, Malaysia

This project looks at the relations between the flood-related issues using the vulnerability and adaptation methods to identify the vulnerable groups to food security. This project is aimed to enable the residences of the northern part of Malaysia to have a better preparation to face flooding situations and to reduce the risk of flooding.

Throughout this project, people at the chosen area were trained on how to reduce flood risks. The flood pattern of the region was also studied as it will help the researchers and the residences on adopting more appropriate strategies in facing floods in the future. Different governmental and non-governmental institutions and organisations are involved in the project in both district and state levels. The cooperation between these institutions enables the residences to face the flooding situation with better preparation.

To run this project, the participatory approach method has been adopted by conducting several workshops and focus group discussions. Students from various schools participated in the flood awareness campaigns. There have been several workshops conducted for the villagers in the high flood risk areas to train them on different strategies and practical activities to reduce the flood risks. Students from various schools were also trained on how to face the flooding situation and what kinds of activities are expected to be done during the flood crisis.

Recently, this project was awarded the certificate of honour by RCE Global for its contribution in advancing community engaged, trans-disciplinary and action research in ESD.

- Enhancing Sustainable Living within USM and its Neighbouring Communities

The main objectives of this project are to promote sustainable lifestyle from USM campus to the neighbouring communities, to engage participants from different levels of the communities and to explore challenges for a comprehensive implementation of sustainability. Through this project, the communities are expected to have a better understanding of some basic components for sustainability such as recycling and composting. This project aims at encouraging the communities outside USM to actively participate and practice recycling and to an extend composting.

For this purpose, few campaigns were conducted in shopping malls and schools to increase the sensitivity of the citizens and students towards sustainability related activities such as recycling. Recycle bins have been placed in several schools and some teachers and students in each school are trained to conduct and run the recycling and composting projects in their schools.

Recently, this project was also awarded the certificate of honour by RCE Global for its contribution in promoting sustainable lifestyle through multidisciplinary and partnership approach in ESD.

- Showcasing Balik Pulau as a Sustainable Village

This project is undertaken by the School of Social Sciences at USM in collaboration with RCE Penang and the CGSS. The project objective is to help communities reconnect with the resources that promote human well-being by enhancing social and political empowerment, community self-reliance and self-determination.

This project aims to create a sustainable village as a showcase of sustainability which can be used later as platform for students' research. For this purpose, participatory approach has been adopted through conducting several workshops and focus group discussions. There have been several workshops conducted for the villagers in the area to train them on different sustainability strategies and practices.

- International Engineering for Sustainability Conference (iNESCO) 2011

iNESCO was organized by Student Representative Council (MPP) of Engineering Campus from 14 until 16 October 2011 in Nibong Tebal, Pulau Pinang. The objective is to empower undergraduates and postgraduates to present their research efforts in various disciplines in sustainability and also to build global avenue in expressing and exchanging ideas regarding sustainability. About 67 papers and 20 posters were presented from 14 countries all the world in various fields of engineering like civil, environmental, mineral, electrical and others.

iNESCO
International Engineering
for Sustainability Conference

High Value Flagships

The following four flagship initiatives are examples of USM's capabilities to deliver on sustainability promises:

Archaeological Windfall

A USM team from the Centre for Global Archaeological Research, has unearthed stone tools at Bukit Bunuh, Perak, Malaysia dating back 1.83 million years, older than the 1.5 million-year-old hand axes previously found in Africa. Once fully confirmed, this discovery will replace the 'out of Africa' theory of human origin by what might be called the 'out of Malaysia' theory for the oldest evidence of human presence. It will also shed light on the history of sustainable living as practised by communities in this part of the world over many millennia.

Rubber Genome Unveiled

USM's Centre for Chemical Biology announced on 27 October 2009, the decoding of the rubber tree genome (Hevea brasiliensis). This discovery has far-reaching implications for rubber production, disease resistance, timber, pharmaceuticals and other biotechnology applications for rubber, Malaysia's second-largest cash crop. As the science progresses, this will also directly contribute to the income of small rubber holders.

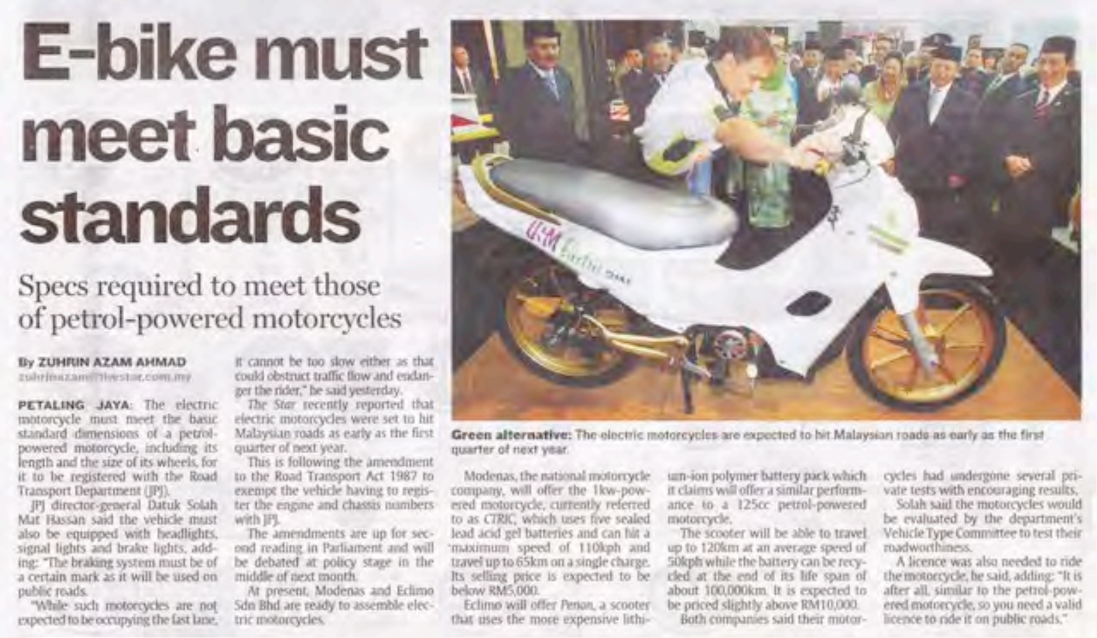
USM-Karnataka Lingayat Education University (KLE) Collaboration

With the emergence of new diseases and rising population and poverty levels, health care has become a crucial sustainability issue. Therefore, USM's School of Medical Sciences and KLE (Jawaharlal Nehru Medical College) have partnered to offer a joint medical curriculum that combines KLE's rigour of medical training with USM's problem based learning approach. The inaugural class commenced with the intake of

100 medical students from Malaysia in 2010 that helps alleviate doctor shortages in Malaysia. Students from Bangladesh and the Maldives will also be benefited, gaining medical training at an affordable cost.

USM e-motorcycle

USM's engines laboratory has developed an electric motorcycle that is environmentally friendly and cheap to run: 0.5 cents/km for the e-bike as opposed to 1.5 cents for gasoline models of similar capacity in Malaysia. This short-range (~100 km) vehicle can be recharged from any standard 240V AC wall outlet. USM engineers are currently working with DRB Hicom to commercialise the vehicle.



E-bike must meet basic standards

Specs required to meet those of petrol-powered motorcycles

By ZUHRIN AZAM AHMAD
zuhrinazam@thestar.com.my

PETALING JAYA: The electric motorcycle must meet the basic standard dimensions of a petrol-powered motorcycle, including its length and the size of its wheels, for it to be registered with the Road Transport Department (JPJ).

JPJ director-general Datuk Solah Mat Hassan said the vehicle must also be equipped with headlights, signal lights and brake lights, adding: "The braking system must be of a certain mark as it will be used on public roads.

"While such motorcycles are not expected to be occupying the fast lane, it cannot be too slow either as that could obstruct traffic flow and endanger the rider," he said yesterday.

The Star recently reported that electric motorcycles were set to hit Malaysian roads as early as the first quarter of next year.

This is following the amendment to the Road Transport Act 1987 to exempt the vehicle having to register the engine and chassis numbers with JPJ.

The amendments are up for second reading in Parliament and will be debated at policy stage in the middle of next month.

At present, Modenas and Eclimo Sdn Bhd are ready to assemble electric motorcycles.

Green alternative: The electric motorcycles are expected to hit Malaysian roads as early as the first quarter of next year.

Modenas, the national motorcycle company, will offer the 1kw-powered motorcycle, currently referred to as CTRIC, which uses five sealed lead acid gel batteries and can hit a maximum speed of 110kph and travel up to 65km on a single charge. Its selling price is expected to be below RM5,000.

Eclimo will offer *Penan*, a scooter that uses the more expensive lithium-ion polymer battery pack which it claims will offer a similar performance to a 125cc petrol-powered motorcycle.

The scooter will be able to travel up to 120km at an average speed of 50kph while the battery can be recycled at the end of its life span of about 100,000km. It is expected to be priced slightly above RM10,000.

Both companies said their motorcycles had undergone several private tests with encouraging results.

Solah said the motorcycles would be evaluated by the department's Vehicle Type Committee to test their roadworthiness.

A licence was also needed to ride the motorcycle, he said, adding: "It is after all, similar to the petrol-powered motorcycle, so you need a valid licence to ride it on public roads."

Source: *The Star* 18 November 2010

Challenges and Opportunities

Sustainability education (ESD) is not a mere project or even programme with a clear beginning and an end rather, it is a new way of doing business at Higher Education Institutions. It has two major dimensions:

- Sustaining best practices and refining them to stay competitive in the 'red ocean' environment,
- Internalising sustainability principles and practices as articulated by UN and all its member countries through the Rio process and its outcomes such as Agenda 21, JPoI and The Future We Want. This will move us to the 'blue ocean' sphere where innovation, invention and ingenuity are the anchors. Such pathways represent roads less travelled and shunned by those less equipped, but those who dare, lead.

In a recent USM sustainability seminar series aimed at academics, administrators and technical staff, the question, 'Are we sustainability transformed?' was asked. For a baseline, we took the average performance of USM during its first three decades when the focus was more on excellence in teaching and research while infrastructure and community involvement improved progressively.

Comparing this with the period, following the dawn of the new millennium, and new sustainability driven initiatives such as:

- *Kampus Sejahtera* Initiative
- Student-led sustainability projects–campaigns against styrofoam and plastic on campus
- RCE-Penang Secretariat activities

- The choice of ‘University in a Garden’ scenario for the future

- Research University status

- ‘Excellent’ (or 5-star) university award

- APEX University – MOHE’s award in recognition of USM’s sustainability track record and potential for transformation, and within APEX

USM has several new and on-going initiatives that will help achieve its sustainability goals in the short to medium term. The following is a selected list of USM’s sustainability implementation measures as articulated by our Vice-Chancellor, Professor Dato’ Omar Osman during his annual university address in 2012:

- Having secured autonomous governance, USM adopted a new Constitution in July 2011 to create a better environment for promoting sustainability. This constitution created new structures for USM’s Board of Governors, Senate, Ombudsman and Student Consultative Assembly.

- Major research projects will be initiated by CGSS to achieve USM’s sustainability goals. In addition, MDP will be managed by an innovative consortium consisting of Institute of Postgraduate Studies (IPS), Centre for Global Sustainability Studies (CGSS) and the Graduate School of Business (GSB) as part of an international network coordinated by the Earth Institute at Columbia University.

- USM will work with the Malaysian Technology Development

Corporation (MTDC) and the Northern Corridor Implementation Agency (NCIA) to promote halal vaccines and diagnostic kits, providing matching grants where appropriate.

- Green procurement will be mandated and promoted in all possible areas.

- The campus Sustainability Office at CGSS will be strengthened so that all USM Centres and Schools can be audited for sustainability outcomes.

A higher educational institution that opts to live in the past cannot be an agent of change in an ever-changing world. There are significant barriers, both perceived and real, in terms of staff awareness, attitudes, expertise and institutional commitment to accelerating the sustainability embedding processes at USM (Table 8.2). However, today's university can no longer afford to be oblivious to the problems faced by the people, within its own shores or in the world beyond its borders, such as the implementation of the Millennium Development Goals, rising population pressures, over-consumption and the impacts of climate change.

Table 8.2 Mid term review

ELIMINATE

- Duplication of activities amongst PTJs and Centres
- Working in silo – Increase integration/consolidate efforts/approach

REDUCE

- Ad hoc and unplanned sustainability/community-engagement related activities, programmes or projects
- Waste of resources, talent and time

RAISE

- Resources and talent to implement the sustainability and community-engagement agenda
- •nvolve more schools and centres to participate in sustainability and community-engagement related activities
- Awareness and understanding of the APEX agenda in sustainability and community engagement
- Encourage sustainability action-research and community-engagement projects/ programmes
- Documentation of success stories in sustainability and community-engagement projects of USM
- Participation/Involvement of industries and other stakesholders

CREATE

- Task-force to monitor the implementation of campus-wide sustainability activities
- Strengthen the Sejahtera/Sustainability office
- Give mandate to Sejahtera/Sustainability Office to implement the campus sustainability road-map
- Champion in sustainability and community-engagement agenda to show more visibility
- KPI for schools on their sustainability and community engagement projects

Future

A higher educational institution must constantly adapt itself to the ever-changing world. It is for this reason that through systematic realignment of its priorities, curriculum changes, innovative research approaches, networking, and dialogue between the academic community, policymakers and other stakeholders, USM is actively promoting sustainability.

In terms of curriculum, apart from modifying the existing courses towards sustainability, USM aims to use the information gathered through its campus-wide sustainability audit project to create courses that are directly relevant to both the different aspects of sustainability and the original disciplines. Programmes such as MDP and courses like WSU 101 are among the pioneering programs and courses established at USM to enhance the sustainability research based studies.

As for the community engagement, USM will act both as a knowledge base by enhancing the knowledge of the society through knowledge generation – dissemination and transfer, with knowledge a major output and service – and as a knowledge based institution, making use of specific knowledge as an important input, tool or feedstock, to generate desired outcomes and products. Operating in these capacities requires USM to deliver as one, focusing on not just knowledge and skills, but intangibles such as values, ethics and morals. An inclusive community commitment with a “bottom billion” focus is essential, that also includes a “head, heart and hand” approach, is necessary for a university which values human well-being, and not just material prosperity.

We need to continually re-examine our fundamentals, as we strive to address pressing global challenges such as the implementation of the Millennium Development Goals, rising population pressures, over-consumption and the impact of climate change. We have learned that today's universities must be more sensitive and be aware of the problems faced by our own *rakyat* or even foreign nationals across the globe. In a world that values economic competitiveness over ethical considerations, USM seeks to balance economic, cultural and environmental integrity using the principles and practices of ESD. Exceptional skill will be needed to create USM's comparative advantage in articulating a new form of globalization that benefits from socio-cultural heritage.

Conclusion

In a world that values economic competitiveness over ethical considerations, USM's comparative advantage in articulating a new form of globalisation that benefits from socio-cultural heritage as much as education will be seen as the 'best of both worlds' approach.

Acculturate schools/ centres sustainability programme

Teaching/ Training	**Research / Innovation / Publication**	**Networks**	**Kampus Sejahtera / Sustainability office**
- Awareness Campaign at SK Bukit Gambir, Sungai Gelugor, Minden Height, Giant Supermarket Bayan Baru. - Awareness Campaign and workshop on Sustainability Lifestyle Living at SMK Dato' Hj Mohd Nor Ahmad, SMK Bukit Gambir, SMK Bukit Jambul - Showcasing Delivering Excellence Projects : APUCEN - Awareness Campaign on Composting with USM's Canteen Operator - Sustainability Lifestyle Campaign : Penang Municipal Council & Bukit Gedung Sub district Administration Organization - Tayota Eco-Youth's Exhibition at Taman Tun Sardon - *Karnival ke Arah Kehijauan* : CAP, Botanical Garden Penang - Follow up awareness campaign at institutional stakeholder - Demonstration of Takakura method, food and garden waste and Household Compost unit	iii. Proceeding 1.Demographic Profiling of the Poor in Flood Affected Agricultural Community: A case study of Padang Terap District, Kedah 2.Empowering Community via Composting Practices in Promoting Sustainable Lifestyle 3.Implementing sustainability at the campus : Towards a better understanding of sustainability initiatives 4.Campus community responses on waste recycling activity towards sustainable lifestyle 5.Penang's Environmental NGOs: Approaching Sustainability through Communication and Participatory Approach 6. Drivers and barrier for ICT as a tool for education for sustainability development 7. The Malaysian Primary Education System and Sustainability : Challenges and Opportunities of a Multiethnic Society iv. Journal 1. The Malaysian Primary Education System and Sustainability : Challenges and opportunities 2.Transforming higher education towards sustainability : An Islamic Perspective 3.Developing human capitals in higher education: paving the path towards sustainable knowledge based economies	Advice for Biodiversity and Ecosystem Services (IPBES), Nairobi, 5-9 October 2009. A paper on CGSS and its potential for collaboration was presented. -Represented the Academy of Sciences of the Developing World (TWAS) and CGSS@ USM at the A-IMBN conference, Penang, 27 October 2009. - Co-chaired the review on the CBD Global Biodiversity Outlook 3, Montreal 4-5 November 2009. • Represented CGSS in the DIVERSITAS Open Science Conference, CapeTown, South Africa, 13-15 October 2009	- Green office - Sustainability Audit (2009-present)

9

BJIM: Outreaching the Community and Industry

Engaging Industries, Empowering Future Leaders

USM, as a public institution has social responsibilities to fulfil its obligations to the outside world, particularly to the industry that surrounds it. It has to serve as a one-stop centre in providing expertise to the industry and community. The University-Industry engagement concept at USM involves a strategic scholarly partnership between USM and the Industry. By this strategy, partners commit to contribute and collaborate with one another in the fields of research, professional development and other scholarly activities that are relevant and mutually beneficial to the university and Industry.

Objectives of the University-Industry Network (UIN)

- To ensure that linkages with the industry are meaningful, effective and sustainable.
- To ensure that the engagement with industry is in line with the vision and mission of the university.
- To facilitate the student internship programme.
- To promote efforts and collaborations in various aspects of CSR between the university and industry.

- To serve as a one-stop center for industries to establish contact with the university.
- To facilitate placement of academicians to the industries (staff attachment).
- To engage industry experts in the development and transformation of the university.
- To facilitate the appointments of ICAP.
- To work closely with related government agencies.
- To coordinate and manage industries' contributions to the university.
- To raise and enhance the linkages and engagement at state, national, regional and international levels.
- To promote strategic partnership between industry, university and community.

The University - Industry - Community Network can be categorized into two clusters:-

a) Cluster 3C – is an initiative by the Division of Industry & Community Network (BJIM) to link the corporate sector with the community. The cluster serves as an advisory body to organisations, businesses and the community at large on the significance and strategies of Corporate Social Responsibility (CSR). Seminars, workshops, training, forums and internship programmes are examples of activities conducted under this cluster.

b) Cluster SME Assist – to strengthen the local SME. Academic staff, students and experienced retirees (from SMEs) are actively involved in consultancy services, research, training and hands–on support.

Knowledge Transfer Programme (KTP)

Knowledge Transfer Programme (KTP) is a programme that supports collaborations between Universities, Industries and Communities (government agencies/non-governmental organisations (NGOs)/public sector). Exchange of tangible and intangible intellectual property, expertise, learning and skills between academia, industry and the community are the platform provided by KTP. The forms of interactions may include joint research, consultancy, education, training, graduate development, conferences, sharing of physical facilities and student placements.

