

**A COMPARISON STUDY OF PREFERRED GREEN BUILDING
CRITERIA AMONG MANAGEMENT AND OCCUPANTS**

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**A project report submitted in partial fulfilment of the
requirement for the award of the degree of
Master of Asset and Facilities Management**

**Faculty of Geoinformation and Real Estate
Universiti Teknologi Malaysia**

JANUARI 2017

Specially Dedicated To

My Father, Mother, Family & Friends

“Thank you for affection, love, encouragement and prays of day and night”

ACKNOWLEDGEMENT

In the Name of Allah, the Most Beneficent and the Most Merciful

First and foremost, the author is grateful to Allah S.W.T for having guided and granted him conditions and the strength towards the completion of this dissertation.

The author would like to extend his deepest gratitude and appreciation to his supervisor, Dr. Choong Weng Wai for his continuous guidance by means and ideas, suggestion, support and valuable advice throughout the period of her Master's Project. The author also would like to express his appreciation to Assoc. Prof. Maizan Baba, Dr. Izran Sarrazin bin Mohammad and Dr Low Sheau Ting for their advice.

Besides, the author would like to dedicate her highest appreciation to the management of Johor Port Authority for giving her the opportunity to further study.

The author also would like to extend her appreciation to Mr. Chin Hon Choong for his guidance and help to conducting the analysis of this research.

Lastly, the author is further thankful to all who provided their kind assistance in the course of her research especially to all staffs of Johor Port Authority during questionnaire survey conducted at their premises.

ABSTRACT

It is the responsibility of management to provide a workplace that is safe and comfortable. But it also depends on how occupant react to the facilities provided. Green building has been known as a building that can reduce the environmental impact, reduce electricity usage, manage water efficiently and provide many benefits to its occupants. Green building initiative in Malaysia was introduced by Green Building Index (GBI) in 2008. This index has been extended to government building in 2012 by Public Work Department of Malaysia namely Green Recognition Assessment Scheme or PH JKR. The four major criteria used as an assessment scheme of government green building is based on the energy efficiency, indoor environmental quality, material resources and water efficiency. The sustainable site planning and innovation criteria has been excluded in the research for they are not related directly to the concerns and comfortability of building occupants and the building may not sustain. Previous studies suggested that management and occupants have their own preference. If the preference are not identified, this will affect the comfortability among the occupants and the performance of the building. The objective of this research intends to investigate the differences between occupants and management preferred green building criteria and propose optimum green building profiles for the implementation and promotion of green workplace. Total 120 set questionnaires have been distributed and collected among the management and occupants of Johor Port Authority in which, 106 from the occupants and 14 is from the management. Choice-Based Conjoint (CBC) Analysis is used to analyses the collected data. Through conjoint analysis, a combination of preferred green building criteria by the management and occupant are revealed. Findings showed that both stakeholders shared the same preferred green building criteria whereby indoor environmental quality has become their top priority followed by water efficiency, energy efficiency and lastly material and resources. The surprising findings that there are no differences in between the management and occupants may due to the building is publicly owned, the construction and maintenance budget are not derived from the company itself. Same opinion will benefit the organization and this study can be a good reference to Johor Port Authority and Public Work of Department for continuous improvement.

