‘MALAYSIA AS A GT HUB’

Empowering Green Markets Forum
Malaysian Green Building Confederation

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Malaysian Green Technology Corporation
9th October 2013, Kuala Lumpur
Greentech Malaysia

Inception: 12 MAY 1998

FOCUS CENTRE for EE, RE, Technological R&D and Demonstration

Changed name: 7 APRIL 2010

MANDATE FOCAL POINT for green technology development in Malaysia
BACKGROUND

National Green Technology Policy: Objectives & Strategic Thrusts

National GT Policy Objectives
- Minimise energy consumption growth while enhancing economic development
- Facilitate GT industry growth and contributions to national economy
- Increase national capability & capacity for GT innovation and enhance Malaysia’s competitiveness
- Ensure sustainable development and conserve environment
- Enhance public education and awareness for widespread use.

Strategic Thrust 1: Strengthen the institutional frameworks
Strategic Thrust 2: Provide a Conducive Environment for Green Technology Development
Strategic Thrust 3: Intensify Human Capital Development in Green Technology
Strategic Thrust 4: Intensify Green Technology Research and Innovations
Strategic Thrust 5: Promotion and Public Awareness
**ENERGY**
- Seek to attain energy independence & promote efficient utilization

**ENVIRONMENT**
- Conserve and minimize the impact on the environment

**ECONOMY**
- Enhance the national economic development through the use of technology

**SOCIAL**
- Improve the quality of life for all
**BACKGROUND**

National Green Technology Policy: Goals

**Short-Term Goals:**
- Increase public awareness and commitment for GT adoption and application => advocacy programmes;
- Widespread availability and recognition of GT => standards, rating and labelling programmes;
- Increase FDIs and DDIs in GT;
- Expansion of local RDIs.
- Key sectors: energy, buildings, water & waste, transport.

**Mid-Term Goals:**
- GT becomes the preferred choice in procurement;
- Increase GT’s local market share and contribution to regional markets;
- Increase production of local GT products;
- Increase of GT RDICs by industry and MNCs;
- SMEs and SMIs ventures in global GT markets;
- GT expands to include most economic sectors.

**Long-Term Goals:**
- Inculcate of GT in Malaysian culture;
- Reduce overall resource consumption via widespread adoption of GT while sustaining national economic growth;
- Significantly reduce national energy consumption;
- Improve Malaysia’s ranking in environmental ratings;
- Position Malaysia as a major producer of GT in global market;
- Expand international collaborations between local RIs and GT industries.

**10th Malaysia Plan**
2011

**11th Malaysia Plan**
2016

**12th Malaysia Plan & Beyond**
2021
BACKGROUND

GreenTech Malaysia: Purposes & Focus Areas

Purpose: To catalyse green technology deployment as a strategic engine for Malaysia’s economic growth
Goal: Establish Malaysia as a world hub for Green Technologies

Focus Area 1: Awareness and Promotion Programmes
Focus Area 2: Competency and Capacity Development programmes
Focus Area 3: Market Enhancement and Infrastructure Development programmes
Focus Area 4: Industry Development and Technology Transfer Programme
Focus Area 5: Policies and Financing Mechanism Programmes

Impact of Green Technology adoptions and deployment:
- **Environment**: reduction of carbon emission;
- **Economy**: increase in GNI/GDP and investments;
- **Social**: increase in high income jobs and knowledge workers;
- **Energy**: reduction of fossil-fuelled power and increase in renewable power.
CONTENT of PRESENTATION

