

IMPAK

Issue 2 / 2012



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Green Economy: Does it include you?

World Environment Day 2012 Green Economy: Does it include you?



The World Environment Day (WED) 2012 will be hosted by the city of Rio de Janeiro, Brazil on 5 June 2012. This year's theme is Green Economy: Does it include you?

Host City: Rio de Janeiro, Brazil

Brazil's second largest city, Rio de Janeiro, has again been chosen to host not only the World Environment Day on 5 June, but also the United Nations Conference on Sustainable Development (Rio +20) from 20-22 June. It is indeed an important milestone for this city, as this year's WED will be the second time they are hosting, with the first one occurring way back in 1992. Besides, it will also be the 40th anniversary for WED, since the inception of the United Nations Environment Programme (UNEP) in 1972.

Brazil is the fifth most populous nation in the world after China, India, United States and Indonesia. Some of the current environmental issues faced in the country include illegal deforestation in the Amazon Basin, air and water pollution and wetlands degradation. Also of concern to the country, however, is the growing food insecurity.



WED Logo



The World Environment Day 2012 logo embodies different elements that represent some of the 10 sectors of the economy identified by an UNEP report as potential investments in the Green Economy, namely renewable energy (represented by solar panel and windmill), agriculture (represented by tractor), buildings (represented by building), transport (represented by bus), cities, forests (represented by tree), waste, industries, tourism and fisheries. The logo has included human representation, in which the pink dot symbolises a person's head and the ribbon of pink, blue and green signifies the body that also forms the word 'W' (for World). In summary, it captures the spirit of the involvement of everyone in supporting the green economy and making it a success, and this fits very well with the theme, Green Economy: Does it include you?

The Green Economy

In this significant year for the environment and sustainable development, the world leaders will once again meet at the *United Nations Conference on Sustainable Development*, twenty years after the historic Earth Summit in Rio de Janeiro, 1992. It is envisioned as a Conference at the highest possible level, including Heads of State and Government or other representatives. The Conference will focus on two themes: a green economy in the context of sustainable development and poverty eradication; and the institutional framework for sustainable development.



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A publication of the
Department of Environment,
Malaysia - FREE copy.

ISSN 1394-0724



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From the desk of the Director General

Green Economy: Does it include you?



The theme of this year's celebration of World Environment Day on 5 June at Rio de Janeiro is most apt: "Green Economy: Does it include you?"

It most certainly does! UNEP, in its report, has identified the ten sectors or areas of the global economy that can form the backbone of the new and emerging Green Economy. They are renewable energy, agriculture, buildings, transport, cities, forests, waste management, industries, tourism and fisheries. As can be seen, no one will be spared from doing their part and of being involved in the transition to green. Life as usual is not an option anymore.

The UNEP defines the Green Economy as an economy that results in improved human well-being and social equity while significantly reducing environmental risks and ecological scarcities. It will require all of us, rich and poor, to reduce carbon emissions and pollution, enhance energy and resource efficiency and prevent the loss of biodiversity and ecosystems. But misconceptions remain that the move towards a Green Economy will result in a massive loss of jobs and/or social disorder. This misconception needs to be addressed and clarified.

In general terms, a low carbon or Green Economy is a result of increased resource efficiency. To maintain social order and to ensure human development, job creation is vital even while making the transition to a Green Economy. And this Green Economy does not translate to less work opportunities due to more stringent policies on future development. Green jobs by the millions can be created and are being created all over the world. In Malaysia, the Green Technology Policy aims to achieve both the transition to a Green Economy and the creation of new jobs. In fact the transition cannot be made without a growing cadre of green professionals, technicians, skilled manpower, researchers, scientists and technologists.

This nexus of the transition to a Green Economy, the creation of new value chains and of new types of green jobs, is what underpins the strategic thrusts of our Green Technology Policy. These thrusts are: Strengthen Institutional Frameworks; Provide a Conducive Environment for Green Technology Development; Intensify Human Capital Development in Green Technology; Intensify Green Technology Research and Innovation; and lastly Promote Public Awareness. Surely these initiatives are required because, going forward, our future development cannot be based on carbon intensive industries. All over the world, the lights must surely be going off on such industries as these are unsustainable unless they reinvent themselves into a sustainable ones.

What is also undeniable across the world is the increasing pace of the emergence of this new Green Economy out of the ashes and horrors of the smoke-belching, air polluting, water and ground contaminating and resource wasteful industries of the past. This Green Economy is surely but steadily creating green jobs. The nature of this shift must be understood by all and especially our youth. And it must be they who must be properly trained and equipped to deal with the challenges of

these new types of jobs requiring entirely new skill sets. What are the salient features of these new and green jobs?

First, we should expect an increasing pace of greening the existing jobs and occupations. And this can include some rather surprising ones. Like 'green accountants', 'green engineers' and 'green auditors'! This would entail re-training engineers, technicians and skilled workers across a spectrum of existing industries from power to oil and gas to manufacturing. Second, more and more jobs will emerge in innovative green technologies with a high degree of convergence of skills. Third, new occupational profiles will be created in a range of industries such as building retrofitters, mass transit operators, 'green' waste managers, energy efficient automobile producers, wind and solar power generators, organic farming experts and cellulosic biomass fuels producers. The development of these new occupational profiles will result in an array of supporting manpower to deliver the 'green deliverables' created by these skilled professionals.

To ensure that the gains made in these green initiatives are not frittered away, more and more companies will employ management tools such as the Environmental Management Systems ISO 14001 to stay ahead of the pack! This particular EMS ISO 14001 is a set of processes and practices that enable an organisation to reduce its environmental impact and at the same time increase its operating efficiency. Properly implemented, it can result in cost savings, reduce environmental risks, improve relationships with regulators and financiers and improve the public's perception of the business. Many Malaysian companies have successfully implemented such programmes, and in this way, yet more jobs are created!

Given these considerations, in this issue of IMPAK, we highlight three sectors or areas in our country that urgently need to be greened. They are the Waste, Transport and Tourism industry. From a reading of these articles it would appear that there is much to be done and all of us have a vital role to play and this includes politicians, people from all walks of life and businesses up and down the country. All indications are that a vibrant Green Economy is achievable when politicians make the hard choices that favour the long term interests of future generations and the environment rather than make populist choices; when people walk the talk and not just talk the walk and when businesses choose long term sustainability over short term gains.

Yes, the Green Economy includes all of us!

A handwritten signature in black ink, which appears to read 'Halimah Hassan'.

Halimah Hassan
Director General
Department of Environment, Malaysia

The UN Environment Programme defines the Green Economy as one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. The Green Economy touches almost every aspect of our lives and concerns our development. Either it is public or private driven initiatives, it is important that the key elements of the Green Economy are practised such as reducing carbon emissions and pollution, enhancing energy and resource efficiency, and preventing the loss of biodiversity and ecosystems.

The Green Economy Initiative has three main activities:

- To produce a Green Economy Report and related research materials, which will analyse the macroeconomic, sustainability, and poverty reduction implications of green investment in a range of sectors;
- To provide advisory services on ways to move towards a green economy in specific countries; and
- To engage a wide range of research, non-governmental organisations, business and UN partners in implementing the Green Economy Initiative.

Regardless of the environmental benefits and options for sustainability, investment in a Green Economy is recorded in several reports as an agent for creating millions of new jobs, such as UNEP's Green Jobs Report. The Green Economy sector in some of the leading countries such as China, Denmark, Germany, India, Spain and the United States is very prosperous, and they provide green jobs to approximately 2.3 million people. One of the main engines for economic growth is a higher rate of employment, which both reduces the burden to the economy and gives consumers the purchasing power to sustain lives through supporting industries. Hence, the general perception that being involved in the Green Economy is an environmental fad and presents limited opportunities is incorrect. People should begin to look at this as a solution for economic growth that recognises the social component.

