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Procedia Engineering 20 (2011) 458 – 465

**Procedia
Engineering**

www.elsevier.com/locate/procediaThe 2nd International Building Control Conference 2011

Sustainable Environment: Issues and Solutions from the Perspective of Facility Managers

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Abstract

The achievement of sustainable development in environment necessitates a holistic effort in all areas of society to meet the appropriate criteria. Current debates about urban sustainability not only tend to focus on carbon emissions, energy consumption and waste management, but also the role of facility managers in dealing the environmental problems towards sustainability development and environment. Inevitably, there is a need to specify the permissible building specific environmental that must be compatible with overall sustainability targets. This paper delineates the mitigation plan that can be adopted by facility managers to overcome environmental issues that may affect the total management, performance and operation of development. This paper also described several environmental problems occurred in Malaysia, focussing on technical issues that harm the environment and sustainable development.

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Selection and/or peer-review under responsibility of Universiti Teknologi Mara Perak and Institution of Surveyor Malaysia (ISM)

Keywords: Sustainable Development, Facility Managers, Environmental Issues, Solutions

1. Introduction

Environmental protection has become a national issues as well as international issue in recent years. Though scientists and environmentalists have recognized the magnitude and significance of environmental problems for decades, it is only recently that the media has turned to highlight issues like Minamata disease (Japan), Bhopal tragedy (India), greenhouse effect, deforestation, global warming and waste generation. Creating a sustainable development must be implemented as a reactive plan. World Business Council for Sustainable Development [1] has defined sustainable development as “form of

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progress that meets the needs of the present without compromising the ability of future generations to meet their needs". Therefore, to make sustainable development and environment, tentative programmes and campaigns to enforce environment awareness must be emphasized as vital programmes prior to several cases due to poor environmental conditions. As mentioned by Tweed and Sutherland [2], existing approaches to sustainable development tend to focus on technical issues, such as the reduction of energy consumption and environmental pollution.

For example, in China, the government has taken comprehensive investment and measures as to overcome environmental and pollution effects in their country. Inevitably, the global community has shown keen awareness and concern over environmental issues these past decades. This community includes the public, government and the corporate world. Those formerly opposed to environmental conservation are slowly but surely becoming proponents advocating going to sustainable development. Therefore, reducing the burden of environmental impacts is necessary if development is to become sustainable. However, it seems that programmes undertaken due to poor environmental conditions is a reactive approach; only implemented when there is occurrence of disaster. This conventional thinking need to be changed as poor environmental conditions will leave bad effects to the global environment. Unplanned development and public's low attitude are among of the causes that constitutes to environmental problems, especially in developing countries [3]. Even though environment protection has been emphasized in many countries like China, Japan and United Kingdom, but still there is several countries not allocate these issues as main priority solution or activities. The extended of knowledge towards enhancing environment protection is still lack and not taken as a comprehensive programmes. It is observed that environmental awareness among the public community is still poor, insufficient and not considered as vital issues. The occurrence of poor environmental conditions not only affected the public, but it also affects the community in terms of economic, social, life and generation. Ecological sustainability is, in turn, a basic prerequisite for sustainable economic and social development. The first step in formulating an effective response to this challenge, focused solely on the environmental issues, entails a quantification of the contribution required from the various areas of human activity for the achievement of sustainable development. Without binding sub-targets for the different sectors, it will be all but impossible to move systematically towards a sustainable society [4].

2. Facility Management Perspective In Environmental Issues

The willingness and ability of facility management and relevant stakeholders to adopt greater environmental awareness and responsibility is crucial in striving towards a higher degree of sustainability in the construction and development sector. There are conflicting results about the nature of the industrial practices. Some studies as elaborated by Erdogan and Baris [5] have revealed that hotel and facility manages generally recognize the need for environmental protection and are involved in a number of activities. Environmental programs such as reducing energy consumption, recycling, and composting food scraps to reduce solid waste and minimize energy costs are steadily increasing throughout the world. Sumiani et al. [6], in their studies also have revealed that 36 out of 50 Malaysian public companies from various industries reported some kind of environmental information in their corporate annual reports. This furnishes the interpretation of the current state of art of Malaysian environmental reporting practices.

