MBOT AND THE FUTURE OF TECHNICIANS


UNIVERSITI MALAYSIA PAHANG

7th October 2013

Presentation Outlines

• Background
• National Agenda
• Technicians in MBOT
• Challenges
• Wayforward
MALAYSIAN SCENARIO...

VISION 2020
NEW ECONOMIC MODEL

ROAD TO 2020

Malaysia’s has introduced 4 pillars to achieve Vision 2020

1Malaysia, People First, Performance Now

Government Transformation Programme (GTP)
6 NKRAs
April 2009

Economic Transformation Programme (ETP)
SRIs & NKEAs
January 2010

10th Malaysia Plan
Macroeconomic growth targets & expenditure allocation
Smooth implementation of government’s development programme

Q4 2010
June 2010

Vision 2020
The Goals

New Economy Model

HIGH INCOME

Targets US$15,000-20,000 per capita by 2020

INCLUSIVENESS

Enables all communities to fully benefit from the wealth of the Country

SUSTAINABILITY

Meets present needs without compromising future generations

The Goals

VISION 2020

1 Malaysia
People First, Performance Now
Preservation and enhancement of unity in diversity

ECONOMIC TRANSFORMATION PROGRAMME

Reducing Crime
Fighting Corruption
Improving Student Outcomes
Raising Standards of Low Income Households
Improving Rural Basic Infrastructure
Improving Urban Public Transport

6 NKRAs
Effective delivery of government services

High Income
Inclusiveness
Sustainability

New Economic Model
A high income, inclusive and sustainable nation

10th and 11th Malaysia Plan Roll-Out
Implementation of government's development program

Source: Academia-Industry Consultative Council 8th Dec 2011
ETP focuses on:
- 12 National Key Economy Areas (NKEAs)
- 131 entry point projects
- 3.3 millions new jobs by 2020
- 60% are middle & high income jobs

ETP 1 year progress:
- 66% or RM10 billion worth of projects have started
- 53% of 131 entry point projects have taken off
- Private investments increased 23.4% to RM512.2 billion from RM 41.5 billion

We cannot continue at the current pace unless we transform...
SCENARIO of INDUSTRIES IN MALAYSIA 1970 - 2000

FOREIGN DIRECT INVESTMENT – set up manufacturing plants.

LOCAL; RESEARCH AND DESIGN COMPANIES – very few.

MALAYSIAN TECHNICAL AND ENGINEERING EDUCATION SCENARIO

1970 and 80s

THEORY-ORIENTED; DESIGN AND RESEARCH-based

1990s

TRANSITION

2000 onward

Setting up of technical Institutions & University colleges

Technical universities established
TEVT is critical in the 10th Malaysia Plan

<table>
<thead>
<tr>
<th>Target</th>
<th>Policy guidelines from the 10th Malaysia Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>40%+</td>
<td>Improving the Perception of TVET and Attracting More Trainees</td>
</tr>
<tr>
<td>2,400,000</td>
<td>Upgrading and Harmonising TVET Curriculum Quality in Line with Industry Requirements</td>
</tr>
<tr>
<td>1,800,000</td>
<td>Developing Highly Effective Instructors</td>
</tr>
<tr>
<td>865,000</td>
<td>Streamlining Delivery of TVET</td>
</tr>
</tbody>
</table>

On the supply side, there is also a significant pool of students for expansion of TVET

<table>
<thead>
<tr>
<th>Segment</th>
<th>Size Today Thousands</th>
<th>Segment description</th>
<th>Projected capture rate in 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic education dropouts</td>
<td>301</td>
<td>* Basic education dropouts, i.e. students leaving school prior to taking SPM</td>
<td>50%</td>
</tr>
<tr>
<td>SPM leavers directly entering workforce</td>
<td>100</td>
<td>* Unskilled workers entering workforce without further qualifications, out of which 40k have no SPM credits</td>
<td>30%</td>
</tr>
<tr>
<td>Foreign students</td>
<td>0.2</td>
<td>* Foreign students coming to Malaysia for Skills Training</td>
<td>16,000</td>
</tr>
<tr>
<td>Lifelong learning for unskilled and semi-skilled workforce</td>
<td>8,400</td>
<td>* Upskilling of those already in workforce</td>
<td>20%</td>
</tr>
<tr>
<td>Higher level SKM 3 and 4</td>
<td>40</td>
<td>* SKM 1 and 2 holders who do not currently go on to pursue SKM 3 and 4</td>
<td>50%</td>
</tr>
</tbody>
</table>

1 Skilled workforce defined as those with at least SKM 3 certificate, diploma, or degree certification; semi-skilled defined as those with at least SKM 1 or 2 certification; while unskilled workers have only SPM certification. A 40% target is projected by Ministry of Human Resources, and a 50% target committed to in the 10th Malaysian Plan. Target based on MOHR estimates, different from 10th Malaysia Plan published targets of 50%

SOURCE: 10th Malaysia Plan
**MALAYSIA vs. DEVELOPED COUNTRIES IN TERM OF SKILL WORKERS**