Table 9.1 Number of staff involved and total grants under Knowledge Transfer programme (KTP)

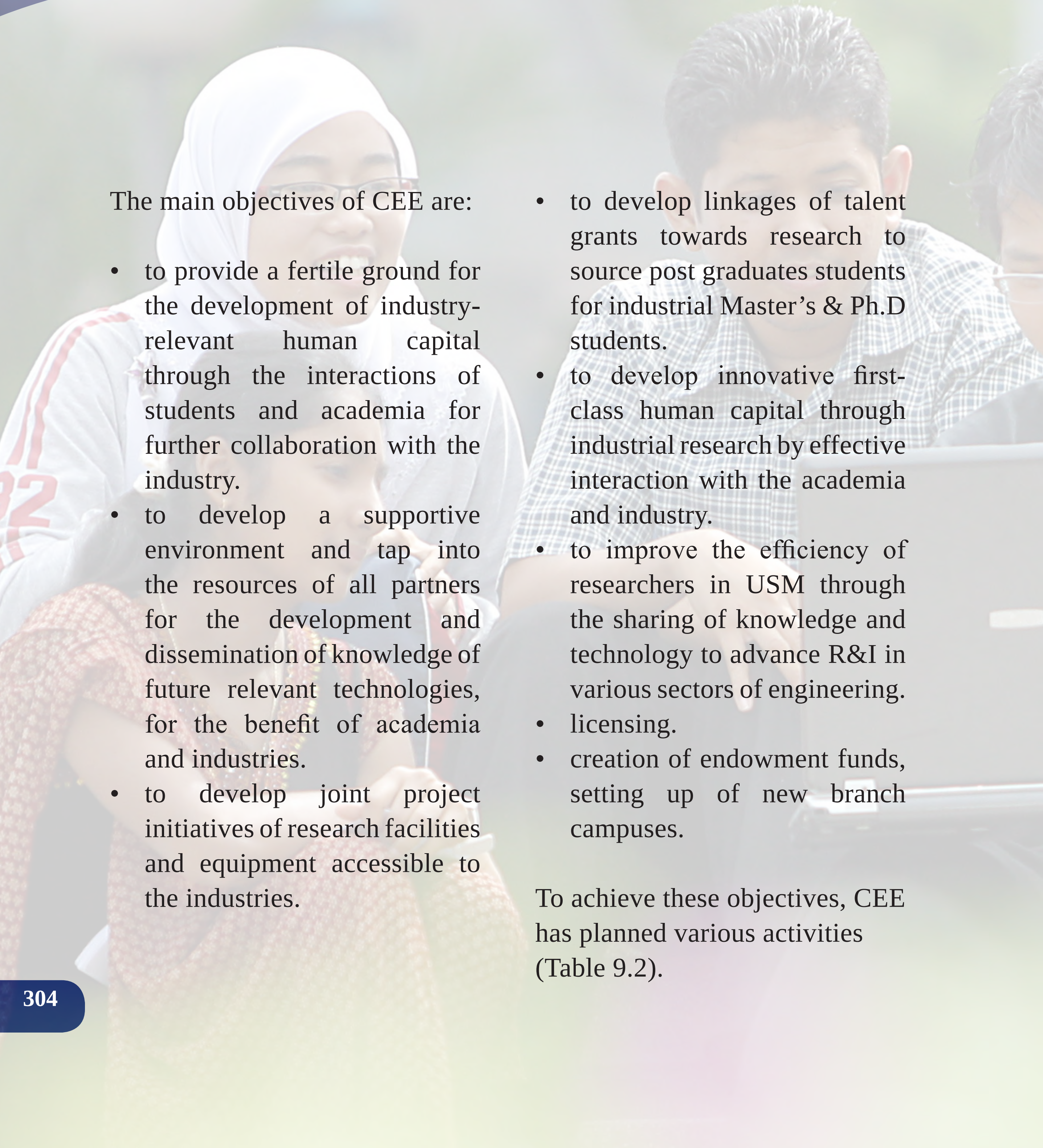
Knowledge Transfer Programme	2011	2012
No. of staff	80	35
Total amount of grants (RM 'mil)	RM2.58 million	RM1.28 million

Centre of Engineering Excellence (CEE)

The Centre of Engineering Excellence (CEE) was set up in 2009 prior to the consultations between Khazanah Koridor Utara (KKU) and USM. The journey of CEE continued after the visit by the Indian Institute of Technology (IIT) Kanpur to USM's Main and Engineering Campus. The collaboration officially began with the signing of a Memorandum of Understanding on 22nd August 2009 at IIT Kanpur that spells out the intention of both parties to jointly, and together with the Penang - based industry to create and develop CEE. With the setting up of CEE, a collaboration network within the Institution, Academia and the Industry that constantly generates pioneer expertise with the involvement of USM's academia together with multinationals and Malaysian companies has been accelerated.

The creation of this centre is expected to spearhead concerted efforts towards creating more human resource focusing on research and development in various fields of engineering through the collaboration between USM's academia and the Industry. The support was shown by providing services facilities to meet the needs of the Industry. It serves as a centre that provides the facilities to support and assist all the R&I activities, especially in joining the Industry with the expertise from USM.

CEE is not just an opportunity for USM and Penang, but also an opportunity for leading engineering institutions of higher learning in Malaysia to extend their learning experience into USM and the companies operating in Penang, through joint research projects, emplacement of academics and post graduate students and other forms of collaboration which could yield significant creation, innovation and dissemination of knowledge for all parties. The establishment of CEE is not only seen as a centre of discovery and engineering innovation, but also as a centre for sharing and technology transfer and human capital development through collaborative research.



The main objectives of CEE are:

- to provide a fertile ground for the development of industry-relevant human capital through the interactions of students and academia for further collaboration with the industry.
- to develop a supportive environment and tap into the resources of all partners for the development and dissemination of knowledge of future relevant technologies, for the benefit of academia and industries.
- to develop joint project initiatives of research facilities and equipment accessible to the industries.
- to develop linkages of talent grants towards research to source post graduates students for industrial Master's & Ph.D students.
- to develop innovative first-class human capital through industrial research by effective interaction with the academia and industry.
- to improve the efficiency of researchers in USM through the sharing of knowledge and technology to advance R&I in various sectors of engineering.
- licensing.
- creation of endowment funds, setting up of new branch campuses.

To achieve these objectives, CEE has planned various activities (Table 9.2).

Table 9.2 Activities planned by CEE

a) Short term	b) Long term
• Short courses, student exchange, student internship programme, lectures by captains of the industry, academic exchanges & emplacements, industrial attachment etc. • Provide solutions to industrial problems.	• Joint research collaboration, matching grant, consulting, smart partnerships & development of academic-industry research clusters in potential niche areas such as energy, environment and nanotechnology. • Commercialisation joint ventures, technology transfer, • licensing. • Creation of endowment funds, setting up of new branch campuses.

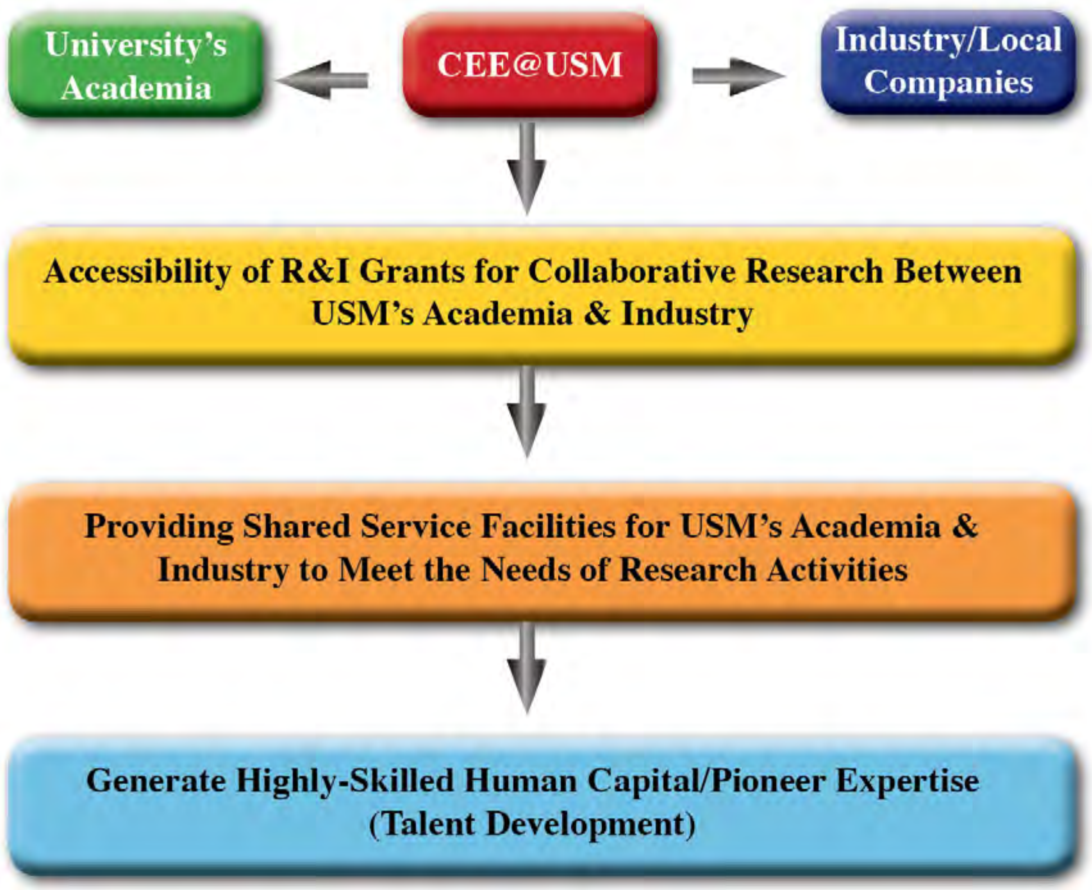

University's Academia
CEE@USM
Industry/Local Companies
Accessibility of R&I Grants for Collaborative Research Between USM's Academia & Industry
Providing Shared Service Facilities for USM's Academia & Industry to Meet the Needs of Research Activities
Generate Highly-Skilled Human Capital/Pioneer Expertise (Talent Development)

Figure 9.1 Conceptual framework of collaboration between University's Academia-CEE–Industry

Initiatives and Achievements

To enhance the collaboration between USM and various parties from the industry, CEE has come out with initiatives to promote the involvement of USM researchers with industry-based research projects through CREST R&I grants. As a result, Collaborative Research in Engineering, Science and Technology (CREST) R&I grant cycle 1, nine projects have been awarded to USM researchers. In this first cycle, USM researchers have collaborated with various Multinational Companies (MNCs) and Small and Medium Enterprises (SMEs). These include Motorola Solutions Malaysia Sdn. Bhd., Pentamaster Instrumentation Sdn. Bhd., QT Hightech Sdn. Bhd., Avago Technologies (M) Sdn. Bhd., Silterra Malaysia Sdn. Bhd. and QDOS Flexcircuits Sdn. Bhd.

Since the participation of USM researchers, CREST R&I grant Cycle 2 has been increased, and 13 projects have been awarded to USM researchers. Intel Technology Sdn. Bhd., Agilent Technologies Microwave Products (M) Sdn. Bhd., OSRAM Opto Semiconductors (M) Sdn. Bhd., National Instrument Sdn. Bhd., Scrap Computer Trading Sdn. Bhd., TT Vision Technologies Sdn. Bhd., SilTerra Malaysia Sdn. Bhd. and QDOS Flexcircuits Sdn. Bhd. are the companies involved in these projects.

To discover more opportunities with the industry, CEE has participated in the "Community - University - Industry Collaboration Day", which was organised by the Division of Industry & Community Network (BJIM), USM. This participation provides the opportunity to create a platform for CEE to promote and facilitate the involvement of USM's expertise in industry-driven activities. "Growing Innovation Clusters through Collaboration in Research, Design and Talent Development" is a symposium organised by CREST with CEE assistance. The involvement of USM's lecturers and researchers in this symposium could inspire them to be actively engaged in the industry-driven community activities at national and international levels.

In the innovation of new technologies and products, CEE has been collaborating with CREST Centre and TalentCorp Malaysia. Various programmes have been designed to create experts of domain expertise in the engineering sector in Malaysia.

These include Industrial Master & Ph.D programmes in the form of partnerships between USM and industries. The programme provides opportunities for industries to increase industry-based skills as well as the overall competency of their employees. The "Sector Focused Career Fair" that is expected to be held in the near future is another upcoming collaboration programme between CREST, TalentCorp Malaysia and USM. USM through CEE will be actively involved in organising the electrical and electronic industrial sector event. The event is targetedat providing various career opportunities in the E&E area as well as contributing to the preparation of dynamic and industry-ready graduates. Most of the objectives outlined during the establishment of CEE have materialised through project grants, symposiums etc.

The Challenges, Gaps & Future

CEE is in the process of increasing the collaboration between USM's pool of expertise and various industry partners in research and development based projects, talent development as well as commercialisation of the research products. In maintaining a rapid rate of economic growth and international competitiveness, a knowledge based economy is a fundamental element.

Economic development thrust for a knowledge base consists of the creation of highly knowledgeable individuals through research and development in Science and Technology. In addition, the core also includes efforts to accelerate the development of infrastructure to facilitate the development of a knowledge based economy towards strengthening the country's innovation system. This in turn can transform the country into a high income nation through specialisation in electrical and electronic industry.

Promoting research and innovation-based activities for the studentsand lecturers from the university are the most challenging for CEE. Thus, CEE through various research and talent development programmes organised by CREST and the connection between various industry players can contribute to the support of the growth of innovation encouragement for the university's academia.

The quality of the labour force is a vital aspect in determining the direction of an organisation. Now, in an effort to develop Malaysia as a developed country, highly knowledgeable individuals are needed to spur economic growth in the future. A shortage of specialist indigenous groups is the main problem that should be addressed immediately. There have been complaints from a range of industries of the absence of appropriate expertise in the market as most experts from educational institutions do not meet the needs of the industry, particularly in terms of technical skills and knowledge. As such case, the research-based programme can generate more highly knowledgeable individuals as a result of exposure to a learning environment that is creative and innovative. It is important to increase the number of researchers in the field of research and development of skilled and knowledgeable human capital in critical areas.

In order to bridge the gap between the university and industry, CEE through the connection with the industry plan to pursue a more sustainable programme involving the university and the industry. This will systematically improve the skills and knowledge of experts in the technical aspects as well as enhance their creativity in the workforce so that they can meet the needs of the industry. In this way the implementation of research and development activities to contribute to the growth of talent development is more effective and systematic. In addition, the opportunity for collaboration with external parties through industry-based research can promote the production of experts in the fields of engineering, science and technology.

Spirit Aerosystems

To meet the nation's aerospace demands, The School of Aerospace Engineering at USM offers quality education in the field of aeronautics and astronautics. As part of building human capital of aerospace engineers for the country and fulfilling the APEX agenda where teaching and research excellence are equally important, both must have direct impact to the industry and community.

The School has very strong ties with the local aerospace industries which not only serve as industrial training placements for the students but more importantly, as one of the stakeholders which is constantly providing feedback to improve our curriculum and as a venue where academic knowledge can be translated into industrial practice. Spirit Aerosystems, a global aerospace company located in Subang has formed a successful partnership with the USM School of Aerospace Engineering. As a result of having a close collaboration with Spirit Aerosystems, the School has made composite materials one of its niche areas in terms of teaching and research.

Under the Undergraduate Attachment Programme (UGAP), selected talented students from the School of Aerospace Engineering were sent for internship programmes. Selected students, beginning from first year will undergo training each semester break every year during the four-year period. This provides the students with valuable hands-on knowledge and working experience in aerospace composites manufacturing which cannot be taught in the classroom.

SPIRIT GLOBAL DESIGN CHALLENGE
2009

Besides the internship programmes, excellent fourth-year students can also participate in Spirit Aerosystem's Global Design Competition (GDC). The GDC programme was first organized in 2009 and is an annual event. Students are given a chance to collaborate with other undergraduate students from universities abroad to produce out of the box concepts in aircraft design and manufacturing. The participating universities include Universiti Sains Malaysia, the University of Wichita (USA), University of North Carolina (USA), the University of Manchester (UK) and a few others. Our students have befitted from this GDC programme through international recognition (winning group) and two of our former students have been selected to undertake postgraduate studies at the University of Wichita (USA) with full scholarship.

The School of Aerospace Engineering and Spirit Aerosystems have a two way relationship. The former currently has four or five of the latter's senior staff pursuing postgraduate degree as a means of providing cutting edge knowledge, research and technology and technology for the industry players and the number is expected to increase within the next few years. This is part of the two institutions' long term collaboration plan which is predicted to go beyond 2015.

MoA/MoU

In July 2009, USM through its commercial arm, USAINS Holdings Sdn. Bhd. signed a MoA with Northern Corridor Implementation Agency (NCIA). USAINS Info Tech Sdn. Bhd. (UISB), a subsidiary company of USAINS Holdings collaborated with the NCIA to establish, manage and operate NCIA's Centre of Excellence for Electrical & Electronics (CoE-E&E) Integrated Circuit (IC) Design Industry. The services provided include consultations for research and development in microelectronics design, training, development programmes in microelectronics systems, pay-per use of IC design tools and facilities.

Through this collaboration, UISB and CoE-E&E are serving as the catalyst for value-added development of the regional Electric & Electronics industries operated by Small and Medium Enterprises (SMEs) and Multinational Industries (MNI). This collaboration has matured into the provision of out-sourcing engineers in specialized areas to support MNIs, Academia-Industry collaboration, producing Design Engineers with Master's Degree qualifications from USM, and even new product design and development activities.

The Centre of Excellence also initiated the Northern Corridor Analogue and Digital Design (NCADD) programme. The first 25 trainees were sent for a digital design course in January 2010. Intel Technology was responsible for selecting the right candidates. In a similar vein, USAINS Holdings purchased electronic design automation (EDA) software from Synopsys (Singapore) Pte. Ltd. in February 2010 in order to provide shared-tool services to the industry.

Conclusion

The Centre of Engineering Excellence has been proudly awarded with two CREST R&I grants, the first grant cycle with nine projects and the second grant cycle with 13 projects. Excellent USM students from the School of Aerospace Engineering were sent to participate in Spirit Aerosystem’s Global Design Competition (GDC). The GDC programme was first organised in 2009 and is an annual event. Students are given a chance to collaborate with other undergraduate students from universities abroad to produce out of the box concepts in aircraft design and manufacturing.USM was well known among industries in Malaysia.

THE APEX UNIVERSITY
Mentransformasikan Pengajian Tinggi untuk Kelestarian Hari Esok
USM UNIVERSITI SAINS MALAYSIA

Reaching Out to the Bottom Billion

> **“The ultimate yardstick for measuring the success of a university is the improvement of the lives of the people it serves. A society will attain full value from its university if society and the university are linked together and confront the realities of today…”**

Prof Tan Sri Dzulkifli Abdul Razak, former Vice Chancellor of Universiti Sains Malaysia. Source: “Universities at the Crossroads” by Shad Saleem Faruqi, *The Star*, April 6, 2011.

Canon
NAV
USM
UNIVERSITI SAINS MALAYSIA
National Advanced IPv6
Centre of Excellence
EOS

> **“Community engagement refers to the process by which organisations and individuals build ongoing, permanent relationships; and apply a collaborative vision to benefit the community. It encompasses participation from the beginning by identifying issues and mobilising relevant resources and strategies in improving the community towards change. The elements of engagement, partnership, coalitions and sustainability are essential in ensuring the community’s social functioning and well-being. Community engagement requires voluntary participation of all parties which results in mutually beneficial exchange of knowledge and resources”. – Division of Industry & Community (BJIM), Universiti Sains Malaysia.”**

Introduction

The rapid pace of globalisation and the pervasiveness of the information technology have unfurled socio-economic and cultural tsunamis that have collectively transformed the landscape of communities the world over. Despite rapid strides made in wealth creation, food production, industrial productivity, and improvements in both the quality of life and life expectancy, vast swaths of humanity still belabour under the yoke of poverty, burdened by illiteracy, and cowering helplessly at the unending tribulations wrought by the vagaries and vicissitudes of an underprivileged existence. This marginalisation process has been accelerated by the global financial crisis and economic policies that have exacerbated income inequality. A concomitant outcome of these developments has been the lack of accessibility to basic education, quality health care and economic opportunities. Consequently, marginalisation has spawned in its wake social problems, disease, poverty and squalor to accompany the emotional consequences such as despair, depression and stress which have all contributed to the collective dehumanisation and disillusionment of many individuals and communities. There is thus a necessity to reach out and succour the needs of the underprivileged such that they too enjoy the inalienable basic rights to human dignity due to every man, woman and child, a role many institutions of higher learning are eminently placed to undertake but have thus far neglected.

In this regard, Universiti Sains Malaysia stands as the torchbearer of psycho-socio-economic transformation who has been actively involved in touching and sculpting the destiny of the downtrodden through its injection of hope to inoculate against despair, its transfusion of skills to alleviate the anaemia of helplessness, and its transfer of knowledge to appease the hunger for information. As part of its vision of transforming the future face of higher education through the infusion of humanistic values and nurturing of sustainability, Universiti Sains Malaysia has endeavoured to reach out to both industry and community in order to forge closer, effective, meaningful and sustainable linkages and partnerships with the world outside. The Division of Industry and Community Network established in September 2007 is the nerve-centre tasked with the responsibility of planning, coordinating resources and implementing projects that function as harbingers of socio-economic transformation in the community as well as catalysts for technological innovation in industry. Headed by a Deputy Vice-Chancellor (Industry and Community Network), this new division better known by its Malay acronym, BJIM *(Bahagian Jaringan Industri dan Masyarakat)* has been at the forefront of transformative initiatives designed to enhance the quality of life, the preservation of a pristine environment, the empowerment of the marginalised, the elevation of industrial output and productivity, and the development of cutting edge technology through the synthesis of knowledge and expertise.

Since its formation, BJIM has been active in engaging the community in its quest to effect meaningful change by reshaping lives and remoulding technology through collaborative partnerships, and effective and sustainable linkages These endeavours are in tandem with USM’s manifestation of the concept of the humaniversity – a sobriquet coined to describe the symbiotic marriage of Man’s innate humanity with his pursuit of knowledge in the quest to orientate society towards the attainment and actualisation of the higher ideals in life. It is the quest towards realising this mission that BJIM has dedicated itself to via the harnessing of knowledge, resources and expertise to effect socio-economic transformation through community empowerment, knowledge transfer, and sharing of expertise.