The *UNEP Green Economy: Developing Countries Success Stories* Report, has documented the success stories of some Green projects around the world such as renewable energy in China, feed-in tariffs in Kenya, organic agriculture in Uganda, sustainable urban planning in Brazil, rural ecological infrastructure in India, forest management in Nepal, ecosystem services in Ecuador, and solar energy in Tunisia. A brief description of some major projects follows:

Renewable Energy in China

In China, the energy sector is worth an estimated USD17 billion, and in return created almost 1.5 million job opportunities, in which 600,000 jobs were in the solar thermal industry, 266,000 in biomass generation, 55,000 in solar photovoltaics and 22,200 in wind power. Two sectors that benefited from the investments and policy incentives were wind power generation and solar power.

China has passed the Renewable Energy Law in 2005 that acts as a framework for the development of the low-carbon and renewable energy sector. The incentives from the passing of this law came in the form of a national fund to foster renewable energy development, discounted lending and tax preferences for renewable energy projects, and a requirement that power grid operators purchase resources from registered renewable energy producers. A Five-Year Plan (2006-2010) has been formulated with significant allocation to the green sectors, with an emphasis on renewable energy and energy efficiency.



Organic Agriculture in Uganda

Uganda has taken important steps in transforming conventional agricultural production into an organic farming system as early as 1994. The Draft Uganda Organic Agriculture Policy was put in place in 2009 to implement policies in nine areas: the promotion of organic agriculture as a complementary agricultural production system; the development of a system of standards, certification and accreditation; the promotion of research, to enable technology development and dissemination; support to the development of local, regional and international markets for organic products; the generation of information, knowledge and skills through education and training; improvements to post-harvest handling practices, preservation, storage and value addition; the sustainable use of natural resources; and participation of special interest groups such as women, youth and the poor and vulnerable.

Uganda has gained a reputation as being among the world's lowest user of artificial fertilisers. Organic farming allows the promotion and enhancement of agro-ecosystem health, including biodiversity, biological cycles and soil biological activity, and prohibits the use of synthetic inputs, such as drugs, fertilisers and pesticides. Another driving force for the success of the pursuit of organic agriculture in Uganda is the limited access to chemical inputs.

This turned out to be a comparative advantage for it has led to an enlarged organic agriculture base and generated revenue and income for smallholder farmers.

According to the International Federation of Organic Agriculture Movements (IFOAM), the global market for organic foods and drinks is estimated to be around USD 50 billion. As a significant producer of organic products, Uganda benefits from an important source of export earnings and revenue for farmers. Certified organic exports increased from USD 3.7 million in 2003/04, to USD 6.2 million in 2004/05, before jumping to USD 22.8 million in 2007/08.



Sustainable Urban Planning in Brazil

The city of Curitiba in Brazil is a fine example of sustainable urban planning, where the planners have successfully addressed all the challenges and problems associated with urban expansion and growth. The city has been able to grow in population from 361,000 in 1960 to 1.8 million in 2008, without experiencing the negative impact of over-development such as traffic and human congestion, pollution and reduction of public space. On the other hand, they are able to substantially increase the average green area per person from 1 km² to over 50 km².

Curitiba is looked upon as a model city, and as a result of its integrated urban planning, it has the highest rate of public transport use in Brazil (45% of journeys), and one of the country's lowest rates of urban air pollution. Compared to other large cities such as Rio de Janeiro and Sao Paulo, Curitiba boasts lower fuel usage by 30%, less fuel wastage and loss time from traffic congestion per capita by almost 10 times compared to both the cities.



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Source
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The EMS Approach for Industries to Go Green and Clean

Introduction

A clean and green Malaysia is not an impossible dream!

Industries in Malaysia have often been at the end of the stick, being pinpointed as polluters of air, water and land. But there are many tools now available to help industry clean up their act and show their peers, clients and other stakeholders, including enforcement agencies, that they can be clean and green, and at the same time show profitability to their stockholders.

A Tool to be Clean and Green – The ISO 14000 Standards

Among these tools, there is a useful one that can be applied to help industries. The ISO 14000 standards are a family of voluntary standards and guidance documents to help organisations address environmental issues. Included in this family are standards for Environmental Management Systems (EMS), EMS auditing, environmental labelling, performance evaluation and life-cycle assessment.

The ISO 14001 – Environmental Management System

ISO 14001 for Environmental Management Systems (EMS) is a set of processes and practices that enable an organisation to reduce its environmental impacts and at the same time increase its operating efficiency. Properly implemented, an EMS can give benefits such as cost savings, ensuring environmental compliance, reducing environmental risks, meeting supply chain requirements, improving relationship with regulators and financiers, and improving public image. Market opportunities and employee enthusiasm can be increased. Targets can be set and met and resources can be conserved.

In order to achieve these benefits, the EMS uses the elements of policy, planning, implementation and operation, checking and corrective action, and management review as illustrated in Figure 1. All these elements are important to help a company achieve the objective of being 'clean and green'.

1 Incorporating Clean and Green into the Environmental Policy

In relation to Figure 1, the company can start by incorporating the objective of being clean and green into its environmental or sustainability policy. If a company has an existing quality and/or safety policy, the environmental policy can be integrated into its overall company policy to become an integrated policy – for example, a Quality Environment Health and Safety or (QEHS) policy. Being clean and green can cover as many aspects of industry activities as the industry wishes – from design, through processes, to products and also cover engineering, maintenance and administration (incorporating purchasing), including customer service.

2 Planning for Clean and Green

During the planning stage, the company undertakes the identification of those environmental aspects that may contribute to one or more of the following: waste generation, pollution, ozone depletion, climate change, resource depletion and health issues, and plans what to do about them. More often than not, being clean and green would be related to planning for waste management and management of resources, including the factory site, for instance, in building and landscaping design and layout, and maintenance of 'greenery'. Prevention or control of air emissions, wastewater discharges and hazardous wastes should be of primary concern. Frequency of occurrence can also be taken into account. Legislative requirements depending on the type of industry and location of the company have to be applied during the planning process.

3 Setting Realistic Objectives and Targets

Objectives and targets are then set to reduce the most significant impacts. These may be in terms

of short, medium and long term and should be realistic and measurable. The tackling of the lower hanging fruits may be an easier way forward – for instance, focussing first on those aspects with the most significant impacts which can be reduced at lower costs in the shortest time.

4 Good Housekeeping Practices

An example of good housekeeping practices, initiated by the Japanese after World War II, is 5S – Seiri, Seiton, Seiso, Seiketsu and Shitsuke. This is still relevant today, and has been used by many Japanese companies and Japanese-influenced companies successfully in achieving cleanliness and waste minimisation. The activity elements of 5S are shown below in English and Japanese.

5S VISUAL WORKPLACE	
1S: SORT (SEIRI)	Eliminate all unnecessary and seldom-used items.
2S: STRAIGHTEN (SEITON)	Organise the way necessary things are kept.
3S: SWEEP (SEISO)	Keep things clean.
4S: STANDARDISE (SEIKETSU)	Establish standards and processes to maintain and improve the first 3 Ss.
5S: SUSTAIN (SHITSUKE)	Create an environment where maintaining a 5S visual workplace is the natural things to do.

5S in English & Japanese

Good housekeeping practices are also considered basic cleaner production practices. If funds are available, more cleaner production initiatives can be decided on. Checklists can be made for implementing over the longer term and can be applied.

Housekeeping Checklist

1 More efficient use of materials and assessment of environmental impact through:

- Monitoring consumption of materials, and elimination or phasing out of hazardous materials
- Input substitution of harmful substances and product reformulation
- Avoiding losses of raw materials
- Optimising production planning, including production process redesign to incorporate modernisation/modification
- Improving operation and maintenance, such as repairing leakages in pipes and equipment, reducing the use of cleaning chemicals, and practising preventive



Figure 1 : Key elements of an EMS

maintenance

- Using less and reusing more in managing resources
- Closed loop, in-process recycling of materials, moving towards zero discharge, etc.

2 Reducing, reusing and environmentally sound recycling and treatment of waste by

- Monitoring the quantities and flows of waste
- Segregating wastes and providing appropriate containers of waste collection
- Reducing and/or avoid packaging wastes and trade returns
- Reducing rejects, reusing and recycling wastes
- Safe disposal of waste and effluents, etc.