ABSTRAK

Adalah menjadi tanggungjawab pihak pengurusan untuk menyediakan tempat kerja yang selamat dan selesa. Namun begitu ia juga bergantung kepada bagaimana penghuni bangunan bertindak balas terhadap kemudahan yang disediakan. Bangunan hijau telah dikenali sebagai sebuah bangunan yang boleh mengurangkan kesan alam sekitar, mengurangkan penggunaan elektrik, menguruskan air dengan cekap dan memberi banyak manfaat kepada penghuninya. Inisiatif bangunan hijau di Malaysia telah diperkenalkan oleh Indeks Bangunan Hijau (GBI) pada tahun 2008. Indeks ini telah dipanjangkan kepada bangunan kerajaan pada tahun 2012 oleh Jabatan Kerja Malaysia iaitu Skim Penilaian Pengiktirafan Hijau atau PH JKR. Empat kriteria utama yang digunakan sebagai skim penilaian bangunan hijau kerajaan adalah berdasarkan kepada kecekapan tenaga, kualiti persekitaran dalaman, sumber bahan dan kecekapan air. Manakala kriteria perancangan tapak dan inovasi mampan telah dikecualikan dalam penyelidikan ini memandangkan ianya tidak berkaitan secara langsung dengan kebimbangan dan keselesaan penghuni bangunan dan menjejaskan kelestarian bangunan. Kajian sebelum ini menunjukkan bahawa pengurusan dan penghuni mempunyai pilihan mereka sendiri. Jika keutamaan tidak dikenal pasti, ini akan memberi kesan kepada keselesaan di kalangan penghuni dan kelestarian bangunan boleh terjejas. Oleh itu, objektif kajian ini adalah untuk menyiasat perbezaan antara penghuni dan pengurusan pilihan kriteria bangunan hijau dan mencadangkan profil bangunan hijau optimum bagi pelaksanaan dan promosi tempat kerja hijau. Sejumlah 120 soal selidik set telah diedarkan dan dikumpul di kalangan pihak pengurusan dan penghuni Lembaga Pelabuhan Johor di mana, 106 dari penghuni dan 14 adalah daripada pihak pengurusan. Choice-Based Conjoint (CBC) Analisis digunakan untuk menganalisis data yang dikumpul. Melalui analisis yang dilakukan secara berkumpulan, gabungan kriteria bangunan hijau disukai oleh pengurusan dan penghuni yang didedahkan. Dapatan kajian menunjukkan bahawa kedua-dua pihak yang berkepentingan berkongsi kriteria bangunan hijau pilihan sama di mana kualiti persekitaran dalaman telah menjadi keutamaan mereka diikuti oleh kecekapan air, kecekapan tenaga dan bahan akhir sekali dan sumber. Penemuan kajian adalah diluar jangka dimana tidak ada perbezaan di antara pihak pengurusan dan penghuni mungkin disebabkan bangunan itu milik awam, pembinaan dan bajet penyelenggaraan tidak diperolehi daripada syarikat itu sendiri. Pendapat yang sama akan memberi manfaat kepada organisasi dan kajian ini boleh menjadi rujukan yang baik untuk Lembaga Pelabuhan Johor dan Jabatan Kerja Raya bagi penambahbaikan yang berterusan. Hasil kajian ini adalah hanya dari perspektif Lembaga Pelabuhan Johor dan ia adalah disyorkan untuk dijalankan di agensi-agensi kerajaan yang lain pada masa akan datang untuk tujuan perbandingan.

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SHORT LIST OF WORDS

CIDB	-	Construction Industry Development Board
HVAC	-	Heating , Ventilation and Air Conditioning
JKR	-	“Jabatan Kerja Raya”
PWD	-	Public Work Department
LED	-	Light-emitting Diode
ASHRAE	-	American Society of Heating, Refrigerating and Air- Conditioning Engineers

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Recently the world is facing a El Nino phenomenon which gives huge impact to human existence due to climate change. Human usage of fossil fuels, which puts out carbon dioxide and other greenhouse gases into the air that cause global warming. Today, due to adverse impact to the environment, the Earth has released and sets off to take a more responsible approach to assume care of the environment.

Green building is one of the measures being put forward to mitigate significant impacts of the building stock on the environment, society and economy. Compared to conventional building, there are numbers of benefit can be obtained through Green Building, for instance from environmental perspective can protect the eco-system, provide higher performance reflected from energy efficiency, water efficiency and carbon emission reduction.

In developed and developing countries, it believes that Green building is able to reduce carbon emission and solve energy catastrophe (Zhao, He, Johnson, & Mou, 2015) because building is well known as the biggest contributor to carbon emission and consumed lots of resources.

With sustainable building, as for management understanding they have already provided premier facilities and expecting higher productivity and save costs. Meanwhile, employees are more looking on human need such as comfort, health, indoor air quality and job satisfaction. Therefore, to ensure the investment is worthy, it is important for both parties have mutual understanding so that the building can perform in an effective and efficient way.

