Green and Sustainable Development

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ABSTRACT:YAB Dato' Seri NajibTun Abdul Razak, the Prime Minister of Malaysia made a commitment at the UNFCCC-COP 15 in Copenhagen in 2009, that Malaysia will cut its carbon intensity to GDP by up to 40% in 2020 compared with 2005 as the base year.Malaysia has put in place several strategies and initiatives to promote efficient use of energy. With these green initiatives as the framework, the foundations for green growth have been put in place.

KEYWORDS: Green Technology, Sustainable Construction, Green Rating Tools,

GREEN TECHNOLOGY

Over the past decade in particular, "Green Technology" has been promoted and "bandied" about as being critical to ensuring sustainability for the future of the world we live in today. With the acceleration of global warming and the steadily increasing consumption of fossil fuels around the world, adopting green technology has become the buzzword for the future of not only Malaysia but also the world as a whole. Adoption of Green technology in all aspects of life needs to be enhanced for sustainability of life on this, our only home-planet.

As Malaysia strives towards becoming a developed nation by the year 2020, there has been rapid increase in consumption of both electricity and other primary energy resources. This has resulted in rapid depletion of primary energy resources and increased emission of GHG (Green House Gasses, including carbon dioxide) that has raised serious concerns about pollution of the environment and its effects on climate change.

As the availability primary energy resources (in the form of fossil fuels) are not infinite, there has been a growing trend for sustainable utilisation of energy resources. The improvement in the rational and efficient utilisation of all energy source will have consequential effects both to delay the depletion of the primary energy resources as well as to reduce GHG emissions and to address global climate change concerns.

Malaysia, like the rest of the world, regards energy as a prime mover of the country's economic development and prosperity. The thrust of Malaysia's existing energy policy has focused on the aspects of sustainability with optimal utilisation of resources.

The government has, over time, put in place the following policies related to use of energy in Malaysia.

a) Petroleum Development Act 1974
b) National Petroleum Policy (1975)
c) National Energy Policy (1979)
d) National Depletion Policy (1980)
e) Four-Fuel/Diversification Policy (1981)
f) Five-Fuel Diversification Strategy (2001)
g) National Policy on the Environment (2002)
h) National Urbanisation Policy (2006)
i) National Green Technology Policy (2009)
j) National Climate Change Policy (2009)

MALAYSIA ENERGY EFFICIENCY FRAMEWORK

YAB Dato' Seri NajibTun Abdul Razak, the Prime Minister of Malaysia made a commitment at the UNFCCC-COP 15 in Copenhagen in 2009, that Malaysia will cut its carbon intensity to GDP by up to 40% in 2020 compared with 2005 as the base year. In this respect, the Malaysian Government had established the National Green Technology and Climate Change Council, with a membership of all related Ministers, and chaired by the Prime Minister himself.

Malaysia has put in place several strategies and initiatives to promote efficient use of energy, including the following:-

1) Incorporating the efficient use of energy in the Electricity Supply Act (1990) and the Electrical Supply Regulations (1994) as well as in their relevant Amendments over the years;

2) Enacting the "Efficient Management of Electrical Energy Regulations 2008" to mandate large electricity consumers using more than 3 million kWh over a 6 month period (an average of 500,000 kWh a month) to engage a registered energy manager

3) Developing a "Green Building Index" mechanisms to grade various types of new buildings as well as retro-fit for existing buildings from 2009;

4) Implementing the UNDP/GEF supported BSEEP (Building Sector Energy Efficiency Project); and

5) Implementing a DSM (Demand Side Management) study under the 11th Malaysia Plan to formulate specific strategies and programs to enhance energy use efficiency in electrical and thermal energy use for the industrial, commercial and residential sectors as well as for the transportation sector.

Malaysia is also implementing a labelling system to evaluate and certify "green products" for a diverse range of products and materials.

With these green initiatives as the framework, the foundations for green growth have been put in place.

GREEN AND SUSTAINABLE CONSTRUCTION

Malaysia's construction industry needs to transform from conventional methods to green and sustainable construction. Such transformation should include developing and promoting programmes and initiatives that encourage more sustainable infrastructure projects.

IEM will continue to support these efforts by pushing for excellence in green building programmes and increase in the design and construction of greener buildings. Such efforts include:

1. Driving innovation in sustainable construction,
2. Driving compliance to environmental sustainability ratings and requirements,
3. Focussing on public sector projects to lead the charge on sustainable practices,
4. Facilitating industry adoption of sustainable practices, and
5. Reducing irresponsible waste during construction and their subsequent use.

As the world changes and climate change becomes a forefront issue, the construction industry will be expected to transform to meet global consumer demands for everything to be greener and more sustainable. It is not just about whether we care for the environment or not any longer. Going green is a necessity for us to be able to continue to live and do business around the world for ourselves and our future generations.

Green Project Management.

