

# Sustainable public procurement vs green public procurement



This section provides the background to the research and overview or outlines the overall framework of the dissertation. It describes the research process that include research problem, problem statement, aim, and objectives of the research, the scope of research being investigated, methodology adopted and finally the summary of the overall research structure undertaken.

## **1. 0. 2 Background**

Sustainability have become a widespread issue in developing countries as the effort to develop the country and conserving the Mother Nature at the same time increased. This effort is also due to the commitment agreed after United Nation Conference on Environment and Development in 1992 established Agenda 21. The Agenda 21 which contains blueprints on sustainability in 21st century was agreed by most of the governments to incorporate the sustainability concept in developments and economic area but still preserving the environment and natural resources. The construction industry is in no exception.

Construction industry contributes 3. 5 per cent to the country's gross domestic product in 2011 (Jabatan Statistik Malaysia, 2011) . These consist mainly of public sector projects under government's development programme. This indicates that the government have a big role to encourage the sustainability concept since they are the client with the biggest purchasing power. The sustainability developments by the Malaysian Green Technology Policy 2009 are the development of products, equipment and systems used to conserve the natural environment and resources, which minimizes and reduces the negative impact of human activities.

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While procurement is defined as a process that produces, manages and fulfils contract relating to various works such as construction, leasing properties, discarding properties or give permission for a project (Watermeyer, 2004). The local government have the power to incorporate sustainability in its project through sustainable procurement. Sustainable procurement ensures that the project tendered by contractor have the element of sustainability incorporated inside the documents. By using their leverage to opt for goods and services that also respects the environment they can influence the contractor to include more energy efficient building system (Walker H., Brammer, 2009). This give a clear signal to the procurement parties to use environmental efficient technologies in the buildings as stated in the contract.

Among the local government in other country that used sustainable procurement system is the Dutch Ministry for Economic Affairs. Their agency, Senter Novem defined sustainable procurement as applying environmental and social aspects in all stages of the procurement process to ensure that it results in the actual delivery of product, service or work in line with such environmental and social aspects. It is also defined as construction that brings about the required performance with the least unfavourable ecological impacts while encouraging economic, social and cultural improvement at local, regional and global level. (Taipale, 2010)

## 1. 1 PROBLEM STATEMENT

Sustainability is one of the five main areas of the Government Transformation Programme. Therefore, in order to achieve this, the policies need to be enforced. This is to ensure the implementation will take place and <https://assignbuster.com/sustainable-public-procurement-vs-green-public-procurement/>

change can be seen. However, sustainable procurement is also important which are not well known in Malaysian construction industry. There is a need to know the level of awareness of this procurement so that it can help policy makers to do policies that are applicable to Malaysian environment. This is because Malaysia have a strong foundation in the sustainability issue but still lacking in implementation level. As stated by Perera et. al (2007), law and policies are not enough to change the usual traditional procurement system which are based on value for money rather than the whole life of value of the project. According to CIMP 2006-2015, road to sustainability is expected to come by 2015. However, 2015 is getting near and the changes are still yet to be seen.

## **1. 2 AIMS AND OBJECTIVES**

### **1. 2. 1 AIMS**

This paper aims to discover the awareness of construction industry players of the sustainable procurement. It can be used to discover the problems that hinder or cause the industry players hesitant to incorporate sustainability in procurement even though there are various policies available nowadays. By using natural materials in the design does not mean the building is ‘sustainable’. Everything that came from the Mother Nature does not necessarily sustainable to begin with. For example, tyres which made out of 100% natural ingredient which is rubber. Therefore, it is hoped that the understanding of ‘sustainability’ itself and the ability to incorporate sustainable into procurement can be done.

### **1. 2. 2 RESEARCH OBJECTIVES**

- a. To identify the awareness of the construction industry players about sustainable procurement.
- b. To identify the problems in implementation level.
- c. To find appropriate recommendation to encourage the use of sustainable public procurement in public projects.