1.2 Background of Study

Climate change or global warming has become crucial wherein global emissions of carbon dioxide or release of greenhouse gas have increased by almost 50 per cent since 1990 (Nation, 2015). The surface temperatures on Earth has risen caused a stronger storm, less snow and ice, changing rain and snow pattern, changes in animal migration and lifecycle, thawing permafrost, changing in the plant life cycle, more wildfire and drought, higher temperatures and more heat wave, warmer ocean, rising sea level and damaged coral (Nation, 2015).

World leaders had been discussing this issue aggressively and set binding obligation through several conventions, including Brundtland Report, Agenda 21, Protocol Kyoto and the latest is The 2030 Agenda for Sustainable Development in 2015. Efforts have been taken to reflect the high awareness in looking at some of the environmental issues that are increasingly critical due to pollution from various angles such as land, water and air.

As for Malaysia, climate change has become one of the national agenda where the Prime Minister of Malaysia has promised to give commitment at Climate Change Conference, United Nations in December 2009 (COP 15) in Copenhagen, that the country will cut carbon emissions or greenhouse gases up to 40 % from 2005 emission levels by 2020. A latest pledge by Malaysia is to cut projected greenhouse gas

emissions 45 percent by 2030 after world leaders met in Paris to open talks on combating climate change (Koswanage & Adam, 2015).

In July 2009, the Government established the Green Technology Council (MTH), which functions as a coordinating body at the highest level among ministries, agencies, private sector and key stakeholders to guarantee that the National Green Technology Policy implemented effectively. In addition Green Technology Policy was launched to focus on green buildings has escalated with the promotion of application of renewable energy (RE) and energy efficiency (EE) (Razak, Lumpur, & Malaya, 2014).

According to (CIDB, 2015) during the 4 years of the 10th Malaysian Plan, the production of the construction sector in the economy has increased on average by 11.3% compared to the 9th Malaysian Plan period by 4.9%. The increase was caused by construction of large-scale public and private projects as preparation to achieve Vision 2020, which is getting closer. All these, eventually, may cause the rise in energy costs and the threat of global warming.

Green Building is the integrate process that focus on the relationship between the built environment and the natural environment. Building can have a positive and negative impact to the surrounding as well as the people who inhabit them every day. Reduce energy and water used, healthy indoor environment quality, smart material selection and building's effect on its site are key considerations of a Green Building. Research conducted by Reed and Wilkinson (2008), Wilkinson et al., (2008), and Reed et al. (2009) revealed that buildings have been acknowledged as the heaviest consumer of natural resources and have significant impact to climate change due to release of greenhouse gas emission.

According to the World Business Council for Sustainable Development, building block accounts for 40% of total energy consumption. Apart from energy

consumption, buildings produce Greenhouse Gas emission (GHG) emission which is responsible for global warming. In 2035, carbon emission of buildings across the world will reach 42.4 billion tonnes adding by 43% on the level of 2007 (USEIA, 2010).

Green building is one of actions been put forward to mitigate significant impacts of the building on environment, society and economy aspects. By encouraging the development of more Green building, better energy efficiency practices can be implemented, reduced building impacts on human health and the constructions, environment through better designs, operations, maintenances, and removals (Hamid et al., 2014; Pan, Dzeng, & Yang, 2011) throughout its' lifecycle.

In different countries, green buildings are designed and built according to local climatic conditions and to suit the local requirements. Malaysia has developed their own rating tools where it's used as a standard measurement and proper guidance for property developers and owners to achieve building performance in environmental friendly and energy efficient way. There are four (4) rating tools which are Green Building Index (GBI) (2009), GREEN PASS (Green Performance Assessment System) (2012), JKR's pH (Skim Penilaian Penarafan Hijau JKR) (2012), and GreenRE (Green Real Estate) (2013). Each of these tools has its own criteria and capacity in delivering the sustainability level of a building.

