EU-Malaysia Biomass Sustainable Production Initiative (Biomass-SP) : Results & Findings

Presented by:  
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Project Manager
EU-Malaysia Biomass Sustainable Production Initiative (Biomass-SP) : Results & Findings

Presentation outline

- Introduction, Objectives and Target Stakeholders
  - EU-Malaysia Biomass Entrepreneur Nurturing Program (EUM-BENP)
  - Achievements of EUM-BENP SMEs
  - Outreach exercises
  - Interaction with government for relevant course of action
  - Best Practices and Lessons Learnt
Introduction, Objectives and Target Stakeholders

EU-Malaysia Biomass Sustainable Production Initiative (Biomass-SP)

- A development cooperation environmental initiative of the European Union (EU) under the SWITCH-Asia Programme; one of the 16 projects selected by the EU out of more than 300 proposals under the competitive evaluation process in 2009.
- Promotes implementation of sustainable production practices in small and medium enterprises (SMEs) involved in biomass utilisation and production in Malaysia.
- Project partners:
  1) Malaysian Industry-Government Group for High Technology (MIGHT)
  2) European Biomass Industry Association (EUBIA)
  3) Danish Technological Institute (DTI)
  4) Association of Environmental Consultants and Companies of Malaysia (AECCOM)
### Objectives

1. To develop Malaysian SMEs to implement SP models in the biomass industry – economic growth, social well-being and address the issues of pollution

2. To improve biomass supply chain in Malaysia by promoting collaboration between EU-Malaysia biomass industry, research institutions and universities

3. To reduce carbon emissions by improving production process of biomass commercialization projects and contribute to global climate change mitigation efforts

4. To create enabling environment for improving policy cohesiveness based on multi-stakeholders’ approach
Target Stakeholders

- Waste-to-Wealth business (oil palm, wood, rice husk etc.)
- Solid bio-fuels; woodchips, briquette, & pellets production
- Bio-composite & bio-plastics production
- Bio-compost / fertilizer production
- Particleboard/chipboard manufacturing
- Green building material / Eco-products manufacturing
- Biomass products traders & exporters
- Engineering consulting companies / technology providers
- CDM consultants
- Government-linked companies
- Universities & research institutions (RIUs) in biomass RD&C
- SMEs related to biomass value chain
Types of Biomass in Malaysia

- CANE BAGASSE
- RICE HUSKS
- COCONUT HUSKS
- CORN STOVERS
- WOOD
- MUNICIPAL WASTE
- EMPTY FRUIT BUNCH
- PALM KERNEL SHELL
- OIL PALM TRunks
- KENAF
- POME
- MANURE
Types of Oil Palm Biomass

10% oil
90% biomass

CRUDE PALM OIL

BIOFUEL / BIODIESEL

OIL PALM FRONDS

FUEL FOR CHP

FRESH FRUIT BUNCH

PALM BIOMASS

OIL PALM TRUNK

POME

BIOGAS
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• Best Practices and Lessons Learnt
EU-Malaysia Biomass Entrepreneurs Nurturing Programme (EUM-BENP)

1) EUM-BENP serves to build up management and technical capacity of selected Biomass SMEs to improve business and environmental performance.

2) Under the EUM-BENP, selected SMEs can gain access to:
   • Capacity Building Programmes on various topics relating to biomass
   • Coaching on Green Financing & market access opportunities on selected biomass products
   • Facilitation of business and technology partnerships
   • Support in implementing Sustainable Production (SP) practices
Sustainable Production (SP) Practices Among the SMEs Facilitated by Biomass-SP

1) ISO 14001:2004 Environmental Management System (EMS)
2) Life Cycle Analysis (LCA)
3) Eco-Labeling
4) Carbon Emission Reduction Scheme
   • Clean Development Mechanism (CDM)
   • Verified Carbon Standard (VCS)
### Number of selected SMEs for EU-Malaysia Biomass Entrepreneurs Nurturing Programme (EUM-BENP)