3 Appropriate storage, handling and transport of materials and wastes through

- Quality inspection of raw materials
- Secure storage areas (preferably covered and well-ventilated) with segregation of incompatible substances, and stacking safely for easy access
- Avoiding spillages, leakages and material losses during transfer and storage
- Cleaning and disposing of packing materials
- Practising first in – first out (FIFO), etc.

4 Reducing water consumption, wastewater and pollution by

- Monitoring waste consumption and discharges
- Reducing water consumption in production, eliminating leakages, optimising and avoiding spillages, reusing and recycling water (rainwater harvesting could be an option)
- Pre-treating and safe disposal of wastewater, avoiding wastewater in non-production areas, and avoiding blockages in the wastewater system

5 Reduction of energy consumption and use of waste heat and environmentally-sound sources of energy, such as

- Monitoring energy consumption
- Using natural light and other energy saving illumination
- Reducing energy consumption (for example turning off light switches, equipment, appliances not in use)
- Considering energy efficiency in purchasing decisions

6 Workplace safety and health protection

- Identify possible sources of accidents, hazardous substances, odour, noise and injury
- Communicate to all on such sources
- Provide personal protection equipment
- Minimise risks and hazards to workers
- Monitor and control air emissions, odour and noise levels
- Have adequate emergency response procedures, including contact numbers of key personnel and emergency services

The Environmental Management Programme

Once decisions have been made on the areas to manage, an environmental management programme (EMP) can be prepared and written down for company-wide reference and implementation. The EMP should describe the purposes, objectives and targets as well as the resources needed.

Implementation of the EMP

Implementation is basically carrying out what has been planned. Effective implementation is important and necessary to achieve the objectives and targets of being clean and green. Therefore, determining the resources to be used is essential. Roles and responsibilities need to be assigned, and training applied where lacking. Funds also have to be provided for such purposes. These should be reviewed by management regularly, perhaps on a yearly basis (or more frequently) to monitor the progress of implementation and its effectiveness.

Awareness raising and communication (top-down, bottom-up and peer, as well as with client and vendor) will bring about more transparency of the environmental management programmes to obtain buy-in, support and cooperation of all stakeholders in achieving the common objectives of clean and green. Often contractors and sub-contractors have to be reminded (and monitored) to ensure they maintain a clean and green environment as they work on the company premises.

Documentation, though sometimes tedious, is necessary to ensure clarity of instructions, methodology, and standardisation of procedures. Files of standard operating procedures, records and other documents in general need to be kept in secured locations, with access allowed for appropriate personnel. Documents need to be kept current and updated from time to time, as specified in the company's EMS procedures.

Emergency response procedures should be included to ensure the company will be prepared to react appropriately to possible incidences

such as accidents, chemical releases, fires, explosions and other disasters (including earthquakes and tsunamis, where such threat is perceived) that have the potential to create environmental impacts which could cause the company to be no longer clean or green.

Checking and Correcting

The next EMS element is monitoring and correcting non-compliances. This is necessary to bring the company back on track to achieve its clean and green objectives. A regular internal assessment or audit exercise to check on records, site operations and practices would keep the company on its toes to remain focussed and take corrective action where necessary.

The Management Review

The final step in EMS is a regular management review to direct the whole company and provide appropriate policies and resources for enabling the environmental management plan to progress effectively. This calls for top management commitment and cooperation amongst all departments and support services so that the company can move forward smoothly like a well-oiled machine.

Continuous Improvement

The reality is that the whole EMS process is a cycle with opportunities provided for continuous improvement. Once the basic compliances to achieve clean and green have been met, the assigned personnel need to maintain the clean and green standards and perhaps be more creative in specifying new or expanded objectives and targets to ensure the company can continue to operate sustainably and enjoy a good reputation, healthy profits and a safe, clean and green environment.

THE RESULT: A clean and green company is possible, both outside and inside, today and beyond.

Further reference may be made to SIRIM standard MS 14001:2004 for EMS details.



A well-kept clean and green facility

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Converting Waste into a Green Industry: Who Will be the Stakeholders?

Introduction

Malaysia generates an estimated 30,000 tonnes of municipal solid waste (MSW) daily and approximately 95% of this waste is disposed into 260 landfills, where 90% are non-sanitary landfills lacking landfill liners and gas pipes. Table 1 provides information on MSW generation in Peninsular Malaysia by state (1996 – 2009), indicating a 3.6% annual increase in solid waste generation. The increase in waste generation requires appropriate facilities and technologies which are unfortunately not available to match the requirement for sustainable waste management. Every year waste management requires an allocation of more than RM1 to RM2 billion. Therefore, alternative options are crucial to divert waste to other economic routes. Sustainable waste management has been the focus but never achieved. This is true even of the Solid Waste and Public Cleansing Management Act 2007 which was gazetted on 30 August 2007.

Green Waste Management

It is crucial to turn traditional waste management into a green and sustainable waste industry for the future generation to enjoy a better life. The implementation of sustainable waste management includes promotion of public awareness and education, stakeholder consultation, ensuring sufficient capacity building, introduction of solid waste treatment technologies and implementation of pilot projects. The implementation requires cooperation among government departments, policy makers, general public, stakeholders, NGOs, the waste managing sector and industry.

Green waste management is a sustainable alternative to managing waste. Waste management is critical as waste generation increases with increasing urban metabolism processes. In addition, waste generation also contributes to greenhouse gas (GHG) emissions. Therefore, the establishment of a sustainable and systematic integrated waste management would help to lower GHG emission and at the same time reduce its impact on climate change. Sustainable waste

management would also divert waste from being disposed into landfills.

The Policymakers

The fundamental issue in green waste management, however, is the formulation of a policy by policy makers. An example is the Extended Producer Responsibility (EPR), which makes waste reduction the producer's responsibility. A review of the main solid waste management policies in Malaysia, namely the National Strategic Plan on Solid Waste Management (2005), the National Solid Waste Management Policy (2006), the Solid Waste and Public Cleansing Management Act (2007) and the Solid Waste and Public Cleansing Management Corporation Act (2007), should be done to evaluate the possibility of integrating greening waste management into the existing Acts. Lawmakers and politicians should play an important role by being forward-thinking and devising or supporting sustainable waste management laws. Laws must be feasible, practical and designed such that they are fair and can be quickly implemented. For example, the National Solid Waste Management Policy 2007 and the Solid Waste and Public Cleansing

Table 1: Generation RM1 to RM2 billion of MSW in Peninsular Malaysia by state (1996 - 2009)

State	Solid waste generated (tonnes/ day)						
	2000	2002	2004*	2006*	2008*	2009*	2010*
Johor	1915.0	2093.2	2255.3	2429.9	2577.9	2655.2	2734.9
Kedah	1323.7	1446.9	1558.9	1679.6	1781.9	1835.3	1890.4
Kelantan	1034.3	1130.5	1213.4	1302.3	1381.6	1423.1	1465.8
Melaka	514.6	562.5	604.8	650.4	690.0	710.7	732.0
Negeri Sembilan	757.0	827.5	889.8	956.9	1015.2	1045.6	1077.0
Pahang	957.1	1046.2	1125.0	1209.8	1283.5	1322.0	1361.7
Perak	1527.1	1669.2	1795.0	1930.3	2047.9	2109.3	2172.6
Perlis	195.5	213.7	229.8	247.1	262.1	270.0	278.1
Pulau Pinang	1087.6	1188.8	1278.4	1374.7	1458.4	1502.2	1547.3
Selangor	2826.5	3089.5	3322.4	3572.8	3790.4	3904.1	4021.2
Terengganu	882.7	964.8	1037.5	1115.7	1183.6	1219.2	1255.8
Kuala Lumpur	2520	2754.5	3025.3	3322.7	3525.1	3630.8	3739.7
Wilayah Persekutuan	46	70	74.3	81.2	86.1	88.7	91.4
Sabah	NA	2490	2641.6	2886.6	3062.4	3154.3	3248.9
Sarawak	NA	1905	2021.0	2208.4	2342.9	2413.2	2485.6
TOTAL	15,586.8	21,452.2	23,072.6	24,968.8	26,489.4	27,284.1	28,102.6

NA = Not available

* = estimated figure

Source: 3R related policies for sustainable waste management in Malaysia (Agamuthu *et al.*, 2011)

Management Act (SWPCMA) 2007 were established to prioritise waste minimisation and resource recovery while the Environmental Quality Act 1974 and the Scheduled Wastes Regulations 2005 promote scheduled wastes recovery as a resource with special requirements.