JKR's pH is introduced and applied by Public Work of Department of Malaysia (PWD) for evaluating the sustainability level of its construction projects for government building that cost below than RM50 million. Every year, there is substantial provision of the budget has been located in providing good infrastructure to the public such as schools, police stations, hospitals, office building as well as residential quarters and PWD is responsible to develop and construct all government buildings. On average from 2003 to 2012, 34% of the total project value was involving government projects and even reached as high as 52% due to the higher budget allocation for physical development (Hamid et al., 2014).

The awareness and efforts among all government agencies grow from year to year and there is positive growth in numbers of registration as shown in **Figure 1.1**. Started with 3 projects in 2012 and the number government projects that has registered green rating scheme (JKR's pH) certification had increased to 21 projects in November 2015. JKR's pH focuses on the design stage and the assessment is based on six (6) criteria which are sustainable site planning & management (SM), energy efficiency (EE), indoor environmental quality (IEQ), water efficiency (WE), material and resources (MR) and innovation (IN).

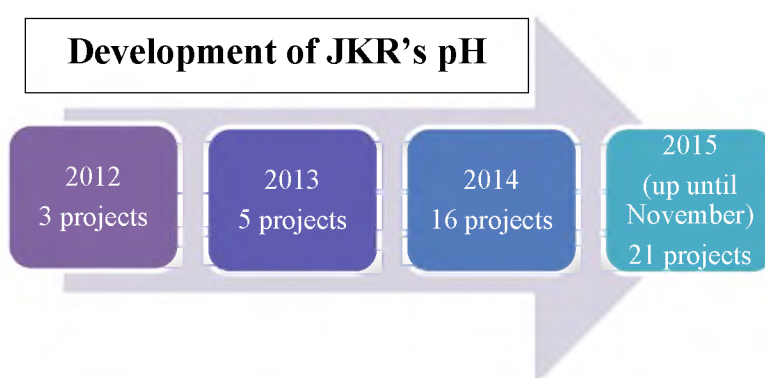


Figure 1.1. The Development of JKR's pH from 2012 – 2015 (November)

Source : PWD's Slide Presentation dated 21 November 2015

Before 2012, there have been no evaluation and assessment for sustainable building for government building. GBI was the first green building rating system in Malaysia. It was introduced by a professional body in 2009 to evaluate private buildings in promoting sustainability and raise awareness on environmental issues (Hamid et al., 2014).

To own a physical structure of a green building starts with planning, design, construction, operates and maintenance, renovation, retrofit and disposal or what they call as a green building's lifecycle. This inquiry will be focusing solely on operation and maintenance without discussing on construction stage, which are in business with the scopes of facilities management to manage in a sustainable manner and support its core business. On the operation stage about 80% of the total energy usage in a

building's life cycle (Ramesh et al., 2010), and attempts to manifest the multiple benefits of green design techniques and technologies used in a building.

To assure the Green Building is functional based on their kind, roles of an occupants are vital. The occupants are the end-users of an office building which consists of management and employee or tenant and an important stakeholder in a building's overall lifecycle post-construction (Zagreus et al. 2004, Reed & Jailani, 2014; Baird, 2010). Sustainability assessment methods are frequently applied at the blueprint phase, while the position of building owners and occupants (as the end-users) can affect directly on a building's performance for its entire life (Monfared & Sharples, 2011).

Based on a survey conducted in America involved architecture, construction, Real Estate consulting, corporate owner-occupants, developers, engineers, real estate owners, corporate tenants and real estate service providers on the adoption of sustainable buildings agree that energy efficiency, operations and maintenance costs, and building value as the main justification for having green features into a construction project (Yaron and Noel, 2013).

The management of today's organizations spends a lot of its time and money to provide and manage sustainable building by managing their resources including employees. Assessment criteria (based on their assessment tool) for that particular green building like energy efficiency, water consumption, indoor environmental quality and many more will be the basic requirement and as a guideline to the management in managing and providing sufficient resources. All these reflected with the return on investment that has become priority to every profit oriented organization while enhancement on good service level with prudent spending has become the main target for non-profit oriented organization.

Even though economic issues as the first priorities in any decision-makings for office building projects, employers are also looking forward to satisfy their workers by providing comfort to enhance productivity, reduce absenteeism and health related costs, and reduce the risk of litigation (Aliagha, Hashim, Sanni, & Ali, 2013). Apart from that, Corporate Social Responsibility has become a driving factor in decision makings (Reed & Jailani, 2014).

