Sustainable Building in the Malaysian Context

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ABSTRACT

Environmental concerns and technological advances are affecting the way Malaysians live, work, learn, and play. These factors create new design, construction, and operation demands on building/urban facilities and the infrastructure which supports them. In Malaysia there is increasing public awareness and interest in how buildings affect the environment, worker productivity and public health. As a result, both the public and private sector are beginning to demand buildings that optimize energy use; promote resource efficiency; and improve indoor environmental quality. Developers, owners, operators, insurers, and the public at large are beginning to value and market the benefits of sustainable building. Despite these responses and demand, the development in sustainable building is relatively slow; this in part, might be due to the lack of incentives and regulatory procedures to guide sustainable building construction. The Green Building Mission launched recently by the Malaysian Government is an indication of a promising effort to ensure sustainable production and delivery of the construction industry products to fulfil these demands.

The paper highlights the public & private initiatives, partnerships and international co-operations to support sustainable building development in Malaysia. Trends, challenges and barriers for implementations of sustainable building are presented together with recommendations for establishing clear policy targets.

KEYWORDS: Sustainable Building, Malaysia, Public initiatives, Private initiatives, Green Building Mission, Policies

1. INTRODUCTION

The building and construction sector is a key sector for sustainable development. The “cradle to grave” aspects of building and construction linked to the creation, use and disposal of built facilities generate social and economic benefits to the society however, at the same time constitute negative impacts upon the environment. Areas of main concern include energy use with associated greenhouse gas (GHG) emissions, waste generation, construction materials consumption, water consumption and their discharge, and integration of buildings with other infrastructure and social systems (SBCI-UNEP 2007, van der Putte, 2007). This implies that the construction industry and the sustainability of its products, principally buildings, faces an environmental challenge, greater than any other industrial sector, in order to become more sustainable in the long term. Recent reports (SBCI-UNEP 2007) recommended on the construction of sustainable building as a means to mitigate global warming and climate change.

The benefits of sustainable buildings are widely documented (WBDG, UNEP 2002, Shafii, 2005, Shafii et al. 2006). In Malaysia there is increasing public awareness and interest in how buildings affect the environment, worker productivity and public health. As a result, both the public and private
sector are beginning to demand buildings that optimize energy use; promote resource efficiency; and improve indoor environmental quality. Developers, owners, operators, insurers, and the public at large are beginning to value and market the benefits of sustainable building.

The paper describe the public & private initiatives, partnerships and international co-operations for sustainable building development in Malaysia. Trends, challenges and barriers for implementations of sustainable building are presented together with recommendations for future policy, proposals for performance indicators and best practices.

2. MOVEMENT TOWARDS SUSTAINABILITY

Sustainability agenda in developing countries focus on relationship between construction and human development and alleviation of poverty. These together with the lack of resources and capacities to improve technologies tend to marginalise the environmental aspects. These impacts are now beginning to be felt by Malaysians therefore, the attempts to balance environmental conservation with economic development.

The "think globally and act locally" (GLOCAL) paradigm for the protection of the environment also sees a growing interest in sustainable buildings amongst the public and the construction industry of Malaysia. In the past 5 years there have been a rising number of construction projects addressing sustainability in their implementations. These projects include office buildings, housing and urban development where design takes into consideration key sustainability issues with priority catered to local needs. These initiatives are described in the foregoing paragraphs.

3. OFFICE BUILDINGS

Most of the energy consumption occurs during a building’s operational phase, for heating, cooling and lighting purposes, which urges building professionals to produce more energy-efficient buildings and renovate existing stocks according to modern sustainability criteria. Cost savings in the operational costs means less use of electrical energy resources, usually derived from burning of non-renewable fossil fuels. The lowering of energy consumption would further reduce the overall emission of waste heat thereby lowering the overall heat-island effect on the locality (SBCI 2007).

Energy efficiency as part of sustainability is increasingly being recognised by both the private sectors and public in Malaysia, as driven by both rising energy costs and global warming. The Malaysian government, particularly The Ministry of Energy, Water and Communication (MEWC) is actively promoting energy efficiency concepts and implementing it to their own buildings and other government-owned buildings. New buildings under construction include the Zero Emission Office (ZEO building), the new headquarter for Malaysian Energy Centre (Pusat Tenaga Malaysia, PTM), and the new Energy Commission headquarter currently under design.