#### Business Performance Coaching Service

<table>
<thead>
<tr>
<th>Service</th>
<th>No. of SMEs</th>
<th>Environmental Performance Coaching Service</th>
<th>No. of SMEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Partnerships and Collaboration with EU / Asian Companies</td>
<td>23</td>
<td>Carbon Footprint Measurement / Life Cycle Assessment (LCA)</td>
<td>6</td>
</tr>
<tr>
<td>Commercialisation of Local Biomass Technologies/R&amp;D</td>
<td>5</td>
<td>ISO 14001 Environmental Management System (EMS)</td>
<td>30</td>
</tr>
<tr>
<td>EU Green Procurement Standards and Market Access Opportunities.</td>
<td>13</td>
<td>Not relevant / required</td>
<td>5</td>
</tr>
</tbody>
</table>

A total of **49 SMEs** were selected from 127 applications starting 2010 until 2012, based on objective evaluation using the logical framework assessment tool as well as face-to-face interview.
## Capacity Building Programmes (CBPs)

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<thead>
<tr>
<th>Date</th>
<th>CBP</th>
<th>Experts Engaged</th>
</tr>
</thead>
<tbody>
<tr>
<td>19 - 20 April 2011</td>
<td>Biomass and Green Technology Financing Opportunities by Government Agencies and Financial Institutions</td>
<td>MIGHT, BiotechCorp, Cradle Fund, SME Corp, CGC, MIDF, SJPP, MGTC, Maybank, MTDC, MLSCF</td>
</tr>
<tr>
<td>21 – 22 April 2011</td>
<td>Biomass Technologies for Uptaking by Research Institutions and Universities</td>
<td>UPM, UKM, UiTM, FRIM, UNITEN, MPOB</td>
</tr>
<tr>
<td>11 – 12 July 2011</td>
<td>Biomass Pelleting &amp; Briquetting Technology (Market Access Opportunity, EU Standards Compliance &amp; etc.)</td>
<td>Danish Technological Institute (DTI)</td>
</tr>
<tr>
<td>13 – 14 July 2011</td>
<td>Success Stories on Biomass Conversion/SCP Projects</td>
<td>Danish Technological Institute (DTI)</td>
</tr>
<tr>
<td>3 – 4 October 2011</td>
<td>Benchmarking Biomass Economic Value and Setting Up Sustainable Supply Chain</td>
<td>European Biomass Industry Association (EUBIA)</td>
</tr>
<tr>
<td>26 – 27 March 2012</td>
<td>Biofertiliser: Meeting Sustainable Production (SP) Principles and Green Market Access Opportunities in Europe</td>
<td>Danish Technological Institute (DTI)</td>
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</table>
## Capacity Building Programmes (CBPs)

<table>
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<tr>
<th>Date</th>
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<th>Experts Engaged</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 July 2012</td>
<td>Workshop on Understanding the Green Market: Eco-labelling and Carbon Footprint</td>
<td>Dr. Chen Sau Soon, SIRIM  Dr. Chan Kook Weng, Malaysian Palm Oil Board (MPOB)</td>
</tr>
<tr>
<td>16 – 17 October 2012</td>
<td>Policy Intervention via Economic Instruments for Enhancement of Local Biomass Industry</td>
<td>Dato’ Ir. Dr. Abu Bakar Jaafar, AECCOM  Dr. Ing. Giuliano Grassi, EUBIA  Mr. Tang Kok Mun, Biomass-SP</td>
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<tr>
<td>18 – 19 April 2013</td>
<td>Commercialisation of Sustainable Biochar</td>
<td>GERES, Cambodia  Biochar Systems Limited (BSL)  Faculty of Agriculture, UPM  Environment Technology Section, MICET UniKL</td>
</tr>
<tr>
<td>24 – 25 June 2013</td>
<td>Small Scale Biorefinery</td>
<td>EUBIA</td>
</tr>
<tr>
<td>19 August 2013</td>
<td>Transforming Biomass SMEs to Exporter : Preparatory Steps to International Market</td>
<td>AB Teoh, Malaysian Export-Import Expert</td>
</tr>
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</table>
Enhancing Access to Green Financing

**Strategy**

Identify different avenues of financing for SMEs to commercialise biomass ventures via linkages and networking with related financial institutions & government agencies such as MIDA, MOSTI, MTDC, Cradle Fund, MDV, etc.