Whereas Oseland (2009), and Brunia and Hartjes-Gosselink (2009) stated employee cannot perform to their maximum potential if basic psychological needs such as comfort, safety, security, and sense of belonging are not met. Most of employees are accentuate more on their own satisfaction towards work place such as thermal comfort and air quality, aesthetically pleasing, well equipped facility and well maintained, personal control over windows/blind/HVAC system, lighting and acoustic and open space design and flexibility (Jailani, Reed, James, Jailani, & Reed, 2015). Previous studies show that the occupants' satisfaction with the building design and performance is the key factor on the success of a sustainable building (Jailani et al., 2015).

Established on the statement above shows both parties accept the same understanding of green building where they are talking consideration on level of work place satisfaction however the concept of "sustainability" differs depending in the position of each stakeholder. Unlike people and exercises have different views about sustainability that meet their own needs, it has be argued no right or wrong belief in sustainability actually exist (Reed & Jailani, 2014) and was cited by Kemp and Marten (2007). It is acknowledged occupants can be satisfied or dissatisfied with a sustainable building attributes depending on their personal needs, therefore it is essential their wishes and demands are aligned with what the building can offer (De Croon et al. 2005) and (Jailani et al., 2015).

The life span of a building can be lengthened to more than 100 years, which entail the utilization of the building more than three generations (Zhao, He, Johnson,

& Mou, 2015). Huge numbers of daily requirements will change to support life styles and high commitments are required to secure the buildings in a sustainable manner. Thus, to ensure the management of green buildings is always at optimum level, stakeholders, namely the management and workers should have the look and the same perspective. Mismatch between these two perspectives resulting in an increase in costs, building fails to operate, affect building value, threatening the environment, low productivity, low worker retention and more.

Full management and practice from occupants will helps to stimulate good practice and aids to keep up with what we have today for better tomorrow. The aim of this research to identify what are the criteria acquired by management and employees based on their own position in accepting a green building. The research question here is there any mismatch or gap on requirement by these two stakeholders?

The findings will assist stakeholders associated with new sustainable buildings in the future in order to ensure future occupants pleased with the operational phase of the building. In the long term, operational management and good maintenance will maintain the market value of the property and provide benefits to the organization (Jailani et al., 2015).

1.3 Problem Statement

Buildings are made to match the demands of its end users. Thus, sustainable development encourage decision making to be done based on balance and holistic approach (ICLEI, 1996); (Dolezal & Spitzbart-glasl, 2015) consisting of minimizing impacts on the environment, enhance the health conditions of occupants, the return on investment to developers and local community, and the life cycle consideration during the planning and development. This statement was made by Zuo & Zhao (2014).

Ideally the aim of green building is to create a healthy and comfortable living space for humans, and also ensures energy efficiency and environmental protection (Zhao et al., 2015). According to Economy, energy consumption of green building can be saved up to 30%. Meanwhile Kohler (1999) belief that through a sustainable building modern and advance technology used in operational practices to reduce or eliminate negative impact on the environment and the building's occupants.

Based on the study done by Aliagha et al., (2013), good life cycle assessment, integrated building design, effective commissioning, operation and maintenance will guarantee continuous cost savings. He also mentioned in the outcome that the green buildings in Singapore save approximately 10 percent in operating cost, and green commercial buildings increase in market value by about 2 percent.

Work environments shall promote positive employee attitudes and performance through teamwork and collaboration within the organization (McCoy 2002). For example, the IEQ of green construction is more conducive that directly involve the occupational performance, wellness, comfort and satisfaction (Browning and Romm, 1995; Kamaruzzaman et al., 2011; Zhang and Altan, 2011). This statement was supported by a study done in Australia where based on sick leave records (before and after sick days after the firms moved to a 5 green star rated building) found sick days per employee per month reduced by 39% (Aliagha et al., 2013).