The primary objective of facilities manager is to oversee the maintenance and upgrading of the built in environment of a specific workplace. A facilities manager needs to integrate the employees of the firm with the dynamics of the infrastructure on a single integrated platform. However, the current changes, particularly in the sustainability arena sparked by the climate changes, have also changed the roles and duties of facilities managers. As described by Goyal and Pitt [7], the future of facility manager will enhance with cost effective and environmental issues being the main concern in every field of economic activity. In parallel, the role of facilities managers in an organisation has been widely expanded to an

extent that facilities managers are now involved in many aspects of their organisations' operations. Some of these responsibilities that may be relevant to sustainability issues range from energy management to green procurement, from corporate social responsibility to managing sustainability and reducing buildings related carbon emissions [8]. They added that Sustainability in the built environment is about making our buildings more sustainable by reducing the consumption of resources such as water and energy; having better building practices and designs; increasing recycling or the use of recycled materials; protection of forests by using alternatives and generally reducing CO₂ emissions from our buildings. Hence, The current changes, particularly in the sustainability arena sparked by the climate changes, have also impacted the roles and duties of facilities managers.

3. Issues of Environmental Pollutions In Malaysia

Environmental pollution problems in Malaysia have a long history. Environmental pollution and ecological degradation have continued to be serious problems and have inflicted great damage on the economy and quality of life. In Malaysia, cases like landslides at Gua Tempurung, North-South Highway (2004) (see Figure 1), landslides at Ulu Kelang, Selangor (2003-2007), flood in Segamat, Johor (2007), haze in Kuala Lumpur (2005) due to forest burnt in Sumatera, Indonesia and recently flash flood in Shah Alam and Kuala Lumpur (2006-2007) has opened many eyes especially the authority and the public. A blame game derived from these incidents is supposed not to occur as environmental issues become everyone's responsibility. Therefore, reducing the burden of environmental impacts is necessary if development is to become sustainable. Public participation in the process is limited, and is mainly at the behest of the project developer. Malaysia, being one of the Asian countries that are rapidly developing, may increasingly face the tension between the economic incentives and the claim for ethical consciousness with regard to accounting for the environment. Thus, there is an increase in the need to understand the local environmental position and its economic dependency in interpreting Malaysian motivational factors for environmental accounting and reporting.



Figure 1: Landslide at North-South Highway near to Kuala Kangsar, Perak [9]

3.1 Water pollution

Water pollution is arguably the most fundamental environmental issue in Malaysia, since the country's pollution problems began with water pollution caused by the three traditional industries of tin mining, natural rubber, and palm oil, as mentioned above. The government's environmental programs therefore give high priority to control of water pollution. River pollution by mine wastewater and sludge began

with the rapid development of tin mining, a traditional industry that started at the turn of the century about 100 years ago. At Kuala Lumpur, flash flood after heavy rains is occurred due to poor provision of drainage and also water pollution derived from people's attitude; the community simply throw and dump rubbish onto the river. This issue is however is minimise in staggered when the Government took an initiative to built Stormwater Management and Road Tunnel (SMART) tunnel in 2007 in order to mitigate flash flood in Kuala Lumpur.



Figure 2: Water Pollution at Sungai Juru, Penang [10]

Water pollution that caused by human behaviour is simultaneously debated by many researchers. Figure 2 shows an example of water pollution occurred at Sungai Juru, Penang in 2007. It is identified that sources of pollution contributing to biochemical oxygen loading include the agriculture-based industries (natural rubber and palm oil production, for instance), manufacturing industry, and livestock industry rivers in Malaysia generally appear to have high organic pollution loads and high suspended solid concentrations. A survey on environmental issues and environmental conservation practices in Malaysia conducted by Chen [11] in Malaysia Environmental Quality Report [12] (2000) has identified that a total of 4,932 factories as sources of river water pollution. By industry type, the polluters included 966 food and beverage manufacturing factories (20%), 559 paper factories (11%), and 419 electrical and electronics plants (8%). The breakdown by state shows that Selangor had the highest number of industrial sources of pollution (1,668 factories), followed by Johor (945) and Negeri Sembilan (371). In terms of individual rivers, the basin of the Klang River which flows through Selangor had the highest number of industrial pollution sources.