Philosophy, Vision, Mission and Objectives

The heart of BJIM's philosophy throbs to the rhythmic pulse of humanitarianism. This core philosophy of BJIM is echoed in all its endeavours that ring with the clarion call to provide selfless and altruistic service to all irrespective of colour, creed or status. It is this fountain of humanitarianism that nourishes the cherished values of BJIM such as empathy for the downtrodden, kindness for the less fortunate, equity for the marginalised and empowerment for the disenfranchised. Beyond the core set of values, the emplacement of humanitarianism as its core philosophy obligates BJIM to valorise ancillary values like respect, good morality, ethics, integrity and accountability. BJIM USM is fully committed to working towards establishing USM as a university where staff and students dedicate themselves towards service-to and interaction-with the community, and work hand in hand in a harmonious symphony to orchestrate projects that meet the needs, expectations and aspirations of communities within and beyond its idyllic surrounds.

The Division of Industry and Community Network, USM is the incubator, facilitator and prime mover of Community Engagement (CE) and is tasked with the responsibility of actualising the USM ideal of empowering the bottom billions. In assuming this important role of embedding the Community Engagement process within the institutional framework, BJIM has conceptualised several core objectives in line with its philosophy, vision, and mission statements. These core objectives constitute the guiding principles of BJIM and all its activities in its six thrust areas, namely education, economy, health, environment, culture and social service. BJIM's core objectives for Community Engagement can be surmised as follows:

- To act as a one stop referral centre for community engagement processes.
- To ensure that engagement with the community is in line with the vision and mission of the university.
- To ensure that linkages and engagement with the community are meaningful, effective and sustainable.
- To raise and enhance linkages and engagement at state, national, regional and international levels.
- To enhance awareness and understanding of the concept of community engagement and its best practices.
- To embed the culture of volunteerism within the national and international framework.
- To propagate and share experiences of best practices in community engagement.
- To function as a global secretariat that supports transnational and multinational community engagement initiatives.
- To conceptualise community engagement innovations and initiatives that drive socio-economic transformation
- To partner the community in community-based research and community-based projects.
- To collaborate in university-community engagement endeavours with institutions of higher education of the Asia-Pacific region and beyond

Initiatives and Achievements

As a pioneer of innovative CE initiatives within the Malaysian context, BJIM through inspirational leadership, astute planning, successful implementation, outcome evaluation and project review and iteration has emplaced USM as a prominent player in effecting socio-economic transformation for a better tomorrow for the underprivileged.

BJIM has established a flexible yet transparent framework through which Community Engagement initiatives can be energised via shared resources, expertise and, knowledge. Essentially, this framework involves the division of its core tasks into two platforms that can be leveraged upon to enhance project synergy. Known as "Clusters", these frameworks operate independently targeting specific groups that are struggling to make headway in society due to economic marginalisation, social discrimination, civil disempowerment or other forms of socially, politically or economically imposed inequalities. In adopting an eclectic fusion of trans-disciplinary and multidisciplinary frames, BJIM is emplaced to effect the desired transformation via the implementation of solutions to a variety of issues derived from a cross-fertilization of ideas, insights and input.

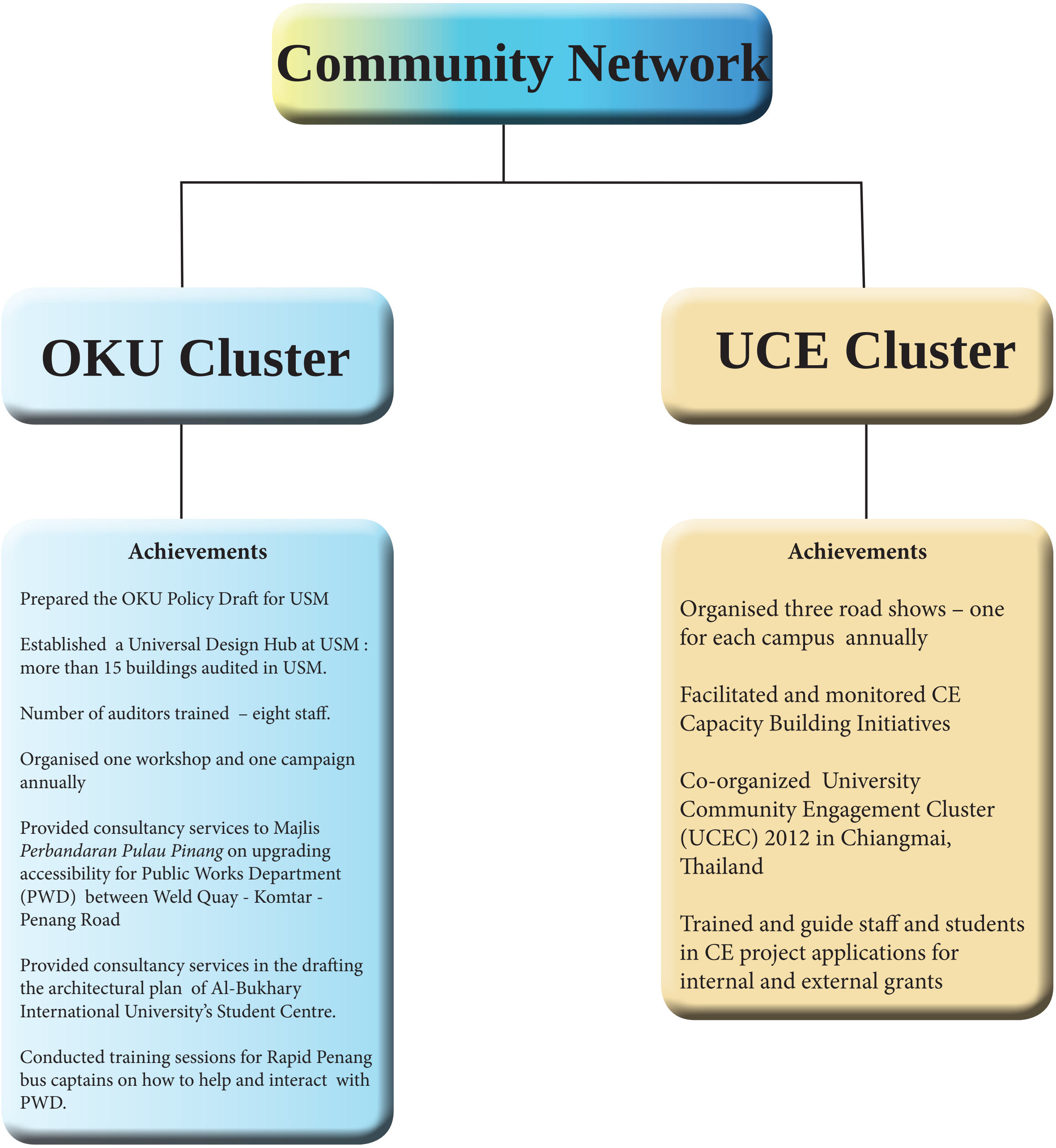
Clusters

BJIM's purpose is to function as the facilitator that brings industry, government agencies, and NGOs together to empower local communities. To achieve its set targets of transforming the quality of life of the "Bottom Billions" and bridging the wealth inequality gap, BJIM has set up two "clusters" that work towards the various goals of sustainable community development. The two clusters are the:

i. OKU (Disabled or *Orang Kelainan Upaya*) Cluster
ii. University Community Engagement (UCE)

Figure 9.1 illustrates the major achievements of the respective clusters in 2011.

Apart from the Cluster platform, two core organisations have been specifically created to energise community engagement initiatives both locally and



Community Network

OKU Cluster

Achievements

Prepared the OKU Policy Draft for USM

Established a Universal Design Hub at USM : more than 15 buildings audited in USM.

Number of auditors trained – eight staff.

Organised one workshop and one campaign annually

Provided consultancy services to Majlis *Perbandaran Pulau Pinang* on upgrading accessibility for Public Works Department (PWD) between Weld Quay - Komtar - Penang Road

Provided consultancy services in the drafting the architectural plan of Al-Bukhary International University's Student Centre.

Conducted training sessions for Rapid Penang bus captains on how to help and interact with PWD.

UCE Cluster

Achievements

Organised three road shows – one for each campus annually

Facilitated and monitored CE Capacity Building Initiatives

Co-organized University Community Engagement Cluster (UCEC) 2012 in Chiangmai, Thailand

Trained and guide staff and students in CE project applications for internal and external grants

Figure 9.2 Snapshot of the clusters under the Community Engagement Network Office

abroad. They are the Asia-Pacific-University Community Engagement Network (APUCEN) and the Right Livelihood College (RLC). A brief delineation of each organisation is provided in the following sections.

Asia-Pacific University Community Engagement Network (APUCEN)

APUCEN was formed in 2010 with the aim of embedding the concept of Community Engagement (CE) across political, physical, economic and geographical boundaries. Since its inception, membership of the network has expanded exponentially, particularly from 2011 when the re-strategising and repositioning of APUCEN witnessed a significant increase in applications for membership from both First and Third World nations. As of December 2012, APUCEN has 52 constituent members comprising of universities and Institutions of Higher Learning's (IHLs) from 12 nations with its secretariat based in USM, Malaysia Amongst the key activities conducted by APUCEN thus far has been the convening of the University Community Engagement Conference (UCEC) since 2009.

APUCEN is an idea triggered at the first University-Community Engagement Champions Conference (UCEC) held in 2009. It was further conceptualised to serve as a scholarly platform to enhance networking and the sharing of experiences among educators, communities as well as social development practitioners on the best practices of university-community engagement activities. UCEC is designed to provide a framework through which the mechanics of community engagement which includes reciprocal or symbiotic relationships between university and community; the need for participatory action; action research, working towards community empowerment; and sustainability can be better understood. In addition, UCEC contributes towards the advancement of knowledge via the sharing of experiences, interactional exchanges, and the intellectual dissection of issues related to CE. UCEC is held every two years and its hosting is rotated among the participating member countries with USM as a permanent co-organiser Figure 9.2.

Thus far, two significantly successful University - Community Engagement conferences (UCEC) have been organised by BJIM in collaboration with the Global Alliance for Community Engaged Research (GACER), Unesco-Asia-Pacific Programme of educational / Inovation for Development (UNESCO-APEID) and Thammasat University, Thailand. In fact, resolutions tabled in the 2009 inaugural conference led to the setting up of the UCEC Secretariat in early 2010, to coordinate the organisation of future biennial UCECs.

Right Livelihood College@Usm

The Right Livelihood College was established via a Memorandum of Understanding signed between the Right Livelihood Award Foundation (RLAF), based in Stockholm and Universiti Sains Malaysia, based in Penang on January 8, 2009.

The College is hosted by the Universiti Sains Malaysia and its global secretariat is located at the Division for Industry and Community Network (BJIM). The primary goal of the RLC@ USM is to harness and spread the knowledge, experiences and unique best practices of outstanding personalities, and organizations who have been proclaimed Laureates of the Right Livelihood Award popularly known as the “Alternative Nobel Prize.” In actualising this noble aim, RLC has been at the forefront of connecting the global community of award recipients to help release synergies, multiply tested know-how and create the critical mass necessary to help the underprivileged and the marginalised to attain their aspirations. To support this primary aim, RLC has served as a ‘hub’ and an incubator for

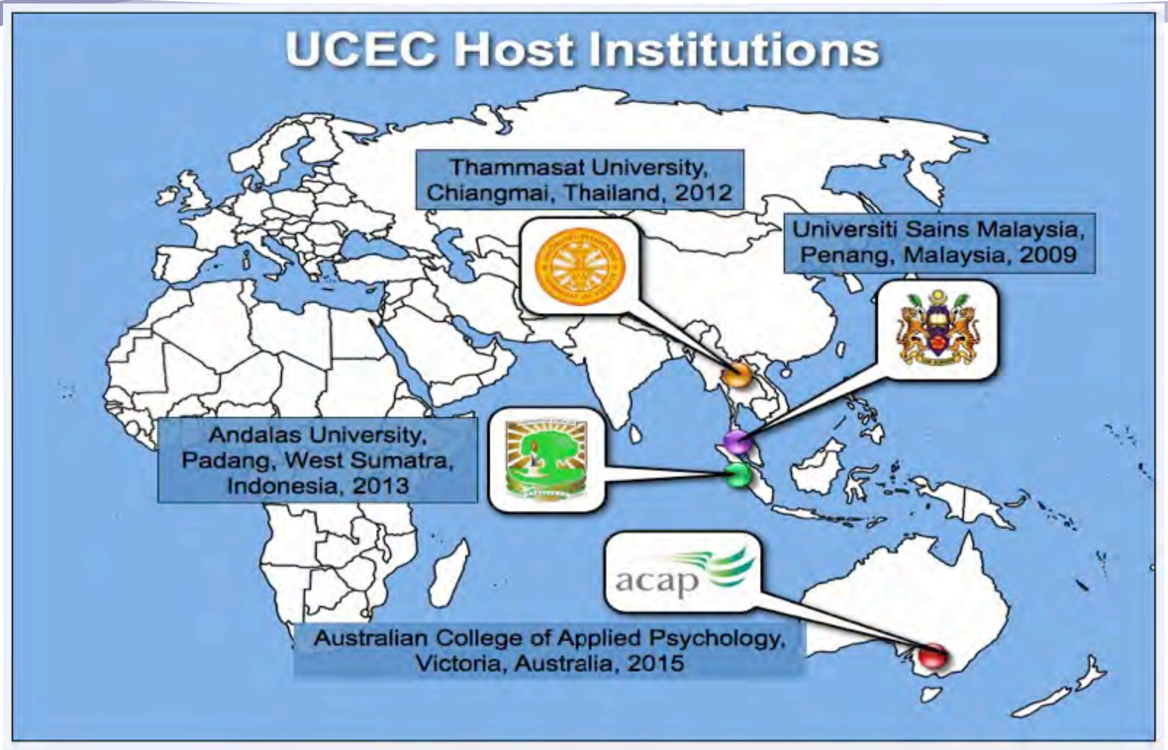

UCEC Host Institutions
Thammasat University, Chiangmai, Thailand, 2012
Universiti Sains Malaysia, Penang, Malaysia, 2009
Andalas University, Padang, West Sumatra, Indonesia, 2013
acap
Australian College of Applied Psychology, Victoria, Australia, 2015

Figure 9.3 UCEC host institutions

promotion of successful solutions to urgent global problems via the dissemination of information and expertise, the development of social education tools and web based learning materials, the convening of conferences and forums to enhance local and transnational networking and the establishment of proactive CE platforms, the provision of internship opportunities as well as support for research scholarship programmes.

RLC@USM's initiatives in community engagement has been primarily in capacity building in its orientation and scope. In this regard, RLC has been at the forefront in conceptualising pioneering innovations that have functioned to synergise human capital and potential to effect societal transformation.

Amongst the notable projects in CE capacity building was the Lifting

Others Through Volunteer Engagement (LOVE) project organised in partnership with AIESEC (Association Internationale des E'tudients en Sciences E'conomiques at Commerciales), a global social science platform for undergraduates engaged in the development of a more caring and entrepreneurial society. A veritable bloom of Student Social Responsibility (SSR), itself yet another pioneering USM concept, LOVE successfully connected staff and students alike to many leading community organisations that champion social-economic development, and help in the creation of an equitable and caring society. In fact, the organisation of LOVE is consonant with USM's mission to empower future talent and enable the bottom billions to transform their socio-economic well being. With the embedding of volunteerism in the undergraduate psyche as its core objective , the inaugural LOVE event in 2011 attracted the participation of over 2,000 students and witnessed approximately 600 students registering themselves as volunteers with more than 20 local and transnational Non-Governmental Organisations (NGOs).

Another CE initiative, undertaken by RLC@USM has been the valorisation of certain cherished humanistic ideals through special commemorative events organised on specific dates of historical significance. One such day was the International Day of Non-Violence which falls on the 2nd October of every year and is also the birth date of Mahatma Gandhi. To commemorate this special day, RLC@USM organised a five kilometre run within the undulating grounds of the campus to promote the cause of global peace, and the concept of non-violence as espoused by Gandhi. The event drew a crowd of 4,000 participants from 10 different nations while proceeds from the event's entrance fee and sales from stalls set up to cater to the crowd were donated to charity.

It is evident from the foregoing that RLC@USM's role as medium of socio-economic transformation extends beyond the conference hall and seminar rooms as it is also actively involved in shaping present and future champions of CE through its capacity building initiatives besides being an active purveyor of the intangibles of CE such as promoting the notion of social harmony, non-violence and universal peace.

MoU/MoA/NDA

Apart from strategising and monitoring projects and activities conducted under its purview, BJIM has also initialled Memorandums of Agreement (MoA), Memorandums of Understanding (MoU) and Non-Disclosure Agreement (NDAs) with external agencies and the private sectors to pave the way for enhanced networking and sharing of experiences of best practice on community/industry engagement. To date, the number of MoUs/MoAs/NDAs between USM and external agencies from community and industry are as illustrated in Figure 9.3.

Grants

An important feature of engagement between universities and communities is the establishment of mutually beneficial relationships and partnerships to address community issues and needs. Such linkages are normally underpinned by a strong commitment to sharing and reciprocity that is guided by mutual respect among the respective partners. The implementation of community engagement projects are aimed at addressing issues of the disadvantaged and marginalised especially those in the local community in line with the NEM. Invariably, these projects require substantial financial outlays to implement and to address these requirements a multi-layered grants scheme, encompassing both internal and external

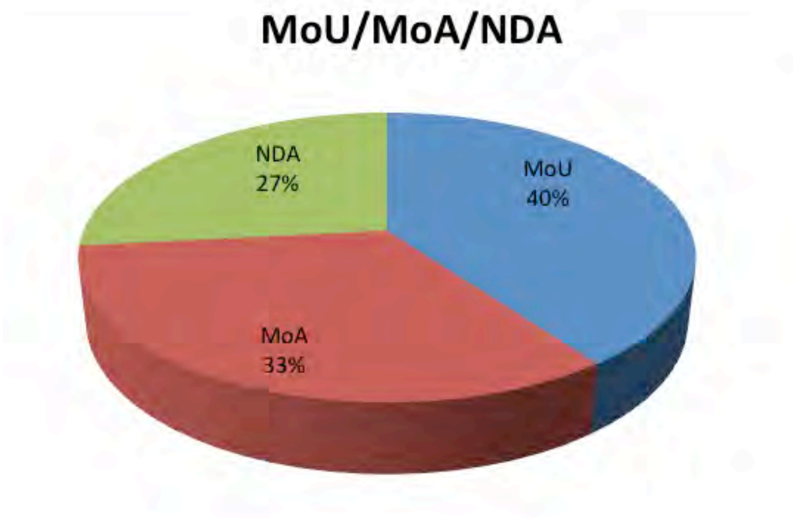


Figure 9.4 Breakdown of MoU/MoA/NDAs initialed between USM and external agencies

financing mechanisms, has been emplaced

Internal Grant Framework

BJIM provides three types of grants namely flagship, long term, short term and ad-hoc grants to finance initiatives that promote community engagement.

Flagship Grants

Flagship grants refer to those grants disbursed to finance flagship projects which can potentially yield maximal psycho-socio-economic impact for all vast cross-sections of a marginalised community. Normally, flagship grants have a parturiency of three years and the projects funded tackle a variety of issues related the core problem. Since flagship projects reach out to vast segments of a community, they have high visibility and often elicit substantive publicity about their implementation and impact.

Long term and Short-term Grants

Long term grants refer to those grants provided for projects with a gestation period of more than three years but not exceeding five years while short term grants refer to those grants allotted for projects with a one to three year implementation timeframe. The allocation for a grant is dependent on the nature of the project and the financial requirements necessary to ensure its successful consummation and subsequent sustainability. Both long and short term grants are usually provided to academic staff and administrative staff at the university who have innovative ideas in the form of technology, knowledge or skill to deploy in the field in order to improve the quality of life of recipient communities.

These types of grants allow researchers and academics alike to test prototype ideas or products in the field to assay their efficacy and essentially involve knowledge or skills transfer that drive socio-economic transformation.

In total, BJIM has approved grant allocations for 241 community and three flagship projects (refer Table 9.3) under the following 6 themes (Figure 9.4).

