THE INVESTORS' PERSPECTIVE ON SUSTAINABLE GREEN BUILDING

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TABLE OF CONTENTS

Page

Title page……...i

Supervisor page……ii

Copyright Page……iii

Declaration page……...iv

Table of Contents.....v-vii

List of Tables.....viii

List of Figures.....ix

ABSTRACT……..1

CHAPTER 1 INTRODUCTION.....2

1.1 Background of the study……..2-3

1.2 Problem statement……....3-4

1.3 Research questions……....4

1.4 Research objective……4-5

1.5 Significant of study……5

1.6 Chapter layout……...5-6

1.7 Chapter conclusion……6

CHAPTER 2 LITERATURE REVIEW……..7

2.1 Green Building Definition……7-9

2.2 Green Building Index (GBI)……9-10

2.3 Green building development in Malaysia……10-11

2.4 Green building concept……12-14

2.5 To determine and evaluate the main factors that influence the investor decision when investing in green building in Malaysia……14

2.5.1 Subjective norm (Behaviour) factor……14-15

2.5.2 Cost factor……15-16

2.5.3 Environment benefits factor……16

2.5.4 Economic benefits factor……..17-18

2.6 Proposed of conceptual framework……....18-19

2.7 Chapter conclusion……19

CHAPTER 3 METHODOLOGY……....20

3.1 Research design……...….20-23

3.2 Data collection method……..23

3.2.1 Primary data collection……...23-24

3.2.2 Secondary data……24

3.3 Sampling design……24

3.3.1 Target population……24-25

3.3.2 Sampling location……25

3.3.3 Sampling element……25

3.3.4 Sampling technique……26

3.3.5 Sampling size……..26-28

3.4 Research instrument……..28

3.4.1 Questionnaire design……..28-29

3.4.2 Pilot test……..29

3.5 Measurement of constructs……...30

3.5.1 Likert scale……..30

3.6 Data processing……30

3.6.1 Data Processing Steps Diagram……..31

3.6.2 Field Validating and Data Checking……..31-32

3.7 Data analysis……32

3.7.1 Descriptive analysis……32-33

3.7.2 Reliability analysis……33-34

3.7.3 Relative important index (RII)……...34-35

3.8 Chapter conclusion……35

CHAPTER 4 FINDING AND ANALYSIS……36

4.1 Descriptive Analysis……..36

4.1.1 Respondent demographic profile……37-42

4.1.2 Construct validity……42

4.2 Scale Measurement: Pilot Test……..42

4.2.1 Cronbach alpha analysis……42-43

4.3 Relative important index (RII)……43-47

4.4 Chapter conclusion……47

CHAPTER 5 DISCUSSION AND CONCLUSION……48
5.1 Summary of statistic analysis……..48
5.2 Discussion on major findings……..49
5.2.1 Discussion on the research objective 1: To determine the main factors that influence the investor decision when investing in green building in Malaysia……49-50
5.2.2 Discussion on the research objective 2: To evaluate the most main factors that influence the investor decision when investing in green building in Malaysia……...51-52
5.3 Implication of the study……52
5.3.1 Managerial implication……52
5.4 Limitation of study…….....52-53
5.5 Recommendation for future research……53-54
5.6 Chapter conclusion……..54
REFERENCES……...55-57
APPENDIX A……58-59

LIST OF TABLES

Page

Table 2.1: Definition of green building for different countries……...8-9

Table 3.1: Research flow chart for influencing factor on investor decision when invest on green building in Malaysia……...21

Table 3.2: Items on questionnaires (subjective norms, cost, environmental benefits, economic benefits) ……....29

Table 3.3: Important Level for RII……...34

Table 4.1: Numbers of Respondents Gender, Age……...37-38

Table 4.2: Number of Respondent Education Level, Gross Income……39

Table 4.3: Household income classification in Malaysia 2023…….39-40

Table 4.4: Respondent Consideration to invest in green building……....40

Table 4.5: Data of percentage on education level to the decision for invest in green building…….41

Table 4.6: Result for reliability Statistics for the questionnaire (Cronbach's Alpha)…….43

Table 4.7: Relative Importance Index value and ranking for each factor……44

Table 4.8: Relative importance index value and ranking for the Category factors……45-46

LIST OF FIGURES

Page

Figure 2.1: Elements of green building design by U.S. Green building council (USGBC)…….13

Figure 2.2: Proposed conceptual framework for identifying the influencing factors to the investor on the investment decision to invest on green building in Malaysia…….18

Figure 3.1: Taro Yamane Formula……27

Figure 3.2: Calculation Number of Target Respondent……27

Figure 3.3: Data processing cycle…….31

Figure 3.4: Formula for reliability analysis (Cronbach's alpha)……...34

Figure 3.5: The formula for relative importance index (RII)……....35

ABSTRACTS

The rapid global industrialization since 21st century has led to a sharp increase in climate anomalies. Traditional construction practices contribute to energy consumption, pollution, and lack of environmental consciousness within the industry. Therefore, embracing the concept of green building is crucial for mitigating environmental degradation in urban areas. This paper was to study the influence factor in investor perspective on the decision making when invest in the green building. This study seeks to identify the factors impacting potential investors and ascertain which factors have the greatest influence on investors' decisions regarding investment in green buildings in Malaysia. The study included 80 participants and found that several factors influenced investment decisions regarding green building. In this research study four factors have been anticipated, which are; subjective norms, cost/price, environmental benefits and economic benefits and were ranked among these factors to the effect on the investment decision of green building. Data will be collected using convenient sampling technique and obtained data will be analysed by using SPSS version 26 to get the value for relative important index (RII) for this research project. This study can be improved by perform on larger population in order to get the standardized data for the entire population in Malaysia. This research finding can offer insights into enhancing green development in Malaysia by providing additional data on factors influencing investor perspective toward green building investments. This data will allow us to gain a deeper understanding of the motivations and deterrents behind their investment decision in green buildings.

Keyword: investor decision making, subjective norms, cost, environment benefits, economic benefits

CHAPTER I

INTRODUCTION

1.0 Introduction

This chapter aims to briefly outline the research background and introduce the problem statement, which will be thoroughly explored and analyzed to gather valuable insights for this research project.

1.1 Background of the study

The detrimental impact of global warming on society, particularly in developing nations, stems from environmental degradation (Hackett et al., 2015). It was the actions of people in this world that caused to the global warming issue which eventually the more serious effect on the world. There have been few research and reports that have been carried out which prove that the current environment was in a devastating situation and it had severe negative impact to the humankind and planet. Given a deeper comprehension of global warming's repercussions on human existence, there arose a pressing need within society to explore sustainable development solutions as a global remedy for addressing the issue.

The data indicates that 80% of global greenhouse emissions and 75% of the world's consumption of natural resources stem from the real estate sector (Royal Institution of Chartered Surveyors, 2010). It has been reported that a tremendous amount of world resources was used during the construction of the building (EPA, 2004). Malaysia has been one of the major contributors to the CO2 producers in Southeast Asia area due to its high-speed urbanization growth. It has been reported that 30% of the total carbon dioxide was contributed by the construction industry (IEA, 2009). The environmental issue had raised awareness among the public and media, leading to the realization that the development of sustainable green buildings plays a crucial role in maximizing energy efficiency while minimizing negative impacts on the environment. An effective strategy to increase the willingness of customers to purchase environmentally friendly good has been the direction to be explored by world business leaders and scholars (Skogen et al., 2018).