3.2 Air pollution

Haze is another major problem in Malaysia. There were minor haze incidents in 1993 and 1994, years that recorded low rainfall, but haze on an unprecedented scale occurred from the summer of 1997 due to the huge forest fires that blazed in Sumatra and Kalimantan in Indonesia. The haze that year continued for five months, from mid-July to November. In late September, when the haze was most severe, air pollution readings in Sarawak exceeded the "hazardous" level of 500 on the Air Pollutant Index (API). As well as affecting health and causing an increase in respiratory complaints, the 1997 haze incident had major economic costs, impacting on transportation services, tourism, and the fishing industry among others. The disaster prompted the government to subsequently ban all open burning within Malaysia. In recent years, air pollution caused by the tremendous increase in road traffic that has accompanied economic development and water pollution from household wastewater, have become obvious problems that particularly affect urban areas. Another recent problem is haze (smoke and fog caused by particulate

matter), which occurred on a large scale for several months in 1997 and caused respiratory complaints and other health problems in the community. In this incident, the haze was caused by the huge forest fires on Kalimantan Island and in other parts of Indonesia, across the sea from Malaysia. It is therefore a unique environmental problem that will not be easy to solve.



Figure 3: Haze in Kuala Lumpur due to forest fire in Kalimantan and Sumatera, Indonesia [13]

Other problems noted in Malaysia are oil pollution of the sea and deforestation due to regional development of various kinds. Although Malaysia has a host of environmental problems that demand solution, including those associated with scheduled wastes, the government is implementing more effective pollution controls than other environmental issues. It is also committing resources to construction of environmental infrastructures, such as sewerage systems to deal with household wastewater.

4. Solutions To Environmental Problems

By realizing the repetitive occurrence of environmental pollution to global community and nation, several recommendations are outlined as suggestion to prevent and mitigate environmental pollution in our country. Since Malaysia is one of the developing countries, the environmental problems and issues had occurred and be the most important issues in every development project. The public involvement is a concept which is going to influence the environment status in the developed democratic societies, and a mechanism by the entire process of decision-making on any arisen problem.

4.1 *Involve public participation*

The facility managers should enrolled to have participation from the public as one of the mitigation plan for problem solutions. Public participation could be appeared in different stages depending on the project requirement and issues involved. In any development, the techniques and approach differ for each project. However, most of the problems appear to be of the similar scope and factors. The range of stakeholders involved in an Environmental Impact Assessment (EIA) typically includes the local people, the proponent, government agencies, NGO's and academics and all the affected people to the development projects. According to Department of Environment (DOE) [14], public participation is

essential in the preliminary assessment process, but only in ways that could be adjudged to be instrumental public participation. Hence, people must stop throwing rubbish in the river and residents must gather in periodic time to work together to keep rivers and environment in clean condition.

4.2 Emphasize environmental protection programmes as reactive solution

Preliminary assessment is the stage of the environmental procedure that is normally initiated at the pre-feasibility study stage of the development of an activity. Facility managers must adopt environmental protection programmes in order to achieve a sustainable development. In Malaysia, the EIA procedure as described by Raja Rafidah and Faridah [15] and DOE [14], a potential environmental impact from any development is determined from the early phase of planning (see framework of EIA in Figure 4). Project options are identified at this stage and any significant residual environmental impacts are made known. The preliminary report that is prepared is reviewed by a technical committee in the DOE internally. The approving authority is the Government Authority that has the task of deciding, whether or not a project should proceed. Recommendations arising from the review of the EIA reports are forwarded to the relevant project approving authorities. At the completion of the review period for a detailed EIA, it will include comments on the Detailed Assessment report and recommendations to the project proponent and the project approving authority for environmental monitoring and auditing.