- MIGHT/ the Association of Banks in Malaysia (ABM) to enhance the awareness on biomass business models to close to 50 bankers from financial institutions such as RHB Bank, AmBank, Maybank, Public Bank etc.
- Knowledge Exchange Session with AgroBank, HSBC, Maybank Islamic, and Bank Pembangunan to discuss current status of different sectors in biomass industry such as renewable energy, bio-fertiliser, kenaf, etc.
- Successfully facilitated more than RM10 million loan financing deals for biomass SMEs by reference to the right contacts and providing advice on technical, financial and business aspects for SMEs in their application for financing and another RM20 million ongoing green financing consultation.

**Government Ministry and Agencies**
- MIDA = Malaysian Investment Development Authority
- MOSTI = Ministry of Science, Technology & Innovation
- MTDC = Malaysian Technology Development Corporation
- MDV = Malaysia Debt Venture

Loan Financing  ➔  Government Grants  ➔  Venture Capital
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Effective Environmental-Friendly Solution to the Palm Oil Industry

- Greenearth Group of Companies believes in effective use of waste materials to cropped land. Specifically targeting plantation and agriculture industries, the company is converting up to 45,000 tonne empty fruit bunches (EFB) to 10,000 and 5,000 tonnes compost and value-added biofertiliser every year.

- Keeping abreast in the local and global biofertiliser value chain, the Group recognises the importance of uptaking sustainable production (SP) practices in its management and business operations. The Group implemented ISO 14001:2004 Environmental Management System (EMS) in its production process. Under its marketing arm, Greenearth Alliance Sdn. Bhd., the Group also conducted the Life Cycle Analysis (LCA) of its product, 25 kg organic fertiliser “Blackgold” which amounts to 0.38 kg CO2-equivalent for every pack. The Group is currently on its way to obtain Eco-Labelling Certification.
Uptake of Sustainable Production (SP) Practices among SMEs: Successful Fuel-Switching Model

Fuel-Switch from Fossil Fuel to Biomass with Greenhouse Gas (GHG) Reduction

- CE Technology Bhd. was using up to 7,100 litres of heavy fuel oil (HFO) at RM 1.70/litre for heating purposes from 2008 to 2011 until management decided to switch to solid fuel fired thermo oil heater.

- Following an initial investment of RM 2 million on land, building, equipment and ancillaries, the company is now using 42 tonne/day wood chips which are sourced from surrounding saw mills. In addition, Biomass-SP also supported the company in registering its greenhouse gas reduction activity under the Verified Carbon Standard (VCS). The company is expected to reduce GHG emission up to 153,027 tonne CO2-equivalent throughout the project lifecycle, with potential generation of 16,107 verified carbon units (VCUs) every year.

- As a result, the company made substantial financial savings from fuel-switching practice while playing a role in the global climate change mitigation efforts.
Creation of High Value Bio-Engineering Products from Utilisation of Biomass

• MTS Fibromat (M) Sdn Bhd is an established company with a long history and experience in the manufacturing of high-value Erosion Control Products using biomass substrates such as EFB, paddy straw, and coconut coir.

• The company is able to generate 10X the value of biomass by applying the engineering know-how to its products in erosion control bioengineering. The increased value chain enhances economic opportunities for paddy farmers and creates substantial socio-economic improvements to the surrounding communities by providing employment to retirees and housewives.
Uptake of Sustainable Production (SP) Practices by SMEs

EUM-BENP SMEs who are certified with ISO 14001: 2004 Environmental Management System (EMS), facilitated by Biomass-SP

Uptake of Sustainable Production (SP) Practices by SMEs

Greenhouse Gas Reduction Project via Verified Carbon Standards (VCS)

CE Technology Berhad uses biomass such as wood and landscape waste in replacement of fossil fuel in its production for heating and drying purposes. By registering under VCS, the company is able to reduce GHG emission up to 16,107 tCO2 –eq every year.

Life Cycle Assessment (LCA) & Eco-Labeling Certification

- Composite Technology Wood Sdn. Bhd. utilises rice husk from paddy to produce green building materials, biofibre composite. By applying for Eco-Labeling Certification, the company is able to contribute towards green building development and their products comply with the Green Building Index (GBI) Criteria.