Furthermore, an effort to increase awareness of climate changes in society has encouraged investment in green building market which has shown that the development of green buildings was in exponential growth (Xiao et al., 2017). Data showed that the construction industry in Malaysia have to reduce the emission of carbon dioxide due to the increasing trend on green building development in Malaysia (Green Building Index, 2003). According to the property market report 2020, it show rapidly increase in the statistic on the sales for green housing and ownership for green buildings in Malaysia. The factors and attributes that influences the decision and intention of house buyers should be given significant recognition (MOF, 2017). Prior research had explored the factors influencing purchase decisions for retail and conventional buildings, but there has been relatively less emphasis on green residential properties, particularly in Malaysia (Fauzi et al., 2021).

1.2 Problem statement

According to Wang (2019), investors‘ belief and evaluation, behaviour attitude, norms, and motivations, subjective norm and behaviour intention have been identified as possible elements of actual behaviour that affects green building development and investment (Wang et al, 2019). Andrew and Rebecca (2008) also found evidence that linking social and behavioural factors to green building adoption. So, it also been found out that most people tend to been influence by the people in their surrounding area especially through their social connectivity area. This prove to be the issue when there was still lack of awareness among public society which eventually will bring influence to the potential investors toward the investment of green concept building. Along the growing social concern and barriers of green building, studies show that lack of interest, lack of information and awareness among stakeholders on the corporate social responsibility of green building remain a key obstacle to green building development and investment (Onuoha et al, 2017). They tend to hold their step as the decision to invest in green buildings when their behaviour been influence by surrounding people. Most of them are still in observation mode and trying to gain more information on green buildings before they make the strike.

US-EPA (2004), Kasai and Jabbour (2014) explain that it could be difficult for green building market to justify the occasionally higher up-front costs for green building projects if there are absence of past and reliable performance, cost and benefit information and data of green building features. Development of sustainable green buildings was quite new concept when the Green building index (GBI) was establish in Malaysia on 2008. Hence, not much of the green development in Malaysia which can be use as the reference for investor to make decision. So, most of the investors are still less certain and mindful of the benefits

associated with green building projects otherwise there would have been more green buildings by now. Prospective buyers and consumers especially, those for the residential sectors, may place higher value on amenities such as space or finishes over less visible features such as energy efficiency, and may do so because they lack an awareness of what alternatives exist or the range of benefits that could be realized from green buildings.

Study showed that most investor tend to have less interest on the energy saving features which will only have benefits over long term. According to Lee (2013), investor who using plan for short term leases where they will put the utility bills under tenants may not want to go through the hassle to get energy efficient system retrofits or paying high upfront price for green building just for the cost saving in utility bills. Studies also show that when evaluating projects, equity and secondary markets often use criteria that are geared more towards conventional developments rather than green developments (Cook et al, 2002; US-EPA, 2004; Lee et al, 2013). For instance, time horizons are usually not long enough to capture the benefits that accrue over time from up-front investments. Kasai and Jabbour (2014) identified economic and financial factors as common constrains influencing investors decision to invest in green building. This show that it was the major concern to the investor to evaluate the return on their investment over the cost of them paying for the green building. Hence, it was the factors that need to study for in order to get more details information from investor perspective.

1.3 Research questions

1. What are the main factors that influence the investor decision when investing in green building in Malaysia?

2. What are the most main factors that influence the investor decision when investing decision in green building in Malaysia?

1.4 Research objectives

1. To determine the main factors that influence the investor decision when investing in green building in Malaysia

2. To evaluate the most main factors that influence the investor decision when investing in green building in Malaysia.

1.5 Significant of study

This study goal is gain more data or information toward the investor perspective during making decision for investment on green building properties in Malaysia. The insights from these studies have drawn attention to government as they can have better understanding on the influencing factor from investor perspective of view which can help them to develop effective policy or given incentives that can attract more investor to invest in green building. Besides that, developer can also use the data obtained to plan for their marketing strategic and comes out with the green design concept that can suit to the need for investor to willingly invest more on green building in Malaysia. This will eventually push forward the development of green building in Malaysia.

1.6 Chapter layout

In Chapter 1, a brief overview is provided to give insight on investor perspective toward sustainable green building in Malaysia. This chapter will cover on the background of sustainable green building and also the factors that might influence the investor decision making to investing in green building properties in Malaysia.

Chapter 2 involves the literature review regarding the research topic with the finding on the supporting evidence on the factor that will be discussed through articles, journals and research by respective scholars on the factor of affecting investor perspective toward sustainable green building in Malaysia.

Chapter 3 is focusing on the research methodology that going to be conduct along this research project. It will reveal the questionnaires that going to be conduct for this research project and how the data collection to be obtained. Online questionnaire will be conduct to obtain the result from the targeted respondent in Malaysia.

Chapter 4 will focus on analysing the data obtained. We will be using Statistical Package for the Social Sciences (SPSS) software to analyse the data and to obtained the result that will using to serve as the valuable information to the future development of green building in Malaysia.

In Chapter 5, we will discuss on the result obtained through SPSS and bring in the limitation of the study and also to provide recommendations for future researchers or readers to give them access on better understanding for this research project.

1.7 Chapter conclusion

This chapter provide a brief understanding to the readers on the topic for the research project with an elaboration on the research background, followed with the problem statement highlighted in this chapter. It also provided the clear picture of the research questions and research objectives that researcher to find out from this research project.

Chapter II

LITERATURE REVIEW

2.0 Introduction

A literature review can broadly be described as a more or less systematic way of collecting and synthesizing previous research (Baumeister & Leary, 1997; Tranfield, Denyer, & Smart, 2003). A review of prior, relevant literature is an essential feature of any academic project. An effective review creates a firm foundation for advancing knowledge. It can facilitates theory development, closes areas where a plethora of research exist, and uncovers area where research is needed. So in this chapter, we will review on the journal or article that was relevant to the research objectives and to use it for the purpose of framing our research study into the related objectives that we desire to obtained for the study. But first for all, it will be necessary to defining on green building so that same concept was implied throughout the research study. Furthermore, it will go deepened into the guideline set by Malaysia Green Building Index for green building concept in Malaysia. Moreover, the following will be the particular materials or design that will be used for green building so that a clear concept can be implies along the research study. The study on the benefit of green building will also be discussed further in this chapter. Lastly, it will be reviewing for the influencing factors in investor perspective to invest on green building in Malaysia.