The Malaysian government (MEWC) initiative in encouraging energy efficiency practices is reflected in the final draft for regulations on energy efficiency, which require all new public and industrial buildings to adhere to certain energy consumption limit, prior to any building approval (Kristensen 2005). Other on-going/planned initiatives by the government on energy efficiency include an international cooperation between Malaysia and Denmark called the Malaysian-Danish Country Programme for Cooperation in Environment and Development (2002-2006). The joint overall objective is to assist Malaysia in achieving sustainable development, through the implementation of environment and natural resource management projects in line with international environment conventions and agreements. These initiatives lead to the development of the energy efficiency regulations and the code of practice for energy efficiency and renewable energy in buildings (Shafii & Othman, 2006).

National plans that have addressed renewable energy include:

4. SUSTAINABLE HOUSING

The challenges facing Malaysia in providing decent and affordable housing to the people especially the low income groups are myriad and varied such as population growth and changes in income and property levels. The Malaysian government plans to provide enough quality houses for everyone in a sustainable environment where Man can live and work in harmony with Nature. Environmental protection and preservation are to be given priority in all aspects of housing and urban development.

Typical modern house types in Malaysia include low-cost, low-medium cost, medium and high cost units. As land becomes scarce, the competitive use of land has caused price to escalate thereby making building of low cost homes more expensive and in turn making construction of high rise buildings and apartments more imperative. Additionally, existing low-cost homes are plagued with problems due to inadequate design to suit the life and needs of the modern community and the tropical climate.

Currently, the Malaysian housing industry faces the challenge of how to produce affordable and decent mass housing, especially when customer satisfaction is a priority. A challenge for the housing industry is how to adopt modern construction technology and management to cater for customization, without sacrificing the economies of construction. Higher standard of living also means higher demand for quality housing. The Malaysian government is now focusing on quality housing rather than quantity so that residents can enjoy a higher standard of living in line with the nation's progress. These demands and initiatives have brought changes to the housing industry with improvements from previous setbacks, to make houses more liveable and comfortable. The motivation for improving low-income housing relates to overcrowding, insecurity, poor quality, poor ventilation and design, and strained physical infrastructure and social services.

Although the Government is still directly involved in the provision of low-income housing, there has been a major change in housing policies with the role of Government shifting from that of developer to that of facilitator, i.e. from public to private provision. The Government has sought the cooperation of the private sector to address the housing needs of the lower income groups. The Government also encourages developers and contractors to implement quality assurance systems such as international standard ISO 9000 in their construction activities to ensure quality in construction delivery.

Like any other Southeast Asian countries, today the Malaysian construction industry is facing an immense and worsening problem of material shortages aggravated by escalating prices. The Malaysian government has placed great emphasis on research and development for cheaper alternatives to building materials in order to reduce importation of foreign building materials and components. Research and development have also focussed in finding innovative building materials for resource saving designs to promote conservation. This way the government also helps in the delivery of cheaper construction and increasing the production of low cost homes for the lower income groups.

In Malaysia, smart and sustainable initiatives in housing have been highlighted by government and communities alike, however, present legislations relating to inhabitation is more focused on physical development of housing, while social and cultural matters are not often considered. Public policies or strategies in housing mainly deal with affordability rather than sustainable inhabitation. A study of these policy matters reveals that they provide little room for housing intervention in response to the emerging sustainability concerns.

In summary, there is an urgent need to promote a wider notion of sustainability in housing in order to improve the environmental performance as well as creating a greater impact of sustainability upon the lives of the community. Apart from being affordable, housing must be at the same time environmentally friendly and energy-efficient; life-sustaining, safe and healthy.
5. URBAN DEVELOPMENT

Malaysia’s commitment to sustainable development is demonstrated in the construction of Putrajaya, the administrative centre of Malaysia. The approach adopted by the Malaysian Government in the development of Putrajaya is unique. Putrajaya is a showcase of Malaysia Incorporated at its best. It is being developed through a partnership between the private sector and the government (Issace, 2005).

The formulation of teamwork and partnership between the government and the private sector has proved to be one of the major contributing factors for building Putrajaya successfully in record time.

The construction of Putrajaya takes into account the environmental effects of building materials and design, construction methods, building operations and maintenance to substantially reduce or minimize impacts on the environment. Latest technologies and systems have been used to avoid environmental degradation, improve comfort and enhance productivity of building occupants. At the early planning and design stage, systems concerning energy consumption, low energy and efficient design buildings and supply have always been considered.

Through sustainable building and construction, the Malaysian government has saved operating costs in Putrajaya. It has also educated the people that with appropriate use of natural resources and with proper management of the buildings, it will contribute to saving of precious resources, reduction of energy consumption (energy conservation) and improving environmental quality.