- Greenearth Alliance Sdn. Bhd. conducted Life Cycle Assessment (LCA) for its product, 25 kg “Blackgold” organic fertiliser to help customers make informed choices in their purchase. Every 25 kg of product is equivalent to 0.38 kg CO2.
CHE Metal Works Sdn. Bhd., an established processing equipment manufacturer in Malaysia entered into a joint venture agreement Torftech UK Ltd. This partnership is a direct result of the match-making by the Biomass-SP project.

The objective of forming the joint venture (JV) is to provide the local biomass industry an advanced biomass pre-treatment and power generation solution. As a result of the JV, the company as clinched a RM1.97bil contract to undertake the design, engineering work and commissioning of 20 rice husk biomass plants totaling 200MW in the southwestern part of Vietnam with GHG reduction potential of 2.8 million tCO2-equivalent.

As a post-project outcome, CHE Metal Works is also collaborating with another 2 EUM-BENP SMEs, Greenearth Intl Holdings and Ashmann, to commercialise an indigenous R&D to maximise the value of biomass.
Facilitation of business partnerships

CHE signs JV Agreement with Torftech UK
Biomass Asia Conference, May 2013

CHE signs MOA with Hau Giang Power Plant Co., Vietnam
Biomalaysia & Bioeconomy Asia Pacific Conference & Exhibition, October 2013
Dr. Tan Keok Lye, the Managing Director of Matrix PLC Manufacturing Sdn. Bhd. realised the potential in biomass carbonization business to produce high value and niche consumer products after attending the CBP on Biomass Technologies for Uptaking by RIUs.

The company started their pilot project with the Universiti Teknologi MARA (UiTM) with the facilitation by Biomass-SP and since then, the production grew to commercial scale. The company is currently producing up to 500 tonnes briquettes and charcoal, utilising up to 1,000 tonnes biomass feedstock every month.
Facilitation of Technology Collaboration Partnerships and Commercialisation of Indigenous R&D

Tapping into Niche Consumer Market for Charcoal via R&D Commercialisation

Myagri Nutribio Sdn. Bhd. undertook R&D collaboration on waste-to-wealth project for developing country with Danish Technological Institute (DTI) under a FP7 Programme.

Local institutions promoting R&D collaboration and utilisation of indigenous technologies:
- Malaysian Palm Oil Board (MPOB)
- Universiti Malaysia Pahang (UMP)
- Universiti Teknologi Petronas (UTP)
- Universiti Sains Malaysia (USM)
- Standards & Industrial Research Institute of Malaysia (SIRIM)
Facilitation of Access to Funding

Loan and Venture Capital

• Organised a Networking Session called Financing Clinic for Biomass SMEs.

• **Detailed discussion with banks** i.e. HSBC Bank, AmBank (which has won the Green Bank Award from the Ministry of Energy, Green Technology and Water or KeTTHA), Maybank Islamic Bank, Ambank Islamic Bank on their perspective in term of financing expectation, procedures, issues and solutions for biomass based commercialisation projects such as pellets, biofertilisers and biomass power plant.

• Facilitated 3 EUM-BENP companies for access to bank loans, 2 companies secured bank loans with the **Green Technology Financing Scheme (GTFS)** the Project’s facilitation, **RM5million** and **RM1million** respectively. (1 Euro = RM4.20).

• 1 company did not succeed due to low paid-up capital and also directors’ own credit profile issue. Other possible reasons could be strict collateral requirement and absence of individual and/or corporate guarantor.
Facilitation of Access to Funding

Equity Investment and Co-financed with Carbon Credits

• Facilitated 3 biomass power plant projects for **equity participation of foreign interest**. The deals did not go through because:
  a) non-agreement of the commercial terms between the project promoter (SME) and the investors
  b) plummeting of carbon price

• Assisted 1 EUM-BENP company, MTS Fibromat Sdn. Bhd. is preparing for their listing in the Kuala Lumpur Stock Exchange (Bursa Malaysia) with technical advice and also referred a competent **Chief Financial Officer (CFO)** to them as part of the listing requirement for **Initial Public Offering (IPO)**.