### **1. 3 SCOPE OF RESEARCH**

The scope of this paper will limit on the procurements for public projects as the projects in Malaysia are mostly from the Government development programmes. The scope will limit for government projects in Sarawak only.

### **1. 4 RESEARCH METHODOLOGY**

The research methodology will explain how the objectives of this study can be achieved. This chapter will show the flow and the method used to gather the data and information to achieve the objective of study. The data and information will be adopted by specific approach depend on the nature of the investigation.

It can be categorized into two stages:

Data collection methods are an integral part of research design in any research. Data can be collected in variety of ways and in different setting. Data can be obtained from primary and secondary data. The primary data refer to information which gathered from first hand experiences in the specific of studies. Then, the secondary data is the data which are collected from the publish data or the data collected which are already existed.  
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## **Primary Data**

### Questionnaires

Questionnaires will be given out to Quantity Surveyors, Engineers and other construction industry related job such as contract administrators and others. The questionnaires are intended to assemble all the information that needed to prove the objective of the research paper.

## **Secondary Data**

The Literature Review was carried out to establish some general knowledge of the research topic. A clearer framework of the research was established for secondary data. These are all obtained from:

1. Journals
2. Articles
3. Information from internet
4. Dissertation
5. Publisher research work
6. Books

## **7. 0 TENTATIVE CHAPTER HEADINGS**

### **Chapter 1: Introduction**

The introduction will discuss on issues relating to sustainable construction and sustainability in procurements. Other items included under this heading are problem statements, aim and objectives and scope of the study. This chapter will also line out the research methodology of the research paper and its significant to the construction industry.

## **Chapter 2: Literature Review**

Chapter 2 will review on the sustainable procurement principles, the distinction between sustainable and green procurement.

The chapter will also review the other countries that have taken steps to implement sustainable procurement in the public projects.

The characteristics, benefits and the procurement practices in Malaysia will also be reviewed under this heading.

## **Chapter 3: Sustainable Procurement**

This heading will further discuss on the integration of the sustainability into procurement.

The chapter will also discuss the application of sustainable procurement in other countries such as United Kingdom.

The National policies on sustainability issues will also be discussed in this chapter. This is to show that Malaysia have strong foundation on policy but lack in implementation.

The roles of Government in implementing sustainable procurement will also be discussed.

## **Chapter 4: Data Analysis And Findings**

This chapter will discuss on the data obtained and findings on the research.

## **Chapter 5: Conclusion and Recommendations**

This chapter will conclude on the overall issues and recommend the suitable solution.

# **CHAPTER 2: LITERATURE REVIEW**

## **2. 0 INTRODUCTION**

Nowadays, the consumption of goods and services causes the emission of chemical substances, mass use of natural resources and other activity generates waste and pollution. Sustainable procurement ensure the environmental, social and economic objective is achieved. The construction industry uses a lot of natural resources, waste and pollution. In order to control these problems, the solution must start from the procurement itself. Malaysian construction industry has no problem in adopting and implementing the sustainable practices however, due to lack of knowledge and due to financial constraints the progress are slow (Othman R., 2008).

## **2. 1 SUSTAINABLE PROCUREMENT: AN OVERVIEW**

### **2. 1. 1 Principle**

According to United Nation, sustainable principle is based on environmental, social and economic consideration. These three objective must be combined together to produce a sustainable procurement. The procurement strategy must consider the life cycle value of the project, social impact and the economic benefits. The life cycle value of the project does not means the value in terms of financial value only. The life cycle value of the project in sustainable procurement also means the project have lower environmental impact. This ensures that the building is not only green initially, but also

after end of use. The building components must consist of materials that are Eco labelled. Among the energy rating label on product is Energy Star. Energy Star is an international recognized standard for electrical product. A procurement officer can check whether the product such as air conditioner have an Energy Star label. Other than that, the procurement officer can refer to the specification in Energy Star's website. This is to ensure the product is energy efficient and have lower environmental impact.