<table>
<thead>
<tr>
<th>Country</th>
<th>Skilled</th>
<th>Semi-skilled</th>
<th>Unskilled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malaysia</td>
<td>25.9</td>
<td>24.4</td>
<td>11.8</td>
</tr>
<tr>
<td>Ireland</td>
<td>38.9</td>
<td>30.9</td>
<td>8.8</td>
</tr>
<tr>
<td>Australia</td>
<td>42.9</td>
<td>28.3</td>
<td>20.6</td>
</tr>
<tr>
<td>New Zealand</td>
<td>43.1</td>
<td>27.0</td>
<td>8.7</td>
</tr>
<tr>
<td>Finland</td>
<td>44.5</td>
<td>22.6</td>
<td>4.2</td>
</tr>
<tr>
<td>Singapore</td>
<td>52.8</td>
<td>25.6</td>
<td>0.1</td>
</tr>
</tbody>
</table>

Ref: 
Presentation Malaysian Society of Engineering Technologist (MSET) by Prof. Dr. Mazliham Mohd Su’ud, Unikl.

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**FACTS AND FIGURES**

- 40,000 skilled workers needed by 2015 in oil and gas [KSM 2013];
- RM 3.7 billion budget 2013 technical and vocational [KPM];
- Australia ~ AUD 2 billion annually to provide skilled workers;
40% or 1.3 millions skilled worker needed by 2020 for Malaysia to be high income nation.

In Malaysia, 10% joined vocational and technical after high school whereas in German, Finland and Austria 50 – 80%.

By 2020, 1.3 million workers TVET; ~ 700,000 diploma holders from polytechnic and other institutions

FACTS AND FIGURES : SCORE

by 2030, REQUIRES 435,000 manpower;

52.2% skilled and semi-skilled;

70,000 engineering-related.
3.3 millions NEW JOBS

The Establishment of Malaysia Board of Technologists (MBOT)
Policy decisions on the establishment of MBOT

- 10th Malaysia Plan
- Cabinet Committee on HCD (JKMPMI) No.3/2010 (20 August 2010)
- Cabinet Decision (29 September 2010)
- Cabinet Committee on HCD (JKMPMI) No.1/2011 (8 March 2011)

Key Functions of MBOT

- Accredit technology and technical programmes in IHL / TEVT Institution
- Regulate the conduct and ethics of technologists and technicians
- Promote education and training (professional programme)
- Assess and approve / reject applications for registration
- Establish accreditation councils (eg. ETAC and SAC)
To elevate the standing and recognition of Technologists and Technicians

- Technologists and technicians are currently not recognised and certified as professionals by any professional body.
- Technologists and technicians will be accorded international recognition through membership of MBOT in various international accords.
- Institutions will be motivated to offer technology and TEVT programmes.

To increase the pool of skilled workforce required to attain a high income economy

- Only 28% of the total workforce is employed in the higher skilled jobs category reflecting a huge pool of unskilled workforce.
- Potential pool of 100,000 students (22% of total students enter the workforce after SPM) who are technically inclined.
- Of the total 3.3 million jobs to be created under ETP by 2020, 700,000 jobs require skilled workforce with diploma in TEVT.

To improve public perception of TEVT and attract more students

- On average, 10% of students enroll in TEVT institutions annually (low compared to 44% in OECD countries) reflecting the unattractiveness of TEVT.
- 38 diploma/advanced diploma engineering and technology courses offered by 30 polytechnics will be accredited.
- 30% of the 5,639 skills programmes that are technical-based will be accredited.
- More students will be motivated to enroll in TEVT.

To protect public safety and health through...

- Quality assurance (qualification, accreditation, training).
- License professional technologists/certified technicians to offer professional technology and technical services.
- Regulate code of conduct and ethics of technologists and technicians.

MBOT will solve these long overdue problems
MBOT will enhance the career path of TEVT graduates

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>NA</td>
<td>NA</td>
<td>Doctorate</td>
<td>Principal Technologist / Executive</td>
</tr>
<tr>
<td>7</td>
<td>NA</td>
<td>NA</td>
<td>Masters</td>
<td>Senior Technologist / Executive</td>
</tr>
<tr>
<td>6</td>
<td>NA</td>
<td>NA</td>
<td>Bachelors</td>
<td>Technologist / Executive</td>
</tr>
<tr>
<td>5</td>
<td>Advanced Diploma</td>
<td>Advanced Diploma</td>
<td>Advanced Diploma</td>
<td>Senior Technician</td>
</tr>
<tr>
<td>4</td>
<td>Diploma</td>
<td>Diploma</td>
<td>Diploma</td>
<td>Technician</td>
</tr>
<tr>
<td>3</td>
<td>Skills Certificate 3</td>
<td>Vocational &amp; Technical Certificate</td>
<td>Junior Technician</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Skills Certificate 2</td>
<td></td>
<td>Senior Operator</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Skills Certificate 1</td>
<td></td>
<td>Operator</td>
<td></td>
</tr>
</tbody>
</table>

TECHNICIANS IN MBOT
TECHNOLOGISTS AND TECHNICIANS BILL
2012 [2013?]