- Education
- Economic Enhancement
- Health
- Environment
- Heritage and Culture
- Social

Both Table 9.3 and Table 9.4 seem to imply that the trajectory of involvement in CE has experienced a perceptible decline. However, in actuality, such a decline should not be misconstrued as an increased misgiving with CE as a potential tool that can effect efficacious psycho-socio-economic transformation. Rather, the decline is a positive manifestation of BJIM's comprehensive review of its existing strategies, implementation procedures and monitoring protocols since 2011. It also reflects BJIM's metamorphosis into a more mature and accountable organisation equipped to deal with the challenges wrought by non-linear social transformations and non-teleological spatial and temporal developments. Beginning 2011, the strategic reappraisal of project objectives coupled with the stringent analysis of operational and developmental expenditure patterns plus Returns on Investment (ROI) analysis to both community and institution as well as assessment of the socio-economic impact of programmes conducted divulged the need to optimise resources through better targeting strategies so that a project's impact could be diffused to a wider segment of the community. This led to the design and implementation of new standard operating procedures and revised Terms of Reference (TORs) that have contributed substantially towards improved project outcomes and wider percolation of their transformative impact. In addition to these measures, the grant scheme has also been subjected to intense scrutiny since 2011, wherein stringent project appraisal and approval procedures coupled with strict process and product evaluations have resulted in the better allocation of financial resources to generate the optimal outcomes. Furthermore, grant approval is now subject to additional

Table 9.3 Community projects funded by BJIM : 2008 – 2012

Year	**Education**	**Economic & Enhancement**	**Health**	**Environment**	**Heritage and Culture**	**Social**	**Total**
2008	13	2	3	2	4	3	**27**
2009	15	3	5	6	7	5	**41**
2010	26	13	17	7	2	17	**82**
2011	5	7	18	10	2	4	**46**
2012	14	2	8	7	3	11	**45**
Total	**73**	**27**	**51**	**32**	**18**	**40**	**241**

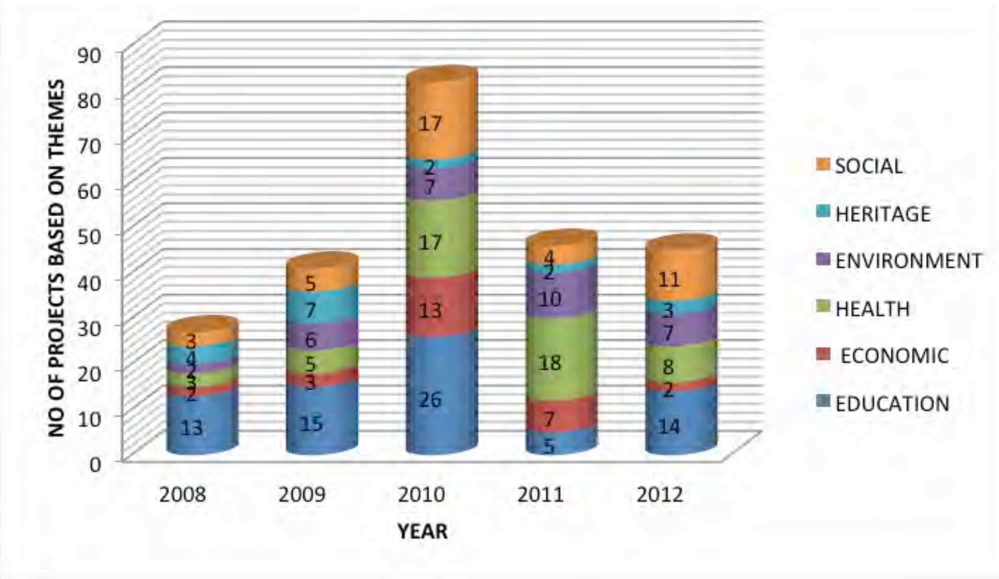


Figure 9.5 Budgetary allocations according to the six thrust areas (2008 -2012)

evaluative variables such as the transdisciplinarity orientation of the project, its viability in terms of sustainability, and its practicality as a tool of effecting meaningful psycho-socio-economic transformation. Finally, an integrated circuit of project evaluation was embedded into the project loop to enable the generation of progress reports, facilitate virtual project monitoring, and effect the rapid transmission of palliative measures to all relevant stakeholders. All these Quality Control (QC) initiatives have had the desired impact of ensuring the emergence of a Competent, Accountable and Transparent (CAT) framework of project planning and implementation that has contributed significantly to quality project management and delivery. In other words, despite the fact that the number of projects has perceptibly declined; improvements in planning strategies, the attention accorded to quality delivery, the stringent auditing of outcomes and the induction of sustainability principles coupled with comprehensive project surveillance protocols have together ensured that each ringgit expended yields the optimal outcomes whilst generating the maximal transformative impact.

AdHoc Grant Scheme

The reengineering of BJIM's operational and developmental structures engendered the addition of another facet to the grant scheme with the introduction of the adhoc grant programme. The ideational stimulus for this initiative, which commenced in April 2012, was primarily motivated by the goal to broaden the scale and scope of staff and student participation in CE and empower them with the responsibility of planning and implementing CE projects. The prime objective behind the initiative is to cascade the notion of CE into all strata of the USM citizenry to facilitate the optimal mobilisation of human capital so as to better effect social transformation of the marginalised and the underprivileged via a combination of altruism, sacrifice and empathy such that the veritable blooms of genuine CE are visible in all their resplendent glory in communities within the campus precincts and beyond.

This pioneering initiative amongst tertiary institutions in the country is reflective of BJIM's bold commitment to empower not only recipients of CE but also purveyors of CE thus expanding the spectrum of stakeholders in CE. Contemporaneous to this development is the inclusion of non-academic staff as grant recipients.

The introduction of this scheme witnessed the effulgence of student participation into the BJIM programme with approximately 30 % or 10 of the 33 projects being conceptualized and managed by proactive undergraduates and postgraduates dedicated towards applying their knowledge and expertise in the community sphere to actualise the process of CE. It can be surmised that the initiative to decouple CE from its solely academic staff based orientation has had a positive impact as student volunteers have ventured forth to be actively involved in realizing the aims of a caring university citizenry valorizing the ideals of altruism, selflessness, sacrifice, and volunteerism.

Figure 9.5 and Table 9.2 illustrate the categories of grants approved since BJIM embarked on a grant restructuring exercise in 2011. The data indicates that the introduction of the ad-hoc grant scheme has had a positive impact in terms of grant uptake as it took up the slack resulting from the 60.8% decline in approvals for grants under the short and long term, plus flagship grants facility.

External Grants

Since 2011, BJIM has been the beneficiary of financial largesse from both the local authority and the private sector. This pioneering collaboration between BJIM and external fund providers opens a new vista in CE as such funding constitutes an additional and alternative source of funding that help to ameliorate financial constraints imposed by budget cutbacks or other similar eventualities.

Thus far, noteworthy projects that have been initiated under this novel collaborative framework are as follows:

1. Integrated Waste Management – a community focused solid waste disposal and management project funded by *Majlis Perbandaran Seberang Perai*.

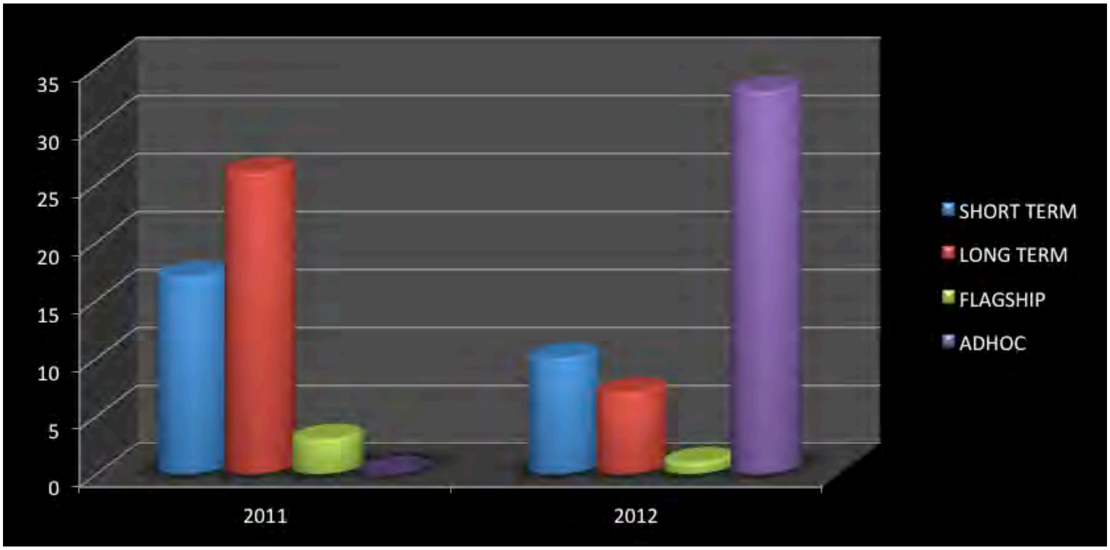


Figure 9.6: Categories of BJIM grant

Table 9.4 Project approved for BJIM grants (2011 – 2012)

Type of Grants	2011	2012	Total
Short Term	17	10	27
Long Term	26	7	33
Flagship	**3**	**1**	**4**
Ad Hoc	**-**	**33**	**33**
Total	**46**	**51**	**97**

2. Management of Biowaste into Biogas (CIMB) with Sustainable Applications of Vermitechnology for Ecological Community Development of Cattle Farmers (SAVECOM) – a CSR initiative financed by CIMB's Group on the Environment (Solid Waste Disposal/ Management section)

3. Corporate Practices Transformation project- a Motorola funded collaborative program designed to enable USM staff to offer their expertise in order to effect transformation within the workplace notably in five identified sub areas of health, well being, leadership and organisational frameworks and manufacturing.

Knowledge Transfer Programme Grant

Another significant contributor to the CE initiative indirectly via BJIM, is the Ministry Of Higher Education (MOHE) which via its Knowledge Transfer Programme initiative has thus far extended funding for 28 projects conducted in various communities nationwide. These projects enable the university to partner industry and community to activate the transfer and application of innovative solutions, and cutting edge technologies in order to upgrade the socio-economic status and social well-being of target populations as well as empower target communities to assume civic responsibility for a better future, besides nurturing awareness on the importance of living in a clean environment.

A total of approximately RM3.66 million has been disbursed to fund 28 projects since the grants scheme was initialised in 2011.

Participation in Projects

In terms of involvement in CE projects, the data in Table 9.5 and Figure 9.6 reveals that both administrative and academic staff constituted approximately 90% of all participants with students being the minority cohort in 2010 and particularly in 2011. This finding formed the basis for the initiation of a new initiative by BJIM, namely the ad-hoc grant initiative which was primarily designed to incentivize student participation in CE activities.

This move had the immediate effect of enhancing student participation with the student cohort constituting approximately 20% of the overall non-community total in 2012 (Table 9.5 and Figure 9.7). This by itself is indicative of BJIM's success in attracting a substantial number of post-graduate and undergraduate students to either lead or be involved in CE projects since 2011. In fact, the increase in the number of students participating in CE activities augurs well for the future embedding of CE amongst the student citizenry especially amongst the post-graduate student cohort who have the potential to drive CE innovation through the optimisation of their expertise and the field testing of innovative CE solutions to address the needs of the underprivileged and the marginalised. Additionally, this finding also augurs well for the further development of nascent trans-disciplinary and multi-disciplinary research led by a dedicated, idealistic and highly motivated student cohort whose actualisation of their roles as roving BIONEERs, BOTINIKS, BEACH-COMBERS etc can drive psycho-socio-economic transformation through the CE platform and in doing so bring to fruition BJIM's ultimate aspiration of mobilising knowledge, skills and human capital in tandem with all community stakeholders to empower the disenfranchised, uplift the poor, enlighten the ignorant and energise the despondent. In terms of societal impact, the data indicates that

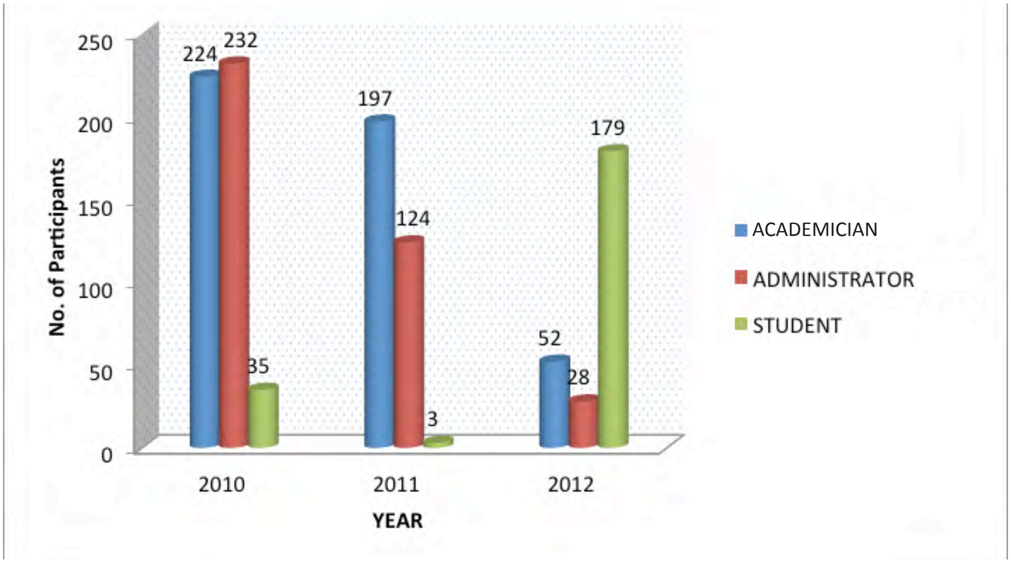


Figure 9.7 Numbers of staff and students involved in community projects (2010 – 2012, BJIM grant)

Table 9.5: Participation in projects by the respective cohorts.

Year	Academician	Administrator	Student	Community Participants
2010	224	232	35	8,137
2011	197	124	3	6,840
2012	52	28	179	5,926
Total	**473**	**384**	**217**	**20,903**

20,903 members of community were directly impacted by the various projects implemented since 2012. These impressive figures recorded within a span of three underline BJIM's role as an incubator and facilitator of CE thus far as well as serve as an apt testimony of its increasingly prominent role as an agent of change within the campus and the wider community. The press clippings in Figure 9.8 are indicative of the media atlention of the project received.

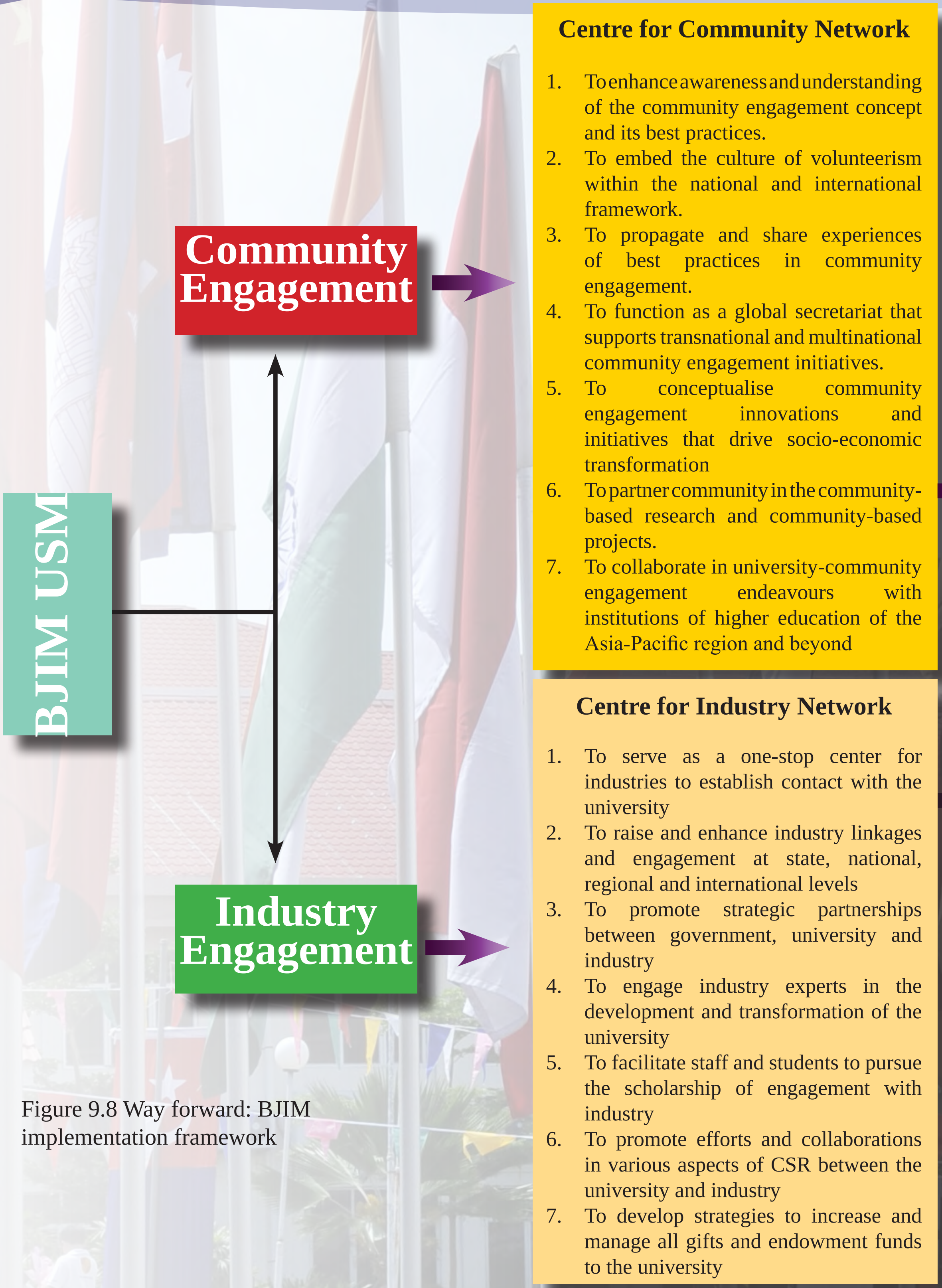
Challenges and Constraints

Despite its impressive track record in promoting and supporting CE as an efficacious, viable and sustainable tool of psycho-socio-economic transformation, BJIM is nevertheless confronted by a variety of challenges and constraints as outlined in Table 9.6.

Nevertheless, BJIM's unwavering focus on the reconfiguration of its institutional and operational framework has equipped the organisation to confront these challenges and other unexpected eventualities in a proactive manner. BJIM has been at the forefront in pioneering several innovative initiatives since 2011 related to project management such as the setting up a comprehensive and interlinked database, the emplacement of stringent quality control and project evaluation procedures, the benchmarking of outputs to national and international standards, the rigorous monitoring of expenditure and the adherence to the requisite protocols related community engagement. To adequately prepare itself in order to confront the challenges ahead, BJIM has reengineered its internal structure by realigning both community and industry engagement within specific frameworks that will witness the organisation reinventing itself as a proponent of not only total empowerment oriented CE but also as a prominent stakeholder in conceptualising, shaping, and implementing innovative solutions for industries especially for SMEs. The net outcome of this strategising and structural review is the revised structural framework of BJIM as featured in Figure 9.8.

Table 9.6: Challenges Confronting BJIM

Challenges
Lack of individuals (staff & student) who are willing to work on the voluntary basis.
Absence of comprehensive and holistic sustainability index that contains indicators which empirically measures and codifies the sustainability of all forms of tangible and intangible outcomes/ transformations.
No recognition by relevant human resource agencies on involvement in CE program/project/activities for job promotion exercises etc.
The absence of a database system to effectively manage projects, retrieve or exchange information, evaluate progress, provide real-time feedback and link diverse stakeholders within a flexible and transparent informational loop.