2.1 Green building definition

Green Buildings are referred to as those that are capable of reducing the negative effects of real estate development on the environment and human health with the aim of promoting sustainable life (Addae-Dapaah et al, 2009). Put differently, green building could be referred to as that that its lifetime of operation and construction “assure the healthiest possible environment while representing the most efficient and least disruptive use of land, water, energy and resources” (Zeigler, 2012). Green Building is redefining and revolutionizing building practice and emerging as a response to growing concern over pollution and environmental damage, increasing awareness and acceptance of climate change, decreasing natural resources, increasing energy cost, and increasing demand for sustainability in building design and construction. More

so, buildings have been particularly implicated as major culprits to problem and essential path to the solution. Different country have different definition to the green building as shown in the table 2.1 below:

Table 2.1: Definition of green building for different countries

Country	Organization	Definition
USA	World Green Building Council	A GB is a building that in its design, construction, or operation reduces or eliminates negatives impacts, and can create positive impacts, on our climate and natural environment
	U.S. Environmental Protection Agency (EPA)	Green building is the practice of creating structures and using processes that are environmentally responsible and resource-efficient throughout a building's life cycle, from sitting to design, construction, operation, maintenance, renovation, and deconstruction.
	U.S. Green Building Council (USGBC)	The planning, design, construction, and operations of buildings with several central, foremost considerations: energy use, water use, indoor environmental quality, material use, and the building's effects on its site.
UK	Building Research Establishment	The GB Certification BREEAM could represent the concept of GBs that are more sustainable environments that enhance the well-being of the people who live and work in them, help protect nature resources, and make more attractive property investments.
Europe	European Commission Delegation	A Sustainable Building contributes in some way to preserving the environment, also increasingly extends to the idea of the well-being of the occupants, both in terms of space usage and air quality.
Germany	German Sustainable Building Council (DGNB)	Sustainable building means using and introducing available resources consciously, minimizing energy consumption and preserving the environment.
France	Haute Qualite Environment (HQE)	Certificated sustainable building endorse the overall performance of a building and that of the four areas considered by the certification scheme: energy, environment, health and comfort.
Australia	Green Building Council Australia	Green building incorporates principles of sustainable development, meeting the needs of the present without compromising the future.
Japan	Architectural Institute of Japan (AIJ)	A sustainable building (Green Building) is one which is designed: (1) to save energy and resources, recycle materials and minimize the emission of toxic substances throughout its life cycle; (2) to harmonize with the local climate, traditions, culture, and surrounding environment; and (3) to be able to sustain and improve the quality of human life while maintaining the capacity of the ecosystem at the local and global levels.

China	Assessment Standard of GBs	Green building refers to a building that saves resources to the extent within the whole life cycle of the building, including saving energy, land, water, and materials while protecting the environment and reducing pollution so it provides people with a healthy, comfortable, efficient use space, and works in harmony with nature.
Singapore	Inter-Ministerial Committee on Sustainable Development (IMCSD)	Green building is energy and water efficient, with a high quality and healthy indoor environment, integrated with green spaces and constructed from eco-friendly materials.

2.2 Green building index (GBI)

Green rating tools for evaluating and measuring the environmental performance of a building have been gaining global popularity. Consequently, a plethora of green rating systems with different rating criteria have emerged and popular among them are the US Leadership in Energy and Environmental Design (LEED), UK Building Research Environmental Assessment Method (BREEAM), Singapore's BCA Green Mark and Australia NABERS rating system. Malaysia has developed its own local rating system known as Green Building Index (GBI) for evaluating the environmental design and performance of Malaysian buildings. The GBI rating system was developed jointly by the Association of Consulting Engineers Malaysia (ACEM) and the Malaysian Institute of Architects (CBRE, 2010). The objective of GBI is to save energy, resources, recycle materials and adapt buildings to the Malaysia climate, culture and environment. The rating of buildings based on GBI is centred on six major areas vis-a-vis indoor environment quality, energy efficiency, materials and resources, sustainable site planning and management, water efficiency, and innovation. Essentially the Malaysian Green Building Index is aimed at establishing a common language and standard of measurement; promote integrated whole-building design; recognize and reward environmental leadership; ensure that new buildings remain relevant in the future and existing buildings are refurbished and upgraded properly (Darus et al, 2009, GBI. 2010; Baharuddin, et al., 2011) In addition to GBI, green buildings are being subjected to two other rating systems in Malaysia. They are the United States Green Building Council's Leadership in Energy and Environment Deign (US LEED) of 1998 and Singapore's BCA Green Mark launched in January, 2005.

A major instrument the government has applied to foster green building investment and adoption among public and private sectors in Malaysia is the introduction of series of green tax exemptions and reductions, and investment incentives. Notable among the tax incentives are: 1) corporate tax incentives for companies generating and conserving renewable energy using biomass, hydropower and solar power. This is given

either in form of ten years 100% statutory income tax exemption for companies granted pioneer status or as five years investment tax allowance on qualifying capital expenditure on green certification. It also include import duty and sales tax exemption on equipment used to generate energy from renewable sources not produced locally and sales tax exemption on equipment purchased from local manufactures; 2) company tax incentives for generation of renewable energy for own consumption. This involves investment tax allowance on qualifying capital expenditure incurred in the process of GBI certification; 3) corporate tax incentives for companies providing efficient energy conservation services. Similarly, this is given in the form of 100% statutory income tax exemption for ten years or as investment tax allowance on qualifying capital expenditure on GBI certification. In the same token companies which incur capital expenditure for energy conservation for own consumption receive investment tax allowance on qualifying capital expenditure on GBI certification; 4) Income tax/stamp duty incentives for buildings that obtain GBI Certificate. This covers tax exemption on additional capital expenditure incurred by a person or company to obtain GBI certificate; and stamp duty exemption on instruments of transfer of ownership for property buyers in which the exemption amount is equivalent to the additional cost to obtain GBI certificate (PwC, 2010).

2.3 Green building development in Malaysia

Green Building Development in Malaysia In January 2009, Malaysia Green Building Index (GBI) was started at the Green Design Forum and organized by the Architectural Association of Malaysia (PAM). The Malaysian construction industry identified the necessity of green rating tool to improve and adapt itself to the tropical climate. GBI has been designed based on another international rating system such as BREEAM (Building Research Establishment Environmental Assessment Method); USA's LEED (Leadership in Energy and Environmental Design) and has been evaluated to be adapted to Malaysian climate conditions. It is an extensive rating system and environmental assessment used for appraising the environmental design and the performance of Malaysian buildings (ACEM, 2012). Many experts (Atsusaka, 2003; Samari, 2012) believe that the role of governments in promoting green building is undeniable and effective. Rules and regulations should be replaced with enforcing new ones to support green building development. Governments can facilitate green building development by a variety of instruments. However, there is argument about the most effective and efficient instruments among the specialists and researchers. Some studies stated that market base intensives are both effective and efficient tools to address market failure together with non-market problems to improve the situation for green buildings development (Dennis, 2006).

Shafii et al. (2005) point out that there are many impediments to developing sustainable development in Asia such as: Lack of awareness (people), Lack of training and education about sustainable design, higher cost, special materials, rules and regulation, lack of demonstration, lack of technology and lack of demand. Davis (2001) believed that most important barriers to green building development can be divided in three groups: Builder Incentives: Energy saving and worker productivity are popular benefit of green building. These benefits have positive effect for final owners and impose extra cost for builder. Hence, cost-effective is the main obstacle to green building development. Product Information and Sourcing: The common obstacle to green building development in developing countries is lack of green product's information for high-performance building systems. This obstacle leads to the developers to hire specialized consultants. Client Knowledge: the effective ways to remove this barrier are introduce a credible evidence of the advantages of green building and long-term studies to prove the benefits of green building.

There has been substantial increase in the rate of submissions of applications for GBI certification and the actual number of certified. In the first year of GBI in 2009 when it was first launched, 55 submissions were received by GBI committee but only one building was certified. In the fourth year in 2012, GBI committee received 121 submissions and certified 68 buildings. While as at June 2013 the committee has received over 450 applications for registration and certified 137 buildings or 30% of the submissions. Thus far, the GBI has certified over 60 million square feet of green buildings. It was observed that at the second year of GBI about half of the GBI certifications in Malaysia were residential buildings (CBRE, 2010).

