

Sustainable Production (SP) of the Biomass Industries in Malaysia: Optimising Economic Potential and Moving towards Higher Value Chain



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Malaysian Industry-Government Group for High Technology



European Biomass Industry Association



Association of Environmental Consultants and Companies of Malaysia



DANISH TECHNOLOGICAL INSTITUTE

Overview of Biomass

What is biomass?

The following are some consensus definitions of biomass at European and International level:

- **United Nations Framework Convention on Climate Change (UNFCCC)**
Definition of renewable biomass: *"The biomass is the non-fossil fraction of an **industrial** or **municipal waste**."*
- **EU's Waste Framework Directive**
*"Bio-waste" means **biodegradable garden and park waste, food and kitchen waste** from households, restaurants, caterers and retail premises and comparable waste from food processing plants"*
- **European Biomass Association (AEBIOM)**
Definition of Biodegradable Waste: *"Biodegradable waste is the biomass that can cover several forms of waste such as **organic fraction of municipal solid waste**, wood waste, refuse-derived fuels, sewage sludge etc."*

On the other hand, among definitions of biomass which can be found in research institutions and universities in Malaysia are:

- **Universiti Sains Malaysia (USM) School of Physics**
*"The term, biomass should be used not only to refer to lignocellulosic materials but **to encompass all plant and animal matter i.e. any organic matter**. However as the contribution from animal matter is only a small percentage of the total, the term biomass is generally used to refer to organic matter from plants."*
- **Malaysian Palm Oil Board (MPOB)**
*"Biomass is a **cellulose material** which can be broadly classified as woody and non-woody. Non-woody biomass that can be used as a fuel include agricultural residue such as bagasse, straws, husks, and pits. Also, manure can be used as a fuel. Wood fuel includes round wood (cord wood), limb wood, wood chip, bark, sawdust, forest residues, charcoal, pulp waste, and spent pulping liquor."*
- **Universiti Teknologi Malaysia (UTM) Energy Research Alliance (ERA)**
"Biomass is a form of biological matter that can be utilized as a kind of fuel or in other industrial processes. The most common types of biomass are wood, grass or agricultural crops."



Woodchip factory



Municipal solid waste



Timber residue



Oil palm trunk fibre

Environmental Uniqueness of Biomass

Biomass takes carbon out of the atmosphere while it is growing, and returns it as it is burned. If it is managed on a sustainable basis, biomass is harvested as part of a constantly replenished crop. This is either during woodland or arboricultural management or coppicing or as part of a continuous programme of replanting with the new growth taking up CO₂ from the atmosphere at the same time as it is released by combustion of the previous harvest.

Source: Biomass Energy Centre, United Kingdom

Why Biomass?

Biomass has great potentials to be used for the manufacturing of value-added eco-products (bio-plastics, bio-composites, bio-fertilisers, bio-pellets, green construction materials, furniture products, etc) and generation of renewable energy using biomass as feedstock which adds value to the clean development mechanism (CDM) activities in Malaysia and contributes to global climate change mitigation effort.

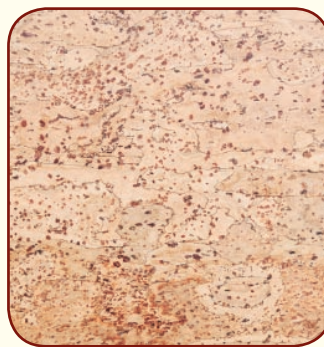
About bioMass.sp

Malaysia produces a minimum of 168 million tons of biomass (*timber waste, oil palm waste, rice husk, coconut trunk fibres, municipal waste, sugar cane waste etc*) annually and its full potentials for commercialisation remains untapped.

This EU-funded project aims to develop the biomass industry based on the principle of sustainable consumption & production (SCP) via the enhancement of supply chain and uptake of biomass utilisation projects by the Malaysian SMEs. The project intervenes with greater market access / green supply chain opportunities from the EU. It is also expected to spur the green technology sector in Malaysia, contribute to global climate mitigation effort and create social profit to the environment.

Project Objectives

- To develop Malaysian family-owned SMEs to implement sustainable production (SP) models in the biomass industry for achieving economic growth, social well being and address the issues of industrial pollution.
- To improve biomass supply chain in Malaysia by promoting collaboration between the industry (EU-Malaysia), research institutions and universities (RIUs) to address inconsistent biomass supply issues in Malaysia and unlock its wealth creation potential.
- To reduce industrial emissions by improving production process of biomass commercialisation projects & contributes to global climate change mitigation effort.
- To create the enabling environment for improving policy cohesiveness which are fragmented currently for developing the SP of biomass industry.