Government departments play a big role in the implementation of green waste management. The enforcement of rules and regulations for green waste management is crucial to ensure good implementation of the policy. Although the Federal, State, and local authorities have significant roles in sustainable waste management, it is the local authorities that implement strategies and policies and provide the management and operational services. Therefore, good communication between federal, state and local authorities is a must to ensure effective strategies and policy implementation.

Government departments should also establish working relationships and regional connection between different parties such as private sector, general public, NGOs, manufacturing industry and waste industry. The Government must include waste management in the healthcare plans for their citizens. If human survival and comfort is the basis, and the deciding factor in sustainable waste management, then sustainable waste management policies would gain the confidence of the general public and stakeholders and enforcement would be easier. The Government can enforce sustainable waste management through action programmes, appropriate policies and privatisation (Table 2). The awareness of the general public should be raised through ground-projects, road shows, and seminars in order to gain cooperation.

Cooperation from the general public is crucial especially during the implementation of Solid Waste and Public Cleansing Management Act (2007). For example waste segregation may be considered as tedious and a waste of time by the general public. Therefore, intensive education to the general public is much needed to achieve a higher segregation rate in Malaysia. It is a must to gain stakeholder confidence during implementation of projects and strategies. Professional study panels should be established for project implementation involving participation from various government departments and agencies. For example, stakeholders for the Lynas project need to be educated on the risks

and safety measures of the project, in order to reduce any issues raised after the project is licensed. Efficient communication between government authorities and stakeholders is an important step to ensure a project's objectives are achieved while recommendations on improvements can be applicable at all levels via broader strategies and plans.

Manufacturing and Production Industry

As waste generators, the manufacturing and production industry has a clear responsibility for compliance towards the waste legislations. Especially for those who generate scheduled waste, waste minimisation, waste recovery, waste exchange and environmental conservation must be established within the industry system. Some companies like Dell have implemented Extended Produced Responsibility (EPR) even though it is not a legislative requirement. Sustainable waste management requires high management cost, therefore, collaboration between manufacturing and the production sector lessens the economic burden of the government. At the same time, collaboration between manufacturing and the production industry raises the possibilities of transforming waste into a profitable product as one industry's waste can be another industry's raw material. Besides the waste generator, the waste managing sector also plays an important role. The utilisation of new and improved technology to transform current traditional landfills into sanitary landfills is encouraged to ensure the sustainability of the waste industry. The waste industry is encouraged to be involved in research and consultancy which can generate income for facilities/services development and operation.

On the other hand, the recycling sector can assist to divert waste away from landfills which would reduce waste management cost and be able to generate income. Informal recycling parties can also play a role in sustainable waste management in Malaysia. Old newspaper collectors have been in existence in Malaysian society for decades. These types of informal recycling players contribute to sustainable waste management if proper guidance is given from the authorities. The Government should encourage the development of environmental systems and the general raising of environmental standards in industry. In addition, those who have established excellent sustainable waste management projects should be rewarded.

Non Governmental Organisations (NGOs)

NGOs such as the Malaysia Society of Waste Management and Environment (MSWME) should be able to coordinate the waste management experts from among the academics, industry and government departments to promote and create awareness of sustainable waste management among the general public. NGOs can also help to encourage participation by the general public in sustainable waste management activities. NGOs can be the communication link between government authorities, the general public and stakeholders. Thus the role of NGOs is undeniably crucial.

General Public

Policies and strategies require public support for effective implementation. Waste segregation, 3R projects etc., are the projects that have been introduced to the general public. However, public response to these projects is relatively low as compared to developed countries. As an inhabitant of Mother Earth, it is everyone's responsibility to be involved in sustainability projects and activities. They can be involved by purchasing resource efficient products and services, segregating waste for recycling, and composting their kitchen and garden wastes. The general public should be able to retrieve environment information from dedicated portals such as the Department of Environment (DOE) website. At the same time, authorities should ensure accessibility while ensuring up to date information is posted on dedicated websites to disseminate any strategy, program, or event on sustainable wastes management.

The Solid Waste and Public Cleansing Management Act (SWPCMA) 2007 was introduced recently. The enforcement and implementation of this Act is an important transition period for Malaysians to move towards a sustainable society. All parties, be it the government, NGOs, general public, stakeholders and the industry, should work together to achieve the national goal of sustainable waste management.

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Table 2: Priority Strategy on National Waste Management

Treatment	Malaysia		National Goal	
	2002	2001	2005	2020
Recycling	5.0	3.0	7.0	22.0
Composting	0.0	0.0	4.0	8.0
Incineration	0.0	0.0	11.9	16.8
Inert landfill	0.0	0.0	9.2	9.1
Sanitary landfill	95.0	97.0	67.9	44.1
Total	100.0	100.0	100.0	100.0

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Green Transportation in Malaysia: A Strategic Re-Engineering Approach

Introduction

The United Nations Environment Programme (UNEP) has announced that Brazil will host **World Environment Day 2012** (WED) on 5 June¹. In many ways, Brazil and Malaysia share many common sustainability goals and this includes the green transportation strategic roadmap.

Green transportation is now no longer a myth but a reality. The effective incorporation of a successful national/domestic green transportation policy could be translated into substantive compliance with the major underpinnings of COP 17² commitments. It will also allow us to fulfil the responsibility outlined under the Kyoto Protocol legal framework.

National Green Transportation Agenda

Domestic economic realities have led to diverse definitions of a Green Transportation Roadmap. A Western Green Transportation roadmap shares little similarities with an Eastern Green Transportation. The best approach to drawing up a green transportation roadmap is to move towards integration of domestic reality, national green policies and technological developments.

In Malaysia, the Fifth Fuel Policy 2000, National Bio-fuel Policy 2006³, National Green Technology Policy 2009⁴, National Renewable Energy Policy 2010⁵ and the National Automobile Policy 2011⁶ are prime movers in the push for Green Transportation Transformation (GTT).

According to World Resources Institute, Transportation accounts for about 28% of greenhouse gas (GHG) emission. A reactive approach towards green transportation⁷ is the prime obstacle in the push for green transportation. The initiatives adopted to implement Green Transportation in Malaysia are outlined followed by an identifiable inherent weakness analysis.

Non-vehicular or Green Energised Vehicles

This strategy calls for a non-vehicular approach, that is, using bicycles/bicycling or walking to work. The major disadvantage of this approach is that it is not feasible if the place of work is far or if the destination is remote.

A possible solution is green energised vehicles. However, this approach calls for use of electricity⁸ or total use of non-biofuels or carbon-free adoption. Examples are electric trains, electric scooters, electric cars, electric motorbikes, etc. (using no biofuels/carbon-free). But utilising electricity as a energy source remains a challenge and the take-up rate among the general consumers is slow.

Green Energised Industrial Factor

This has been implemented under the current Feed-in Tariff (FiT)⁹ driven by a new legislation known as the Renewable Energy Act 2010.¹⁰ This approach calls for adoption of renewable energy (RE) in a vehicular mode of transportation comprising biofuels, electricity, hydrogen, wind, solar, etc. Examples are vehicles that utilise RE such as trains, scooters, cars, etc. The major criticisms are that vehicles that utilise RE are still costly and the pick up rate among the general consumers is still slow due to inherent high green costs.

The success of the green transportation agenda also calls or relies on consumer usage and habitual use. Attitude or consumer acceptance in adopting a green work lifestyle is the ultimate yardstick of success. Examples are car-pooling, and using public transportation such as buses, trains-MRT/LRT/mono-rail, using no plastic bags, etc. But it must be admitted that the adoption of a green culture is a challenge and its effectiveness depends on the level of appreciation and awareness of the general populace.