Through environmental-friendly building, organization image can improve by giving an organization a competitive advantage as a sustainable leader in the industry (Kato, Too, & Rask, 2009) or local region. It was proved by few studies stated that a good image organization has higher employee retention (Gatewood et al., 1993) (Rashid, Spreckelmeyer, & Angrisano, 2012).

However, in order to embrace corporate social responsibility through green building, many individual and organisations give an attention without really understand the concept of sustainability (Reed & Jailani, 2014). For an example usually building owner tend to focus on aesthetics and corporate image without responsive to local climate. This finding was supported by Bordass' (2000) that "the market is often driven by features and fashions rather than functionality".

Previously, technological and economic was an obstacle to the green building movement but not anymore and today, social and psychological have become priority (Hoffman AJ, Henn R, 2008). Decision makers should take employees' feelings into account starting from design process until green design attributes are being integrated. "If employee concerns about their work environment are addressed before green design attributes are in place, such attributes may have a measurable effect on employee attitudes and behaviours at work" (McCunn & Gifford, 2012).

According to Kempton, Boster, and Hartley (1995) due to lack of literacy of environmental issues, occupant regularly underestimate the effects of small global temperature changes. This lack of literacy will make the occupant difficult to understand the connection between energy conservation and climate change. Sense of motivation for addressing environmental issues and develop green building practices will lessen (Hoffman, 2008).

Habitual routine will make the occupant do not response to change and choose the certainty of the routines and structures that have been historically in place and resist to change (Hoffman, 2008). In green building, the occupants' expectations are often conventional (in terms of what they anticipate the building will do for their immediate environment); and in the end the building has to adapt with the occupant way or behaviour. Meanwhile supported by Bond (2011) the when the occupant reluctant to change and complacence with current situation, they are not working in sustainable manner.

According to (Knott, 2007; Stenberg, 2007) occupant's behaviour in sustainable building is affected by users' knowledge and technologies in a sustainable building. Lack of occupants' knowledge will affect the performance of the building and organization directly. For instance, referring the finding from Aliagha et al., (2013) higher building cost incurred when the occupant lack of knowledge of life-cycle costing and analysis. Besides that, poor understanding of occupant of the building designed and how to operate the appliances of the buildings which impact on comfort and satisfaction levels in a sustainable building (Brown, Cole, Robinson, & Dowlatabadi, 2010).

Based on literature, many studies have been conducted to identify what are the green attributes that can lead to occupant satisfaction working in green building and what benefit can be obtained from it. Most of the research define occupant is management and employee or tenant. Armitage, Murugan, & Kato (2011) study on management and employee perceptions of their experiences of working in green workplace environments in Australia and based on the findings, there is a discrepancy between the views of management who see greater benefits of the green workplace than their employees. Mediastika & Lie, (2015) study on the correlation between green office building and occupants' perception on the green-rated building by using "Greenship" rating tool in Indonesia. Whereas Jailani et al. (2015) also study on an occupant's expectations of sustainable building outcomes in Australia and what the building actually provides and user knowledge on sustainability design and operation. All these research perceive on occupant perception and expectation towards green office or work place. Unfortunately, the perception and expectation of occupant represent management and employee and not looking it as a separate entity where every stakeholder has their own personal needs. A study on user or occupant perspective on green building rarely done in Malaysia especially on government building where most of the study done in Australia.

Mismatch between occupants want and what management can offer will give significant impact to the organization. According to Armitage et al. (2011), the performance of the building will decrease when the employees are not competence in

using the green features in the most efficient way. These will lead to dissatisfaction among the employees. This statement was supported by McCunn & Gifford (2012) where “If employee concerns about their work environment are addressed before green design attributes are in place, such attributes may have a measurable effect on employee attitudes and behaviours at work”. For an instance, saving electricity and water are the most significant ingredients of green building, nevertheless it causes not necessarily become a major business for building occupants (Mansour & Radford, 2016). Whereas Azizi, Wilkinson, & Fassman (2015) found that some of the occupants make their own personal modification such as use personal fan to attain optimum level of comfort and give implications on energy use of goods and services for the edifice.

