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THE IMPLEMENTATION OF ECO-LABELLING FOR CONSTRUCTION MATERIALS IN MALAYSIAN CONSTRUCTION INDUSTRY

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THE IMPLEMENTATION OF ECO-LABELLING FOR CONSTRUCTION MATERIALS IN MALAYSIAN CONSTRUCTION INDUSTRY

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requirements for the award of the degree of
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Dedicated to my beloved family for their love, support and encouragement

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ABSTRACT

In response to sustainable development and green initiatives, many tools have been developed for building development. Eco-labelling (Green labeling or Environmental labeling) began as part of “Green Revolution” in marketing with non-food products. Environmental labeling refers to labels that inform consumers that a labeled product is more environmentally friendly relative to the other products in the same category. Eco-labels are designed to inform consumers that the labeled product is more environmentally friendly than most typically setting standards. In addition, Eco-labels are increasingly facilitating manufacturers, retailer, consumers, government officials, and other interested parties with information in their purchasing decision. Eco-labelling is one of the assessment tools that comes as third-party and has a serious role to verify eco-friendly products and compatible with the environment. This study therefore interested to identify the suitable strategy need to be employed in construction industry and suggest the solution for solving the problems of the current eco-labelling innovation in construction materials. This study aims to study the current gaps and potential linkages in implementation of Eco-labelling in Malaysia. Therefore, pilot survey conducted through the questionnaire and interview process with developers, suppliers, contractors, consultant and other construction companies that are regarded as consumers of eco-labelling materials. As a result, the cost of implementation, irrelevant standards for certificating, lack of users' awareness, poor coordination and consistency between rating tools and regulation are as critical barriers and problems. In overall, reliability & quality of rating system for construction materials, leadership & responsibility of conducting eco-labelling schemes in construction industry, and stakeholders involvement are most critical gaps toward eco-labelling.

ABSTRAK

Dalam respons kepada pembangunan mampan dan inisiatif hijau, pelbagai cara telah direka bagi tujuan membina pembangunan. Pelabelan-eko (Hijau pelabelan atau pelabelan Alam Sekitar) bermula sebagai sebahagian daripada "Revolusi Hijau" dalam pemasaran produk bukan makanan. Perlabelan alam sekitar merujuk kepada label yang memaklumkan kepada pengguna bahawa produk yang dilabel adalah lebih relatif mesra alam untuk produk-produk lain dalam kategori yang sama. Di samping itu, Eco-label semakin memudahkan pengeluar, peruncit, pengguna, pegawai kerajaan, dan pihak-pihak lain yang berminat dengan menyediakan maklumat dalam membuat keputusan pembelian mereka. Perlabelan eko adalah salah satu alat penilaian yang datang sebagai pihak ketiga dan mempunyai peranan yang serius untuk mengesahkan produk mesra alam dan serasi dengan alam sekitar. Kajian ini adalah untuk mengenal pasti strategi yang sesuai yang perlu digunakan dalam industri pembinaan dan mencadangkan penyelesaian untuk menyelesaikan masalah terkini inovasi eko-label dalam bahan-bahan pembinaan. Kajian ini uga bertujuan untuk mengkaji jurang semasa dan hubungan yang berpotensi dalam pelaksanaan pelabelan Eko-di Malaysia. Oleh itu, kajian pandu telah dijalankan melalui proses soal selidik dan temu bual dengan syarikat pemaju, pembekal, syarikat, kontraktor dan prunding yang dianggap sebagai pengguna bahan pelabelan-eko. Hasilnya, kos pelaksanaan, piawaian yang tidak relevan untuk disijilkan, kekurangan kesedaran pengguna, kekurangan penyelarasan dan konsisten antara alat penarafan dan peraturan adalah sebagai halangan kritikal dan masalah. Secara keseluruhannya, kebolehpercayaan dan kualiti sistem penarafan untuk bahan binaan, kepimpinan dan tanggungjawab menjalankan skim pelabelan eko dalam syarikat-syarikat pembinaan, pihak-pihak berkepentingan dan penglibatan pengurus adalah jurang paling kritikal ke arah pelabelan-eko.