6. INTERNATIONAL COOPERATION

In general the awareness on sustainability issues in the building and construction sector is still low and developing countries like Malaysia have only just began to address the challenges of sustainable construction. Although there is growing awareness of sustainability issues in the region, it is still in its infancy. Therefore, there is a need for stimulation of activities for breaking down the barriers which hold back the development of sustainable building and construction in the country.

The initiatives to promote sustainable building and construction (SBC) in Southeast Asia were undertaken through the EU Asia-Pro Eco programme, an international cooperation between European Commission, the United Nations Environment Programme (UNEP), The International Council for Research and Innovation in Building and Construction (CIB) and Universiti Teknologi Malaysia.

The Asia Pro-Eco Programme was aimed to develop Asian-led and Asian-owned action agendas for implementation of SBC practices, methods, policies and market mechanisms in the building and construction sector. A seminar on Mainstreaming SBC in Southeast Asia and The Conference on Sustainable Building Southeast Asia (SB04SEA) were organised to raise awareness amongst construction stakeholders in Malaysia and the region (SBCI 2007). Further to these activities, The Centre for Sustainable Construction & Tall Buildings of Institute Sultan Iskandar, Universiti Teknologi Malaysia, in collaboration with The United Nations SBCI, CIB and iiSBE are organising the next Conference on Sustainable Building Southeast Asia, 2007, as part of the initiatives to promote implementations of SBC in the region and enhancing closer cooperation and networking amongst construction stakeholders in the region for future development.

7. GREEN BUILDING MISSION

Achieving sustainable development requires collaboration among sectors and institutions, and the participation of all stakeholders and individuals. As illustrated in the examples above, there are many different ways people and organizations can work together to share knowledge, to advocate and to take action. These include campaigning networks, communities of practice, knowledge networks, public-private partnerships, multi-stakeholder partnerships and strategic alliances. These have all become important mechanisms for identifying priorities, undertaking joint research and for engaging other stakeholders in developing workable solutions. By combining these efforts, members of networks and
partnerships are able to have a greater impact on policy and practice than they would have on their own.

With these realizations, the Malaysian government launched the Green Building Mission on 15 March 2007 with the aim of raising the level of awareness, promoting and consolidating efforts in achieving sustainable building and construction in Malaysia. The government, private sector and non-profit organisations met to discuss sustainability and environmental issues in construction. At the policy dialogue delegates were asked to deliberate on critical issues, possible solutions and recommendations for sustainable building policies in Malaysia.

8. RECOMMENDATIONS

The barriers to the implementations of SBC in Malaysia were highlighted by Shafii et. al. (2006). The challenges of the construction sector is not only to find the balance between environmental, economic and social solutions but also an attempt to favour decision without regrets in the life cycle or construction phase of the built facilities.

In order for the construction industry to move towards sustainability, the following recommendations have been proposed.

(a) Education and training should incorporate sustainable development concepts and made it well known and accepted by all people. Education is seen as an important tool in promoting sustainable development and improving the capacity of the people to address environment and development issue. This will increase the level of awareness both among the actors in the entire construction process, as well as the general public.

(b) Initiatives involving planning and construction should be through adapted regulations, standards or fiscal measures and incentives.

(c) Building owners and clients should play important roles in disseminating sustainable construction.

(d) Understanding sustainable construction through common definitions and language to address the issues.

(e) Designers adopting an integrated approach to design (integrated design approach).

(f) Improvement of the building construction process as opposed to the traditional methods.

(g) Building users should consider the environmental issues as one aspect of productivity.

(h) Manufacturers of building materials/products taking life cycle considerations as the basis of product development.

(i) Building maintenance organisations should consider environmental consciousness as a factor of competitiveness.

(j) The development of tools to help in decision making.

9. CONCLUSIONS

Making buildings and the construction process sustainable and environmentally friendly needs different inputs and skills/expertise from different stakeholders at different stages of the building life cycle. The public and private stakeholders need to work together in implementing SBC. To develop
strategies and recommendations aimed at promoting more sustainable construction in Malaysia, before addressing further issues, priority need to be given to educate the stakeholders, developing strategies for environmentally friendly construction materials, energy efficiency in buildings and construction and demolition waste management. Clearly, there is a need of technologies and tools in decision making in achieving sustainable building in Malaysia.

International cooperation is an important consideration linking local to global initiatives and facilitate collaboration and knowledge sharing between research organisations and role-players in the industry. Most importantly, organisations must possess adaptive capacity that enables them to recognize the need for change and to respond to it appropriately.

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