BJIM USM

Community Engagement

Industry Engagement

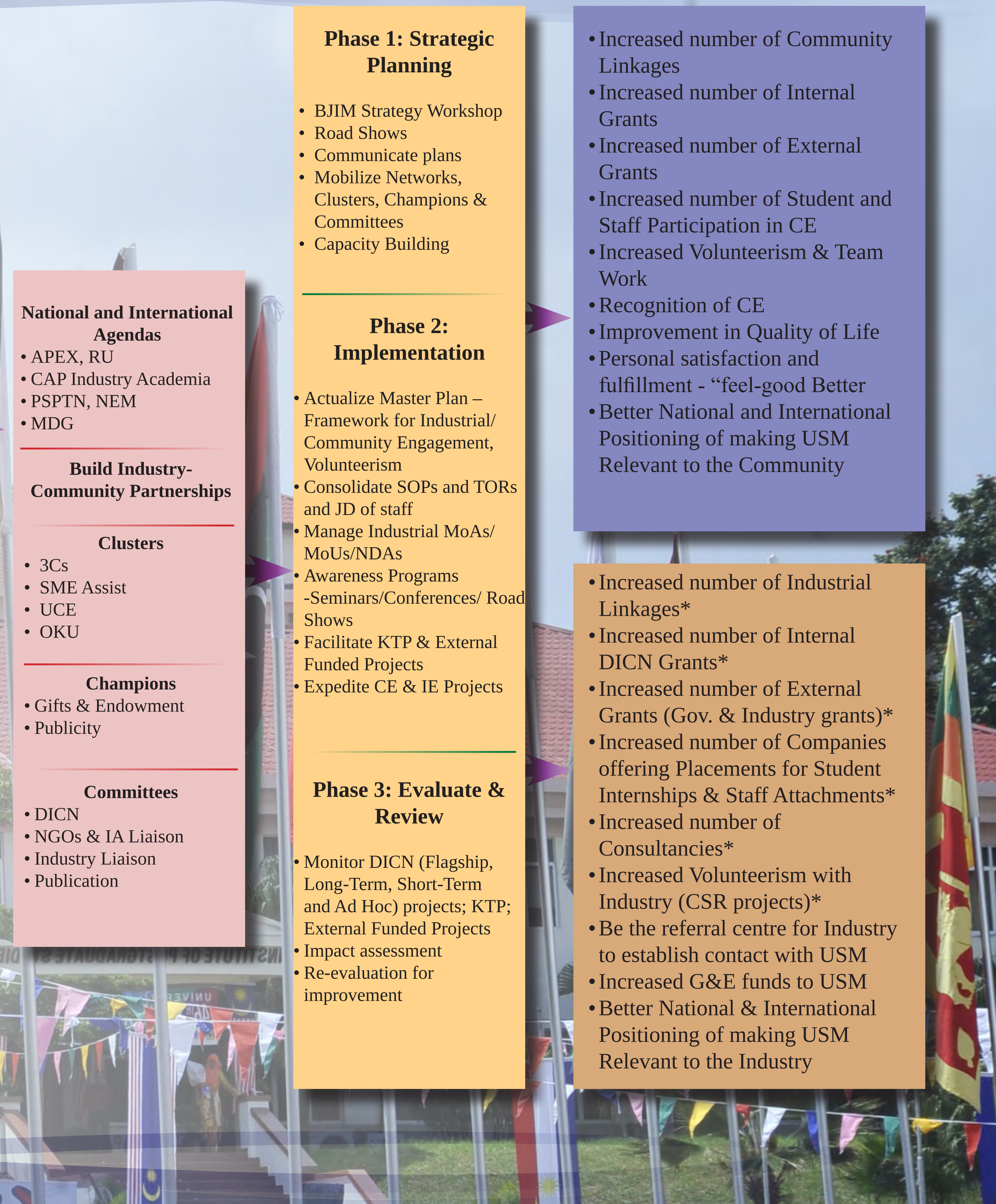
Centre for Community Network

1. To enhance awareness and understanding of the community engagement concept and its best practices.
2. To embed the culture of volunteerism within the national and international framework.
3. To propagate and share experiences of best practices in community engagement.
4. To function as a global secretariat that supports transnational and multinational community engagement initiatives.
5. To conceptualise community engagement innovations and initiatives that drive socio-economic transformation
6. To partner community in the community-based research and community-based projects.
7. To collaborate in university-community engagement endeavours with institutions of higher education of the Asia-Pacific region and beyond

Centre for Industry Network

1. To serve as a one-stop center for industries to establish contact with the university
2. To raise and enhance industry linkages and engagement at state, national, regional and international levels
3. To promote strategic partnerships between government, university and industry
4. To engage industry experts in the development and transformation of the university
5. To facilitate staff and students to pursue the scholarship of engagement with industry
6. To promote efforts and collaborations in various aspects of CSR between the university and industry
7. To develop strategies to increase and manage all gifts and endowment funds to the university

Figure 9.8 Way forward: BJIM implementation framework



National and International Agendas

- APEX, RU
- CAP Industry Academia
- PSPTN, NEM
- MDG

Build Industry-Community Partnerships

Clusters

- 3Cs
- SME Assist
- UCE
- OKU

Champions

- Gifts & Endowment
- Publicity

Committees

- DICN
- NGOs & IA Liaison
- Industry Liaison
- Publication

Phase 1: Strategic Planning

- BJIM Strategy Workshop
- Road Shows
- Communicate plans
- Mobilize Networks, Clusters, Champions & Committees
- Capacity Building

Phase 2: Implementation

- Actualize Master Plan – Framework for Industrial/ Community Engagement, Volunteerism
- Consolidate SOPs and TORs and JD of staff
- Manage Industrial MoAs/ MoUs/NDAs
- Awareness Programs -Seminars/Conferences/ Road Shows
- Facilitate KTP & External Funded Projects
- Expedite CE & IE Projects

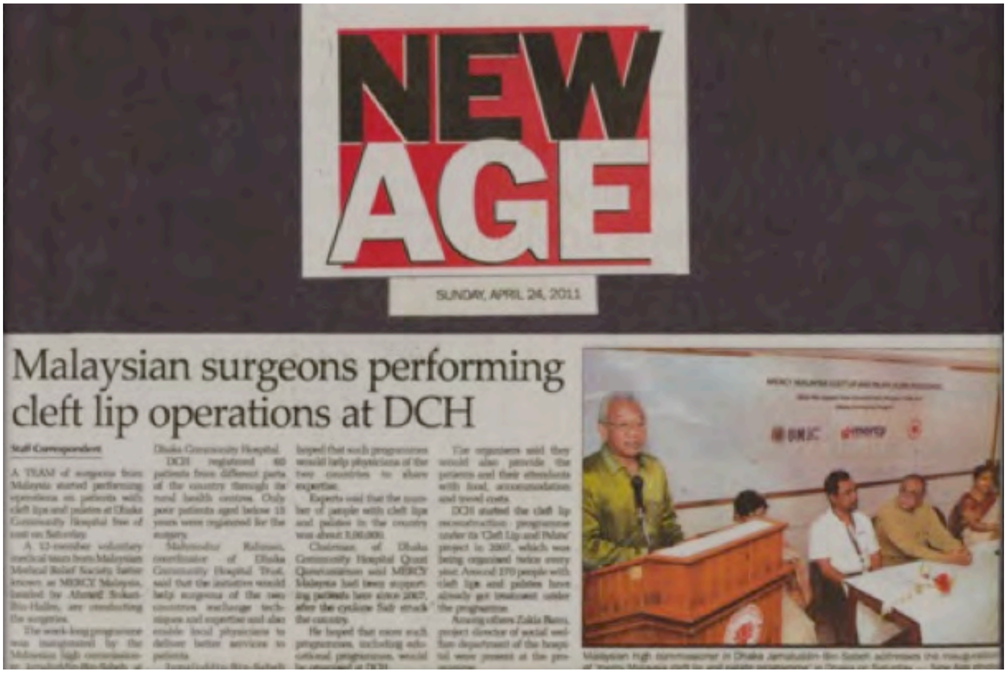
Phase 3: Evaluate & Review

- Monitor DICN (Flagship, Long-Term, Short-Term and Ad Hoc) projects; KTP; External Funded Projects
- Impact assessment
- Re-evaluation for improvement

- Increased number of Community Linkages
- Increased number of Internal Grants
- Increased number of External Grants
- Increased number of Student and Staff Participation in CE
- Increased Volunteerism & Team Work
- Recognition of CE
- Improvement in Quality of Life
- Personal satisfaction and fulfillment - “feel-good Better
- Better National and International Positioning of making USM Relevant to the Community

- Increased number of Industrial Linkages*
- Increased number of Internal DICN Grants*
- Increased number of External Grants (Gov. & Industry grants)*
- Increased number of Companies offering Placements for Student Internships & Staff Attachments*
- Increased number of Consultancies*
- Increased Volunteerism with Industry (CSR projects)*
- Be the referral centre for Industry to establish contact with USM
- Increased G&E funds to USM
- Better National & International Positioning of making USM Relevant to the Industry

Publicity



NEW AGE

SUNDAY, APRIL 24, 2011

Malaysian surgeons performing cleft lip operations at DCH

Staff Correspondent

A TEAM of surgeons from Malaysia started performing operations on patients with cleft lips and palates at Dhaka Community Hospital free of cost on Saturday.

A 12-member voluntary medical team from Malaysian Medical Relief Society better known as MERCY Malaysia, headed by Ahmad Sokart-Bin-Halim, are conducting the surgeries.

The week-long programme was inaugurated by the Malaysian high commissioner Jamaluddin-Bin-Saleh at Dhaka Community Hospital.

DCH registered 60 patients from different parts of the country through its rural health centres. Only poor patients aged below 15 years were registered for the surgery.

Mahmudur Rahman, coordinator of Dhaka Community Hospital Trust, said that the initiative would help surgeons of the two countries exchange techniques and expertise and also enable local physicians to deliver better services to patients.

Jamaluddin-Bin-Saleh hoped that such programmes would help physicians of the two countries to share expertise.

Experts said that the number of people with cleft lips and palates in the country was about 3,00,000.

Chairman of Dhaka Community Hospital Quazi Quamruzzaman said MERCY Malaysia had been supporting patients here since 2007, after the cyclone Sidr struck the country.

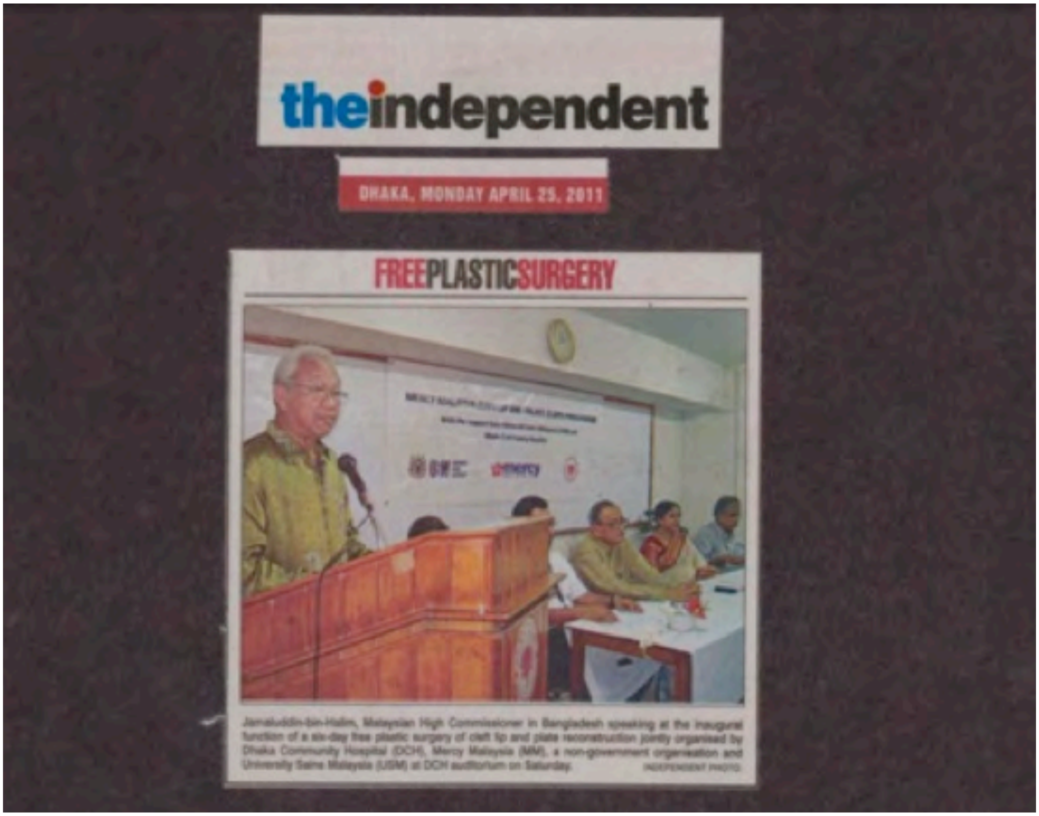
He hoped that more such programmes, including educational programmes, would be organised at DCH.

The organisers said they would also provide the patients and their attendants with food, accommodation and travel costs.

DCH started the cleft lip reconstruction programme under its 'Cleft Lip and Palate' project in 2007, which was being organised twice every year. Around 170 people with cleft lips and palates have already got treatment under the programme.

Among others Zakia Banu, project director of social welfare department of the hospital were present at the programme.

Malaysian high commissioner in Dhaka Jamaluddin-Bin Saleh addresses the inauguration of 'Mercy Malaysia cleft lip and palate programme' in Dhaka on Saturday. — New Age photo

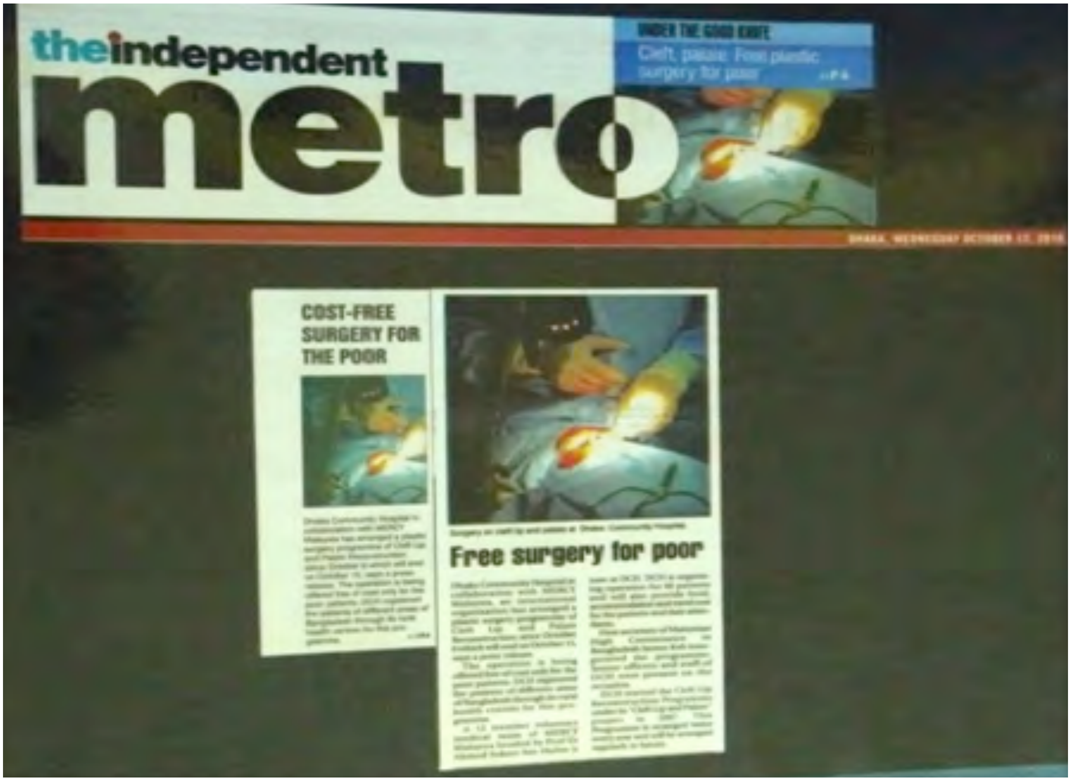


theindependent

DHAKA, MONDAY APRIL 25, 2011

FREEPLASTICSURGERY

Jamaluddin-bin-Halim, Malaysian High Commissioner in Bangladesh speaking at the inaugural function of a six-day free plastic surgery of cleft lip and plate reconstruction jointly organised by Dhaka Community Hospital (DCH), Mercy Malaysia (MM), a non-government organisation and University Sains Malaysia (USM) at DCH auditorium on Saturday. INDEPENDENT PHOTO



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UNDER THE GOOD KNIFE
Cleft, palate: Free plastic surgery for poor ››P 6

COST-FREE SURGERY FOR THE POOR

Free surgery for poor

50 doktor pakar USM serta misi kemanusiaan

KOTA BHARU – Sekumpulan 50 doktor pakar dari Pusat Pengajian Sains Perubatan, Universiti Sains Malaysia (USM), Kubang Kerian di sini bakal dihantar menyertai misi kemanusiaan bersama Mercy Malaysia di Sri Lanka tidak lama lagi.

Pengarah Kampus Kesihatannya di sini, Prof. Datuk Dr. Mafauzy Mohamed berkata, kesemua doktor pakar itu akan menyertai misi tersebut selama satu minggu.

"Ini adalah program pertama atau di peringkat percubaan antara USM dengan Mercy Malaysia.

"Doktor-doktor pakar ini akan mengajar, melatih dan bertugas di klinik-klinik di sana dan jika keadaan memerlukan, kita akan hantar lagi untuk peringkat seterusnya," katanya selepas menandatangani perjanjian persefahaman (MoU) antara USM dengan Mercy Malaysia bagi menyertai misi kemanusiaan itu.

Turut hadir pada majlis tersebut ialah Presiden Mercy Malaysia, Datuk Dr. Ahmad Faizal Perdaus.

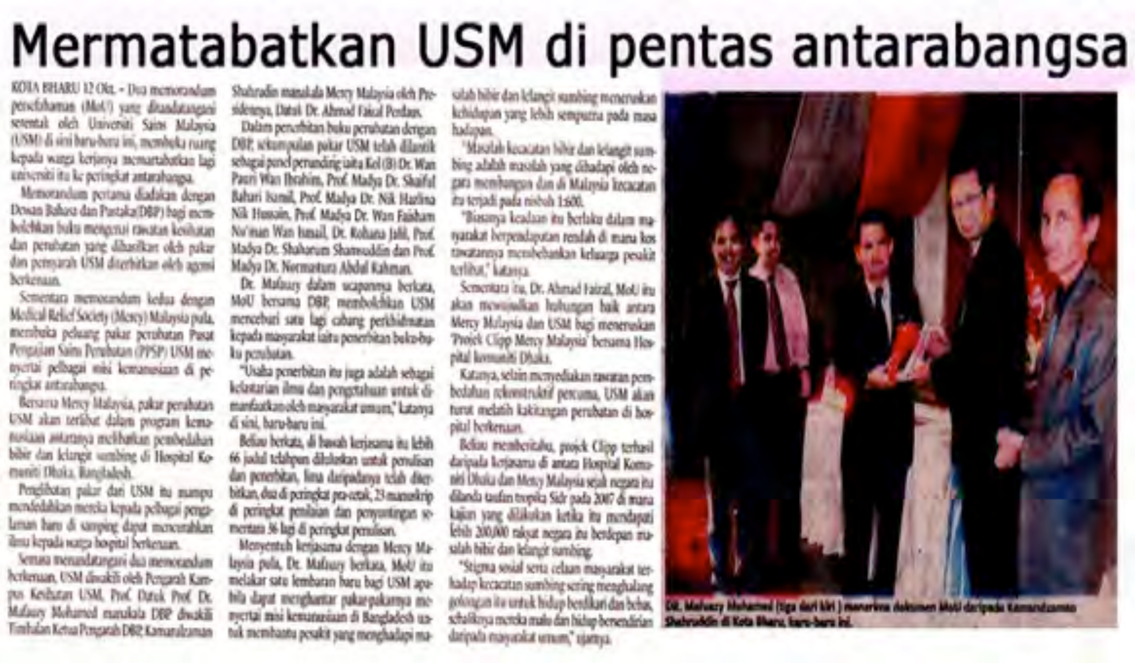
Menurut Mafauzy lagi, kesemua doktor pakar itu akan menjalankan tugas tersebut mengikut jadual yang disusun oleh Mercy Malaysia sepanjang berada di sana.

"Mereka perlu ikut tugasan yang telah disediakan oleh Mercy Malaysia.

"Penglibatan doktor pakar dalam kerja-kerja kesukarelaan ini akan memberi pengalaman baru kepada petugas USM," katanya.

MAFAUZY (kiri) menyerahkan Jalur Gemilang kepada Ahmad Faizal di Kota Bharu semalam.

Source: http://jpt.mohe.gov.my/ARKIB%20dan%20PENERBITAN/ARKIB%20KERATAN%20AKHBAR/4%20Okt%202010/kosmo/50%20doktor%20pakar%20USM%20serta%20misi%20kemanusiaan.jpg.Accessed on 3 December 2012.



Mermatabatkan USM di pentas antarabangsa

KOTA BHARU 12 Okt. – Dua memorandum persefahaman (MoU) yang ditandatangani serentak oleh Universiti Sains Malaysia (USM) di sini baru-baru ini, membuka ruang kepada warga kerjanya memartabatkan lagi universiti itu ke peringkat antarabangsa.

Memorandum pertama diadakan dengan Dewan Bahasa dan Pustaka (DBP) bagi membolehkan buku mengenai rawatan kesihatan dan perubatan yang dihasilkan oleh pakar dan pensyarah USM diterbitkan oleh agensi berkenaan.

Sementara memorandum kedua dengan Medical Relief Society (Mercy) Malaysia pula, membuka peluang pakar perubatan Pusat Pengajian Sains Perubatan (PPSP) USM menyertai pelbagai misi kemanusiaan di peringkat antarabangsa.

Bersama Mercy Malaysia, pakar perubatan USM akan terlibat dalam program kemanusiaan antaranya melibatkan pembedahan bibir dan lelangit sumbing di Hospital Komuniti Dhaka, Bangladesh.

Penglibatan pakar dari USM itu mampu mendedahkan mereka kepada pelbagai pengalaman baru di samping dapat mencurahkan ilmu kepada warga hospital berkenaan.

Semasa menandatangani dua memorandum berkenaan, USM diwakili oleh Pengarah Kampus Kesihatan USM, Prof. Datuk Prof. Dr. Mafauzy Mohamed manakala DBP diwakili Timbalan Ketua Pengarah DBP, Kamaruzzaman Shahrudin manakala Mercy Malaysia oleh Presidennya, Datuk Dr. Ahmad Faizal Perdaus.

Dalam penerbitan buku perubatan dengan DBP, sekumpulan pakar USM telah dilantik sebagai panel penanding iaitu Kol (B) Dr. Wan Pauzi Wan Ibrahim, Prof. Madya Dr. Shaiful Bahari Ismail, Prof. Madya Dr. Nik Hazlina Nik Hussain, Prof. Madya Dr. Wan Faisham Nu'man Wan Ismail, Dr. Rohana Jalil, Prof. Madya Dr. Shaharum Shamsuddin dan Prof. Madya Dr. Normastura Abdul Rahman.

Dr. Mafauzy dalam ucapannya berkata, MoU bersama DBP membolehkan USM menceburi satu lagi cabang perkhidmatan kepada masyarakat iaitu penerbitan buku-buku perubatan.