- Sector Definition
- Baseline assessment Outcome
- Gap Assessment
- Identified Strategic Directions
- Propose Implementation Framework
- Moving forward
<table>
<thead>
<tr>
<th>SCOPING AND SECTOR DEFINITION</th>
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</thead>
<tbody>
<tr>
<td><strong>Energy</strong></td>
</tr>
<tr>
<td>Refers to energy supply which include production of primary and secondary energy by different sources i.e. Power generation, O&amp;G, utility</td>
</tr>
<tr>
<td><strong>Building</strong></td>
</tr>
<tr>
<td>Green technology in the building sector covers: EE, Indoor environment quality, sustainable site planning and management, materials and resources, water efficiency, green township</td>
</tr>
<tr>
<td><strong>Water &amp; Waste Management</strong></td>
</tr>
<tr>
<td><strong>Water</strong> - GT in water sector includes the implementation of Green Technology in Water Management is defined as effective use of technology in the management and utilization of water resources</td>
</tr>
<tr>
<td><strong>Waste management</strong> - is defined as garden waste, Industrial waste, municipal waste, agricultural waste, organic waste and sewage. The scope of waste management covers waste water treatment, solid waste and sanitary landfills</td>
</tr>
<tr>
<td><strong>Transportation</strong></td>
</tr>
<tr>
<td>Incorporation of Green Technology in the transportation infrastructure and all modes of transportation</td>
</tr>
<tr>
<td><strong>Manufacturing</strong></td>
</tr>
<tr>
<td>Green technology in the manufacturing sector include the green manufacturing practices and green products manufacturing e.g. EV, Solar, LED etc.</td>
</tr>
<tr>
<td><strong>ICT (Adapted from ITU)</strong></td>
</tr>
<tr>
<td>Green ICT can be classified according to approach to energy saving efficiency i.e. energy saving of IT equipment (“of IT”) and entire society’s energy saving by IT (“by IT”) Of IT (energy saving of IT equipment) – Improving energy efficiency of IT equipment and electronics, IT equipment – PC, Server, Storage etc., Electronics – TV, DVD, Refrigerator etc., Datacentre – Datacentre, Parts – Semiconductor,</td>
</tr>
<tr>
<td>By IT (society’s energy saving by IT) – Improving energy efficiency of the society by utilizing IT solutions, Industry – Improving efficiency of a production process, Business – Telework, TV/Web meeting, Household – On-line shopping etc, Transportation – Eco-drive etc</td>
</tr>
</tbody>
</table>
LOW CARBON ECONOMY FRAMEWORK

‘Social well being for the citizen’
Baseline Measurement area:
• No. of green jobs

‘Innovation on Green Technology’
Baseline Measurement area:
• Spending on GT R&D

‘Contribution of green businesses to national economy’
Baseline Measurement areas:
• GDP contribution
• GNI contribution

Malaysia’s position in Global Index’
Baseline Measurement area:
• EPI index

‘GHG emission by strategic sectors’
Baseline Measurement area:
• GHG Emission

Categories:
- INNOVATION
- SOCIAL
- ECONOMY
- GLOBAL STANDING
- ENVIRONMENT
Baseline Assessment: Key Findings under Economy

Contribution of Green Business to National GDP in 2009

- In 2009, green businesses contribute around RM10,808 Mil or 2% to national GDP.

• The highest contributor to GDP in 2009 is the ICT sector with RM2,890.3 Mil. In 2009, this is largely contributed to the composition of the sector which are already green including eServices, Unified Communication, and green data centre.

Contribution of Green Business to National GDP by Sector in 2009

<table>
<thead>
<tr>
<th>Sector</th>
<th>Contribution to national GDP (RM Million)</th>
<th>Contribution to national GNI (RM Million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>408.8</td>
<td>400.6</td>
</tr>
<tr>
<td>Building</td>
<td>1,818.5</td>
<td>1,782.2</td>
</tr>
<tr>
<td>WWM</td>
<td>1,983.6</td>
<td>1,943.9</td>
</tr>
<tr>
<td>Transport’n</td>
<td>1,774.7</td>
<td>1,739.2</td>
</tr>
<tr>
<td>MFG</td>
<td>2,553.9</td>
<td>2,502.9</td>
</tr>
<tr>
<td>ICT</td>
<td>2,890.3</td>
<td>2,832.5</td>
</tr>
</tbody>
</table>

Source: F&S Analysis
Baseline Assessment: Key Findings Under Social

- Green jobs created by green business in 2009 is around 95,126 jobs or 1% of total workforce are employed by green companies.
- Largest segment of green jobs in 2009 is in the transportation and water and waste management sector which constitute 46%, however the segment is heavily populated by semi skilled workers.
- Primary survey qualitative feedback reveal that technical expertise to support innovation activities as well as green technology and green practices implementation are still lacking.