• Another EUM-BENP company, CHE Metal Works Sdn. Bhd., is also planning to list in the Stock Exchange to finance their biomass power plant projects in Vietnam with the value of **RM1.97 billion**, of which the joint venture partnership with Torftech was facilitated by Biomass-SP.
Facilitation of Access to Funding

Grants Application

- The Project coached **2 EUM-BENP SMEs** and is working with the **Malaysia Biomass Industries Confederation (MBIC)** to apply for Government grants.

- The selected Government grants are:
  1. **TechnoFund** from the Ministry of Science, Technology and Innovation (MOSTI)
  2. **Domestic Investment Strategic Fund (DISF)** provided by Malaysian Investment Development Authority (MIDA)

- The amount applied by 2 SMEs are **RM4million** and **RM500,000** respectively.

  - **Post-project**, 1 SME engaged the Technical Expert from Biomass-SP to apply for a grant from the DISF scheme with the amount of **RM8million** to commercialise **biochar** with a special production technology which is friendly to the environment.

- Based on the knowledge transferred from Biomass-SP, MBIC now serves as a **one-stop information centre for biomass SMEs** in matters related to grants and funding advice.
Overall Result Summary of the EU-Malaysia Biomass Entrepreneurs Nurturing Programme (EUM-BENP)

Upon the project conclusion, the project conducted an assessment of the achievements achieved by the SMEs with the support from Biomass-SP via the EUM-BENP initiative.

- Business development or new market access: 0.50%
- Reduction of greenhouse gases: 0.50%
- Savings of power or resources: 0.33%
- New business collaboration: 50.00%
- New technology acquisition: 16.67%
- Information/references for financial assistance: 33.33%
- Value added contribution: 33.33%
- Improvement of capacity: 16.67%
Introduction, Objectives and Target Stakeholders
EU-Malaysia Biomass Entrepreneur Nurturing Program (EUM-BENP)
Achievements of EUM-BENP SMEs
Outreach exercises
Interaction with government for relevant course of action
Best Practices and Lessons Learnt
Country-Wide Outreach & Engagement with Stakeholders

Awareness Road Show Seminars (ARSSs) 2010

More than 1,000 stakeholders & SMEs attended ARSSs in the 7 states in West & East Malaysia.


Gathering of more than 1,000 local, regional, and international biomass stakeholders at the EU-Asia Biomass Best Practices & Business Partnering Conference 2012 & its satellite and subsequent events.
Synergy with industry associations, government agencies and relevant stakeholders group - Share findings, best practices and lessons learnt in biomass industry.

<table>
<thead>
<tr>
<th>Event</th>
<th>Organiser</th>
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<tbody>
<tr>
<td>19th European Biomass Conference 2011</td>
<td>European Biomass Industry Association (EUBIA)</td>
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<tr>
<td>Training Seminar on Renewable Energy 2011</td>
<td>Italian Trade Commission</td>
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<tr>
<td>2nd Biomass &amp; Pellets Update Asia 2012</td>
<td>Bioenergy International</td>
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<tr>
<td>International Oil Palm Biomass Conference 2012</td>
<td>Malaysian Palm Oil Board (MPOB)</td>
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<tr>
<td>International Conference on Biomass for Biofuels &amp; Value Added Products 2012</td>
<td>Ministry of Higher Education (MOHE)</td>
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<td></td>
<td>Forest Research Institute Malaysia (FRIM)</td>
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<td></td>
<td>Universiti Malaysia Pahang (UMP)</td>
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<td>10th Biomass-Asia Workshop 2013</td>
<td>New Energy Foundation (NEF), Japan</td>
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<tr>
<td>1st China-ASEAN Forum on Technology Transfer and Innovation Collaboration 2013</td>
<td>China-ASEAN Technology Transfer Centre (CATTC)</td>
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<tr>
<td>4th International Green Purchasing Conference 2013</td>
<td>Malaysia Productivity Corporation (MPC), Green Purchasing Network Malaysia (GPNM)</td>
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Participation in local and international platforms for the purpose of outreach and sharing of best practices

6th Asia Clean Energy Forum 2011
Manila, Philippines

35th ADFIAP Annual Meeting 2012 – Workshop on Enabling Access to Finance for Green SMEs
Istanbul, Turkey

Forum on China-ASEAN Technology Transfer & Collaborative Innovation 2013 – Nanning, China

MPOB Oil Palm International Biomass Conference 2012, Kuala Lumpur
The **Malaysia Biomass Industries Confederation (MBIC)** was founded by SMEs under Biomass-SP to represent the biomass industry network in Malaysia.