Construction and property industry has a significant impact on the environment with buildings contributing up to 30% of greenhouse gas emissions, 50% of CO2 emissions, 40% of energy requirements and 40% of solid landfill waste globally (Atkinson, 2007; Boyd, 2006; Keeping et al., 2007; Reed and Wilkinson, 2007). Sustainability from the investment perspective is defined as "maximizing the positive effects and minimizing the negative effects of property ownership, management and development on society and the natural environment in a way that is consistent with investor goals and fiduciary responsibilities" (Pivo and McNamara,2005 as cited in Francesco and Levy, 2008 p73). It had been stated that green development for serves the purpose to reducing their effect to the health of mankind and the surrounding environment by increasing the efficiency of new green building (USGB, 2009)

2.4 Green building concept

Green architecture defines an understanding of environment-friendly architecture under all classifications, and contains some universal consent (Burcu, 2015). It may have many of these characteristics:

- Ventilation systems designed for efficient heating and cooling
- Energy-efficient lighting and appliances
- Water-saving plumbing fixtures
- Landscapes planned to maximize passive solar energy
- Minimal harm to the natural habitat
- Alternate power sources such as solar power or wind power
- Non-synthetic, non-toxic materials
- Locally-obtained woods and stone
- Responsibly-harvested woods
- Adaptive reuse of older buildings
- Use of recycled architectural salvage
- Efficient use of space

While most green buildings do not have all of these features, the highest goal of green architecture is to be fully sustainable. Also Known As: Sustainable development, eco-design, eco-friendly architecture, earth-friendly architecture, environmental architecture, natural architecture (USGBC, 2002).

Green building involves consideration in four main areas: site development, material selection and minimization, energy efficiency, and indoor air quality

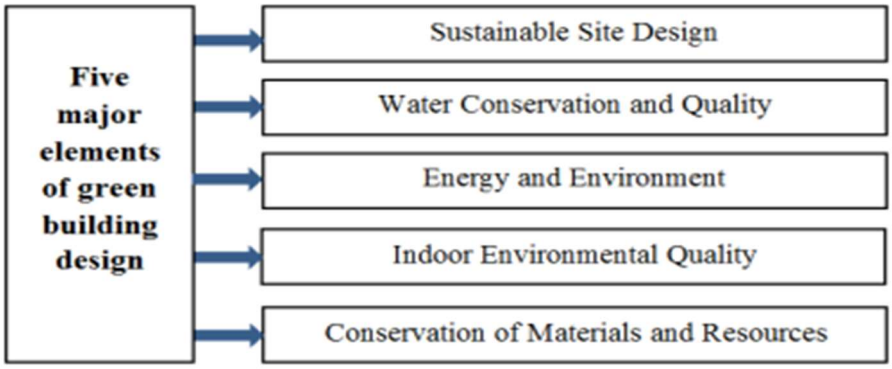
- Consider site development to reduce the impact of development on the natural environment. For example, orient the buildings to take advantage of solar access, shading and wind patterns that will lessen heating and cooling loads.
- Carefully select materials that are durable, contain recycled content, and are locally manufactured to reduce negative environmental impacts. A growing market exists of quality recycled products at affordable prices.
- Incorporate energy-efficient design into buildings to create an efficient and comfortable environment. Take advantage of the natural elements and technologies to conserve resources

and increase occupant comfort/productivity while lowering long-term operational costs and pollutants (CBFEE, 1999).

- Design for high indoor air quality to promote occupant health and productivity.
- Minimize the waste in construction and demolition processes by recovering materials and reusing or recycling those (CGB, 2009).

The following points summarize key principles, strategies and technologies which are associated with the five major elements of green building design which are: Sustainable Site Design; Water Conservation and Quality; Energy and Environment; Indoor Environmental Quality; and Conservation of Materials and Resources. This information supports of the use of the USGBC LEED Green Building Rating System, but focuses on principles and strategies rather than specific solutions or technologies, which are often cite specific and will vary from project to project (USGBC). Figure 2.1 below show the five major elements of green building design.

Fig 2.1: Elements of green building design by U.S. Green building council (USGBC)



Sources: Jordan (2020)

Green building is not a simple development trend; it is an approach to building suited to the demands of its time, whose relevance and importance will only continue to increase (USGBC)

- Comfort. Because a well-designed passive solar home or building is highly energy efficient, it is free of drafts. Extra sunlight from the south windows makes it more cheerful and pleasant in the winter than a conventional house (Kats, 2006)
- Economy. If addressed at the design stage, passive solar construction doesn't have to cost more than conventional construction, and it can save money on fuel bills (Kats, 2003)
- Aesthetics. Passive solar buildings can have a conventional appearance on the outside, and the passive solar features make them bright and pleasant inside.

- Environmentally responsible. Passive solar homes can significantly cut use of heating fuel and electricity used for lighting. If passive cooling strategies are used in the design, summer air conditioning costs can be reduced as well (Woolley, 2006).

2.5 To determine and evaluate the main factors that influence the investor decision when investing in green building in Malaysia

Based on the studies from the other researchers, there was various factors that will influence the decision for investor to invest on green building in Malaysia. These influencing factors are subjective norm (behaviour) factor, cost factor, environment benefits factor and economic benefits factor.

2.5.1 Subjective norms (Behaviour) Factor

Subjective norm is the perceived social pressure to engage or not to engage in behaviour, it result from how the person perceives the pressure placed on him/her to perform or not to perform the behaviour (Ajzen, 1991; Tonglet et al.,2004; Al-Nahdi et al., 2009,2014,2015; Han & Kim, 2010;Kim & Han, 2010). When people in the group show the interest to buy green product, the consumer will be subconsciously affected by generated the desire to purchase the product with the intimation of the crowd. External attributes such as reference group and family can play the part in influences the purchasing process by the purchaser (Koklič & Vida, 2009). Susilawati et al. (2001) had found out that most of the decision making during purchasing house was influenced by colleagues and wives. Some studies from (Kichen & Roche, 1990; Al-Momani, 2000; Numraktrakul et al., 2012), have shown that social factors such as information gather from friends will have the significant affect to the consumers when making decision to purchase a house.

Generally, there are two type of subjective norms which known as descriptive norm and injunctive norm, both of them got the different analytical way to test on intention for individual behaviour (Chatzisarantis and Biddle, 1998). Descriptive norm, which is the behaviour of most people perceived by individuals, plays an exemplary role. (Hmielowski et al., 2019; Ega et al., 2021) explained that descriptive norms can often shows conformity behaviour, and individuals tend to show behaviour similar to others to appears in groups due to individual convergence psychology. Consumer tend to observe whether their purchasing decision are consistent or inconsistent with the collective behaviour when purchasing the green building. Consumer will tend to follow on the intention of collective purchasing decision.