An interview with the Assistant Engineer and Technician from Johor Port Authority claimed they received complaint from occupant on motion sensing element located in the building that not fit for the purpose. More than 20% of the motion sensor had been carried away because the occupant feels distracted where they require to establish the motion for lighting design.

Without appropriate knowledge of green building, users and consumers are not able to make valid decisions (Zhao et al., 2015) and many resources will be wasted because based on study done by Zuo & Zhao (2014) stated that supposed the implementation of environmental management system (EMS) will help to save 90% of energy consumption, reduce 63% of construction & demolition waste, reduce 70% of water consumption, lower 20% of accident rate and 80% of quality complaints.

Therefore, this research intended to identify the most ideal green attribute that can influence the management and employee satisfaction simultaneously and act in sustainable manner.

1.4 Objectives of Study

The study is carried out to achieve the following objectives:

1. To investigate the differences between occupants and management preferred green building criteria.
2. To propose optimum green building profiles for the implementation and promotion of green workplace.

1.5 Scope of Study

The study will focus on the occupant of Johor Port Authority Headquarters building. This is because Johor Port Authority just experiencing handling and managing new building that consider as a Green Building that being the first office building that has been rated under pH JKR. Respondent group is made up of the top management and staffs in that particular building.

1.6 Significance of Study

The outcome of this study will provide a clearer picture on the gap between the management and user perspective towards green building. By identifying the gaps, it will help the top management to strategies in the future what is the best preferred criteria can be taken to consider in making decision good and healthy building not only to the management but as a whole organization.

It is important to know the level of occupant knowledge on green building, where the outcome of the study will be a guideline for the management to assist their occupant to be green user.

1.7 Research Methodology

The methodology of this research is shown in **Figure 1.2** and consists of the following:

- (i) Stage 1 – Background study;
- (ii) Stage 2 – Literature review;
- (iii) Stage 3 – Data Collection;
- (iv) Stage 4 – Data Analysis; and
- (v) Stage 5 – Conclusion and Recommendation.

The research was conducted in five (5) stages. Stage 1 focused on the current situation and the context within green building and PH JKR's assessment scheme areas needing evaluation and research. Having identified opportunities for research in this manner assisted us in selecting the area and topic of research. The research problem statement were identified and the objectives were formulated.

In Stage 2, a comprehensive literature review was conducted to collect information and the data from past and current research findings. Key and controlling factors as well as indicators as the criteria of PH JKR's green building were then identified.

Extended from literature review, a questionnaire survey was conducted to evaluate the criteria of PH JKR's green building assessment scheme. The survey covered government green building and the interviewees shall be the management and occupants of the entity. The questionnaires enabled the gathering in the form of empirical data.

In Stage 4, data from valid responses were validated and analysed. All data obtained need to carefully analyse to ensure that the data are suitable to be used or not.

Lastly, in this final phase all analysed data were presented and the information the data represented, interpreted. A useful conclusions and recommendations were formulated in this report. The outcome will be used as a reference and guideline for the management in order make decisions in the future.