MBIC was graciously officiated by the *Negeri Sembilan State Ruler, Duli Yang Maha Mulia Yang Di-Pertuan Besar Negeri Sembilan Darul Khusus Tuanku Muhriz Ibni Almarhum Tuanku Munawir*, in 2012.

To-date, MBIC is an independent industry association with 100 members and is recognised by the industry stakeholders i.e.; Government and business owners for its influence and representation of the Malaysian biomass industry.
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Participation in Stakeholders Consultation Sessions on Government Policy/Plan Formulation, Green Technology / Bio-economy Initiatives

- **Bioeconomy Initiative Malaysia (BIM)**
  Malaysian Biotechnology Corporation & The Ministry of Science, Technology and Innovation (MOSTI)

- **Enhancing Competitiveness of Renewable Energy Sector & Related Services**
  The Ministry of International Trade & Industry (MITI)

- **National Green Technology Master Plan**
  The Malaysian Green Technology Corporation

- **Stakeholders Engagement on Used Cooking Oil**
  The Ministry of Energy, Green Technology and Water (KeTTHA)

- **Workshop on Enhancing Competitiveness of Renewable Energy Service Sector in Malaysia**
  Ministry of International Trade & Industry (MITI) and Pricewaterhouse Copper (PwC)

- **Working Group to Drive Policy and Roadmap for Biomass Science, Technology and Innovation in ASEAN Economic Region**
  Thailand Science, Technology and Innovation Policy Office

- **China-ASEAN Technology Transfer & Innovation Collaboration**
  China-ASEAN Technology Transfer Centre
Participation in Stakeholders Consultation Sessions on Government Policy/Plan Formulation, Green Technology / Bio-economy Initiatives

With Biomass-SP’s active promotion of the biomass industry for the benefit of the SMEs and the country, the project has managed to reached out to the senior management / administration of the authorities such as:

a) Ministry of Energy, Green Technology and Water (KETTHA)
b) Malaysian Palm Oil Board (MPOB)
c) Malaysian Green Technology Corporation (GreenTech Malaysia)
d) Economic Planning Unit (EPU)
e) Ministry of Science, Technology and Innovation (MOSTI)
f) Standard and Industrial Research Institute of Malaysia (SIRIM)
g) Ministry of International Trade and Industry (MITI)
h) Forest Research Institute Malaysia (FRIM)
i) Malaysia Investment Development Authority (MIDA)
j) SME Corporation (SMECorp)
k) Sustainable Energy Development Authority (SEDA)
l) Malaysia Timber Industry Board (MTIB)
Project Deliverable

Malaysian Biomass Industry Action Plan 2020

To promote participation of SMEs via uptake of Sustainable Production (SP) practices in the biomass industry in Malaysia through a set of intervention strategies and specific action plans based on multi-stakeholders consultative approach.
Malaysian Biomass Industry Action Plan 2020

Recommended Strategies for Biomass Value Chain in Malaysia

- **STRATEGY 1**: Unlocking Biomass Feedstock for Downstream Utilization
- **STRATEGY 2**: Optimised Utilization of Biomass for Sustainable and High value Production
- **STRATEGY 3**: Positioning Malaysia as Regional Biomass Hub
Malaysian Biomass Industry Action Plan 2020

Mapping of Key Enablers in Biomass Industry

- **Biomass Availability**
  - Improve efficiency of nutrients recycling
  - Collaborative program between upstream & downstream stakeholders
  - Sustainable forestry plantation

- **Transport Logistics**
  - Pre-treatment of biomass in mills
  - Boiler design for EFB pellets

- **Technology & Human Capital**
  - SMEs & RIUs collaboration hubs in four biomass sub-industries
  - Talent pool on biomass technologies & sustainable practices