Source: F&S Analysis

Demand: Green Jobs by Strategic Sector in 2009

Supply: Professional Courses for Green Collar Workers have expanded due to high demand from the industry

- Certification programme for Electric Energy Manager
- 141 (ELECTRICAL ENERGY MANAGERS)
- GBI Commissioning Specialist (CsX) certification and Green Building Certifier and Facilitator Certification
- 381 (GBI ACCREDITED FACILITATORS)
Baseline Assessment: Key Findings Under Innovation

<table>
<thead>
<tr>
<th>Category</th>
<th>RM (Mil)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternative Energy</td>
<td>179,619</td>
</tr>
<tr>
<td>Water</td>
<td>4,465</td>
</tr>
<tr>
<td>Environment</td>
<td>10,005</td>
</tr>
<tr>
<td>Waste Management</td>
<td>6,587</td>
</tr>
<tr>
<td>Energy Efficiency</td>
<td>2,533</td>
</tr>
<tr>
<td>Green Chemistry</td>
<td>1,835</td>
</tr>
<tr>
<td>Transportation</td>
<td>7,188</td>
</tr>
<tr>
<td>Build Environment</td>
<td>474</td>
</tr>
</tbody>
</table>

- MOSTI through various instruments has been funding green technology activities since 1995
- Until 2010, 286 projects were funded and RM213 million was approved
- R&D activities in alternative energy was the pioneer in green technology activities

Increasing trend is seen on R&D in green technology as percentage of revenue from 4% in 2007 to 6% in 2009

From primary survey conducted 61% of the companies are conducting in house green technology R&D

Sector wise findings on R&D spending vs. revenue show building sector is leading with about 7.9% in 2009 more than 300% increase from 2007 at 1.45%
# Baseline Assessment: Key Findings Under Global Standing

## EPI Ranking for Selected Countries (Year 2010)

<table>
<thead>
<tr>
<th>Country</th>
<th>EPI Rank</th>
<th>EPI Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU-United Kingdom</td>
<td>14</td>
<td>74.2</td>
</tr>
<tr>
<td>EU-Germany</td>
<td>17</td>
<td>73.2</td>
</tr>
<tr>
<td>Singapore</td>
<td>28</td>
<td>69.6</td>
</tr>
<tr>
<td>EU-Denmark</td>
<td>32</td>
<td>69.2</td>
</tr>
<tr>
<td>Malaysia</td>
<td>54</td>
<td>65</td>
</tr>
<tr>
<td>United States</td>
<td>61</td>
<td>63.5</td>
</tr>
<tr>
<td>Thailand</td>
<td>67</td>
<td>62.2</td>
</tr>
<tr>
<td>South Korea</td>
<td>94</td>
<td>57</td>
</tr>
<tr>
<td>China</td>
<td>121</td>
<td>49</td>
</tr>
</tbody>
</table>

- In 2009, Malaysia is at rank 54th globally in the EPI index with the overall score of 65 with higher score for the Environmental Health parameters, while score for the Ecosystem Vitality parameters.

- EPI Index ranks 163 countries globally on 25 indicator across 10 policy categories, rank 54th shows Malaysia has another long way to go to achieve sustainable environmental policy goals.