The Great Green City Roadmap

A green city must strive for the adoption of a sustaining and workable green transportation within a domestic transportation network. A green city lacking green transportation is an anti-thesis to the whole concept of a green city if it does not achieve a true integration of different modes of transportation.

Masdar in Abu Dhabi is slated to be a green city boasting of a green transportation system with zero emission rate. It will be a zero-carbon, zero-waste, zero-car city. Based on the Environmental Performance Index, this is a true green example, but this is a city built from scratch with a new system implemented for the

future. Therefore this green city model will not tackle the high carbon emission problems of the old 'ungreen' transportation system.

The traditional transportation system is inherently 'ungreen' and requires a tremendous amount of strategic planning and re-engineering on the drawing board to develop into a green model. In such an existing scenario, the better alternative would be the green energised vehicles using renewable energy and the adoption of a green culture by the people. These moves will be more relevant in terms of developing a green transportation system.

We are slowly but surely moving towards green transportation. Putrajaya and Cyberjaya are pioneers in Green Technology City¹¹ built based on a consideration of the Environmental, Economic and Social (EES) factors. This includes the Green Transportation factor.

The Greater Kuala Lumpur¹² city plan is envisaged to be another green transportation hub of the future. It will see a transformation of KL city into a greener or full green city and the establishment of a true green transportation where zero carbon emission is the primary objective.

If successfully implemented, it will be a remarkable example of reworking an 'ungreen' transportation system which fully integrates the global green initiatives. In the USA, and in many developing as well as developed regions, there are simply no true green cities simply because of the inherent 'ungreen' nature of the transportation system.

Three common traits can be mapped based on the above analysis:

1. Uncompetitive and obsolete transportation service and systems
2. Distortive transportation demand and supply curve
3. Absence of a supporting green legal framework factor

Although there is no consensus on what constitutes a 'Green City',¹³ there is a growing agreement that a green city by current global green standard must have Green Transportation Index¹⁴ scorecards/evaluation methodology as a major denominator in any Green City Index (GCI) assessment.

Strategies for Green Transportation in Malaysia

Strategy 1

To enforce the National Automobile Policy that emphasises the green car and supports a green transportation system. This will help transport demand within urban areas. For private demand for transportation, such transportation demand can be diverted into green cars/green transportation systems.

Strategy 2

To make green transportation factor a compulsory requirement in urban planning and development blueprints. Such a move will ensure an ultra green transportation system catering for both inbound and outbound urban transportation.

Strategic 3 - Legal

Domestic legislation such as the Local Government Act 1976 (Act 171), Road Transport Act 1987 (and its related Traffic Rules), Highway Authority Malaysia (Incorporation) Act 1980 and Environmental Quality Act 1974 in many ways do not have sufficient clauses for the enforcement of a green transportation system. Reformation of these legislations is required in order to incorporate and enforce the green transportation imperative through green urban developmental strategies, legal provisions and tax incentives for green transportation systems.

A green transportation system will contribute to concrete, sustainable green development and push the Environmental, Economic, Social (EES) factors to a higher level of sustainability in any green city. Green transportation is relevant in the current 10th Malaysian Plan and will continue to be a vital component of the 11th Malaysian Plan, 12th Malaysian Plan and beyond.

Conclusion

A true green city cannot be established if there is no focus on the green transportation factor. Green transportation is a primary driver in the realisation of a true green city.

Global commitment for reduction in carbon emission and global carbon emission reduction programmes depends on the crucial planning and implementation of both the green transportation system and the construction of a green city incorporating the green transportation factor.

In Malaysia, this can be achieved by vision 2020 in line with a progressive National Green

Transportation Policy that is in compliance with the global environmental commitments that we have made.

Notes

- 1 "In celebrating WED in Brazil in 2012, we are returning to the roots of contemporary sustainable development in order to forge a new path that reflects the realities but also the opportunities of a new century," said Achim Steiner, UN Under-Secretary General and UNEP Executive Director.
- 2 Including the upcoming COP18. See <http://www.facebook.com/pages/Climate-Vote-Project-COP-17-Durban-COP-18/207618589282969> and at <http://climate-liisd.org/events/18th-conference-of-the-parties-to-the-unfccc/>
- 3 To produce a biodiesel fuel blend of 5% processed palm oil with 95% petroleum diesel. To encourage the use of biofuel by giving incentives for providing biodiesel pumps at fueling stations. To establish industry standard for biodiesel quality under Standards and Industrial Research Institute of Malaysia (SIRIM). To set up a palm oil biodiesel plant.
- 4 Energy – To attain energy independence and promote efficient utilisation.
Environment – To conserve and minimise the impact on the environment
Economy – To enhance national economic development through the use of technology
Social – To improve the quality of life for all.
- 5 To increase RE contribution in the national power generation mix
(a) To facilitate the growth of the RE industry
(b) To ensure reasonable RE generation costs
(c) To conserve the environment for future generation

(d) To enhance awareness on the role and importance of RE

- 6 http://www.miti.gov.my/cms/content.jsp?id=com.tms.cms.article.Article_9971dce0-c0a81573-3edb3edb-686eb8ad
See also "National Automotive Policy – still stuck in neutral", JAGDEV SINGH SIDHU, October 31, 2009, at <http://biz.thestar.com.my/news/story.asp?file=/2009/10/31/business/5013872&sec=business>
- 7 See Proceedings of Malaysian Universities Transportation Research Forum and Conferences 2010 (MUTRFC2010), 21 December 2010.
- 8 Petroleum and Electricity (Control of Supplies) Act 1974
- 9 See "Fit Guidelines" at http://www.seda.gov.my/national_renewable_energy_policy_and_action_plan_2009.html
- 10 See the Renewable Energy Act 2011 and also the Sustainable Energy Development Authority Act 2011
- 11 According to the Malaysian Budget 2010.
- 12 "KLIFD for a Greater Kuala Lumpur", at <http://www.1mdb.com.my/klifd/klifd-greater-kuala-lumpur>
- 13 See related proceedings pertaining to Green Cities in "Green Cities International Conference 2012", Putrajaya Urban Conference Series 2010, 23-24 February 2010, Sri Siantan Conference Hall, Perbadanan Putrajaya, Complex, Putrajaya, MALAYSIA
- 14 See discussion relating to Green Transportation, see proceedings of the early UN Conference on the Human Environment 1972 (Stockholm Conference) and the Brundtland Commission, 1987.



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A Green Makeover for Our Hotels?

Introduction

'Green hotels; and 'eco-friendly hotels' are lodgings that have made a commitment to the various ecologically sound practices for the betterment of the world. Green hotels as defined by Lorenzini (1994), is a new or renovated structure designed, operated, demolished and constructed in an environmentally friendly and energy efficient manner.

The hotel industry operates around the clock, providing a range of different facilities and services to guests for their comfort and leisure. Hence, there are continuous impacts that hotel operations can have on the environment. Green hotel benchmarking tools have been introduced across the globe to assist hotels to strategise their quest towards sustainability by adhering to the concept of 'Triple-Bottom-Line (3P)' of profit (economics), people (social) and planet (environment). The main goal of being a green hotel is to eliminate as much negative impacts on the environment as possible through reducing the consumption of resources and by changing the day-to-day operations and practices of the hotel.

The Green Hotel Concept

In the traditional concept of a green hotel, the focus is more on the three Rs – 'reuse, reduce and recycle' and the two Es – 'energy and efficiency'. According to the U.S. Green Building Council's LEED (Leadership in Energy and Environment Design), which is supported by an internationally recognised green building certification, a hotel must be built and designed using the strategies that are aimed at improving the performance across all the metrics that matter most such as water efficiency, energy savings, improved indoor environmental quality, CO₂ emission reduction and stewardship of resources and sensitivity to their impacts (Parsa & Self, 2010).

The hotel industry can no longer ignore environmental responsibilities as it will have to respond to pressure from consumers demanding green accommodation. The industry has to be

more responsible in order to be relevant to the needs of modern travellers and market demands. Thus, most of the hotels have realised that in order to achieve these strategic objectives, they need to manage their workplaces, equipment and facilities effectively. This is crucial because the environment and physical assets of the hotel directly affect hotel services and those who work in the organisation.