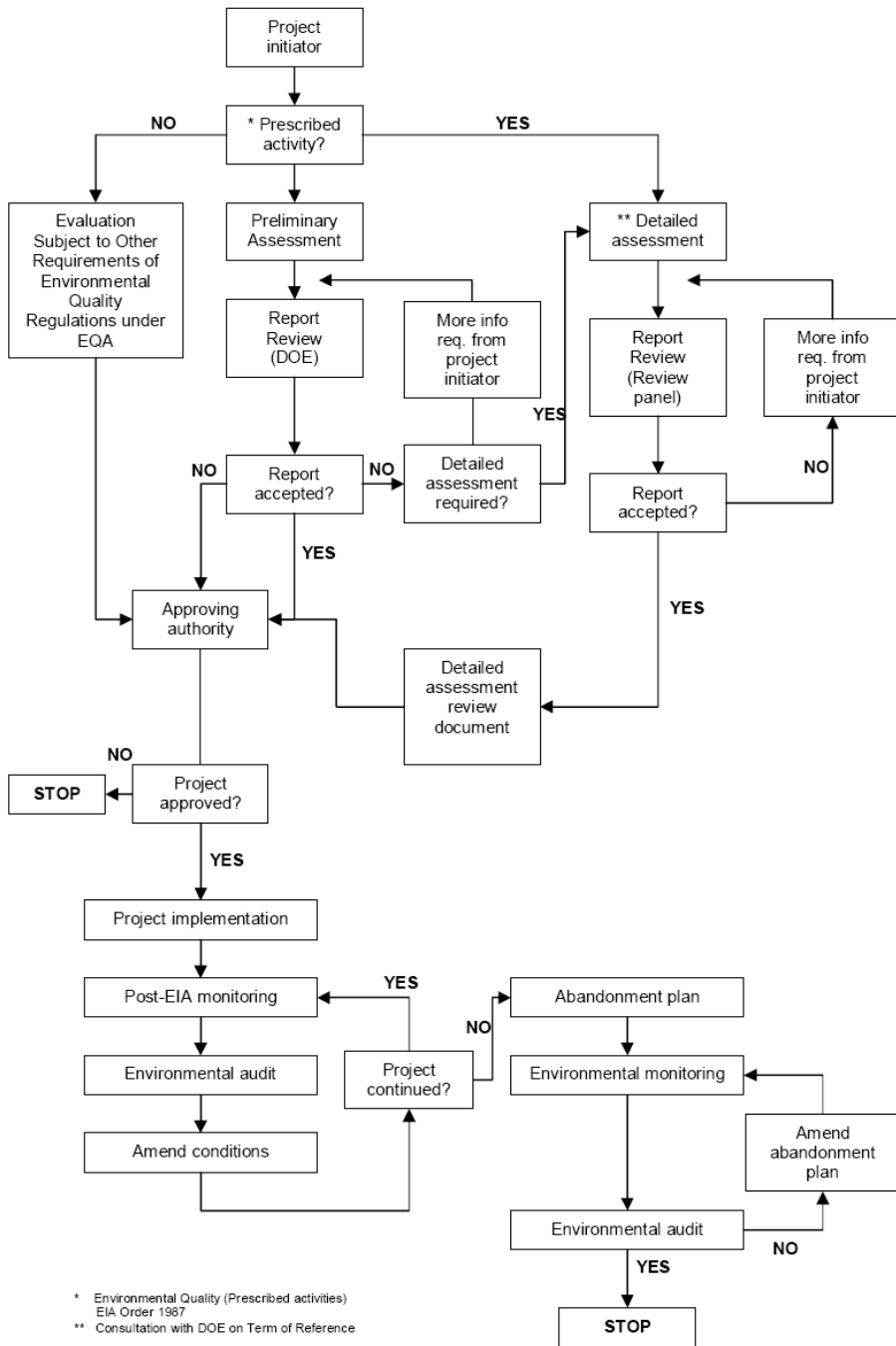


Figure 4 : Outline of Environmental Impact Assessment Procedure in Malaysia(15)[14]

5. Conclusion and Recommendations

As a conclusion, facility managers, innovators, building designers and other built environment consultants should concern with environmental protection and sustainability as to re-evaluate and reconsider national, local and development policies and training activities. It can be seen that poor environmental conditions is occurred due to several factors such as general lack of environmental concern, lack of environmental plans, policies, and activities. With the increase in awareness of environmental issues, the level of environmental disclosure and stakeholder demands for environmental information is increasing. Regulations in Malaysia like ISO 14000 & 14001 and EQA 1974 standards must be well established by all relevant stakeholder and public as to make it more evident. It is recommended that in order to achieve meaningful improvement, facility managers must obtain adequate knowledge and develop appropriate concern for environmental issues. In addition, hotel managers should be eager to allocate the necessary funds to develop and implement state-of-the-art environmental programs. One initiative undertaken by our government is the adoption of the internationally recognized ISO 14001. The environmental management standard is also an important part of any environmental protection plan, policy, and practice. Such international standards can help developer or any organizations to establish environmental protection programs and integrate them into a coherent framework, thereby enhancing relationships with government agencies, consumer groups, communities and environmentally conscious investors.

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