Source: EPI, Yale
Situational Analysis Outcomes

**Areas of Assessment**

- **Innovation**
  - **Incentives are in place**
  - **Penetration is low**
  - **Limited options for funding for different stages (e.g. tax incentives for consumer, commercialization funding)**

- **Infrastructure**
  - **Ineffective implementation framework – misaligned agency roles and responsibilities**
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- **Financial Incentives**
  - **Incentives are in place**
  - **Penetration is low**
  - **Limited options for funding for different stages (e.g. tax incentives for consumer, commercialization funding)**

- **Human Capital**
  - **Skills gap related to GT**
  - **Learning institutions are gearing up**
  - **Unclear definition of green collar workers and green jobs**

- **Regulatory Framework**
  - **Policies are in place**
  - **Holistic regulatory framework i.e. Act, rules, regulations has yet to be in place**
  - **Ineffective implementation framework – misaligned agency roles and responsibilities**

- **Awareness & Adoption**
  - **Programs addressing awareness are in place**
  - **Desired adoption levels are not present**

- **Innovation**
  - **Local companies are initiating R&D activities**
  - **Weak linkages between companies and research institutions**

- **Infrastructure**
  - **Initiatives are already planned under RMK-10, ETP**
  - **Infrastructure to support adoption is lacking**

- **Financial Incentives**
  - **R&D infra are in place**
  - **R&D expenditure is still considered low (national level)**

- **Human Capital**
  - **Learning institutions are gearing up**

- **Regulatory Framework**
  - **Holistic regulatory framework i.e. Act, rules, regulations has yet to be in place**
  - **Ineffective implementation framework – misaligned agency roles and responsibilities**

- **Awareness & Adoption**
  - **Programs addressing awareness are in place**
  - **Desired adoption levels are not present**
Sample of various countries with different models

There are 4 significant models on how a country embracing green technology

1. **Production & Innovation Edge**
   - Through ‘green growth strategy’
   - Massive capacity for production of renewable energy

2. **Innovation + Adoption Edge**
   - Massive R&D activities on renewable energy
   - Emphasis on technology development and R&D activities
   - Churning and commercializing GT products & services
   - Greater allocation & spending on R&D
   - Preparing for the future

3. **Innovation + Platform Edge**
   - R&D. Global leader for Carbon Trading, Green Marketing

4. **Production Edge**
   - Massive capacity for production of renewable energy
   - Focus on producing GT products and services for internal and external demand
   - Usually have the capacity in terms of technology, abundance of raw materials and resources

5. **Adoption Edge**
   - Greater adoption of GT among both citizens and businesses
   - Emphasis on regulatory framework that focus on increase in adoption through incentives and enforcement
   - Targets significant results in carbon emission reduction

6. **Adoption Model**
   - Is a resource constraint country with strong innovation culture
   - Success stories on CDM projects

Production + Platform Edge
- Development of various standards e.g. Energy Star Program, LEED

Adoption Model
- Success stories on CDM projects
- The
Vision and Strategic Intent

National Vision

Leveraging on Green Technology to Achieve Sustainable Development and contribute to high income economy

- To focus predominantly on adoption and some production
- To enhance adoption of water conservation and waste recycling and moving forward to production
- To design, build and deliver buildings that are totally localized
- To focus predominantly on adoption and some production
- To focus predominantly on adoption and production particularly in basic industries
- To focus predominantly on adoption and innovation

Energy  Water & Waste Management  Building  Transportation  Manufacturing  ICT
Focusing on adoption edge in the beginning will allow drastic reduction of resources intensity. It will have long term effect towards achieving desired outcome.

Production edge in medium term is supported by strong existing manufacturing and services sector.

Innovation edge is key to ensure sustainable development.
Desired outcomes: Economy

Forecasted Economic Contribution from Green Businesses

- GDP contribution (value add) of the 6 sectors is estimated to be around RM126,816 Mil in 2025.
- The rapid growth is contributed largely by the building sector where it is forecasted initiative to ‘green’ existing government buildings as well as new buildings will be driving the demand for green building subsectors.