Hotel managers and employees are faced with the enormous challenge of transforming the hospitality industry into an environment-friendly industry while ensuring value for money for their guests. Hotels are large users of consumer goods. Hence, waste generation is probably the most non-visible effect that the hotel industry does have on the environment. A hotel produces in excess of one kilogram of waste per guest per day, which will result in tonnes of waste each month. A large proportion (50 to 60%) of the materials that comprises this waste can be reused or recycled (Bohdanowicz, 2005).

The major hotel brands in the world today such as Marriott, Hilton, Starwood, and Fairmont are launching initiatives as well as announcing green programmes that are likely to have sweeping effects on their operations. These initiatives include water use, energy, recycling, conservation and avoidance of toxic cleaning chemical products through employee awareness education programmes.

There are a number of new hotel brands across the globe that are coming on stream and are stressing on being environment-friendly. These trendsetters are promoting the development and landscape of green hotels. Hotels that are becoming environment-friendly make good business sense because they are physically and economically responsible.

The green concept is still new to the hotel industry especially in Malaysia but already several hotel chains are adopting the concept of a green hotel and are likely to reap bigger rewards when more hotel guests expect this to be a norm. A number of benefits have been mentioned such as better customer relations, reduced financial risks, fulfilling customer

needs, improved image, and enhanced loyalty of key stakeholders.

Environment Friendly Products

A product can be defined as 'environment-friendly' if it aims to reduce its negative environmental impact. This provides measurable improvements throughout the entire product lifecycle. This is because emerging technology allows for the development of a 'cleaner and efficient' technology. It may also be that the products are biodegradable, recyclable, reusable, or can be re-manufactured and disposed off. All these characteristics are reflected in the choice of raw materials, the production of waste and the amount of pollution it generates, how the products are used, the means of disposal as well as health and safety measures. The environmental benefits of source reduction, pollution prevention, product life extension, energy conservation and so on, may vary in significance from more or less.

Green products are normally more expensive than the ordinary ones, but the product which is re-manufactured and refurbished are normally lower in price than the new ones. The refurbished product is more environment-friendly compared to new products.

There is also evidence indicating that consumers are more selective when it comes to choosing products or avoiding others based on their impact on the natural environment. Other studies show that consumers not only prefer to purchase products that are less harmful to the environment but are also willing to pay more.

In the past, there was a misconception that operating a green hotel would increase costs and that hotels would find it difficult to get quality products. On the other hand, with growing recognition of environment-friendly products, it has become cheaper and easier to access such products in the market.

Green Makeover- Role of Customers

The hotel industry consumes large amounts of water and energy resources such as air-conditioning, laundry, transportation, food

service besides releasing waste of different kinds. When the hotel guests are away from home, they consume huge amounts of natural resources such as water and power and are often less concerned about conserving such resources. Many guests in the hospitality service expect to be pampered, with high-pressure showers, freshly laundered linen, abundant supplies of food and drink, to be chauffeured by limousine, and to have access to a swimming pool and sauna with an ample supply of towels. Customer demands of a product forces hoteliers to adopt preferences that may work against the environment.

As a result, whatever is done to reduce the waste, energy and water consumption can only be done with the consent of the customer or in such a way that they do not notice any deterioration in service. Consumers are the ones who make the product choice based on which combination of product quality that best meets their needs which is also based on the dimensions of value, prior satisfaction and cost. However, there is increasing evidence that suggests hoteliers are increasingly thinking about the impact of their services on the environment and the need to strike a balance between service quality and harming the environment.

The solution to this issue is to educate guests about environmental factors and allow them the opportunity of choosing environmental options. The hoteliers are more concerned that environment-friendly alternatives are perceived as less efficient than the products that are normally used. This problem has become less apparent as suppliers recognise the demand for satisfactory green products and provide adequate alternatives.

To promote green hotels and to fulfil these needs, the International Hotels Environment Initiative (IHEI) (<http://www.ihei.org/holding/history.htm>), Green Hotel Association (<http://www.greenhotels.com>) and CERES Green Hotel Initiative (<http://www.ceres.org>) provide numerous guidelines for green hotels which can be easily adopted in Malaysia. The suggested green initiatives are in the following areas:

1. Water Quality and Conservation
2. Energy Efficiency
3. Air Quality
4. Waste Minimisation and Recycling
5. Sustainable Food

6. Cleaning and Chemical Products
7. Green Building and Construction
8. Education and Awareness

Barriers to Implementing Green Hotels

A number of environmental guidelines have been developed by various tourism organisations across the globe such as the American Hotel and Lodging Association, the International Hotel and Restaurant Association, and the International Hotel Environment Initiative (IHEI). The hotel industry generally acknowledges the importance of the environment to their organisation but it must be admitted that environmental friendly practices are not widespread in this industry.

There are many barriers that need to be addressed before organisations seriously look at green initiatives. These are management style, availability of resources, presence of multiple stakeholders with conflicting interests, the stage of development of the industry, compatibility with corporate culture, and lack of information and knowledge.

Nonetheless, various strategies can be utilised to resolve the barriers and improve the implementation of environmental initiatives at hotels. These include identifying the driving factors that affect the industry, training and communication, education, phasing the implementation of environmental management initiatives, identifying and sharing resources and aligning the organisational environmental programme with the corporate culture. Nonetheless, the hotel industry in general and Malaysia in particular, has been slow in the development of green reporting. This may be due to a number of reasons, namely:

1. High maintenance cost and implementation
2. Lack of sufficient knowledge on greening
3. Lack of resources (time, manpower, equipment and money)
4. Lack of momentum from hotel industry owners
5. Lack of a sense of urgency and ambiguity of environmental guidelines
6. Lack of qualified verifiers or consultants
7. Conflicting guidance
8. Lack of Government regulations
9. Difficult in operating a green hotel (difficult to balance the quality of service with environmental performance)

Future of the Industry

Today environmental reporting by the hotel industry is seen as an integral part of good process control, avoidance of liability, innovative products and enhancement of an organisation's intangible assets. Basically, there are two major directions that need to be followed. First, environmental practices need to be incorporated into the hotel industry. Second, the customers need to increase their awareness of the environment so that there will be a greater demand for green practices. If the hotel industries apply effective environmental management, they will improve guest perception on the quality of the environment.

With the increasing awareness of the environment by the hotel industry and the consumers, there has been a growing trend towards green hotels. While the consumers are better in acquiring information via today's advanced communication networks, they are also good at making informed purchasing decisions. There is an increasing number of market opportunities that are emerging to encourage participation in activities that are more environment-friendly. Restaurants and hotels can capitalise on these trends by adopting such green strategies and do their part towards reducing carbon emissions and mitigating climate change.

Box 1: The ASEAN Green Hotel Award

Held every two years, the ASEAN Green Hotel Award is a form of appreciation and recognition of tourism stakeholders for adopting the ASEAN Green Hotel Standards into their services.

Environmental issues are the main aspects for the assessment, as stipulated in the ASEAN Green Hotel Standard document. Criteria and essential requirements include environmental policy and hotel operation activities, utilisation of green products, cooperation with local community and organisations, human resources development, solid waste management, energy efficiency, water efficiency, water quality management, noise pollution control, wastewater treatment and management, and toxic and chemical substance disposal management.

Box 2: Initiatives Undertaken by Malaysia's Top Green Eco-Friendly Hotels

Golden Sands Resort & Spa, Penang



The fun factor was used by the resort in educating their guests on environmental conservation. The fun factor comes in the form of the resort's regular mud ball making competition among guests. These mud balls are then thrown into the nearby Sungai Emas which has been adopted by the resort to help in its rehabilitation.

Main Green Factors:

Marine rehabilitation programmes, collaboration with the community and local organisations on recycling programmes, ISO 14001 certified environmental policy and best practices governing daily operational activities, use of green products and provision of training on environmental management.