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LIST OF ABBREVIATIONS

ACEM	Association of Construction Engineers Malaysia
BEEZ	Building for Environmental and Economic Sustainability
BOMA	Building Owners and Management Association
BREEAM	Building Research Establishment Environmental Assessment Method
CIMP	Construction Industry Master Plan
CIDB	Construction Industry Development Board
CREAM	Information, communication and technology
GBI	Green Building Index
GEN	Global Eco-labelling Network
GGCS	Green Globe Company Standard
HKGLS	Hong Kong Green Label Scheme
ISO	International Socialist Organization
LEED	Leadership in Energy and Environmental Design
NGOs	Non-governmental Organizations
PWGSC	Public Works and Government Service of Canada
SB	Sustainable Building
SC	Sustainable Constrution
SD	Sustainable Development
SIRIM	National e-Tendering Initiative
SPSS	Statistical Package for the Social Science
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
USGBC	U.S. Green Building Council
VOCs	Volatile Organic Compound

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CHAPTER 1

INTRODUCTION

1.0 General Background

The construction sector plays an important role in developing the nation sustainability. The innovation of sustainable development term is referred to in the Brundtland Report in1987 as developments that fulfill the needs of the present without compromising the rights of future generations to meet their needs (Brudtland, 1987). It is figured for environmental, social, and economical developments which sustain and improve the natural resources instead of degrade them. Sustainable development helps to decrease the negative environmental impact of building performance. The sustainable building is achievable by promoting efficient use of sustainable material (Kohler, 1999). Therefore, with arising sustainable development intentions in this world during the last decade, Malaysia government has started implementing proactive policies and strategies at various levels, which are aligned in the 7th Malaysia master plan (1996-2000).

The sustainable building generates various techniques and practices to reduce and eliminate the impacts of buildings to the environment and human health. In the last decade, Construction Industry Development Board Malaysia (CIDB) has played the main function of developing, improving and expanding the Malaysia construction industry. The environment and other sustainability related issues are some of the top issues of CIDB to be tackled. Thus, CIDB also has played roles to encourage stakeholders and construction developers to use sustainable materials in building, while providing and expanding related regulations and awareness tools.

Eco-labelling is necessary for the evaluation of environmental protection aspects based on the authoritative and eligible standards. For this reason, an eco-label was first created in the food industry and agricultural products. Now it is being extended into the building industry. Eco-labelling will provide consumers with accurate environmental information under a specific ranking and category on products and services. It will also persuade manufacturers to produce environmentally─friendly products to develop a more environmentally sustainable society by encouraging preferable production and consumption.

The Eco-labelling Scheme was launched in 2004 and is currently managed by Standards and Industrial Research Institute of Malaysia (SIRIM) International Sdn. Bhd.. The initiative of eco-labelling is to encourage the supply-and-demand of those products and services that cause less stress to the environment, and stimulate the potential for market driven environmentally preferable products through communication of verifiable and accurate information on environmental aspects of products and services.

According to the current demand of ‘green building’ or ‘sustainable building’, a vast number of opportunities and challenges for developers and consumers has appeared to respond to the sustainable materials. Consequently, available building assessments tools can encourage, organize and give some plans about sustainable characteristics for construction materials. Therefore, the study of eco-labelling classification is important to respond to sustainable materials.

The initiatives by the government and others have shown positive signs as people are becoming more conscious on eco-labelling in their responsibilities towards environment, causing sustainable projects to be built in Malaysia. But still there are some challenges between the government and non-governmental institutions for promoting eco-labelling for sustainable materials.

1.1 Problem Statement

In the recent past, Malaysian building had no stable identification of sustainable building. Lack of sustainable building identification in Malaysia led to poor sustainable building that has resulted inefficiency of energy and material usage. Selecting proper materials material and resources are important in sustainable buildings; therefore, it will reduce territory destruction and control depletion of natural resources. By material labeling and green building assessment tools, the process of constructing the building will improve indoor environmental quality, energy efficiency, water efficiency, sustainable site development and reduce global warming. The type of materials that will be selected for erecting buildings can respond to the specific elements such as environmentally-friendly, comfortable, durable and adaptable to achieve high performance of sustainable buildings. In addition, a number of construction materials available in the construction industry are new materials, for example, composite materials. A lot of small manufacturers are trying to show new building materials to developers. The question is ─ on the reduction of resource consumption and how to use resources from the earth, while, deciding who should use these products?

The label (Mark) is very important for recognizing and selecting green materials. For approved green material Label, it must be tested by a third-party organization to decipher the quality and specifications of the material under related standards. Eco-labelling is seen as a marketing instrument for environmental manufacturers. Consequently, there would be different costs between eco-labelling and non eco-labelling products. Therefore, this research will acknowledge to users that consuming eco-friendly materials will provide more advantages compared to normal materials even though they have a bit higher price.

This research focused on the building construction material which make an important contribution to change conventional building material selections to incorporate environmental, social and economic benefits (Brudtland, 1987). Building materials in Malaysia are various, but eco-labelling materials are limited and have not been integrated in whole-building sectors yet. According to the SIRIM's eco-

labelling documents, some of the current eco-labelling materials that are ordered for green buildings under Malaysian standard include: Biofibre Composite Construction Materials, Adhesives, Paints, Clay Roof Tile, Fibre Cement Products, Ceramic Tiles, Cement and Flat Glass. Use of these eco-labelling materials help to minimize the waste and emission and to improve the life cycle cost.