*GNI contribution trend follow the same trend as GDP

Source: F&S Analysis
Desired outcomes: Social

- Creation of green jobs from the 6 sectors is expected to reach 495,364 jobs in by 2025
- However this will only be achieved with the right intervention programmes including providing incentives for green collar workers, developing the industry which will demand workforce
Desired Outcomes: Innovation

Forecasted R&D Spending Over the next 15 Years

- The R&D spending is expected to increase rapidly in the next 10 years due to technology advancement effort by the business sector.
- The R&D spending on green technology is expected to be around RM3,066 Mil by 2025.
GT 20-Year Outlook Perspective

Green Infrastructure

Green Awareness

Strengthening Institutional Framework
- Advocacy programs
- P&S availability and recognition
- Increase FDIs & DDIs in GT manufacturing & services sectors
- Formulate GT Act
- Expand Research, Development & Innovation on GT
- RE, EE, H2 Fuel Cells and Biofuel Roadmaps
- GT in Water & Waste Management

Conducive Environment for GT Development
- Intensify GT Research Innovation
- GT procurement
- Local & Regional market share
- MNCs collaboration
- Local SMEs & SMIs in global market
- Hydrogen Refueling Stations
- Biofuel Refueling Stations
- Electric Vehicles Charging Stations
- Waste Management Infrastructures (3R)

Green Culture

Intensify Human Capital Development
- Reduction in energy consumption
- Sustaining national economic growth
- Green Lifestyle
- A Major GT producer
- Improvement of Environment Rating
- International collaborations

Green Economy

GT significant contribution towards a High Income Economy
- Sizeable FDIs and DDIs
- Improved air and water quality
- Green Townships
- Refueling Stations/Distribution network completed

GT Adoption (%)

RMK10 2015 RMK11 2020 RMK12 2025 RMK13 2030 and Beyond

GT20-Year Outlook Perspective
# Moving Forward

<table>
<thead>
<tr>
<th>Study on <em>Green Growth and Sustainability</em> Regulatory Framework</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setup Governing Structure</td>
</tr>
<tr>
<td>Establish National Definition for Green Jobs and Green Collar Worker</td>
</tr>
<tr>
<td>Develop specific training programmes for green jobs</td>
</tr>
<tr>
<td>Develop Green Job Platform</td>
</tr>
<tr>
<td>Develop promotional programme and improve uptake for existing financial incentives</td>
</tr>
<tr>
<td>Gazette green industrial and business park</td>
</tr>
<tr>
<td>Develop innovation platform for green businesses and research institutions</td>
</tr>
<tr>
<td>Comprehensive study on consumer awareness and adoption</td>
</tr>
<tr>
<td>Targeted Energy Efficiency Programmes for critical buildings and facilities</td>
</tr>
<tr>
<td>Green Roadmap Phase 2</td>
</tr>
</tbody>
</table>
Key Focus Enablers

- Human Capital as core enablers
- Infrastructure to support the implementation
- Financial incentives to increase adoption and encourage the industry development
- Holistic Regulatory Framework: Carbon Taxes/ Cap and Trade
- Marketing & Branding Support
Greentech Malaysia Moving Forward

- ENERGY AUDIT
- GREEN TOWNSHIP
- CLEAN DEVELOPMENT MECHANISM
- GREEN TECHNOLOGY FINANCING SCHEME
- COMPETENCY DEVELOPMENT CENTRE
- IGEM
- EV ROADMAP
- GREEN TECHNOLOGY ROADMAP
- CENTRE OF EXCELLENCE
- GREEN LABEL
- GREEN DIRECTORY
- SMART PARTNERSHIPS
Government’s Initiatives..

- **RM3.5 BILLION** allocation for soft loan under Green Technology Financing Scheme
- **FEED-IN TARIFF** for RE producer
- **TAX INCENTIVE** for Green Building
- **REBATES** on energy efficient appliances
- **GRADUAL REMOVAL OF SUBSIDIES** on fossil fuel, energy and water tariff
- **LOW CARBON CITIES FRAMEWORK AND ASSESSMENT PROGRAM**
- **CLEAN DEVELOPMENT MECHANISM**
- **MY HIJAU PROGRAMS** SME Development program, Directory, Eco-Label, Procurement etc.
“Catalysing green technology deployment as a new engine for economic growth”

Sekian, Terima Kasih.