Shangri-La's Rasa Sayang Resort and Spa, Penang



The resort successfully initiated the Turtle Conservation Programme with the support of the Malaysian Fisheries Department and the Penang Nature Tourist Guide Association where approximately 100 baby turtles were released into the sea. In addition it has an on-going fund-raising initiative to purchase satellite tracking devices for mature turtles to enable the conservation centre guides to study and track the turtles for conservation purposes. There are over 100 best practices for management and employees.

Main Green Factors:

Environmental policy and actions for hotel operations, use of green products, provision of training programmes for environmental management, collaboration with the community and local organisations, solid waste management, energy

efficiency, water efficiency, air quality management (indoor and outdoor), noise pollution control, wastewater treatment, management of toxic and chemical substance disposal and beach cleaning programmes. The resort is the first in the country to be fully accredited with EMS ISO 14001 by SIRIM (M) Bhd.

Rebak Island Resort & Spa, Langkawi



Some of the best practices enforced on a daily basis include garbage segregation and management system whereby the wet garbage (food waste) is made into compost and used for their in-house gardening purposes; dry garbage is sold to local scrap vendors to generate income and promote recycling. Staff are encouraged to print in-house memos on used papers and to minimise printing by maximising email usage. Energy saving lights and bulbs are used in the guest rooms and public areas to conserve energy. Time censored lights which automatically switch off if no one is using the cloak rooms have been installed. Water usage is also calculated on a daily basis to detect leaks early and used water is utilised for secondary purposes such as drain cleaning, etc. One of the resort's green initiatives include encouraging their guests to plant a tree. Long-stay guests of more than 7 days are given the privilege to plant a tree sapling.

Main Green Factors:

Environmental policy and actions for hotel operations; provision of training programmes for operation on environmental-friendly management; solid waste management; energy efficiency, water efficiency, guest tree-planting programme.

Swiss-Garden Golf Resort & Spa Damai Laut, Pangkor



The resort has a herb garden and even grows its own vegetables for its restaurants. The spa uses mostly flowers and herbs collected from the resort's vicinity. The resort also makes its own compost using kitchen waste and uses it as fertiliser for its plants which are green and healthy.

Main Green Factors:

Grows and consumes its own herbs and vegetables; solid waste management; use of natural own-grown products.

The Frangipani Spa and Resort Langkawi



Frangipani Langkawi is an exemplary resort that has won several green awards over the past few years. These are the the ASEAN Green Award 2012/2014, the Europa Green Awards, the ASEANTA Best Conservation Effort (2010), the Tourism Malaysia Best Four Star Resort in 2009; Anugerah Langkawi 2010/2011. Frangipani is indeed one of the few resorts in the country that has continually assessed its relationship with the environment by incorporating sustainable and responsible management practices to ensure that the very assets that guests come to enjoy are maintained as they found them, for many generations to come.

Main Green Factors:

The resort has implemented a water treatment plant to recycle the resort's wastewater to water the tropical gardens. Energy efficient light globes have been utilised. Where possible, the resort has also incorporated solar energy. They have successfully incorporated the 4Rs: Reduce, Reuse, Recycle and Rethink, a paradigm shift concept towards becoming a truly responsible resort.

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Source

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Developing Green Skills for the Green Economy

Introduction

Initiatives to build a Green Economy in Malaysia constitute part of the economic reforms instituted by the government to accelerate our progress towards developed-nation status by 2020. Malaysia's vision of a green economy would see a shift from current status as a manufacturing hub, towards a developed nation with low carbon emission, efficient use of resources, and a healthy, well-educated population. This new approach requires changing economic models and moving into high-value-add sectors and exploration of new technologies. In general terms, a low carbon or green economy is a result of increased resource efficiency.

Moving the Green Economy

Since the Rio Summit in 1992, developing countries have been facing many challenges in moving their economies to more environment-friendly paths. The basic framework of sustainable development where environmental protection is integrated within the economic and social development seems to be a distant reality for us. This is because the attainment of a green economy should not constrain other aspects, including economic growth of developing countries and social goals such as poverty eradication and job creation.

Social development necessitates job creation in order to maintain social order. The government seeks to intensify human capital development by availing training and education programmes, and by providing financial packages and incentives for entrepreneurs embarking on green technology related subjects. The Prime Minister has emphasised that Malaysia must "ensure that we have skilled, qualified, competent and productive human resources as this is a crucial factor for Green Technology development."

Contrary to what is generally perceived, the current economic climate has spurred response packages with large-scale infrastructure and energy projects with green components that would propel jobs creation as a way to incubate new growth. Industries should not apply a pessimistic approach in incorporating environmental elements into their business development. In fact, the experiences of developed countries should provide us with a better perspective in order to strategise our plan of dealing with the initial costs of adopting a green economy. More importantly, the Green Economy

should not mean less work opportunities due to a more stringent policy on future development.

The Green Technology Policy

The greening of the economy can offer competitive benefits to industry and the competitiveness of industry, however, needs to be harnessed by a skilled workforce. The policy on building a green economy where the term 'environment-friendly' is the mantra and how we should handle the transition to a greener economy has been established. The Green Technology Policy launched by the Prime Minister in 2009 has provided a blueprint for the creation of green jobs.

The policy outlines 5 strategic thrusts:

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

Among others, the key thrusts of the government's growth strategy, includes various regulations such as the feed-in-tariff and focus on electrification projects in the rural areas. However, the policy also recognises that the transition to a green economy will inevitably affect existing jobs. In Malaysia, industries that will be most affected are producers of carbon-dependent products or services such as car manufacturers (e.g. PROTON) and oil and gas producers (e.g. PETRONAS). Industries producing highly embedded emissions (e.g. steel making) will need to reduce the carbon footprint of their products, while industries that produce carbon dependent products (e.g. petrol car manufacturers) will need to diversify and change their products.

Nevertheless, Malaysia cannot base its future economic growth on activities that are carbon intensive. Jobs will have to move from carbon-dependent sectors to low-carbon sectors as economic growth shifts. In all sectors, new jobs to help business adapt to a green economy will be required. At least three different shifts

can be noted in the design of green jobs. These are as follows:

Greening of existing occupations

Rather than a shift, it represents continuation of a long term development in a particular area which incorporates green credentials, re-training of engineers and technicians, up-skilling of existing training programmes and enhancing qualifications. Existing training and development programmes must meet the demand for new skills such as energy auditors or skilled solar technicians as these new green occupations become a necessity. Skills mobilisation is necessary as the lack of adequate skills, notably in our construction, manufacturing and agriculture industry has already been shown to hinder growth and sustained development of the respective sectors.

Innovation

The technological competence base has to be used to create new business services and profiles. Businesses struggling to recruit qualified technical staff, including skilled photovoltaic technicians should apply an innovative approach by sharing resources to send competent existing staff for additional training. Existing science and engineering graduates who are not well trained in energy efficiency should also be sent for training in order to familiarise themselves with new technologies.

Creation of entirely new occupational profiles

The education system may not yet cover new profiles such as clean technology technicians to install solar panels for generating electricity. This type of skill ranges from those needed to install new technology, to more advanced technical experts ranging from scientists, engineers and builders while covering both technical as well as services industries. Industries need to collaborate with educational institutes to tailor graduates for current and future demand for skilled, qualified and competent human capital. Some skills in green industries such as building retrofitters, mass transit operators, energy-efficient automobile producers, wind and solar power generators, and cellulosic biomass fuels producers are essentially 'first generation' skills and need collaboration between industry and training providers. The Green Building Index (GBI) in Malaysia has a training methodology which provides a solid background in green building methods for its building auditors who are then called certified GBI auditors. This

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Simple Green Innovations for Greener Living

Introduction

Creativity that matches eco-friendliness gives birth to products that not only look presentable and acceptable to the general masses, but help in the quest towards making a better environment for living. The products usually adopt simple principles, such as using materials wisely, conserving water and energy, saving money in the long term, and creating surroundings that are safe and healthy. This innovative approach in product and home design is loosely known as green design concept.

Eco-friendly Urinal

The washroom is a place where wastage of water can happen intentionally or unintentionally, and this is also a good place to start on the practice of water saving. Without realising, each person actually uses two times more water when they visit a public washroom: once at the urinal, and the second time at the wash basin. An average of 3 liters is used in each flush, and 0.5 liters each time one washes his hands.