Sustainable procurement gives impact socially by supporting the local businesses. Supporting businesses by single mother is also considered helping the social level to progress. When support is given to these local businesses, their business will eventually grow and job opportunity created.

Economically, if there is a demand for green innovative product the market will try to supply more of the similar products and probably more competitive price can be obtained from the market. This opens up a bigger market for sustainable products. More variety of products with reasonable price will be available. The assessment of economic sustainability considers not only the initial investment in land and construction, but also questions such as the cost of maintaining and operating a building over a longer period of time. Social and societal sustainability covers issues which are often closely linked with economic and environmental ones, such as access to basic services, upgrading poor housing conditions, creating decent jobs, fair trade of construction materials, transparency. of tenders for contracts., cultural values embedded in old buildings, and accessibility to buildings. (Taipale, 2010).

## 2. 1. 2 Sustainable VS. Green

Although the term green and sustainability used interchangeably, there is a difference of green and sustainable construction. For “green” buildings (the middle-size box), common phases of the life cycle for the building are incorporated into construction. Indoor environmental quality is a variable added into the green building model compared to the conventional building model. In green building, the stage of incorporating green character of a building only started during design stage. While for sustainable, the concept are incorporated since the pre-design stage. During pre-design stage, all the design team, owners and all other parties involved need to establish and understand the objectives on sustainability. They also need to share their opinions on sustainability and agree on common priorities including the potential challenges on reusing and refurbishing the building. They need to learn lessons from best practices on other projects to examine possible changes or innovations for the proposed building. (Taipale, 2010)

In sustainable buildings (the bigger box), the numbers of variables and stages of the building life-cycle considered are even larger. Based on the figure 2. 1, the concept of sustainability comprises of whole building life cycle value. Variable such as site selection, project planning and urban design, service quality, social and economic aspect and cultural and perceptual aspect are added to this model. In pre design stage, site selection is considered important. Selection of site must not give negative impacts to the surrounding environment. Impacts on groundwater, natural resources, decrease in accessibility, pollution to soil and orientation of sun and wind are several items that need to be considered for site selection.

## **2. 1. 2 Why sustainability need to be integrated with procurement?**

Through procurement that requires sustainability to be incorporated in the construction, the market will see a signal to supply more sustainable products to meet the criteria. This is because where there is demand, there will be supply.

Layman's checklist shows that procurement is one of the issues that need to be taken account during construction of sustainable buildings.

## **2. 1. 3 Sustainable Procurement: A Global Issue**

Sustainable procurement is already enforced in New Zealand, United Kingdom.. \_\_\_. The Marrakech Project is a task force formed to do the framework on sustainable procurement as a result from Agenda 21.

According to Marrakech Force,

Japan

According to Shohei Yamada from Ministry of Environment Japan, the key Japan's success in green purchasing is due to the law in green purchasing that are strictly enforced and implemented in by Japan's government.

Switzerland

Marrakech Task Force

United Kingdom

Sustainable Procurement Action Plan

## 2. 2 National Policy On Sustainability Issue

Malaysia had taken a step towards sustainability after Rio Summit in 1992.

The summit requires various countries to commit on the sustainable development issue. There were 27 principles of sustainable development identified during the conference. During Rio Summit, there is also a guideline on sustainable development which is known as Agenda 21. After Rio Summit in 1992, Malaysian government introduced the Malaysian National Environment Policy. (elaborate)

The development of various initiatives and policy of sustainable development in Malaysia started since the Kyoto Declaration in 2002 is signed by various countries.

### Benefits of Sustainable Procurement

There are several benefits listed by Kennard (2006) for sustainable procurements. Among them are:

Control costs by adopting a wider approach to whole life costing.