"Usaha penerbitan itu juga adalah sebagai kelestarian ilmu dan pengetahuan untuk dimanfaatkan oleh masyarakat umum," katanya di sini, baru-baru ini.

Beliau berkata, di bawah kerjasama itu lebih 66 judul telahpun dikhaskan untuk penulisan dan penerbitan, lima daripadanya telah diterbitkan, dua di peringkat pra-cetak, 23 manuskrip di peringkat penilaian dan penyuntingan sementara 36 lagi di peringkat penulisan.

Menyentuh kerjasama dengan Mercy Malaysia pula, Dr. Mafauzy berkata, MoU itu melakar satu lembaran baru bagi USM apabila dapat menghantar pakar-pakarnya menyertai misi kemanusiaan di Bangladesh untuk membantu pesakit yang menghadapi masalah bibir dan lelangit sumbing meneruskan kehidupan yang lebih sempurna pada masa hadapan.

"Masalah kecacatan bibir dan lelangit sumbing adalah masalah yang dihadapi oleh negara membangun dan di Malaysia kecacatan itu terjadi pada nisbah 1:600.

"Biasanya keadaan itu berlaku dalam masyarakat berpendapatan rendah di mana kos rawatannya membebankan keluarga pesakit terlibat," katanya.

Sementara itu, Dr. Ahmad Faizal, MoU itu akan mewujudkan hubungan baik antara Mercy Malaysia dan USM bagi meneruskan 'Projek Clipp Mercy Malaysia' bersama Hospital komuniti Dhaka.

Katanya, selain menyediakan rawatan pembedahan rekonstruktif percuma, USM akan turut melatih kakitangan perubatan di hospital berkenaan.

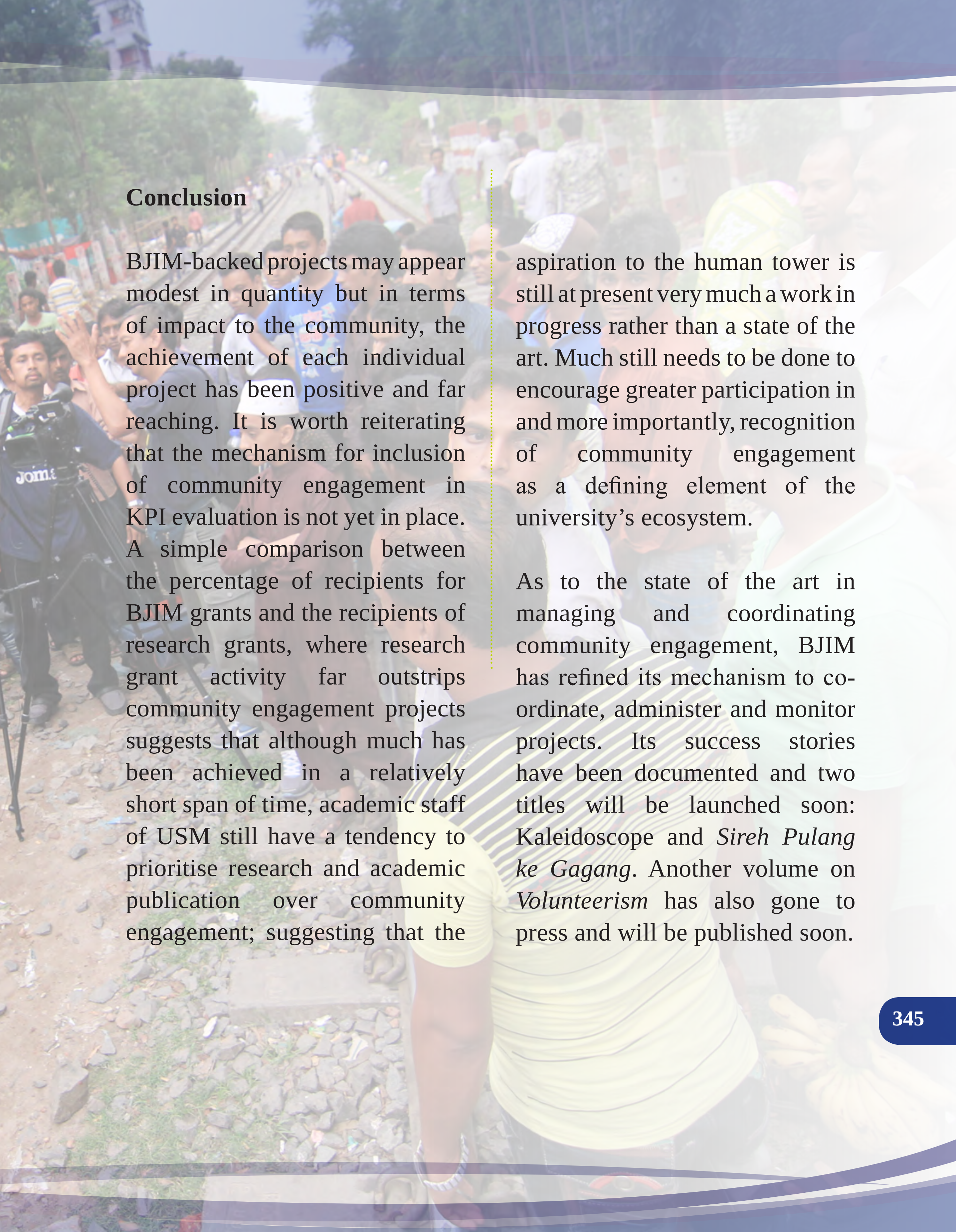
Beliau memberitahu, projek Clipp terhasil daripada kerjasama di antara Hospital Komuniti Dhaka dan Mercy Malaysia sejak negara itu dilanda taufan tropika Sidr pada 2007 di mana kajian yang dilakukan ketika itu mendapati lebih 200,000 rakyat negara itu berdepan masalah bibir dan lelangit sumbing.

"Stigma sosial serta celaan masyarakat terhadap kecacatan sumbing sering menghalang golongan itu untuk hidup berdikari dan bebas, sebaliknya mereka malu dan hidup bersendirian daripada masyarakat umum," ujarnya.

DR. Mafauzy Mohamed (tiga dari kiri) menerima dokumen MoU daripada Kamaruzzaman Shahruddin di Kota Bharu, baru-baru ini.

Source: http://www.utusan.com.my/utusan/info.asp?y=2010&dt=1013&pub=Utusan_Malaysia&sec=Timur&pg=wt_02.htm. Accessed on 3 December 2012.

Figure 9.9 Press clippings



Conclusion

BJIM-backed projects may appear modest in quantity but in terms of impact to the community, the achievement of each individual project has been positive and far reaching. It is worth reiterating that the mechanism for inclusion of community engagement in KPI evaluation is not yet in place. A simple comparison between the percentage of recipients for BJIM grants and the recipients of research grants, where research grant activity far outstrips community engagement projects suggests that although much has been achieved in a relatively short span of time, academic staff of USM still have a tendency to prioritise research and academic publication over community engagement; suggesting that the aspiration to the human tower is still at present very much a work in progress rather than a state of the art. Much still needs to be done to encourage greater participation in and more importantly, recognition of community engagement as a defining element of the university's ecosystem.

As to the state of the art in managing and coordinating community engagement, BJIM has refined its mechanism to co-ordinate, administer and monitor projects. Its success stories have been documented and two titles will be launched soon: Kaleidoscope and *Sireh Pulang ke Gagang*. Another volume on *Volunteerism* has also gone to press and will be published soon.

10

Positioning USM
as a Sustainability-led Research University

PUSAT
NAD
National APEX Development Indicat
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Comm
STRATEGIC COMMUNICATIO

Introduction

Prior to the APEX status, 'We Lead' has been the motto for USM. This motto represent USM leadership in knowledge, teaching, research and service to the society. The mission statement "We aspire to lead and innovate in achieving excellence at the international level through advancing and disseminating knowledge and truth, instilling qualities that stress academic excellence and professionalism, developing holistic individuals, and providing a strong commitment towards the society's aspiration, the country's vision and universal aspiration" is still being use. Along the way to APEX, USM has introduced "The University in a Garden" concept. The university in a garden concept as conceptualized by USM in 2001-2002 is designed

Welcome to
NADI CENTRE
A175

to depict the close affinity between the role and function of the university as an institution of higher learning and nature as part of the global ecological setting. The flora, fauna, aquatic elements and other natural creations are dynamically linked in the exploration of knowledge into the nature of existence. The concept is an invitation to value, preserve and nurture the campus ambient as part of the efforts to create and sustain an intellectually conducive setting in order to kindle the spirit and practice of symbiotic co-existence. It is about touching the hearts and minds of each campus citizenry in the appreciation of the natural surroundings as a source of inspiration as bequeathed to us by the Creator.

The APEX status brings along a new and grandeur vision of Transforming Higher Education

for a Sustainable Tomorrow. It also introduces a fresh and lofty positioning statement, “USM is a pioneering, transdisciplinary research intensive university that empowers future talents and enables the bottom billions to transform their socio-economic well-being”. USM’s APEX strategy in pursuing the sustainability agenda entails engaging with a central binary informing asymmetric inequality at a global level: the central tension between a global markets based ideology and countervailing local, social, and national interests. How does USM engage the global market and maintain social dignity and position? Can USM overcome the threats posed by neo-liberal globalisation and knowledge economy to engage the opportunities of the knowledge society? While our record can testify that the university has been pushing the blue ocean fronts in its research, promoting, as well as grooming multi and transdisciplinary research (See chapters on Research and Innovation), the mission statement promises a noble intent of a university to transform talents and the reach out to the bottom billion.

The fifth Vice-Chancellor of USM, Tan Sri Dzulkifli Abdul Razak, stated that “Many universities and tertiary education systems are under an array of economic, geo-political and hegemonic cultural siege that are dramatically changing higher education” . USM, as a university, aspires to continue driving excellence on fronts, but at the same time, remain humane, and care about the general well-being of the society and environment. As a university that champions sustainability, USM had introduced a new, more philosophical, branding video that touches on that aspiration. This professionally produced video set the tone on how USM will move as a university starting 2008.

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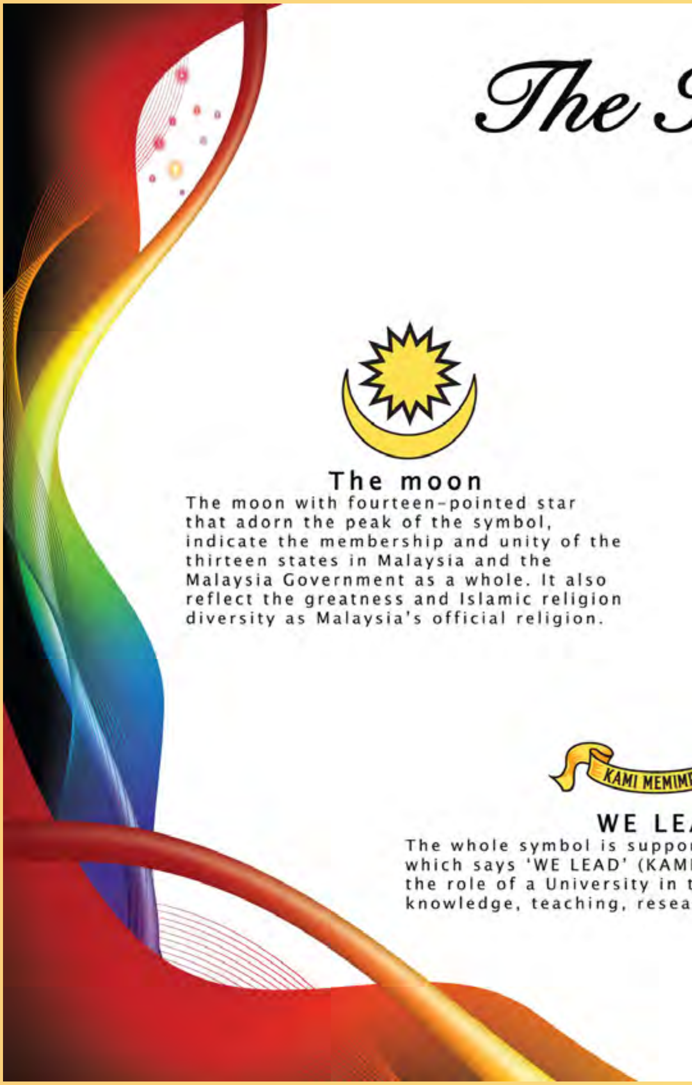
http://www.usm.my/images/stories/pdf/usm_reform.pdf
Dzulkifli Abdul Razak (Jan, 9, 2011) Learning Curve : Perspective

USM 2012
AMBASSADORS
SUMMIT
BRIDGING GLOBAL COLLABORATIONS
September 2012 | Universiti Sains Malaysia

Rebranding the USM Logo

The USM Logo has undergone few changes since 1972. The final change was made in 2009 in line with the overall USM rebranding exercise. The USM official website (www.usm.my) has also been revamped, making it simpler and more informative. A new transformational video was produced, portraying the university drive and inspiration as an APEX university, a university that cares for the cause of the bottom billion.



The

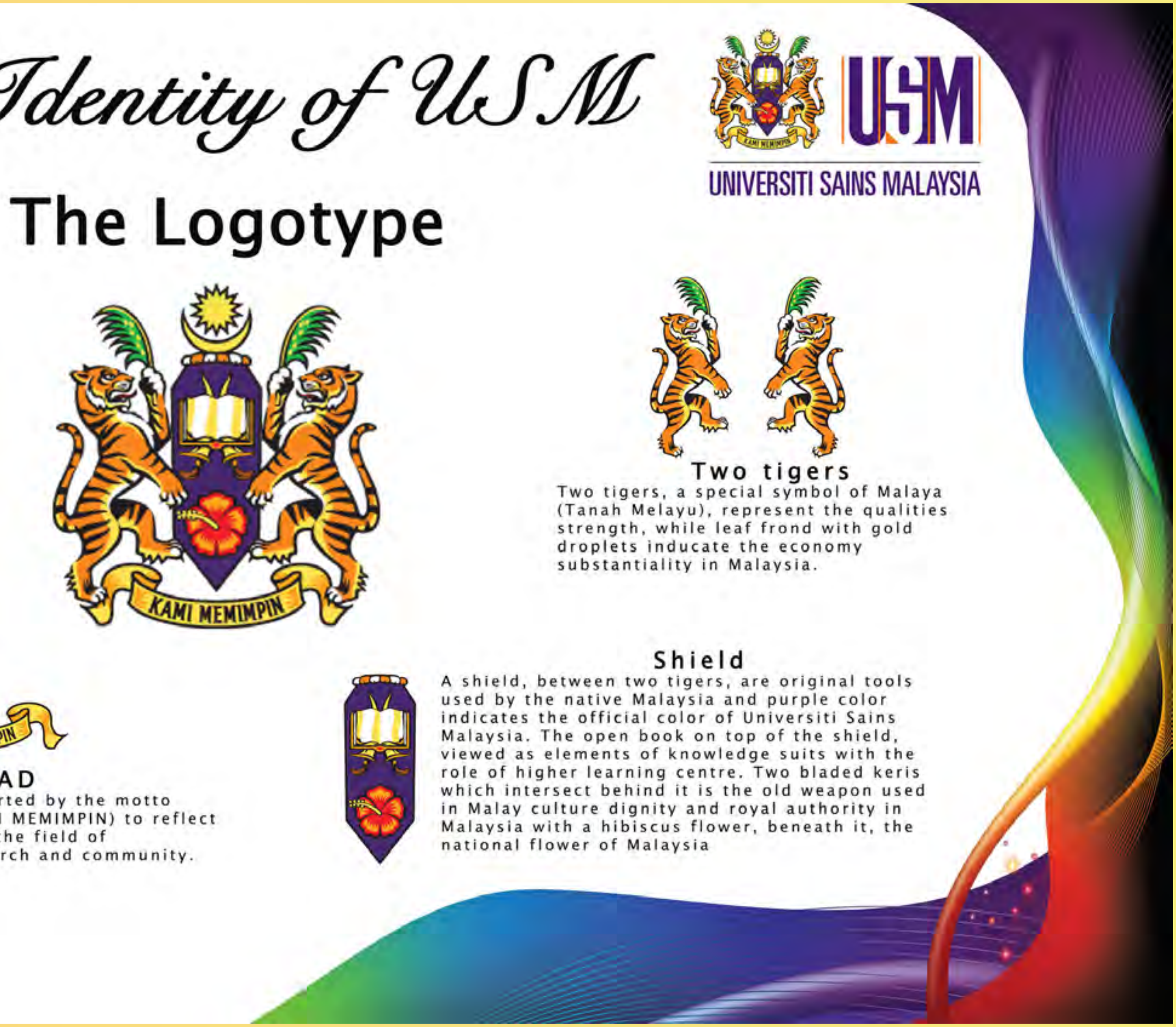
The moon

The moon with fourteen-pointed star that adorn the peak of the symbol, indicate the membership and unity of the thirteen states in Malaysia and the Malaysia Government as a whole. It also reflect the greatness and Islamic religion diversity as Malaysia's official religion.

KAMI MEMIMP

WE LE

The whole symbol is suppo
which says 'WE LEAD' (KAM
the role of a University in t
knowledge, teaching, resea



Identity of USM

USM
UNIVERSITI SAINS MALAYSIA

The Logotype

KAMI MEMIMPIN

Two tigers

Two tigers, a special symbol of Malaya (Tanah Melayu), represent the qualities strength, while leaf frond with gold droplets inducate the economy substantiality in Malaysia.

Shield

A shield, between two tigers, are original tools used by the native Malaysia and purple color indicates the official color of Universiti Sains Malaysia. The open book on top of the shield, viewed as elements of knowledge suits with the role of higher learning centre. Two bladed keris which intersect behind it is the old weapon used in Malay culture dignity and royal authority in Malaysia with a hibiscus flower, beneath it, the national flower of Malaysia

AD

rted by the motto
I MEMIMPIN) to reflect
he field of
rch and community.

Making Our Presence Felt

As one of the public institutions of higher learning in Malaysia, USM has not been aggressive enough in its marketing drive. Despite the APEX status, the university does not really capitalize on the status in many of its promotional efforts. There was no integrated image and positioning statement used in the drive. Budget for promotional purposes was rather obscure, and scattered among various centres driving specific promotional drives, most of the time ala-carte in nature. For most part of phase one, and in the past many years, even before 2008, promotional budgets were divided into three areas, namely the undergraduates, the postgraduates and for research and innovations.

UNIVERSITI SAINS
MALAYSIA

Attracting Undergraduate Talents

The promotional drive for the undergraduates was aimed mainly at the education road-shows as well as through newspaper advertisements - which was limited to the mainstream newspapers such as the *Berita Harian* and the *News Straits Times*. The main aim of the advertisments was to inform and not really to persuade applicants. The APEX status brought also the privilege to choose the best undergraduate students outside the normal *Unit Pengambilan Universiti* (UPU) channel. The promotional excercise carried out was rather irrelevent since the university has been receiving more application than the required number of candidates (See chapter on Talent). The number of undergraduate applications seems to reduce to half with the introduction of a small application fee so as to screen for serious candidates. However, the total number of applications received by USM is still way above the numbers required. In addtion, USM also should offer the possibilities of admitting candidates through other channels (the Blue Ocean), making the university available and accessible to special groups of people such as the elderly, the sportsmen and women, people with special abilities, as well as people with talents (artisans, artists etc). However, there was a lack of serious and coordinated effort to attract these groups. A quick glance at the demographic profile of the undergraduates shows most of the students mainly come from regions where USM campuses are located (the northern states and Kelantan), urban, and also the state of Johor. This pattern can be traced to the fact that most of the road-shows organised by MOHE and participated by USM were hosted at big cities such as Penang, Johor Bahru and Kuala Lumpur. Realising this, USM, through its new marketing arm established in 2011, the Strategic Communications Office, started profiling the intakes and would redirect the effort to move into areas aliens to the university before, especially to attract special talents from the rural populations.

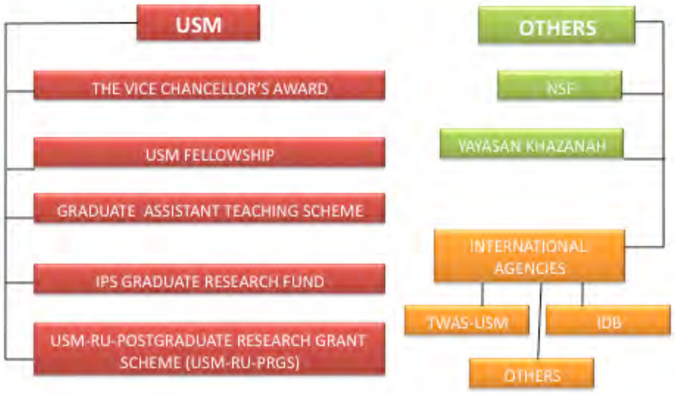
Attracting Postgraduates: Changing Goal Post and Ball Game

Until early 2012, the promotional activities for postgraduate candidates were totally carried out by the Institute of Postgraduate Studies (IPS), away from the undergraduate marketing activities. Identifying target markets, IPS sent teams to participate in postgraduate fairs in various countries. From time to time, IPS carried out networking journeys to link up potential international researchers with USM counterparts.