Injunctive norms can be identified as the behaviour of the one that is expect to be recognize by others for their action and they are maintained by the threat of disapproval or punishment and by the process of internalization. Vinnell et al. (2019) found that injunctive norm increased agreement for the legislation. Injunctive norms has been verify as important factors that affecting to the green and health related fields (Göckeritz et al., 2010). When most of the people in society support the green building or show dislike to the green building, investor will judge on which group of people tend to have more moral advantage and eventually will effect to their decision to make the investment on the green building. Most people tend to choose the decision with more appreciation from the society as they want to avoid collective exclusion from the society by their decision. Theories of pro-environmental behaviour in particular those related to resources conservation in building such as the value-belief-norm(VBN) theory acknowledge that both general altruistic norms rooted self-transcendent values that translate feeling of collective ownership of environmental welfare and personal moral norm anchored on in self-enhancement or individual self-serving interests play important role in green consumption (Aliagha and Cin, 2013).

2.5.2 Cost Factor

From the research conduct by Tan and Goh (2018) emphasized that financial risk is the most important concern to the consumer despite other factors that contributed to it when they are making purchase decision. Buyer will be motivate to make buying decision for houses when they found that the house price was competitive enough (Rachmawati et al., 2019). Generally the green building price will be more expensive than conventional building as the materials used for green building will cost more than what it can be save. According to Kats and Capital (2003), green building cost can be divided into two main parts which were the soft cost (such as architect design fees, certification application fees for green building, energy modelling and etc) and hard cost (such as method of construction for green building which affect in term of technology, materials and facility used). As the green building technology still not common for the implementation on the construction sector in Malaysia, hence it will cost more than the conventional way. Next factors to affect the investor purchase decision is the capability to obtain the house loan from bank. Investors prefer guaranteed and assured sources of finance for their businesses at reduced interest rates (Onuoha, 2017). High interest rates show the relative shortage of financing that tends to decrease the enthusiasm to invest in green building. So most of the people in Malaysia have the perception that green building is way out of the their league due to incapability to afford for the higher house instalment and some of them find it difficult to secure the loan for purchasing the house.

It was concluded that the initial costs of sustainable features, a lack of consumer information about benefits and savings from incorporating energy-efficient devices and larger homes and smaller households are the identified barriers to energy efficiency in households in Australia. The primary barriers in the development of sustainable buildings are identified as the lack of interest or demand by the clients in sustainable buildings, lack of education and training in sustainable design and construction, "failure of service fee structures to account for the recovery of long-term savings, and the higher costs of sustainable building options" (Landman, 1999). The increase maintenance cost and lack of promotion and incentives from governments are identified as the top barriers to the implementation of extensive green roof features in Hong Kong (Zhang et al, 2012).

2.5.3 Environmental Benefits Factor

The impact from construction to the environment was enormous as consumption of world resources to construct building play the major parts as it account for around 17% of usage for fresh water, 25% of wood harvest and 40% of world raw materials and energy (Ding, 2008). The green building have contributed many benefits to the environment by reducing air pollution with minimize the fossil fuel usage, and greenhouse gas production, conserve water usage with the utilize of rainwater harvesting system for watering plant and other cleaning purpose can save a tremendous volume of usable water and temperature moderation by changing the materials used in green concept construction (USGBC, 2003). Moreover, neighbourhood and housing features play an important part when making decision to purchase green building. Purchaser or real estate investor motivate to search for house with green concept to help on the improvement of their health and also provide better environment to the family (Elias & Lin 2015).

According to Kumar and Fisk (2002), several studies have been carried out on the effects of indoor environmental quality (IEQ) on health, comfort and performance of occupants. The impact of Indoor Environmental Quality (IEQ) on occupant's well-being has become increasingly significant, drawing attention from property managers who are also mindful of energy consumption. A study conducted in Malaysia by Syazwan et al (2009) found that increasing the ventilation rates per person in typical office buildings leads to a significant reduction in sick building syndrome (SBS). Green homes utilize low volatile organic compound paint, which reduces health-related issues and contributes to better indoor air quality compared to conventional homes (Alias et al, 2010).

2.5.4 Economical Benefits Factor

Even though literature provides evidence of the positive intrinsic value of sustainable properties (Eichholtz et al., 2010; Fuerst and MaAllister, 2011), markets are yet to shed light on the financial viability of sustainable buildings and identify the links with market value (Myers et al., 2008). In addition, there was case study for converting a conventional building into a green building was studied, with the implementation of owner requirements to energy consumption assured. The study had conclude that there was 46% of saving for overall water consumption and bill cost. Energy waste reduction by 86% for light consumption by using LED light, timers and sensors, with electrical bill cost saving of approximate 54% from the conventional ways.

Kats et al. (2003) argue that comparing to the financial benefits gain from the green building with the additional cost that required for the green design criteria, it saves up 10 times higher from the financial benefit gain from green building in judge of the reducing on consumption of energy and water, low margin of maintenance cost and improvement of health and productivity. Kats et al. (2003) further argue that there was around 30% of the energy saving with the implementation of green building. Luay N. Dwaikat [a], Kherun N. Ali (2018) had conduct a research to evaluates on economic impact that can bring by green building in term of saving in energy consumption and examines how different scenarios for energy price inflation would affect the cost saving associated with reduced energy consumption in the building throughout its whole life cycle. Based on actual data record which found in the research, there was estimated of 71.1% energy savings from the investigated building compare to the conventional building. This research has proven that the reduction on energy consumption from green building had bring the positive effect to society in economic way. Madew (2006) had reports 60% decrease of energy and water consumption in green buildings which implies a significant reduction of building annual operating costs. He adds that green building has a higher market value reaches 10%, and a higher rental rate ranges from 5% to 10%.

Australia and United States studies “have found that developing green buildings can help landlords achieve higher values, fetch higher rents and enjoy higher occupancy rates than comparable non-green buildings” (Chong, 2010). According to Green Building Council of South Africa, the past studies have proved this assertion on the green buildings for Australia and United States with 12% and 11% valuation premiums, respectively. A study in neighbour country, Singapore reveal that green buildings save approximately 10 percent in operating cost, and green commercial buildings increase in market value by about two percent. The earlier study concluded that Green Star certification buildings in South Africa benefit from the energy

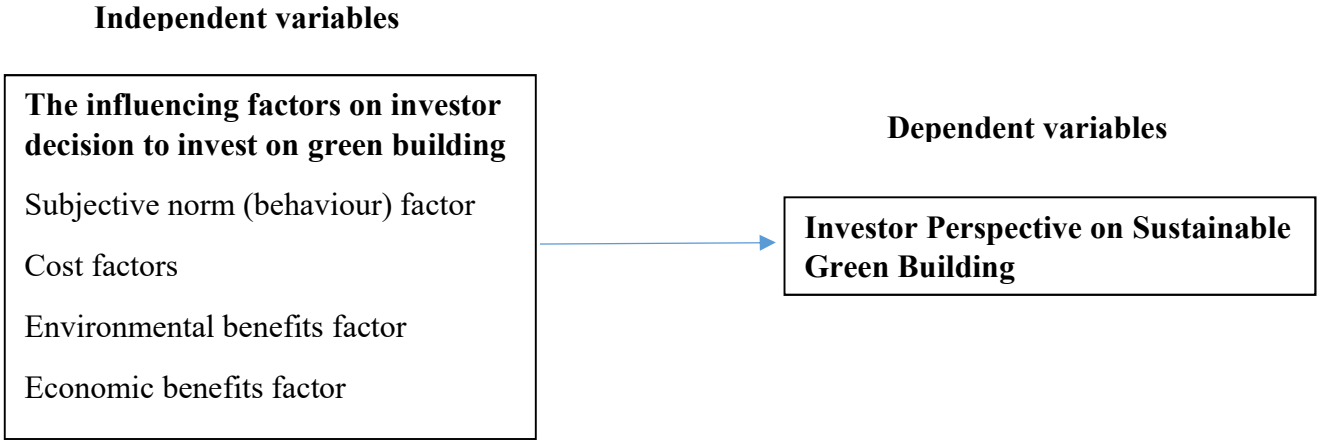
savings of between 25% and 50% in compares with the buildings designed to other building standards. Then the report also concluded that "the payback periods of energy and water saving practices are becoming much shorter as a result of increasing utility costs and the wider availability of more affordable green building technology" (Green Building Council SA, 2013).