Eco-labelling is one of the assessment tools that comes through a third-party and has a serious role to verify eco-friendly products compatible with the environment. This study is therefore interested in identifying the suitable strategy needing to be employed in the construction industry and in suggesting the solution to solve the problems of current eco-labelling innovation in construction materials.

This research explore problems, barriers and critical factors to implementation of eco-labelling for sustainable construction materials in Malaysia. The labeling specification will help to support sustainable building development in Malaysia. This research also leads to encouraging the building investors and developers through the enhancement of awareness and knowledge to Malaysian consumers on sustainable building and the existing of sustainable labels. Construction building materials therefore, take on an important responsibility for economic, social and environmental purpose of sustainable development.

Based on the above, the following questions arise to motivating the research problems:

1) Why does the construction industry need to use eco-labelling?
2) What advantage does eco-labelling bring?
3) What is the current state of implementation of eco-labelling in Malaysia?
4) What are the gaps and barriers to encourage and apply eco-friendly material in the construction industry?
5) A building has thousand of parts, what part should be labeled?

1.2 Aim of the Research

The aim of this research is to study the current gaps and potential linkages in the implementation of Eco-labelling in Malaysia.

1.3 Objectives

In achieving the aim of this study, the objectives are identified as follows;

1. To identify the importance of eco-labelling and the current state of implementation in Malaysia.
2. To determine the important factors that drive the implementation of Eco-Labelling.
3. To identify problems and barriers in the implementation of eco-labelling in Malaysia.
4. To determine the solution in reducing gaps in the implementation of eco-labelling in Malaysia.

1.4 Scope of Research

This study investigates the eco-labelling implementation and the standardization of green construction materials in Malaysia. For data collection purposes, some construction companies around the Kuala Lumpur and Johor Bahru have been selected in this survey. Respondents to this study include: 1) consultants involveing design; 2) contractors who are experienced in developing green building, who could respond to the factors and existing gaps in innovating eco-labelling construction materials; 3) Developers and building stakeholders; and

4) Suppliers of construction materials. CIDB and SIRIM are central parties that are included in this study due to their roles in construction industry performance.

1.5 Importance of the Research

In this study, developing eco-labelling barrier and relevant problems will be investigated that may acknowledge construction investors in Malaysia. The result of this research can be a guideline and reference resource for all groups involved in the construction industry such as consultants, contractors, clients which need to consider the sustainable aspects and eco-friendly parameters to erect the green building. Therefore, stakeholders in construction project will be educated for construction materials which have the classification on the several categories based on economical, environmental factors for minimizing maintenance cost, waste, pollution and extending construction materials.

1.6 Brief of the Research Methodology

The research methodology is grew up to draft planning which is important to check smooth work during collecting and analyzing data and also for saving a lot of cost and time and should be conducted systematically for completing the research until achieve the insistent objectives.

Literature review is involved the sustainable definition of Sustainable Development (SD), Sustainable Construction (SC), Sustainable Buildings (SB), Sustainable Construction Materials and Eco-labelling Materials. Available sustainable building assessment as an instrument to evaluate the implementation and developing eco-labelling system and also eco-labelling schemes for construction materials in Malaysia is discussed in the literature review. The literature review will be taken through of books, journals, interviews, previous thesis and various online sources.

The process of collecting data was covered. The important data that helps to achieve the objectives in this research include of two parts which are primary data and secondary data. The primary data will come from result of proposed sustainable matrix checklist. It is important to know the idea and opinion about eco-labelling materials and also the result of current study that is done in this field. The secondary data will be gained by browsing website and data base to get understanding and information about the sustainability concept, foreign environmental buildings assessments and eco-labelling construction materials.

Next, the data collected by questionnaire survey are compiled and summarized to develop the research results. The data collected are analyzed using qualitative method include of content analysis technique and also quantitative method that calculated by SPSS software and Microsoft Excel XP.

Finally, The results will be compiled in the final research writing to describe and summarize the collected data which in needed to achieve an overall determined objective.

1.7 Expected Findings

By identifying the importance of eco-labelling in the sustainable material, identified the essential specifications and requires for developing eco-labelling in construction industry. LEED, BREEAM, Eco-specifier, Green Star, HKGLS, Green Mark and GBI in Malaysia are the expected references of sustainable buildings assessment tool that should have relationship to sustainable labeling schemes.

The availability of eco-labelling that response to the sustainable materials will increase the level of knowledge about sustainable buildings. This application will impact to the positive improvement of the innovation construction industry.

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