Successful Project Management has traditionally meant delivering a product or service on time, within budget, using resources in an optimal way and satisfying, or even exceeding, the needs of the customer. As society progresses, there will be greater pressure on the social responsibilities to minimize any adverse social impacts

Green Project Management (GPM) is a model where we "think green" throughout our project implementation and make decisions that take into account the impacts on the environment. GPM is guided by an organisation's environmental management system (EMS) and considers various operational elements, such as responsibilities, authorities, procedures, and resources available for the project

Green Project Management includes Best Management Practices such as:-

1. Erosion and sedimentation control
2. Application of green rating tools for building and infrastructure
3. Construction waste management

Project management must incorporate environment in the same way that they think of quality

Green + Quality = Greenality

Like quality, greenality must be designed in from the start, not (inspected) considered as an add-on. Greenality becomes an up-front criterion and integrated activity for both the product of the project and the process of managing a project. The cost incurred must be included in the project budget. The cost of "greenality", like cost of quality, is often more than offset by the "life-cycle-cost" savings and related opportunities.

GREEN RATING TOOLS IN MALAYSIA

Some of the major Green Rating Tools developed In Malaysia are:

a) Green Building Index (GBI)
b) Green RE (Green Real Estate)
c) Malaysian Carbon Reduction Sustainable Tool (MyCREST)
d) Low Carbon Cities Framework (LCCF)

a) Green Building Index (GBI)

Green Building Index (GBI) is a green rating tool for buildings for developers and building owners to design and construct green, sustainable buildings that can provide energy savings, water savings, a healthier indoor environment, better connectivity to public transport and the adoption of recycling and greenery for their projects and reduce our impact on the environment. GBI is developed specifically for the Malaysian-tropical climate, environmental and developmental context, cultural and social needs.

b) Green RE (Green Real Estate)

GreenRE is a green rating tool for the Real Estate and construction industry to design and build green sustainable buildings in a more optimally integrated manner and incorporates internationally recognised best practices.

c) Malaysian Carbon Reduction Sustainable Tool (MyCREST)

Malaysian Carbon Reduction and Environmental Sustainability Tool (MyCREST) is a tool for construction industry players and stakeholders to design, construct and operate buildings that integrate low carbon and sustainable practices. A building that is assessed using MyCREST will be given certification based on points achieved and the carbon emission reduction calculated. It takes into account the whole building life cycle starting from pre-design up to its final demolition stage.

d) Low Carbon Cities Framework (LCCF)

Realizing the importance of measuring performance of cities and townships especially their contribution to CO2 emission levels of the country, the Low Carbon Cities Framework & Assessment System (LCCF) was developed to allow for performance and measures for CO2 reduction to be quantified and monitored. LCCF help stakeholders/users in cities and townships to define their priorities and develop action plans to reduce their CO2 as it focusses specifically on strategies and measures towards CO2 reduction.

IEM'S PARTICIPATION IN GREEN TECHNOLOGY

Engineers must play a proactive role in the public policy formulation process. As a professional learned body, one of the roles of IEM is to channel engineering and technical advice and services where needed. Therefore, it is crucial for us to be involved in the forums initiated by the Government and other relevant bodies when called upon for exchange of ideas and for technical support and input.

To this end, IEM representatives have been invited to serve on numerous Technical Committees at state and national levels, and in local councils. IEM has engaged various stakeholders and government agencies to promote the concept of Going Green and sustainability. IEM is also actively promoting new sustainable and green construction systems to transform the Construction Industry into a Green and Sustainable Industry.

In addition, in the past five years, IEM has conducted numerous seminars and workshops to expose our engineers to the latest technology pertaining to green technology.

On the international front, IEM serves on the Working Group on Smart Sustainable Cities under the ASEAN Federation of Engineering Organisations (AFEO) and permanent secretariat for Standing Committee on Environmental Engineering in Federation of Engineering Institutions of Asia and the Pacific (FEIAP).

THE WAY FORWARD

As engineers, we need to design, develop, and improve products, technologies, and processes that result in cost-effective environmental and economic benefits. In addition, engineers must also look into designing and creating tools and techniques to lower the emissions of products. We need to develop devices that consume less energy and create viable renewable energy technologies.

To do this, we must increase our input in science and technology, intensify our efforts in the development of environmental friendly infrastructure, apply clean manufacturing technology, develop the industry of environmental protection and improve the resource and environmental management systems.

We must collaborate with biologists, chemists, meteorologists, economists, planners, political scientists, ethicists and community leaders and specially environmentally-oriented NGOs to lead society on a sustainable path. Moreover, with the increase in housing and building construction that utilise a tremendous amount of materials and energy, it is essential for engineers to team up with architects, planners and other engineers to revolutionise the construction industry with innovative infrastructure and building design.

Apart from the latest technologies, lessons learnt and best practices on infrastructure resilience to natural disaster are critical in response to the severe effects of the natural catastrophes in Malaysia recently. These can be attributed to the global climate change that is affecting the whole planet. This again is a reminder that sustainability needs to be embraced into the country's construction industry for the people's continued well-being. Sustainable construction is not just limited to reducing environmental impacts of a building over its entire life span but also takes into consideration the safety of its occupants and its capability to withstand unforeseen disasters.

CONCLUSION

It is our duty to ensure that we do not over-exploit the country's natural resources at the expense of our future generation.

> *"We did not inherit this earth from our ancestors, but rather we borrow it from our children."*

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