In a survey conducted in Sweden and Netherlands, sixty-seven per cent of the "respondents agreed (partly) that tenants prioritize environmentally friendly buildings when looking for new space" (Kuiken, 2009). This shows that there is awareness for environmental friendly buildings and the tenants are becoming more aware of the financial benefits and ethical responsibility. In summary, since reviewing leases in environmental buildings is easier from the survey by Kuiken (2009), then the vacancy rate is lower and thereby makes the green buildings a less risky and commands higher value investment.

2.6 Propose of conceptual framework

The purpose of this study is to determine the influencing factor on investor decision to invest on green building in Malaysia. This will involve evaluating the influence factors among investor to invest on green building as shown on figure 2.2 below.

Figure 2.2 Proposed conceptual framework for identifying the influencing factors to the investor on the investment decision to invest on green building in Malaysia.



The influencing factor of investment decision in green building project in Malaysia can be identified as Subjective norm (behaviour) factor, Cost factor, Environmental factor and Economic factor.

2.7 Chapter Conclusion

This chapter provides a literature review on the factors affecting investors' decisions to invest in green building projects in Malaysia. The study aims to investigate and identify the key factors influencing investors' decision-making regarding investments in green buildings. Although the green building concept is relatively recent in the country, its progress still significantly trails behind that of other developed nations such as the United Kingdom and Singapore, as previously mentioned. The report will begin by distributing a survey questionnaire to participants, intending to explore the aforementioned factors further, with the methodology outlined in the following chapter.

CHAPTER III

METHODOLOGY

3.0 Introduction

Chapter 3 will delve into outlining the methodology for conducting the research, encompassing aspects such as research design, methods of data collection, targeted sampling, sampling locations, research instruments, tools for analysis, and techniques for processing data.

3.1 Research Design

The research design served as structure for implementing the research methodology, aiming to delve deeper into the research issues and to determine the means of generating precise data or information for analyzing the obtained results. According to Aberdeen (2013), the research design was used as the guideline for research to get the relevant data for their research questions. Referring to Rani (2004), research design can be used as a procedure to tackle the problems or questions that facing in the research study. Table 3.1 below showed the research flow that can used as reference for the research study.

This research will utilize a quantitative approach to identify various factors that affect investors' choices to invest in green buildings in Malaysia. The data collected from the online questionnaire given to respondents who are interested in investing in property in Malaysia will be used to determine the most influencing factors to investor when making decision to invest on green building in Malaysia.

The methodology can consist of five different stages which play an essential part in the research project. The five stages comprise literature review, designing the questionnaire, collecting data, analyzing data, and presenting results and findings.

Table 3.1: Research flow chart for influencing factor on investor decision when invest on green building in Malaysia

Stage 1 – Literature Review

Aim:
Review related literature to developed framework for identification of influencing factors on investor decision when invest on green building in Malaysia.

Output:
-Establishment of framework
-Factors identified

↓

Stage 2 – Questionnaire Design

Aim:
-identify sampling strategy and technique
-develop survey instrument
-interview

Output:
-Targeted respondent and required sampling size identified
-Questionnaire were developed

↓

Stage 3 – Data Collection

Aim:
-distribution of questionnaire to respondents

Output:
-Raw data collected for subsequent data analysis stage

↓

Stage 4 – Data Analysis

Aim:
-Perform data analysis

Output:
-Raw data collected for subsequent data analysis stage

↓

Stage 5 – Result and Findings

Aim:
-Result presentation and discussion

Output:
-Result and findings concluded

Stage 1: Literature Review

During the literature review phase, the study will seek to identify pertinent literature from various journals or articles authored by prior researchers. The literature review needs to be related to the research study that has been conducted. The literature review obtained from other journals or articles can serve as the basis for constructing a conceptual framework aimed at identifying the factors that influence investors' decision-making regarding green building investment in Malaysia. The influencing factors we develop will serve as the framework for designing the questionnaire, guiding us to the subsequent stages of the study.

Stage 2: Questionnaire Designation

Questionnaire design will be conducted by referring to the related literature review in various journals and articles which aligns with the research objectives. The questionnaire that been responded by the respondent will be collected as the data that will be used in the next stage.

Stage 3: Data Collection

In the data collection stage, the targeted population, sample size and sampling technique as the respondents for the questionnaire will be determined. The approach method of distributing the questionnaire is important to ensure that the criteria selected respondents had been reached out for the data that needing to be collected. This aims to verify that the designated population or respondents were appropriately utilized for the data analysis phase. The objective of this step is to generate raw data of sufficient quality to facilitate the analysis of the conducted research study. It is essential to ascertain the accuracy and suitability of the data for the subsequent stages.

Stage 4: Data Analysis

In this stage, the converted raw data will be further analysed using Statistical Package for the Social Sciences (SPSS). Using SPSS, the data will be formulated into useful information and will be presented in terms of graphs or charts for the further study of the research. The information obtained from this stage is crucial to provide the most factors which influence the investor's perspective to invest in green buildings in Malaysia. The output of this part can be useful as valuable information can be obtained to be used for further discussion and conclusion of the research.

Stage 5: Result & Findings

The final stage for the research project is to further discuss the result of the analysis data and conclude on the findings which can be used for the research study. In this stage, the researcher will need to make recommendations for future research related to the research objectives and draw conclusions on the findings regarding the factors that influence investors' perspectives on investing in green building in Malaysia.

3.2 Data Collection Methods

Data collection entails acquiring the necessary information from diverse sources to facilitate the analysis required to answer research inquiries. (Paradis, O'Brien, Nimmon, Bandiera, & Martimianakis, 2016). It is an essential phase in all types of research project.

3.2.1 Primary Data Collection

Primary data pertains to information acquired via interviews and surveys, typically sourced directly from individuals. The aim of gathering this primary data is to ensure accuracy. Collection methods can encompass both online and offline approaches. In this research endeavour, primary data will be gathered utilizing Google Forms, a tool offered by Google, to craft the online questionnaire. It will be using the quantitative research method in this research project. QR code will be generated from the Google form and passed through social

media like WhatsApp, We-chat and email to reach the targeted respondents who are interested in investing in green buildings in Malaysia.

3.2.2 Secondary Data

Secondary data is gathered from diverse sources such as company records, academic journals, research papers, newsletters, industry analyses, government publications, and public sector documents. (Johnston, 2017). For this research study, journals and articles will serve as the primary sources for citations.