– “technician” means a person in a field of technology who is proficient in the relevant knowledge, skills and techniques with the exception of those who are already registered under any other Acts;

– “Qualified Technician” means a person registered under subsection 20(2);

– “Certified Technician” means a person registered under subsection 20(4);

– “skills” means an acquired and practised ability to carry out a task or job competently;

<table>
<thead>
<tr>
<th>Registration of Qualified Technician and Certified Technician</th>
</tr>
</thead>
<tbody>
<tr>
<td>Article 20.</td>
</tr>
<tr>
<td>(1) A person who holds a minimum certificate qualification in technology or a technical-related programme which is recognised by the Board may apply to be registered as a Qualified Technician upon payment of the prescribed fee.</td>
</tr>
<tr>
<td>(2) Upon application made under subsection (1), and based on the criteria as may be determined by the Board, the Board may approve the application to be registered as a Qualified Technician.</td>
</tr>
<tr>
<td>(3) A Qualified Technician registered under subsection (2) who has –</td>
</tr>
<tr>
<td>• obtained the practical experience as may be determined by the Board;</td>
</tr>
<tr>
<td>• paid the prescribed fee; and</td>
</tr>
<tr>
<td>• complied with all the criteria to be determined by the Board,</td>
</tr>
<tr>
<td>may apply to be registered as a Certified Technician.</td>
</tr>
<tr>
<td>(4) Upon application made under subsection (3), and based on the criteria as may be determined by the Board, the Board may approve the registration of a Qualified Technician as a Certified Technician.</td>
</tr>
</tbody>
</table>
Certified Technician

Article 18. No person shall, unless he is a Certified Technician –

(a) approve and certify the manner or conduct of technical services to be carried out;
be entitled to describe himself or hold himself out under any name, style or title –

(i) bearing the words “Certified Technician” or the equivalent in any other language;
(ii) bearing any other word whatsoever in any language which may reasonably be construed to imply that he is a Certified Technician;
(iii) using the abbreviated title “Tc.” for Certified Technician before his name with the approval of the Board; or
(iv) using the abbreviation “C.Tech” for Certified Technician and his specialisation after his name with the approval of the Board;

(c) use or display any sign, board, card or other device representing or implying that he is a Certified Technician; and

(d) use the stamp as determined by the Board.
DNA OF TECHNICAL EDUCATION

ISSUES

- Certificates, Diploma, Technicians
  - Terminology
  - Functions and Roles

- Perception
  - Future Students and their Parents

- Competency
  - Quality of the graduates

- Involvement of Industries
  - Supply and Demand
  - Type of Skills
## The Right Model

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>BOARD</th>
<th>SCOPE</th>
<th>ACCORD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malaysia</td>
<td>Board of Engineers Malaysia (BEM)</td>
<td>Engineering Programme</td>
<td>Washington</td>
</tr>
<tr>
<td>UK</td>
<td>Engineering Council (EC)</td>
<td>Engineering, Technology, Construction &amp; Build Environment</td>
<td>Washington, Sydney, Dublin</td>
</tr>
<tr>
<td>Canada</td>
<td>Canadian Council of Technicians &amp; Technologists (CCTT)</td>
<td>Bioscience, Building, Chemical, Civil, Electrical, Electronic, Forestry, Geomatics, Instrumentation, Industrial, Information Technology, Mechanical, Petroleum &amp; Geosciences</td>
<td>Sydney, Dublin</td>
</tr>
<tr>
<td>USA</td>
<td>Accreditation Board for Engineering and Technology (ABET)</td>
<td>Education in Applied Science, Computing, Engineering and Technology</td>
<td>Washington, Sydney</td>
</tr>
<tr>
<td>Australia</td>
<td>Institution of Engineers Australia (IEA)</td>
<td>All Engineering fields</td>
<td>Sydney, Washington</td>
</tr>
<tr>
<td>Ireland</td>
<td>Engineers Ireland</td>
<td>All Engineering fields and ICT</td>
<td>Washington, Sydney, Dublin</td>
</tr>
</tbody>
</table>

## Implementation

- **programs**
  - Searching for suitable programs
  - Dealing with host institutions

- **delivery**
  - Curriculum
  - Teaching materials

- **manpower**
  - Lecturers and Technicians
  - Industrial Experience

- **students**
  - Promotion, Application and Selection
Buying In

**STAKEHOLDERS**
- society
- industry
- students

**SHAREHOLDERS**
- government
- ministry

Accreditation and Recognition

- **MQA**
  - Documentation
  - Academic Audit

- **DUBLIN ACCORD**
  - Documentation
  - Academic Audit

- **MBOT**
  - Documentation
  - Academic Audit

Program Accreditation
WayForward

Malaysia 2020

Recognition, Acceptance & Reward

Focus, Focus & Focus

Involvement of Industry

Quality

Technologists and Technicians

Thank You