Driven by MYRA 1, the goal of the promotional exercise (at least until end of 2011) was to attract as many as possible international students to USM. In 2008, the stated numbers of postgraduates to attract were 15,000 by the year 2015 and 20,000 by 2020. Various financial incentives were used to attract prospective international students. These include the USM Fellowships, the Vice-Chancellor's Award and the Graduate Assistant Teaching Grant Scheme.

As part of a positioning strategy, more comprehensive fellowship, named 'USM Global Fellowship' was later introduced in mid 2012 to further attract best global talents.

SCHOLARSHIPS AND FINANCIAL ASSISTANCE


USM
THE VICE CHANCELLOR'S AWARD
USM FELLOWSHIP
GRADUATE ASSISTANT TEACHING SCHEME
IPS GRADUATE RESEARCH FUND
USM-RU-POSTGRADUATE RESEARCH GRANT SCHEME (USM-RU-PRGS)
OTHERS
NSF
YAYASAN KHAZANAH
INTERNATIONAL AGENCIES
TWAS-USM
IDB
OTHERS

Source: IPS, 2009

The markets for local postgraduates, however, have been very competitive. Small graduate population in Malaysia has made domestic market in Malaysia being limited, saturated and rather challenging. If given choices, local graduates would prefer to pursue their postgraduate education overseas, or at their Alma mater. While the introduction of Mybrain15 scheme by the Malaysian Government has incentivized local undergraduates to further their studies locally. As for USM, MyBrain15 has a double sword effects that is while it may induce postgraduate education, it has also become a competitor to RU USM fellowship scheme as well as to the Graduate Research Assistantship Scheme offered by various principal investigators in USM. Higher and stricter requirements and regulations of USM fellowships further alienate potential local candidates from taking up the scheme. USM, in 2012, has taken a further step to reduce the number of fellowships offered, making it more competitive, which at the same time, affects the number of applications.

The huge gap in graduate supervision among USM academics that is yet to be addressed has caused opportunity cost to USM in term of potential students. The changing of KPIs set by MYRA ll starting 2012 and the instruction by the Minister of Higher Education to ensure international postgraduates are charged at cost calls for a relook at the postgraduate KPIs and its numbers. Today, getting large number of international postgraduates students is no longer the emphasis but rather getting quality students who can conduct good research and publish papers in high-impact journals, willing to pay for their study and graduating on time (GOT).

Fellowship recipients are expected to publish reports annually in reputable journals to continue receiving the funding.

Integrating USM Promotional Drives

2011 marks the year to drive the positioning of USM as a premier Research University and as the only APEX University. Spearheaded by the Strategic Communications Office, major marketing and promotional activities of the university are coordinated. Bringing together Institute of Postgraduate Studies, the university's Admission Section which handles undergraduate intakes, and the Research and Innovation Division, USM is now moving towards consolidating the image of the university, enhancing the USM brand, and riding more on the APEX status. A one positioning statement is indeed needed in moving the university to where it envisions to be.

Except for specific events, the USM marketing team now involve personnel from both postgraduate and undergraduate as well as from the research centres. A survey on some of the newly registered postgraduate students in August 2012 revealed that the quality and the APEX status are the two main factors that influenced their decision to study in to USM.

While increase in the number of postgraduate intake has been limited by the lack of financial offers by the university and the push for better quality students, the undergraduate numbers have been very much unchanged. Some even want to suggest that USM does not really need to do much marketing to attract the undergraduates as the applications into this university sometimes reached up to ten folds of the needed numbers (See chapter on Talent). However, as a university that aspires to transform the bottom billion of society, this university needs to attract greater talents from amongst the rural populace, the cultural and sports talents, and the less fortunate.

On the postgraduate fronts, the supervision gap amongst the academics is something to be addressed. While the percentage of those supervising is relatively high, there are also a significant number of academics who do not supervise or have a rather small number of students to supervise. Along the way, the university has experienced the opportunity cost, when a great number of prospective students were rejected merely due to the refusal of the academics to accept them as students for whatever the reasons were. A corrective measure on this gap is thus crucial in the next APEX phase and at the same time, there should be a more directed and coordinated effort to promote USM research initiatives and strength in strategic areas to specific targets.

> “One positioning statement is indeed needed in moving the university to where it envisions to be.”

From flagship Research Programs to Advanced Research Initiatives (ARIs)

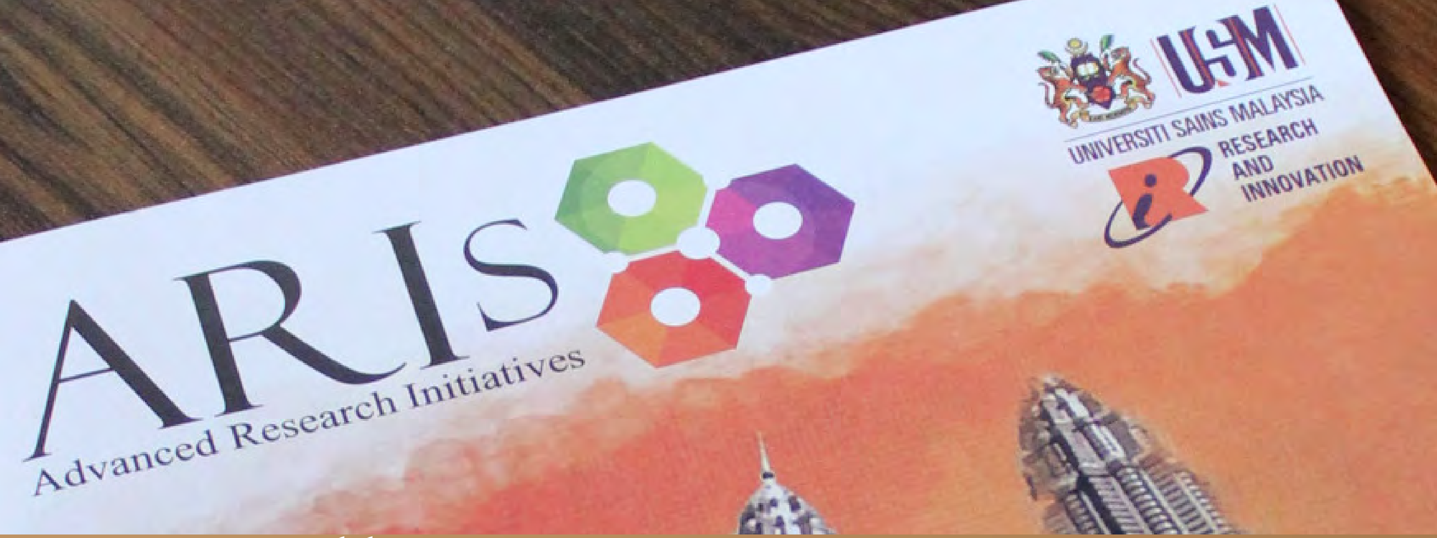
From individual research to team, to cluster and eventually to the formation of centres of excellence or institutes, the growth of potential researches are often measured by the outputs generated by the research activities. The outputs can be in the form of numbers of patents, journals, awards, or perhaps the news garnered by the research activities. The R&I ecosystem has developed a system to nurture emerging research groups through its seven research platforms (See chapters on Research and Innovation).

(See also www.scomm.usm.my/publication)

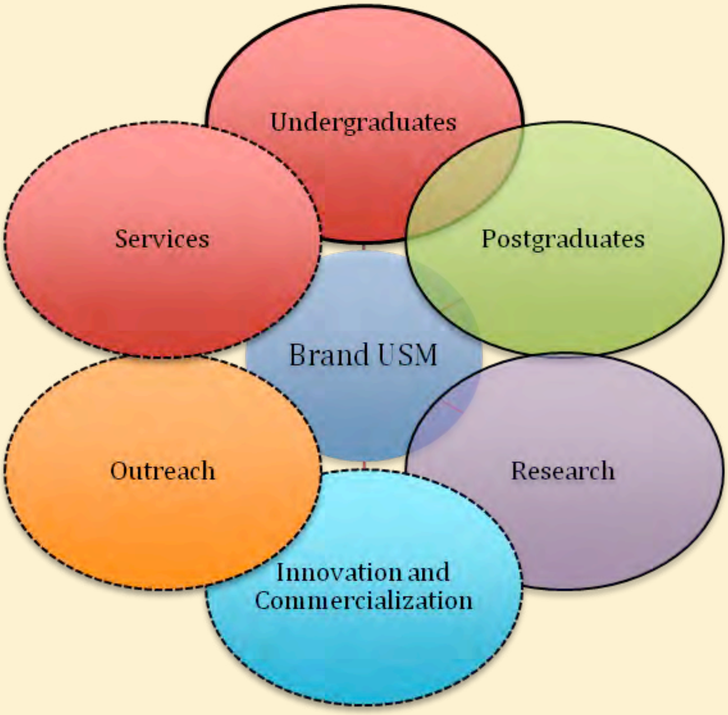
> “A corrective measure on this gap is thus crucial in the next APEX phase and at the same time, there should be a more directed and coordinated effort to promote USM research initiatives and strength in strategic areas to specific targets.”

Teams and clusters are developed based on their group strength measured by MYRA. From time to time, the regional presence of USM research is measured using the SciVal Spotlight which most of the time does compliment the strength and directions of the research activities of the university. In an effort to further showcase budding research teams across the university, USM has introduced ARIs (Advanced Research Initiatives). It covers any research initiative project that helps translate USM’s aspirations to emerge as a leading research institution. ARIs can be individuals, teams, clusters or Centers of Excellence, groomed under the USM research ecosystem.

A customized web-based tool that enables research institutions to evaluate their research performance and establish research strategies.


ARIS
Advanced Research Initiatives
USM
UNIVERSITI SAINS MALAYSIA
RESEARCH AND INNOVATION

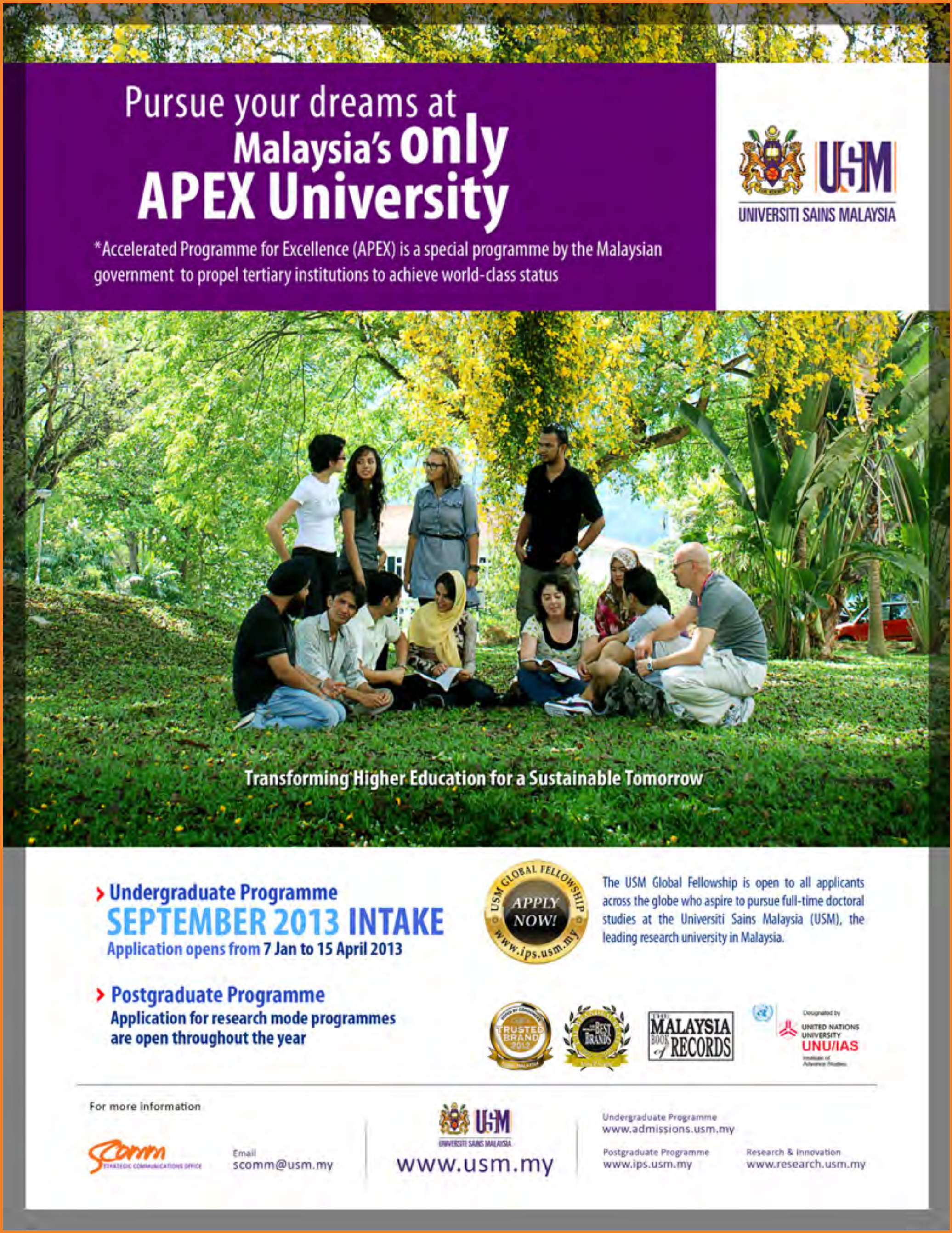
> “This calls for a closer look at not only the strategic strength of our research but also need to understand the competitive nature of research and innovation outside the university in order for us to compete and to stay relevant.”


Undergraduates
Services
Postgraduates
Brand USM
Outreach
Research
Innovation and Commercialization

USM and the World

A project called the USMLinks conducted in 2012 analysed the state of the art of USM international linkages in research, academic, community and also with the industries. It measures both the strength and the level of outreach at the grass-root as well as at the institutional levels. It reported that USM had signed a total of 262 MOUs and MOAs with the outside world between 2000 and 2011 presents the top ten countries with which USM has collaborations (Table 10.1).

> **“to enhance the position of USM nationally, regionally, globally”**



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*Accelerated Programme for Excellence (APEX) is a special programme by the Malaysian government to propel tertiary institutions to achieve world-class status

USM
UNIVERSITI SAINS MALAYSIA

Transforming Higher Education for a Sustainable Tomorrow

› Undergraduate Programme
SEPTEMBER 2013 INTAKE
Application opens from 7 Jan to 15 April 2013

› Postgraduate Programme
Application for research mode programmes are open throughout the year

USM GLOBAL FELLOWSHIP
APPLY NOW!
www.ips.usm.my
TRUSTED BRAND 2012
BEST BRANDS
THE MALAYSIA BOOK of RECORDS
Designated by
UNITED NATIONS UNIVERSITY
UNU/IAS
Institute of Advanced Studies

The USM Global Fellowship is open to all applicants across the globe who aspire to pursue full-time doctoral studies at the Universiti Sains Malaysia (USM), the leading research university in Malaysia.

For more information

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STRATEGIC COMMUNICATIONS OFFICE

Email
scomm@usm.my

USM
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www.usm.my

Undergraduate Programme
www.admissions.usm.my

Postgraduate Programme
www.ips.usm.my

Research & Innovation
www.research.usm.my

> “Showing a more dynamic and fun USM, this advertisement carries contacts of all major stakeholders in the university”

Table 10.1 MOU and MOA with international counterparts

RANK	Country	Total
1	Indonesia	44
2	Japan	39
3	Thailand	20
4	Australia	17
5	United States	17
6	South Korea	9
7	Britain	9
8	Vietnam	9
9	China	8
10	India	8

A closer look at the formal agreements signed between USM and international counterparts (Figure 10.1), shows geographical factor playing a major role in the collaborations. Efforts of USM to reach out to the bottom billions and Malaysian neighbours are obvious. Closest ties are forged with the ASEAN neighbours while USM continues to strengthen strategic research partners with the more advanced countries like the European nations, the United States of America, Japan and Korea. It also shows the blue ocean countries, i.e. the white and green fields that USM will explore in the APEX 2nd phase.

> **“It also shows the blue ocean countries that USM will explore in the APEX 2nd phase”**

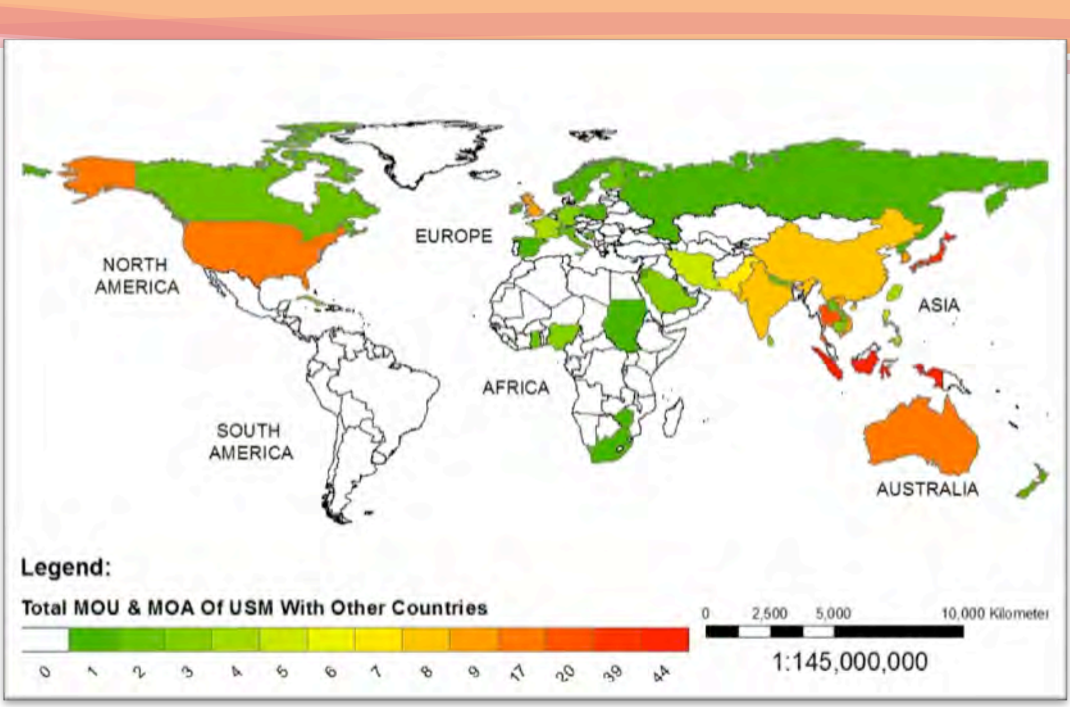
EUROPE
NORTH AMERICA
ASIA
AFRICA
SOUTH AMERICA
AUSTRALIA
Legend:
Total MOU & MOA Of USM With Other Countries
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Figure 10.1 Total MoU and MoA between USM and other countries

Beside the geographical factors, similar academic calendar year and the courses offered by some of the Asian countries play a vital role in contributing towards increment in the number of MOU and MOA signed (Figure 10.2, Table 10.2 and Figure 10.3).