When wider approach to whole life costing is adopted, the once considered expensive item will be seen as cost saving in long term. This is through the efficient use of the sustainable material and products. Several research and best practices proved that by evaluating the life cycle value of the building, positive social and environmental impact can be achieved. For example in choosing the type of bulb to be used in a building. The energy saving bulb initial cost is expensive. But it uses less energy which brings to less electricity current. The bulb also long lasting therefore it does not require

change regularly. This reduces the maintenance cost of the building operation.

Comply with environmental and social legislation.

There are various tools implemented by the Government in environmental and social legislation to improve sustainability such as transforming Ministry of Communication, Water and Energy to Ministry of KETTHA. There are also guidelines in developing a sustainable development in National Urbanization Policy.

Incentives are also given such as exemption from tax if a developer achieves the Green Building Index certificate. There is also a Green Technology Funding Scheme (GTFS) where the construction fulfils the criteria in Table 2. 0.

No.

Criteria

Elaboration

Requirement

1

Energy Efficiency and Renewable Energy

By using the building orientation as a method to optimise the consumption of energy. For example to get good natural lighting, the orientation of the

building must be towards the sunlight. The building also need to use building services that use renewable energy, ensure proper testing made to the services and do regular maintenance.

### Minimum Energy Efficient Performance

Compliance to minimum requirement of MS1525: 2007

### Renewable Energy

2

### Indoor Environmental Quality

Good indoor air quality, acoustics, visual and thermal comfort. This includes using a low volatile organic compound materials, use a quality air filtration system, proper control of air temperature, movement and humidity.

Minimum IAQ Performance – Minimum indoor air quality (IAQ) performance to enhance indoor air quality in building, thus contributing to the comfort and well-being of the occupants.

### Low indoor air pollutants, mould prevention

3

### Sustainable Site Planning and Management

Selecting appropriate sites with planned access to public transportation, community services, open spaces and landscaping. Avoiding and conserving environmentally sensitive areas through the redevelopment of existing sites

and brownfields. Implementing proper construction management, storm water management and reducing the strain on existing infrastructure capacity.

## Environment Management

Conserve existing natural area

Restore damaged area to provide habitat

Promote biodiversity

Maximize open space by providing a high ratio of open space to development footprint to promote biodiversity.

## Earthworks

Construction activity pollution control and

Reduce social impact to surrounding.

Public transportation access

Reduce pollution and land development impacts from automobile use.

Storm water design to limit the disruption of natural hydrology

Reduce heat island effect.

4

## Materials and Resources

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Use products that are from environmental friendly and recyclable source.

Implement a proper waste management system, with storage, collection and reuse of recyclables and construction waste and formworks.

Materials reuse and recycle content materials and construction waste management.

Use of environmentally-friendly Refrigerants and Clean Agents.

5

### Water Efficiency

Practices rainwater harvesting, water recycling and water saving fittings

Rainwater Harvesting to reduce potable water consumption.

Water Recycling to reduce potable water consumption.

### Water Efficient – Irrigation/ Landscaping

- Encourage the design of system that does not require the use of potable water supply from the local water reticulation.

Water Efficient Fittings – Encourage reduction in potable water consumption through use of efficient devices.

### Metering & Leak Detection System

- Encourage the design of systems that monitors and manages water consumption.

## Innovation

Use an innovative design and initiatives in promoting energy efficiency that meets the goal of Green Building Index

Innovation in design & environmental design initiatives that contribute to reduce impact to the environment.

## Green building accredited facilitator

- To support and encourage the design integration required for green / sustainable building rated buildings and to streamline the application and certification process.

## Table 2. 0 : Criteria and Requirements for obtaining Green Technology Funding Scheme (GTFS)

(Source : <http://www.gtfs.my/page/criteria-building-and-township-sector>)

There are also rebates for those who procure the air conditioning, refrigerator or chiller which are rated 5-star by Suruhanjaya Tenaga. The Government are encouraging the consumers to use energy efficient appliances by listing the 5-star rated products in the website. They also provide a savings calculator to show how much saving the consumer can get if they use an energy efficient electrical appliances. This is to help create a culture of efficient use of energy into consumers and business entities.

