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MOTIVATIONS AND BARRIERS TO THE IMPLEMENTATION OF GREEN
BUILDING POLICY IN UNIVERSITI TEKNOLOGI MALAYSIA

WELFRED CHAI KHAI HUNG

A project report submitted in partial fulfilment of the
requirement for the award of the degree of
Master of Science (Construction Management)

Faculty of Civil Engineering
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JULY 2011

I declare that this project report entitled “*Motivations and Barriers to the Implementation of Green Building Policy in Universiti Teknologi Malaysia*” is the result of my own research except as cited in the references. The report has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

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Date : 22 JULY 2011

Specially dedicated to my beloved family and friends

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ABSTRACT

The current trend of higher education institutions is adopting the sustainable features requirements into the building policy. The environmental issues have been raised in the higher education institutes due to the increase of the energy and resources consumption by the large university community. As a consequence, it becomes an environmental imperative for the higher education institute to act upon in the sustainable development efforts. This study tends to explore the barriers and motivations of the green building policy implementation in University Teknologi Malaysia (UTM) by reviewing the UTM building process. Semi-structured in-depth interviews were conducted with the decision makers and the managerial staffs in the Development Division, Office of Asset and Development (OAD). Besides, internal reports on the development of the new buildings are reviewed. The commitment and positive perceptions from the staffs were the function of motivation in this issue. Financial constraints, organisational barriers and the limited command of knowledge and the provision of information were identified as the main barriers in the implementation of the green building policy.

ABSTRAK

Trend terkini di kalangan universiti ialah memasukkan elemen lestari dalam polisi pembangunan kampus. Sebagai contoh, isu alam sekitar telah dibangkitkan dalam institusi-institusi pengajian tinggi disebabkan oleh peningkatan penggunaan tenaga dan sumber-sumber oleh masyarakat universiti akibat dari pertumbuhan bilangan pelajar yang mendaftar di pusat-pusat pengajian tinggi. Akibatnya, ia menjadi peranan institusi-institusi pengajian tinggi untuk bertindak dalam usaha-usaha pembangunan mampan. Kajian ini bertujuan untuk meneroka halangan dan motivasi pelaksanaan dasar bangunan lestari di Universiti Teknologi Malaysia (UTM) dengan mengkaji proses pembinaan UTM. Temu bual secara mendalam telah dijalankan dengan ahli pembuat dasar bagi polisi kampus lestari dan kakitangan pengurusan di Bahagian Pembangunan, Pejabat Harta Bina (PHB). Selain itu, laporan berkaitan dengan pembangunan bangunan baru turut dikaji. Komitmen dan persepsi yang positif daripada kakitangan merupakan motivasi dalam isu ini. Kekangan kewangan, halangan organisasi dan pengetahuan dan peruntukan maklumat yang terhad telah dikenal pasti sebagai halangan utama dalam pelaksanaan dasar bangunan lestari.

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LIST OF ABBREVIATION

ABBREVIATION		FULL NAME
DLP	-	Defect Liability Period
EPU	-	Economic Planning Unit
HGCI	-	Harvard Green Campus Initiative projects
MOHE	-	Ministry of Higher Education
OAD	-	Office of Asset and Development
PDA	-	Preliminary Detail Abstract
QS	-	Quantity Surveyors
RA	-	Research Alliance
SCC	-	Standard and Cost Committee
UNU-	-	IAS United Nations University-Institute of Advance Studies
UKM	-	Universiti Kebangsaan Malaysia
USM	-	Universiti Sains Malaysia
UTM	-	Universiti Teknologi Malaysia

CHAPTER 1

INTRODUCTION

1.1 Background of Study

The large number of university population can be represented as a microcosm of a local community. There are governing structures, resources consumed and waste generated, economics activities and transactions taken place in the campus (Lee, Abidin, & Abdul Razak, 2007). Due to large increase of the community in the campus, the energy and materials consumption will be increased dramatically. Besides, the environmental impacts have been raised and become a serious issue in the campus community. Hence, it becomes a challenge for the governing structures to overcome the issues by adopting environmental concerns in their policy. Meanwhile, the involvement of the students acts as an important role in the development of the campus towards sustainability.

Talloiries Declaration in 1990 is a ten-point action plan committing higher education institutions to sustainability and environmental literacy in teaching and practice. University of Malaya is the only signatory of the declaration in Malaysia (ULSF, Report and Declaration of the Presidents Conference, 2008). On the other hand, the Institute of Environmental and Development was established in Universiti Kebangsaan Malaysia (UKM) in year 1994. The institute was established to initiate

and oversee the sustainable components is included in the environmental and education development at UKM (Md Darus, Abdul Rashid, Hashim, Omar, Saruwono, & Mohammad, 2009). Apart from that, Universiti Sains Malaysia has launched Kampus Sejahtera as the healthy campus programme for sustainable development in the year 2001 (Lee, Abidin, & Abdul Razak, 2007). The crucial steps taken by the local higher institution showed the commitment to initial the implementation of campus sustainability and acted as a reference point among the local higher institution.

However, the implementation of campus sustainability faced many challenges and difficulties. Previous study done by Velazquez, L., N. Munguia, et al. in 2005 stated that the conservative of university organisational structure and the lack of awareness of the university community were the main impediments in the initiative of campus sustainability programs. Apart from that, the importance of the non-binding declarations and agreements has been questioned in implementation of the sustainability agenda (Bekessy, Samson, & Clarkson, 2007). The scenario contributed to the main barrier of the campus sustainability which is lack of public accountability on commitment. Besides, the lack of financial resources was considered as the main barriers towards sustainability campus (Dahle & Neumayer, 2001).