3.3 Sampling Design

In this research study, a sampling design was necessary to identify the specific population or criteria of respondents to be studied. A range of categories of the population will be selected for the research study. It is important to ensure that the correct population was selected for the research so that it can provide accurate and valid data for further analysis.

3.3.1 Target population

The targeted population denotes the cohort from which the sample will be selected. In this study, it will encompass potential investors residing in Malaysia, including Malaysian citizens. The targeted age range for respondents of this research shall be from ages below 25 to 51 above. This targeted population below 25 need to have the ability to understand the awareness to invest in green building and who will soon be the source of workforce for the country and contribute to the development of the country. This group of people tend to be keen to learn new knowledge and more flexible to adapt to the new things that happen around them.

While for the population who are between 25-51 years old, this is the age where most people start to build up their careers and have savings for further investment for a better future. So, in this research study, we will also reach out to this group of people so that we can collect more valuable information regarding their perspective regarding investing in green buildings in Malaysia. Moreover, for the target population who age

above 51 years old, this group of people will tend to have retired lifestyle which is more focus on a healthy and environment-friendly neighbourhood. So, it falls within our targeted population who might willing to invest in green building in Malaysia.

3.3.2 Sampling Location

For this research study, it target locations for the targeted respondents shall be in Malaysia. Malaysia had been set as the target location for this study due to its rapidly development in green building and also the increase of awareness of the green concept among Malaysian citizens in order to cope with the goals of the Malaysia government to achieve zero carbon by the year 2035. In addition, the government has also initiated the development of a green policy known as The Green Technology Master Plan (GTMP). This policy is fundamentally an outcome of the Eleventh Malaysia Plan (2016-2020) which has earmarked green growth as one of six game changers altering the trajectory of the nation's growth. The GTMP creates a framework which facilitates the mainstreaming of green technology into the planned developments of Malaysia while encompassing the four pillars set in the National Green Technology Policy (NGTP) i.e. energy, environment, economy and social. With the effort from the Malaysian government to push for the increase of green development in Malaysia and increase public awareness of green products. The proactive steps taken by policymakers are set to stimulate investor enthusiasm for green building investments in Malaysia. Therefore, it's reasonable to argue that Malaysia is an ideal location for conducting research, as it can yield valuable insights from the investor standpoint regarding green building initiatives in the country.

3.3.3 Sampling Elements

In this study, the sampling aspect concerns the selection of individuals from the population for evaluation purposes. The population under scrutiny consists of individuals ranging from below 25 years old to above 51 years old, who are potential investors interested in green building investments in Malaysia.

3.3.4 Sampling Technique

The sampling technique ensured equal probability of representation without exhibiting bias towards the total population. According to Lohr, (2021), it been identified several sampling techniques, including random sampling, stratified sampling, systematic sampling, cluster sampling and convenient sampling. Simple random sampling involves randomly generating numbers to select a sample, while stratified sampling involves dividing the population into groups with similar characteristics. Systematic sampling entails selecting individuals based on specific criteria, while cluster sampling involves dividing the population into clusters or groups. Convenient sampling involves collecting samples from locations or internet services that are easily accessible.

In this research, a convenient sampling method will be utilized. With this approach, respondents will be recruited without any predetermined pattern, simply by approaching individuals present in various settings such as streets, public buildings, or workplaces who are potential investors in green building projects. They will be given the opportunity to participate in the survey, and their responses will be collected.

In this study, respondents from diverse backgrounds across different fields will be selected. Their opinions on the varying levels of knowledge and awareness regarding the green building concept in Malaysia will be captured through a designated questionnaire. Consequently, convenient sampling will be utilized to determine the sample size, aligning with the identified participant group.

3.3.5 Sampling Size

In Figure 3.1, the Taro Yamane formula will be utilize to determine the sample size from the chosen population. Taro Yamane formula are:

Figure 3.1 Taro Yamane Formula

$$n = \frac{N}{1 + N * (e)^2}$$

n = sample size N = Selected Population e = Margin error

Source: Taro, (1967)

Increasing the significance of the lowest expected variation results in a higher required sample size to attain statistical significance. This constraint is frequently determined by the clinical expertise or perspective on the matter under investigation. For instance, in a study comparing the precision of a traditional diagnostic approach with a potentially superior alternative, if a researcher deems a 10% enhancement clinically meaningful, they would establish the minimum anticipated disparity at 10%. Subsequently, a formula could be employed to predict the necessary sample size, factoring in a confidence level of 89% or higher and a population proportion of 10%. In this study, the target population is 23,600,000 people, and Taro Yamane Formula will be used for the calculation of the sampling size for convenient sampling to randomly select participants from the target population.

Figure 3.2 Calculation Number of Target Respondent

$$n = N / (1+N (e)^{2})$$

$$n = 23,600,000 / (1+ 23,600,000 (0.10)^2)$$

$$n = 23,600,000 / (1+ (236,000))$$

$$n = 99.99$$

Using the Taro Tamane formula as calculated above (See figure 3.2), the resulting value is 99.9, which is very close to 100. Consequently, it is planned to distribute 100 questionnaire to the targeted population.

3.4 Research Instrument

The survey will employ a self-administered format, including both open-ended and close-ended questions, and will be given to respondents without any interference from the researcher (Burns et al., 2008). The survey questionnaire will be distributed through WhatsApp using Google Forms for gathering data. Participants will be able to thoughtfully choose their preferred answers based on their own perceptions. Additionally, respondents will be kept anonymous from each other, enhancing the credibility of the findings.

3.4.1 Questionnaire Design

The questionnaire design for this research project consists of two parts. Part 1 primarily focuses on capturing the demographic profile of the respondents. They will be requested to answer 8 questions about their demographic background which generally include age, gender, marital status, education level, occupation and gross household income. This part of the survey is to create a better understanding of our respondents who take part in the survey.

Next, part 2 will be focused on the variables that we had mentioned in the literature review which consists of 6 questions for subjective norms (Behaviour) factor, 4 questions for cost factor, 4 questions for environment benefits factor and 4 questions for economic benefits factor. For easy reference, each variable question has been label as shown in Table 3.2 below:

Table 3.2: Items on questionnaires (subjective norms, cost, environmental benefits and economic benefits)

Label	Description	Category
DN1	I will invest in green building when I found most of my friends invest in green building	Subjective Norms (Behaviour)
DN2	I will invest in green building when most of my family member lives in green building	
DN3	I will invest in green building if my colleague invest in green building	
IN1	When most of the people in my social network encourage me to invest in green building will make me likely to invest in green building	
IN2	I will consider to invest in green building when my family member want me to invest green building	
IN3	I will invest in green building when my colleague ask me to invest in green building	
C1	I will not invest in the green building due to the cost was much higher than the surrounding building price unit	Cost
C2	I will face financial difficulty when invest in green building which was higher cost	
C3	I willing to invest in higher cost green building rather than invest in lower cost traditional building	
C4	My capability to obtain bank loan will influence my investment decision for green building	
EB1	I will invest in green building due to the enhanced indoor and outdoor air quality	Environmental Benefits
EB2	I will invest in green building with positive appearance to the surrounding	
EB3	I will invest in green building with more safe and healthy living space	
EB4	I will invest in green building with easy access to public transportation	
EC1	I will invest in lower life-cycle cost green building	Economic Benefits
EC2	I will invest in green building due to it higher additional selling price and better rental return	
EC3	I will invest in higher water efficiency and electrical efficiency green building that can help save bills	
EC4	I will invest in green building due to better investment return in future	

3.4.2 Pilot Test

The pilot test serves as an initial examination to evaluate or trial a research study prior to its full implementation. Its objective is to assess various elements of the planned method in preparation for a more comprehensive confirmatory investigation (Lowe, 2019). Sekaran (2016) emphasized that a sample size ranging from over 30 to under 500 is optimal for the majority of research studies. According to Connelly (2008) pilot study research, current literature suggests that the pilot study sample size should constitutes 10% of the sample size projected for the larger parent study. However, Isaac and Michael (1995) recommended having 10-30 participants. As a result, the precision of the outcome doesn't increase in a linear fashion. Therefore, including 30 representative from the target population meets the minimum requirement for the pilot test, and the preliminary survey can be developed accordingly.