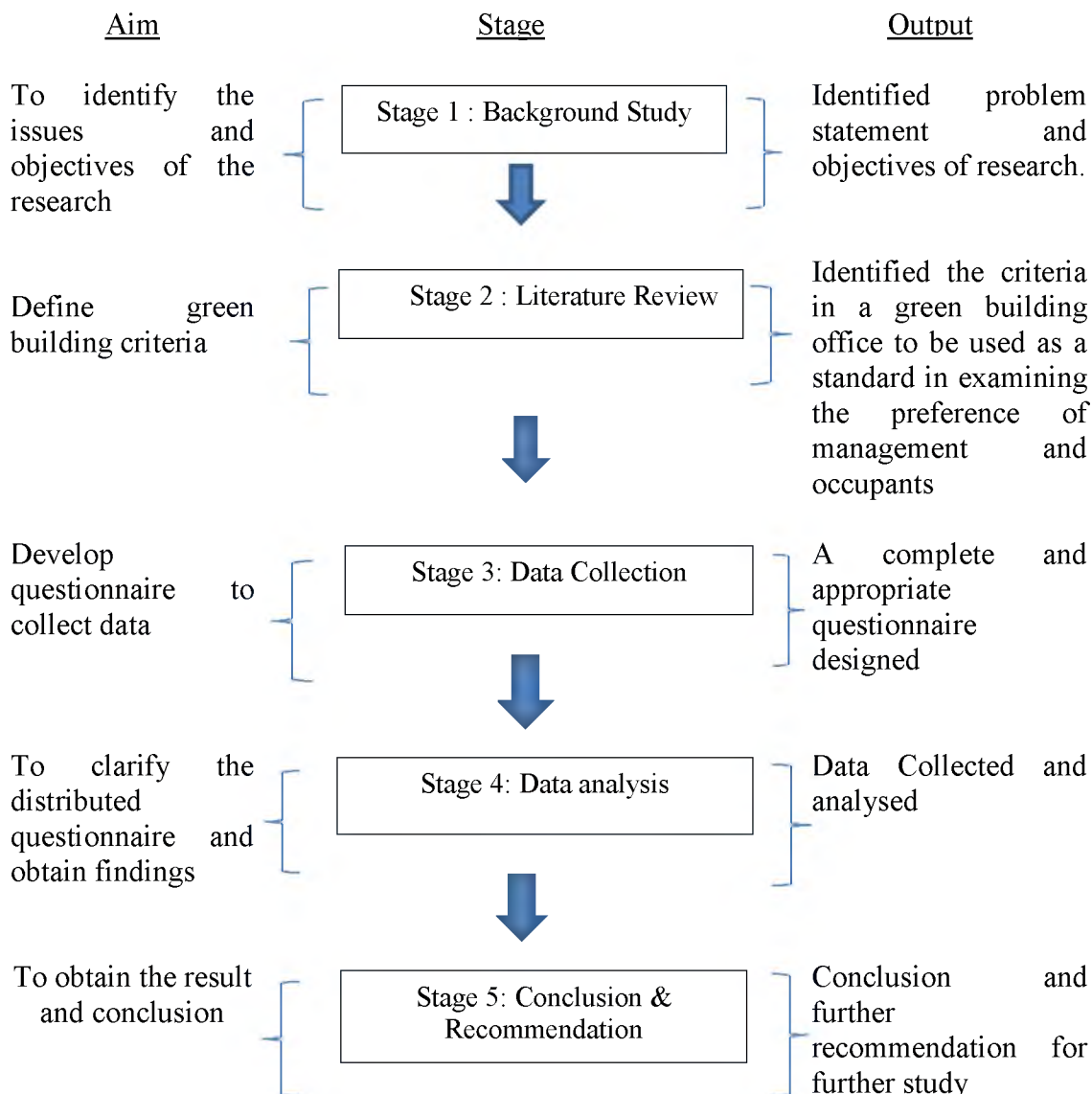


Figure 1.2: Research Methodology Flowchart

1.8 Research Design

This dissertation will be divided into five (5) chapters. The details of each chapter are as follows:

1. Chapter 1 – Introduction

The Chapter 1 is basically an introduction to the research, which includes problem statement, the research objectives, scope of the study and the significance of the study. Meanwhile, the research methodology of the study is also briefly discussed about. Lastly, a summary of all the chapters is also presented.

2. Chapter 2 – Literature Review

Chapter 2 presents green building criteria that have been consistently discussed by the researchers are discussed. It examines green building criteria that influence the top management and the occupants of an organisation.

3. Chapter 3 – Research Methodology

Chapter 3 defines research methodology employed in this research. Method of data collection, work method, data analysis and the outcome of the result that will be the foundation and framework for the researcher in pursuing with the research work to its conclusion.

4. Chapter 4 – Findings And Discussion

The analysed data will be discussed in this chapter, with the explanation and interpretation of the data. Where findings are able to meet the objective of this study, which is to identify the comparison preferred green building criteria between management and occupants.

5. Chapter 5 – Conclusion And Recommendation

The last chapter details the research findings on the research works that have been undertaken. A limitation of the research work is reviewed and possible improvements for future undertakings discussed. Suggestion for further studies tabled the final part of this chapter.

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