Cork flooring



Briquette from straw and hay

Target Stakeholders

- SMEs biomass supply chain i.e. wood and fibre-based products manufacturing; eco-products manufacturing; solid waste management and solutions/service providers, Renewable Energy (RE) entrepreneurs, traders/supplier of biomass, technology licensors & licensees for biomass, environmental engineers, commercialisation entrepreneurs, etc.
- Government agencies, research institutions and universities & financial institutions that are involved in promoting the biomass industry.
- Environmental business intermediaries and NGOs.

Project Activities

- Roadshow seminars for biomass stakeholders.
- Stakeholders forum based on participatory approach.
- Promote business collaboration and biomass SCP best practices via international conference.
- Training and coaching activities on sustainable production for selected biomass SMEs under the project branding strategy i.e. EU-Malaysia Biomass Entrepreneurs Nurturing Programme (EUM-BENP).
- Promote supply chain for the biomass industry.
- Conduct benchmarking study to distinguish the economic value and potential utilisation for energy (renewable energy) and non-energy (eco-manufacturing products) use.
- Policy recommendation document to develop biomass industry.

Benefits to Biomass Industry SMEs

- Qualified SMEs will receive complimentary training on the subject of
 - a) Biomass Technology for Uptaking by SMEs;
 - b) Concepts, Trends, Perspectives in Environmental Performance (Carbon Foot Print) on SCP;
 - c) Biomass & Clean Development Mechanism (CDM);
 - d) Optimising & Benchmarking the Economic Value of Biomass & Developing a Biomass Supply Chain;
 - e) Success Stories of Biomass Conversion / SCP Projects;
 - f) Financing / Funding Opportunities for Biomass Commercialisation;
 - g) Economic Instruments for Developing the Biomass Industry;
 - h) EU Market Access Opportunities for Biomass Products in meeting EU Green Supply Chain Requirement etc.
- Complimentary service provided by Biomass-SP for biomass SMEs to undertake CDM projects.
- Complimentary technical service to measure carbon footprint reduction.
- Qualified existing biomass utilisation companies with export potential to Europe will get technical support for environmental management system (EMS) 14001 series certification.
- Complimentary coaching service for biomass commercialisation project: Waste to Wealth, Lab to Market, Access to Funding Opportunities etc.

About the Project Website

BIOMASS-SP website serves as a one-stop focal point to promote the utilisation of biomass pillared on the principle of sustainable consumption and production in Malaysia. The website features various information including project concept, objectives and information related to upcoming project activities etc. It also highlights relevant R&D projects, publications, news and articles as well as existing financial assistances and investment incentives for biomass commercialisation in Malaysia. Key findings, project deliverables and relevant case studies/ best practices on SP/SCP projects will also be highlighted in the website after completion of each project activity.

Please visit our website www.biomass-sp.net for more information.

ABOUT THE EU-SWITCH ASIA PROGRAMME

switchasia

www.switch-asia.eu

The EU-SWITCH Asia programme seeks to enhance the uptake of SCP by working simultaneously on the production and consumption sides, employing a multi-stakeholder approach with strong and intensive working relationships with SMEs, building upon existing structures and networks, and by scaling up results achieved in earlier projects. Projects will have to actively disseminate their results and facilitate exchange of good practices, and will be supported in this task by the SWITCH-Asia programme Network Facility. SWITCH-Asia Network Facility is set up within the SWITCH-Asia Programme to maximise its impact by effective knowledge sharing and dissemination, and networking. It will further raise the whole profile of sustainable consumption and production at a very practical level. Without proper networking and communication across the programme and the region, project results will remain scattered. The SWITCH-Asia Network Facility works predominantly with the sustainable consumption and production (SCP) projects funded by the European Union (EU) – and therefore with their partners in both the EU and Asia. It seeks synergies amongst SWITCH-Asia projects, creates linkages with regional SCP activities and other networks, and helps bring results to the attention of Asian policy-makers. It is one component of the SWITCH-Asia programme funded by the EU and implemented by the Centre on Sustainable Consumption and Production (CSCP).

Biomass-SP Project

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