The eco-friendly urinal design can offer water savings by incorporating the washing hand area and urinal on the same structure. The upper section consists of the wash basin, and the bottom section is the urinal. The ultimate aim is to minimise water consumption, as it allows the use of the water used for washing hands (grey water) to flush the urine instantaneously. Another advantage of this design is space saving because there is no need to build two separate areas for washing hands and the urinal.



Water Displacement Designer Rock

Taking bath in a bath tub can also be a potential wasteful activity if uncontrolled. This is because a normal tub can fill up to 120 liters of water before being used and after each dip, the user will be disposing off all the 120 liters of used water, not forgetting the few liters used for cleaning the bath tube prior and after each bath. Hence, one designer came up with a novel idea of creating weights in the form of designer fake rocks that will push the water level up and allow for less water consumption during each bath. The idea is to allow for the tub to be filled up faster and use lesser water. By adding volume to your tub, the amount of water used can be drastically reduced to almost 50% without radically altering the usual behaviour of bathing.

Plastic Bottle Solar Bulbs

This is an interesting innovation from Brazil, and it is able to help light up the lives of millions of people, especially those who lack the connectivity to electricity or natural lighting. One of the successful projects was carried out in the Philippines, where millions of poor people living in squatter areas are able to experience lighting without additional cost. This brilliant idea is not only low in cost (material consists of discarded plastic bottle, water and bleach), it is also green in the sense that plastic bottles are reused and it limits the

usage of kerosene that would often be used by most of these homes to light up.

The solar bottle bulbs, are actually normal beverage plastic bottles filled with water and bleach, and assembled on top of the roof. When the sun shines on the bottle, the bulb is able to refract light and push it to every corner of a gloomy interior instead of beaming onto one area like a typical light bulb, and the illumination could be rated at approximately 50-60 watts.

Tracking Water Bottle

Drinking from water bottles has been a common practice for many of us, as it is conveniently available and easily purchased. As it is made of general plastic material, polyethylene terephthalate (PET), it is advisable not to repeatedly use the bottle. This results in the bottle being disposed off after each usage, and little do we realise that the bottle will eventually end up in landfills or worse still, choke up the river and waterways. If it is not recycled, it will take hundreds of years to decompose and disappear in a landfill.

An environmentally-conscious designer came up with an idea for a user to track how many bottles can be saved by using this bottle. The bottle is beautifully made of stainless steel, and is reusable and refillable.



There is a three-numbered dial at the bottom of the bottle for user to turn each time a refill is made and the number steadily adds up for us to reflect on each bottle saved. With such an innovative product, we will understand and agree that disposable water bottles are expensive, a very inefficient use of resources and harmful to the environment.

Conclusion

The trend for product and home design in the 21st century is moving more towards ecodesign concepts. With the advent of global warming and an increase in carbon

emissions, many companies are considering a more environmentally conscious approach to their design thinking and process. Sometimes, a brilliant spark of a creative idea leads to the creation of an innovative product that saves billions in dollars in terms of harmful environmental impact and wastage. This in turn helps millions of people to lead a more sustainable life.

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is a good example of certified professionals working with certifying bodies to develop industry standards where builders, remodellers and other industry professionals incorporate green building principles into homes without driving up the cost of construction.

Professionals, Skilled and Semi Skilled Labour

Green technologies offer the possibility of new jobs which require new skills in new and emerging occupations especially to combat climate change and to reduce emissions of greenhouse gases. As a result, employment patterns are changing in which green jobs are being generated in many sectors and economies around the world. The emergence of new green occupations as well as the 'green' restructuring of certain sectors require 'green skills' and what makes the occupations 'green' is that the people working in them are contributing their everyday labour towards reducing carbon intensity and building a green economy.

Professionals, skilled and semi skilled labour are needed for the new industries that will emerge in the green economy. There will be a major need for educating and training professionals and associated professionals who are involved in mitigating climate change such as natural resource managers, science and engineering professionals especially in physical and earth

sciences, life science professionals, architects, planners, designers and surveyors. The focus of these skills will be on energy efficiency, renewable energy and energy implementation.

Having a clear vision and identifying skills requirements for the transition to a green economy, would prepare us better in ensuring a steady supply of skilled workers. Renewable energy companies, for example, will not be able to scale up unless they can be sure that the workforce will have the expertise to deliver technical skills, whether they are carbon accounting, procurement, construction or retrofitting. The availability of skilled workers plays a crucial role in sustaining any kind of economy. Steps must be taken to ensure issues such as the shortage of competencies and a continuous supply of skilled workers in the green economy are well taken care off.

Conclusion

The government has taken several measures and initiatives to move the agenda of sustaining a Green Economy. However, this agenda requires a collective effort and detailed consideration at all levels and stages of development in order to conserve the environment while achieving growth and sustainable development. Apart from that, we must also be wary that the green economy might also be used by countries for purposes of trade protection. In particular, western countries

may use this to justify unilateral trade measures against our products such as palm oils.

The experience of other nations shows that government intervention in terms of advocating green initiatives is needed to accelerate the process. It is about (1) politicians making the hard choices that favour the long term interests of future generations and environment over populist wishes; (2) people deciding to walk rather than driving to work, to buy local food and use a more fuel-efficient car; (3) businesses choosing to subscribe to sustainable sources; and (4) manufacturers choosing to dispose off their waste products responsibly.

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Event Highlights

Department of Environment, Malaysia

May 2012

The 10th Malaysia-Singapore Joint Committee on the Environment Working Group (WG of MSJCE) Meeting

The 10th Malaysia - Singapore Joint Committee on the Environment (MSJCE) Working Group Meeting (WG of MSJCE) was held in Kuala Lumpur on 22 May 2012. The Meeting was co-chaired by Madam Halimah Hassan, Director-General of Environment, Malaysia and Mr. Andrew Tan, Chief Executive Officer, National Environment Agency, Singapore.

Malaysia was represented by 22 delegates from various agencies namely Centre of National Hydrography, Unviersiti Kebangsaan Malaysia, Economic Planning Unit (Johor), Marine Department, Johor Port Authority and a representative from Ministry of Natural Resources and Environment. Meanwhile, Singapore was represented by 17 delegates from different agencies namely Public Utilities Board, Ministry of National Development, Ministry of Foreign Affairs, Housing and Development Board, Maritime and Port Authority, Ministry of the Environment and Water Resources as well as High Commission of the Republic of Singapore.

This meeting served as an important platform for both countries to exchange information and experiences in tackling environmental issues of mutual interest.



May 2012

Award Giving Ceremony of Wira Alam Project, Launch of Preschool Environmental Awareness Modules and Distribution of Composting Bins

The Department of Environment (DOE) had a highly successful Wira Alam Award Presentation Ceremony, Preschool Environmental Awareness Module Launch and distribution of Composting Bins on 24 May 2012 at the Sekolah Menengah Kebangsaan Putrajaya Presint 8 (1), Presint 8, Putrajaya. Y.Bhg. Datuk Dr Che Abdul Rahim bin Nik, Deputy Secretary General (Environment), Ministry of Natural Resources and Environment Malaysia (NRE) officiated the ceremony.

The highlight of the ceremony was the Wira Alam Award Ceremony where 8 outstanding students were awarded the Wira Alam Award 2011 which consisted of a plaque, RM 300 cash and a certificate. The Wira Alam project aims to motivate further those students who had contributed to the preservation and conservation of the environment.

The Preschool Environmental Awareness Modules (Preschool and Kindergarten), which were launched at the ceremony, were prepared jointly by the DOE and Welfare Department. These modules which aimed at raising environmental awareness among preschoolers, covered the 5 components of the environment, that is, air, water, plants, animals and recycling.

During this ceremony, composting bins were handed out to 74 schools in Selangor, Kuala Lumpur and Putrajaya. The five operators of the cafeteria located at Wisma Sumber Ali also participated in the 'Transfer of Technology for the Recycling of Organic Waste into Compost Fertiliser' project.

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Quarterly Publication of the Department of Environment
Ministry of Natural Resources and Environment