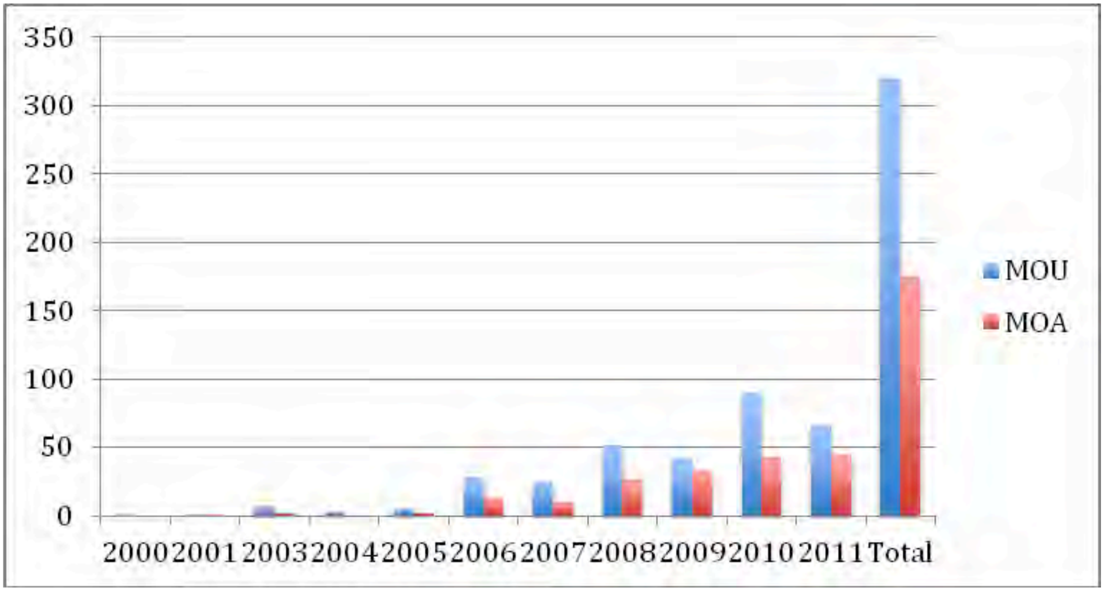
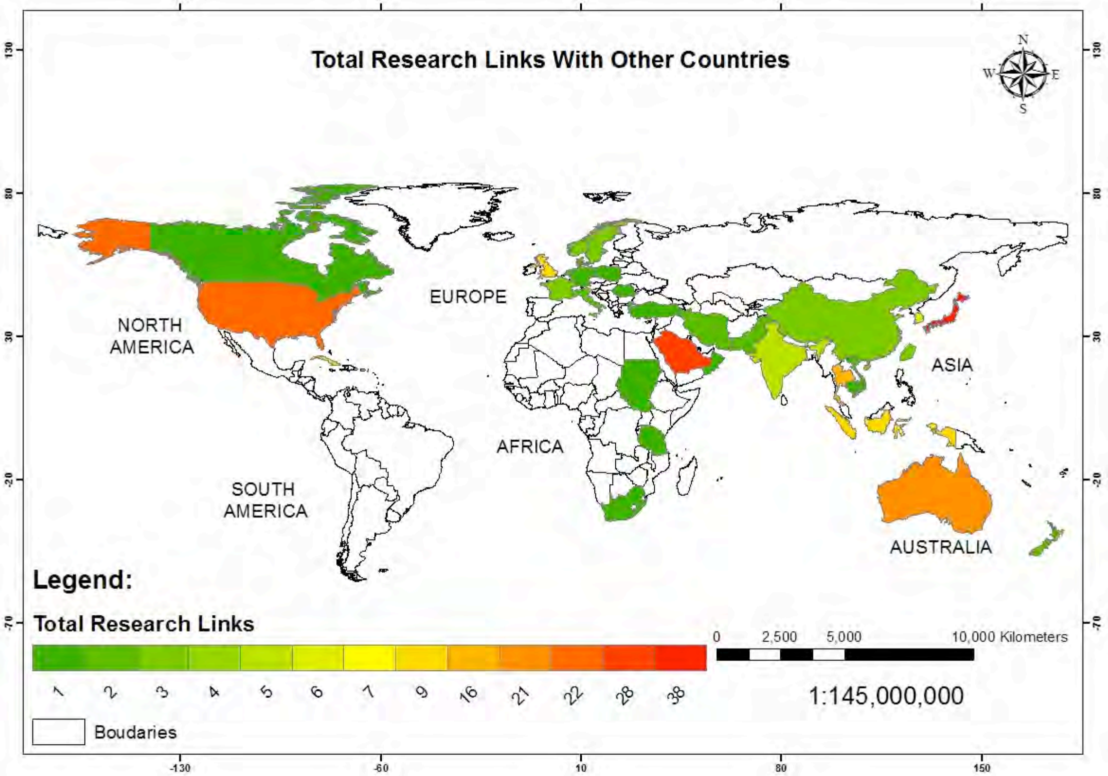


Figure 10.2 Number of MoA and MoU signed by USM

UNIVERSITI SAINS MALAYSIA
PROF. OMAR A.M. AL-HABIB
PROF. DATO' DR. OMAR OSMAN
USM UNIVERSITI SAINS MALAYSIA

Table 10.2 Collaborations between USM and International partners by activities (2000-2011)

Rank	**Purpose/Activities**	**Percentage**
1	Joint research	20.3
2	Joint project	20.3
3	Joint activities/programs	15.8
4	Visiting fellow	13.8
5	Visiting professorship	11.9
6	Joint participation	5.0
7	Joint publication	4.6
8	Industrial attachment	2.4
9	Joint laboratory	1.7
10	Community work	1.2
11	Joint supervision	1.0
12	Joint consultancy	0.9
13	Joint Business	0.9
	Total	**100**


Total Research Links With Other Countries
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ASIA
AFRICA
SOUTH AMERICA
AUSTRALIA
Legend:
Total Research Links
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22
28
38
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2,500
5,000
10,000 Kilometers
1:145,000,000
-130
-60
10
80
150
130
80
30
-20
-70

Figure 10.3 Total research link between USM and other countries

“brains.business.humanity”

Reflecting USM drive to outreach communities from the developing countries, most of the outreach programs have been positioned toward these countries (Figure 10.4). ASEAN states, especially the Mekong River countries have been among top collaborators in USM community outreach initiatives. More and more projects, such as the Knowledge Transfer Program (KTP) are directed towards communities from this region. Continuous engagements and promotions of peace by USM’s Peace Unit in troubled areas such as the Southern Philippines, Acheh as well as Pattani, have somewhat bear some fruits when peace and tranquility finally arrived at the shores of the region.

Thailand has been USM's top partner in terms of community links, followed by Indonesia, Japan, United States of America and the Philippines. The M-Community project initiated by a group of researchers from the School of Computer Sciences exemplifies the good initiatives by USM in the region. From time to time, USM's experts from the Kubang Kerian campus continues to extend help to the unfortunate children in Indonesia and Bangladesh by conducting free cleft-lip surgeries with the assistance from Mercy Malaysia as well as local partners in the respective countries.

"CHILD-FRIENDLY SPACE"
(Temporary Classroom)
UNICEF

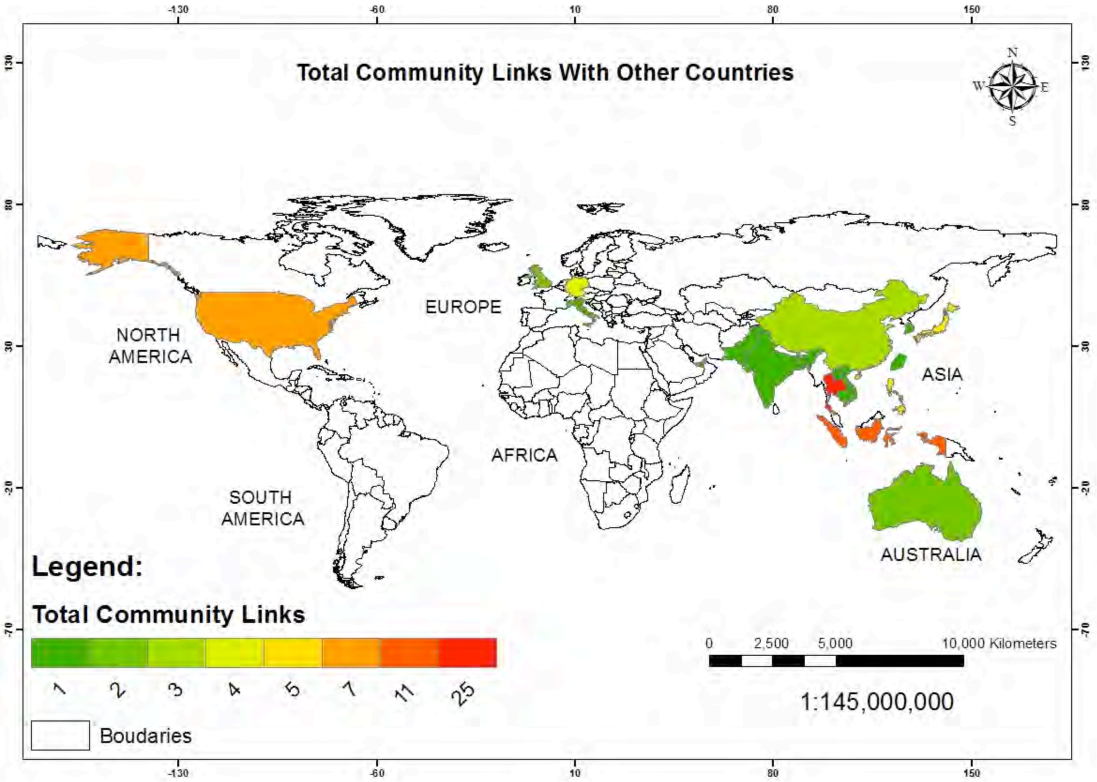
Total Community Links With Other Countries
N
W
E
S
NORTH AMERICA
EUROPE
ASIA
AFRICA
SOUTH AMERICA
AUSTRALIA
Legend:
Total Community Links
1
2
3
4
5
7
11
25
Boudaries
0
2,500
5,000
10,000 Kilometers
1:145,000,000
-130
-60
10
80
150
130
80
30
-20
-70

Figure 10.4 Total community links between USM and other countries

USMLinks main purpose is to facilitate USM in the future to continue to establish ties with foreign countries. Besides that, all new information about USM can be updated immediately to all universities or organizations by emailing to them. Indirectly USMLinks can be used as marketing tools.

Familiarisation of APEX

Starting from 2011, USM has started to host more strategic events as a part and parcel of its early positioning agenda. Serving as check points of APEX, several seminars and road shows within USM and with the outside stakeholders were conducted so as to share the APEX experience. The road shows were also held to gauge the awareness, understanding, and challenges faced by the USM community in implementing the program. At the same time, USM has also conducted series of dialogues with external stakeholders, inviting relevant government agencies and institutions of higher learning to share their experiences.

the APEX University
Transforming Higher Education for a Sustainable Tomorrow
USM UNIVERSITI SAINS MALAYSIA
2011-2013
USM World's Firsts

USM UNIVERSITI SAINS MALAYSIA

USM through its Strategic Communications Office (SCOMM) had also organised a few strategic events i.e. USM 2012 Ambassadors Summit and USM EU 2012 Ambassadors Dialogue. The events were successfully done with the engagement of USM's academician and non-academician, postgraduate students (foreign and locals) that suits the theme of the event 'Bridging Global Collaborations'. This event gathered the Ambassadors and Consulate Generals from 12 countries together with their Education Attachés on the 14th-15th September 2012 at USM. The countries participated were Iran, Iraq, Jordan, Indonesia, Cuba, Palestine, Pakistan, Thailand, Argentina, Japan, France and Libya. This event later triggered a series of events and visits by the ambassadors. A total of 14 ambassadors from European Union (EU) members states; Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Hungary, Ireland, Italy, Netherlands, Poland, Romania, Slovakia, Spain, Sweden, United Kingdom and Croatia visited USM, in conjunction with their 2nd EU-Penang Day.

LAYING THE FOUNDATION
NADI
Ekosistem Inovasi
Perlembagaan USM & Autonomi
USM Constitution & Autonomy

Conclusion

Starting 2011, USM has started to push its positioning agenda and to coordinate its promotional and marketing activities. It realises the need to have a consolidated and consistent image of the university. Through strategic positioning drives such as hosting events and networking sessions, USM will further move this important agenda in the next phase. As reported in this book, USM, as an APEX university has actually done a lot but many of those good deeds went quietly unknown and unappreciated. There must be a more coordinated and conscious effort to ensure all good efforts by the university will be appreciated by the stakeholders.

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Summary: The State of the Art

Good governance and integrity are important cornerstones in the management of any entity, especially a university. As such, USM's transformation plan of governance encompasses all aspects of nurturing and learning activities, research and innovation, services and resources as well as student development. USM has developed a model for a supportively governed, autonomous university with characteristics of strong accountability and transparency which will complement quality teaching, research and effective management. It is particularly important for USM to establish clear governing principles which include administrative representation, students' representations and external entities representation.

USM's Legal Office has therefore drafted new and updated statutes based on the APEX constitution. These new and updated statutes are essential to reflect the change of governance as the university adapts to ever changing times and challenges. An important effort towards ensuring good governance and integrity in the university ecosystem is the establishment of a "complaints officer" or 'Ombudsman' which is included in the USM APEX constitution. This independent and impartial office ensures an alternative avenue for the confidential and informal channelling of concerns by all members of the establishment thus sending a clear signal that the university cares for and listens to all parties, and recognises the value of providing informal dispute resolution for members of the campus community.

Another important cornerstone of the university is sound financial management which is provided by USM's Bursary through the development of technological systems and the provision of service with integrity, while nurturing innovative and prudent human capital to achieve financial sustainability. The Bursary has charted a new direction in order to implement the APEX transformation plan and manage its financial resources, and this includes strengthening its administration, increasing the delivery of financial services and increasing financial sustainability. One of the flagship achievements of Bursary is the development of the computerised system (known as eFAS) that caters to the needs of the management, stakeholders and other relevant parties. It provides systematic and efficient monitoring in numerous areas and smoothens and speeds up the claims and payment procedure in order to meet deadlines. Accordingly, on 15 December 2011, the SAGA Steering Committee, chaired by Akauntan Negara Malaysia recognised USM's eFAS and awarded USM a SAGA certificate of compliance. As finances are crucial for the success of USM's transformation plan, the Bursary had outlined some targets and KPIs. To achieve these targets, USM made a budget request amounting to RM789.5 million for the fiscal years 2009 to 2012. Of this, RM314.5 million was granted. The shortfall of RM475 million or 60.2% has somewhat affected the university's plans towards achieving its targets. Bursary also outlined other future financial plans to achieve APEX objectives that include strengthening the quality of its service management system and green office automation besides the expansion of financial management, strengthening financial risk management, and assisting in managing income generation besides ensuring cost savings.

To mobilise the university's institutional and organisational transformation agenda, a newly formed Transformation Office was entrusted to mobilise the institutional and organisational transformational agenda related to the three fundamental elements of the university, namely governance, talent and resources. The Transformation Office is tasked with overseeing:

1) cost rationalisation activities
2) transforming the annual performance appraisal system
3) study on institutional bureaucracy
4) issues related to procurement system and practices
5) transformation of training and capacity building

Nurturing the Best Talents

A crucial element of the university is its talent and USM has implemented and continues to implement initiatives to strengthen and transform talent as part of the APEX programme. Plans to strengthen talent had in fact commenced since before being granted APEX status. Creating great intellects is a continuous challenge, particularly in ensuring a conducive working environment in the effort to ensure the retaining of the existing workforce who will continue to contribute to the success of the university in particular, and the country as a whole. The grooming of talent begins from undergraduate level of which USM is particularly renowned. Though the transformation plan of nurturing and learning, USM has achieved severable notable 'firsts' and spearheaded numerous initiatives that improve innovativeness and creativity through the creation of a student centred environment leading to market relevance as seen in the ERRC that supports the seven thrusts of MOHE and strengthens USM's status as an APEX university.

These initiatives are:

- The MUnSyI test as an instrument developed to obtain information on the intrinsic quality of the candidates. The instrument measure career interests, personality, values, integrity, emotional intelligence and patriotism. Information obtained from these measurements is used to select candidates for admission to various programs offered by the universities in Malaysia.

- The Student's Parliament is one of the best platforms to convey the views and opinions of students in debates during the decision-making process for their respective universities.

- The Continuous Student Development Program (MyCSD) is specially designed to give recognition to student involvement in the various student development programmes during the course of their study by the awarding of points which are recorded systematically and consistently.

- Started in 2009, PIMPIN SISWA is a programme where every first year student is required to attend a 3-day weekend workshop upon entry to USM that provides them with their first university level engagement on issues and ideas for sustainable development.

- The 'White Coffin' and 'Say No to Plastic Bags' campaign are student led campaigns organised by the Kampus Sejahtera. Both of these campaigns instil awareness on the hazardous effects of synthetic waste to the human body and also the environment. Both campaigns have been hugely successful and have been emulated at other universities in Malaysia. The use of polystyrene containers is now banned in USM and other local universities have also implemented this measure. The success of this campaign has spread beyond the confines of the University and this can be seen in Pulau Pinang where the ‘No Plastic Bag’ campaign has been implemented since January 2011. This is an example of a significant way in which USM has given meaning to its motto of transforming higher education for a sustainable tomorrow.

- Started in 2007 the National Research and Innovation Competition or NRIC in short, is organised by the Student Representative Council of Universiti Sains Malaysia. This event provides a platform for the best final year projects from local and private universities to compete under a single banner whilst being exhibited to the public. This initiative provides an opportunity and avenue for undergraduates to develop their creative and innovative talents by designing and developing environmentally friendly products of world class standards that will enhance the quality of life.

- Another significant development is the creation of a Bachelor of Technology degree majoring in Environment. It is a program specially designed to enable graduates specialising in the study of the various environmental issues integrating the ecology, economy, and social dimensions in line with the APEX agenda.

USM
DEWAN TUANKU SYED PUTRA

Similarly, the transformation of postgraduate education is vital in accomplishing USM's APEX vision of transforming higher education for a sustainable tomorrow. Thus, postgraduate transformation is based on four important pillars namely student numbers and intake, student quality, academic environment as well as student support and services.

USM's postgraduate education is based on a holistic approach which infuses quality at the input level and continuous student enhancement programmes at the process level while producing versatile, innovative and highly employable graduates with noble qualities at the output level. This transformation will contribute in establishing USM as a strong force in shaping the future of our society, nation and the world.

Doing it Well and Doing it Right the First Time

To ensure the implementation of the quality agenda, the reorganisation of the management structure of the University Quality Centre (UQC) was carried out in mid-2012, with the mandate to plan, implement and coordinate the various quality related activities in all three campuses. With the structural reorganisation, UQC is expected to play a more active and comprehensive role

in quality related activities in all the three campuses particularly in spearheading the quality agenda at the main campus in Pulau Pinang. Mindful of the relatively advanced stage of QA practices in the Engineering and Health Sciences campuses, UQC will seek to address the issue of intensifying QA activities that are relevant and sustainable in the USM main campus in Pulau Pinang. Consultation with various stakeholders has begun and a comprehensive strategy on QA is being formulated. The extensive experience at the Health Campus and Engineering Campus will be shared in various planning and implementation stages. In the end, it is expected that the QA agenda in the three USM campuses will be fully synergised to support the overall APEX Agenda of USM.

One of the areas in which USM has raised the bar during the first phase of APEX is in terms of the quality of its research where its achievement in Research and Innovation is clearly reflected in its pool of talented researchers who have been well trained to conduct research. Through hand holding acculturation, a marked increase in the dedicated researchers in USM has been achieved over the past few years. This has become an impetus to the great increase in the number of local and international grants won by USM researchers, as well as the rapid enhancement of its research output. Conducive environment and ecosystems have been created for research such as providing infrastructures including central facilities to achieve excellence through integrated and trans-disciplinary concepts; effective

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policies have been formulated and a skilled workforce has been well developed and trained towards the goal of a becoming a sustainability-led Research University.

USM continues to play its role in educating and nurturing world-class researchers capable of utilising local products for the benefit of society with the main aim of producing output which can assist the bottom billion. By nurturing its current and future research icons, the quality of research has been well enhanced. At the same time, research areas have been strengthened by enhancing the spirit of multidisciplinary teamwork. USM's future endeavours include efforts to acculturate undergraduates to conduct research, to prepare USM today for tomorrow and to decide on top-down research areas that are aligned with the nation's needs. Strong networking and linkages are important to achieve excellence and increase the uptake of innovation and technology. Creating global and regional linkages, strengthening industrial linkages, and further exploring the areas of collaboration with countries involved as the university's research partners are among USM's efforts in developing substantial networking. USM's goal of branding and positioning itself worldwide is also achieved through a number of strategies including the positioning of USM's sustainable R&I flagships and achievements.

Reaching Out to the Bottom Billion

Despite great strides made in research activities, USM has not fallen into the trap of materialistic developmentalism whereby the research culture in USM includes the crucial dimension of community engagement thus giving added value and meaning to research at this APEX University. As such, a Division of Industry and Community Network (BJIM) was set up in 2007 to co-ordinate and oversee projects with a community and humane focus, particularly in sharing the expertise of USM's talents with the bottom billion – the marginalised and forgotten members of society who are often left by the wayside in a developing economy. Aspiring towards becoming a 'human tower' rather than an ivory tower, community projects are focussed on two major clusters namely the Disabled (or OKU) cluster and Community Engagement (CE) cluster. BJIM has successfully

prepared an OKU policy draft for the university and provides expert advice to other bodies and institutions on accessibility besides being a major player in organising OKU sports carnivals. USM is the pioneer of innovative CE initiatives within the Malaysian context, where it focuses on delivering sustainable change to the lives of targeted communities as exemplified in many of its CE projects which are guided by the proverb: “Give a man a fish and you feed him for a day; teach a man to fish and you feed him for a lifetime.” It is worth reiterating that the mechanism for inclusion of community engagement in KPI evaluation is not yet in place; nevertheless, this has not deterred USM’s talents from implementing community based projects that reach out to the bottom billion. To ensure sustainability of such efforts, USM students are also instilled with the spirit of volunteerism through various student development programmes to ensure a holistic development and to nurture humanistic values.

Driving the Sustainability Agenda

To sum up, Universiti Sains Malaysia has embraced the vision of becoming a sustainability-led university of world-class standing as part of its APEX initiative. The transformation plan entitled "Transforming Higher Education for a Sustainable Tomorrow" clearly reflects strong leadership commitment in achieving sustainability objectives which is a key success factor in the implementation process. The Universiti Sains Malaysia APEX framework, namely aspiring to be world-renowned in

sustainability and to be a sustainability-led institution of higher learning was envisioned for the university to play a pivotal role in promoting the sustainability agenda as stewards of large public institutions, as educators of future leaders, and as active participants in the search for ideas and solutions that will shape its common future. The various efforts and successes achieved during the first phase of APEX status bear testimony to the university’s commitment and determination to achieve its stated goals.

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21 SEPTEMBER 2011/23 SYAWAL 1432

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