## Manage risk and reputation.

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In order to implement the sustainable procurement, an organization needs to fully change its policies and procedures. It is vital that the sustainability criteria are integrated into the management itself before it is applied to other areas such as procurement.

The existing procurement practice and policies need to be evaluated to clarify what the organization really needed to purchase. The procurement policies need to adopt sustainable strategies in order to manage unnecessary consumption and demand thus reducing the impact of energy use to environment.

By producing a guideline of the procurement policy, the performance of sustainable procurement can be measured in future. Thus sustainable procurement goals can be developed from time to time. This process will provide a measurement for re-evaluating the sustainability of the supply chain and build a reputation for the organization as an organization that practices good ethical value of sustainable in procurement. (Kennard, 2006)

## CHAPTER 3

### 3. 0 INTRODUCTION

According to Kallet (2004), a study's validity is judged based on the method section of a research paper which provides all of the information in a study. Therefore, a solid research methodology planning precise description of each action must be prepared prior to the commencement of a particular research study.

The credibility of the outcome of the research and how the research can be applied in a general population interest is referred as validity (Kallet, 2004). Therefore, the authenticity of content in a research paper are depending on the degree of the validity of its outcome to the overall population and ability of the research paper to be used as future reference.

Hulley et. al (1988) as cited by Kallet (2004), stated that the credibility of a study is solely determined by the degree to which conclusion drawn from a research correctly what actually transpired during a study, known as Internal Validity. Moreover, Kallet's 2004 study (Hulley et. al, 1988) stated that as for External validity refers to whether the result of a study depending on the degree of the study can be generalized to a larger population.

Planning a research methodology before the execution of a research study is essential in ensuring that the outcome of the study which was based on its objectives can be reached and its degree of validity is credible for future reference.

### **3. 1 RESEARCH METHODOLOGY OF THE TOPIC**

#### **3. 1. 1 Objectives of the Study**

The research on the has three most important goals or objective which comprises of the following:

- To identify the awareness of the construction industry players about sustainable procurement.
- To identify the problems in implementation level of sustainable procurement in construction industry.

- To find appropriate recommendation to encourage the use of sustainable public procurement in public projects.

These three main objectives were set out as a guideline in executing the research study on the topic. The methodologies used in order to obtain valuable information for this research study are based on sources from both Primary and Secondary Data.

Primary Data for this research study was obtained by means of interviews with numerous individual and site visits. Among the barriers in obtaining the primary data was the restriction due to governmental policies, availability of the person in- charge, communication barriers, bureaucracy hassle, public transportation breakdown, financial limit, time constraint, and weather condition. As for the Secondary Data, the information was obtained from journals, articles, electronic information, dissertations, publisher research work, and book of related topic.

### **3. 1. 2 Summary of Research Methodology**

#### **3. 1. 2. 1 Primary Data**

Due to the effect of degree of validity of a research study to the credibility of the outcome of the study, the data obtained for executing the study is scrutinized and filtered in order to obtain only the worthy information.

Primary data can be defined as the first hand data that was obtain by the researcher prior to the commencement of the research, it is the foremost sources of information which was obtained from both interviews and site visits. Prior to the these data gathering can commence, a letter of consent

for request of approval for using the project as a case study was submitted to the responsible being for approval and official notification.

The interviews were carried out largely at the mentioned public department. Among the individual interviewed was the Head of the Developers, Quantity Surveyors, Civil Engineers, Architects, and Contractor and also other parties that involved and understand the procurement content.

### **3. 2. 2 Secondary Data**

According to Stacks (2002), secondary data can be defined as report on the outcome of the primary data. It is not as authoritative as the primary data as it often provides broad background and readily improves one's learning curve. Therefore, obviously the secondary data is not as reliable as the primary data. The secondary data used in this research is obtained from books related to the research topic, articles, journals, electronic information, dissertations, and public works research.