Lastly, the barriers of implementing campus greening should be identified. Then, actions with the collaboration from every party should be taken to overcome the barriers. Commitment from every organizational structure is another important factor in the implementation of the campus greening.

1.2 Statement of the Problem

The population of students and staffs in Universiti Teknologi Malaysia (UTM) increased gradually over the past decade. Statistic showed there are about 21,471 of students enrolled in academic programmes and 1,874 of academic staffs in UTM in 2010 (UTM, 2010). The increase in the population requires more physical expansion of the campus in order to fulfil the demands of the students as well as contributes to the emission of carbon dioxide CO₂. Consequently, the environment impact, energy and resources consumption become the issues to be concerned by the campus community. Statistic showed that the annual budget for operations and maintenance increased dramatically each year. The budget increased approximated RM 15 million from year 2007 to 2008 (UTM, 2010). Besides, the total use of the electricity also increased gradually from year 2004 to 2008. The facts showed that the campus was in the unsustainable conditions where the cost of campus maintenance was high and increasing. The condition indicated that there is lack of participation of campus community toward sustainability. Hence, it becomes a challenge for the campus community to reduce the ecological footprints. In order to overcome the issues above, UTM Campus Sustainability Policy was established. Nevertheless, the campus sustainability initiatives in UTM are still in the early stage of the implementation. Therefore, the implementation of the campus sustainability faced many challenges and barriers. Hence, this study tends to identity the motivations and the barriers faced when implementing the green building policy.

1.3 Aim and Objectives

The aim of the study is to analyse the motivations and barriers of the implementation of the green building policy in UTM. In order to ensure this study meets its purpose, the objectives are as below:

- a) To review documents related on the development of the new building at UTM.
- b) To investigate the motivations and barriers in the construction of green building in UTM.
- c) To recommend on the improving the green building policy in UTM.

1.4 Significant of Study

The green building initiatives are identified and provide a better understanding of the campus sustainability development for the entire campus community. As a result, the further exposure of the development of the campus sustainability increases the participating of the community members in the initiatives of sustainability campus. Apart from that, this study is tends to explore the barriers on the initiatives of green building policy in UTM campus. The identified of the barriers provides useful information in the development of the university towards a sustainability campus. After the barriers are identified, further concrete actions can be taken to overcome the difficulties.

1.5 Scope of Study

The study focuses on the development of the green building in UTM. In the study, the internal and external documents as well as sustainability policy are reviewed. Besides, semi-structured in person interviews are held with staffs of Development Division, Office of Asset and Development (OAD) included the Work of Director, Head of Development Unit, civil engineers and Sustainability Research Alliances. They are selected as the respondents because they are involved in the operation of the sustainability initiatives as well as their involvement in the construction management in UTM. Furthermore, the respondents are selected based on their expertise and role in sustainable campus issues and policy.

1.6 Flow of Research Methodology

The study started with the identification of the problem, objectives and scope of study. The literature review was done to collect the data and information from the previous study. In this study, most of the information obtained from the journals in the related field. Besides, the information such as campus sustainability initiatives from other countries can be obtained through the internet sources. For the data collection in waste handling processes, the data obtained through the interviews with the decision makers in the structural management and the staffs of Development Division. After data were analysed, the motivations and barriers will be identified. The flow of the methodology was as shown as Figure 1.1.

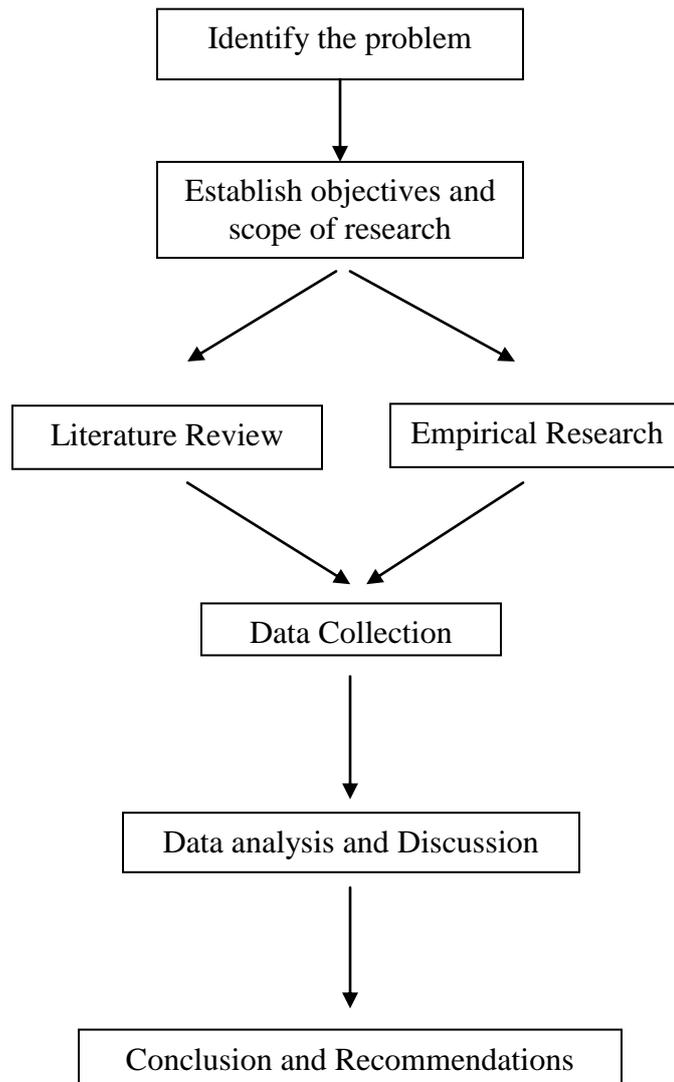


Figure 1.1 Flow of research methodology