- **Policies & Law**
  - Monitoring & disclosure of biomass feedstock
  - Separation of organic & green waste from MSW

- **Investment & Financing**
  - Knowledge of financiers on evaluating biomass biz
  - Roadmap on diversion of organic waste from landfills

- **Marketing & Branding**
  - Malaysia as regional biomass hub
  - Capacity of SMEs in eco-branding

- **Local & Export Markets**
  - Reducing fossil-fuel subsidies
  - Bulking facilities for pellets export

**PRODUCTS**
- Bio-Energy
  - Pellet fuels
- Green Chemicals
  - Bio-fertilisers
- Biocomposites & Bio-Materials
  - Compliance to global eco-labeling schemes
1. The Biomass Benchmarking Study provides quantitative perspective of the potential economic value that can be generated from various commercial utilisations of different types of biomass available in Malaysia.

The data were compiled from
1. Interviews with SMEs who are in the industry
2. Interaction with local RIUs
3. Other related studies
Biomass Benchmarking Study – Potential Value Creation for Commercial Utilisation of Biomass in Malaysia

Types of Biomass in Malaysia

The Biomass Benchmarking Study provides quantitative perspective of the potential economic value that can be generated from various commercial utilisations of different types of biomass available in Malaysia.

The local biomass highlighted in this Study are:
• Palm empty fruit bunches (EFB)
• Palm kernel shell
• Oil palm trunks (OPT)
• Wood saw dust
• Rice husk
• Municipal solid waste (MSW)
Value Creation from Utilisation of Malaysian Woody Biomass

- Pellet
- Charcoal
- Activated Carbon
- Biochar
- Particleboard

Value Generation RM/MT feedstock (dry) vs Value Generation RM/MT feedstock (wet)
Biomass Benchmarking Study – Potential Value Creation for Commercial Utilisation of Biomass in Malaysia

Value Creation from Utilisation of Other Types of Biomass in Malaysia

- Rice Husk Biocomposite
- Rice Husk Silica
- OPT Particleboard
- PKS Activated Carbon
- PKS Biochar
- PKS (raw)

(RM/MT)

Value Generation RM/MT feedstock (dry) | Value Generation RM/MT feedstock (wet)
Biomass-SP, a Malaysian-based project focusing on energy and biomass, recently received a Special Mention in the Asia category of the European Commission's Development & Cooperation (DEVCO) Communication Awards 2012. The jury lauded the project's successful three-year communication plan implementation.

Received the honour from the Head of the European Union Delegation to Malaysia.
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- Best Practices and Lessons Learnt
Best Practices and Lessons Learnt

1. Feedstock – Finance – Technologies – Market + Human Capital

2. For big-scale project developers without feedstock, Sourcing the “raw materials” remain a big challenge for projects requiring more than 100,000 MT (dry) feedstock per year, such as biomass power plants.

3. Biomass SMEs to focus on niche projects to maximize the utilisation of feedstock for conversion to higher-value products.

4. New era; need to commercialize currently patented technologies related to biomass
   – Unlock the monetary value of Intellectual Properties through the newly launched IP Valuation Model (IPVM) and IP financing (RM200million promoted by MDV)
   – 1Euro = RM4.20
5. Government commended for superb ongoing support of the Malaysian biomass sector particularly in terms of intervention and financing.
   - Green Technology Financing Scheme (GTFS) from Malaysian Green Technology Corporation, Greenlane policy from Ministry of Finance – Innocert, MTDC Incubation Company
   - SME soft loans from DFIs (SME Bank, Malaysia Industrial Development Finance Berhad (MIDF), Agrobank etc.) & Islamic Banks, soft loans for Bionexus Companies
   - Grants from MOSTI, MTDC, Malaysia External Trade Development Corporation (Matrade), Cradle Fund
   - SME schemes from commercial banks promoted by Bank Negara
   - Venture Capital and private equity fund from Malaysia.

6. Using biomass as bioenergy is the best approach to reduce GHG Emission vis-à-vis other high value products such as biofertiliser, eco-products from the perspective of Carbon Footprint measurement.
Thank you!

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