## **3. 2 SOURCE OF RESEARCH DATA**

### **3. 2. 3 Primary data**

Primary data obtained for the purpose of the study consist of interviews and site visits.

#### **Interviews**

The interviews carried out for the purpose of this study can be divided into two, namely :

- Semi structured interviews.
- Informal interviews.

### 3. 2. 3. 1. 1 Semi Structured Interviews

Rashid (1998) suggested that it is more desirable to conduct a semi-structured interview which is closer to the qualitative research method in order to be balanced and attempt to obtain additional information that would enrich the quantitative data obtained through questionnaire survey. As the nature of the investigation is a combination of qualitative and quantitative that seek for the answer for open-ended and close-ended questions of ' why' and ' how' therefore, it is more appropriate to conduct semi-structured interview in which it provides opportunities to researcher to capture both data.

To ensure the smoothness and to facilitate the respondents in answering the questions, the following guides and procedures were followed:

The main instructions were clearly explained during the beginning of interview sessions.

Each respondents were requested to discuss on one or more specific projects that has been selected during content analysis prior to the interview in which they were directly involved in the strategic briefing process.

The respondents were allowed to express their opinion freely in the future outlook of sustainable procurement in construction industry, in order to explore potential variables and concepts that may have been overlooking during literature review.

The questions were designed to be short and simple, which developed from objectives of the research. A five-point rating scale were used for close-ended questions with choices of responses of :

1 Not at all aware 2 Slightly aware 3 Somewhat aware

4 Moderately aware 5 Extremely aware

### 3. 2. 3. 1. 2 Informal Interviews

Informal interviews were carried out by means of telecommunication such as telephone calls, emails, and Short Messaging System or better known as SMS. This type of interview were conducted in order to acquire basic information such as the availability of the person in charge, hardcopy information for appendix purposes, and other related references.

### 3. 2. 3. 1. 3 Questionnaires

The final stage of data collection is a postal questionnaire survey. The primary objective of postal questionnaire survey is to measure the level of client's practices during briefing. It also carried out to measure the level of project success based on perception of the architects in-charge for the selected project. Responses and variables on client's practices during briefing and level of project success obtained from the survey were used to validate findings on semi-structured interview on the previous stage of data collection, in order to have reliable, unbiased and meaningful data.

Given that the location of the respondents were relatively remote, financial limitation and constrained by timeline of the study, a postal questionnaire

survey was observed as the most appropriate method to collecting data from the respondents. According to Sekaran (2003), the main advantage of mail questionnaire is that a wide geographical area can be covered in the survey. Naoum (1998) added it is more suited to assembling a mass of information at a minimum expense in terms of finance, human and other resources.

A set of question was developed for the purpose of the survey in which divided into several sections that covered background of the respondents, level of knowledge and concept of sustainable development and construction, application of sustainability in procurement, barriers to implement sustainable procurement in construction industry and future outlook of the sustainable procurement in construction.

To encourage high response rate and to ensure the required information were obtained, the following guides and procedures were followed:

- The questions were design to be short and simple, and were formatted on A4 sizes paper.
- The main instructions were clearly printed in the front page of the questionnaire form.
- The questionnaire was divided into several sections, according to research objectives and category of information required.
- Refer to Appendix 1 for copy of questionnaire used in the postal questionnaire survey.

## **Secondary Data**

According to Ober (2008), secondary data is not as good as the primary data , however, it is not the worst kind of data that can be used in completing a research study. Moreover, there are many advantageous in applying the secondary data as a method in completing a research study, this is due to the facts that it is low in term of cost and less time consuming than gathering primary data, therefore, secondary data will help save money, energy, and time. However, it also holds its own disadvantages in terms of the quality of the available data and its availability for a particular topic of a research study.

Most of the secondary data gathered in this study was obtained from construction journals and articles. The secondary data for this research was also gathered from the electronic