3.5 Measurement of Constructs

Morgado et al. (2017) elucidates that creating a measurement entails empirically measuring a theoretical construct by amalgamating multiples scales at a suitable level. Assessing the scale's quality can be done by examining its reliability and validity ratios.

3.5.1 Likert Scale

Likert scale is a question type utilized to gauge the significance, contentment, and frequency of variables. Additionally, this scaling approach aids in discerning the respondent's behaviour patterns. The scale is usually categorized into 5 levels, starting from Not Agreeable, Least Agreeable, Less Agreeable, Agreeable, and lastly Most Agreeable. Using Likert-scale questionnaires offers several advantages, including the ability to gather data quickly from a large number of respondents, providing highly reliable estimates of individual abilities, establishing validity through various means for interpretations, and enabling profitable comparison, contrast, and combination with qualitative data-gathering methods like open-ended questions, participant observation, and interviews (Nemoto, T., & Beglar, D. , 2014). In part 2 of the research questionnaire, the respondents will answer the question by rating on which scale they agree with the questions on a five-point Likert scale, ranging from 1 – not agreeable, 2 – least agreeable, 3 – less agreeable, 4 – agreeable and 5 – most agreeable. Each scale has been given the ranking based on the answer they had given. This data will then be collected and used for further analysis in this research study.

3.6 Data Processing

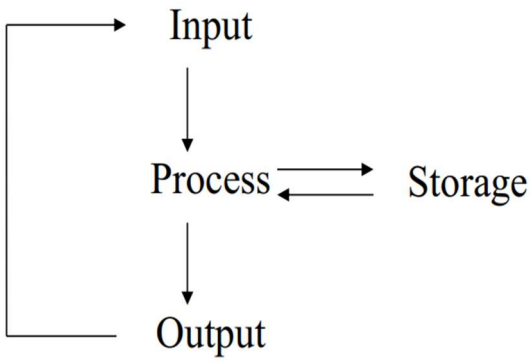
Data processing involves converting collected data into useful information. Typically, this involves transforming the data into graphs or charts for a more visually appealing presentation. In this study, the objective of data processing is to refine raw data into meaningful insights that can be utilized for further analysis within the research project.

3.6.1 Data Processing Steps Diagram

Justice et al. (2002) outlines the data processing cycle, starting with data collection and the extraction of raw data from surveys. The data is then formatted into qualitative data suitable for input into Statistical Package for the Social Sciences (SPSS) for analysis.

Various methods will be employed to analyse the raw data, with the analysis being crucial for assessing the key factors influencing investor perspectives on investing in green buildings in Malaysia. The resulting data output will be archived for future reference. Figure 3.3 illustrates the data processing steps involved in gathering and converting datasets into actionable insights.

Figure 3.3: Data processing cycle



Source: Justice & etc (2002)

3.6.2 Field Validating and Data Checking

After the data collection phase, the gathered information goes through processing in three stages. Initially, attention is directed towards identifying the data sample, where a subset of the collected data is selected for validation. This streamlines the data-checking process by avoiding examination of the entire collection, thereby enhancing efficiency. This method ensures that an optimal amount of data is inputted and any errors are rectified or eliminated altogether.

The second step involves validating the database, during which all gathered data is structured into sequences to assess the quantity of data points acquired and to examine the sources and target data fields. This steps is crucial for guaranteeing the accuracy, completeness, and alignment of the collected data with the research goals.

The third and final phase involves validating the data format, which includes modifying it to meet the necessary standards. This stage is crucial to ensure the data is suitable for analysis. Adjustments will tackle redundant information, insufficient quantities, incorrect formats, and irrelevant field data, ensuring the dataset's reliability and validity for drawing accurate conclusions and making appropriate recommendations aligned with research goals. In summary, the data processing steps entail selecting a subset for validation, organizing it into sequences, and adjusting it to comply with the required format. These steps are essential to guarantee the accuracy, reliability, and validity of collected data for analysis, crucial for drawing valid conclusions and providing sound recommendations.

3.7 Data Analysis

Content analysis is a method utilized for systematically identifying communication patterns within both primary and secondary sources, frequently employed for media scrutiny. To guarantee reliability, it's recommended to have at least two separate coders analyse a segment of the data, with Krippendorff alpha serving as a measure for inter-rater reliability. Researchers commonly utilize color-coded organization to categorize data and discern relationships among causes and contributing elements. The data suitable for content analysis can take diverse forms, such as written, oral, and visual, and will be transcribed into text format for citation purposes.

3.7.1 Descriptive Analysis

Frequency analysis is a statistical method employed to scrutinize the distribution of a specific variable within a dataset. It entails tallying the occurrences of each value of the variable and presenting the findings through a frequency distribution table or graph. This technique is frequently utilized to uncover patterns or correlations between variables and to ascertain the most prevalent or frequent values in the dataset. For

instance, in a customer satisfaction study, frequency analysis can be deployed to determine the frequency of responses to a particular inquiry, such as "How satisfied are you with our customer service?" (Bryman, 2016).

Alternatively, mean and standard deviation are statistical metrics that convey insights into both the central tendency and dispersion of a dataset. The mean represents the average value within a set of numbers, while the standard deviation indicates the extent to which the data deviates from the mean. These metrics are commonly employed to summarize fundamental characteristics of variables within a dataset. For instance, in a study concerning population heights, mean and standard deviation serve to elucidate the average height and the variability in height across the population. (Field, 2013).

In data analysis, frequency analysis, mean, and standard deviation serve as indispensable tools, offering valuable insights into a dataset's characteristics. These metrics aid in detecting trends, patterns, and correlations within the data, guiding subsequent analysis and decision-making processes. Utilizing these methods enables researchers and analysts to make well-founded decisions and derive valid conclusions from their collected data.

3.7.2 Reliability Analysis

Reliability statistic that was used in this research project was Cronbach's alpha. Author had conducted this test using SPSS version 26 and the result will be interpreted for the reliability of this research question. The reliability test involves assessing the internal consistency or average correlation among items within a survey instrument to measure its reliability (Cronbach, 1951). Cronbach's alpha can be expressed as a function of both the number of tests and the average inter-correlation among the items (Bruin, 2006). The formula of Cronbach's alpha is shown in figure 3.4 below:

Figure 3.4: Formula for reliability analysis (Cronbach's alpha)

$$\alpha = \frac{N.\bar{C}}{\bar{v} + (n-1).\bar{c}}$$

N = number of items
$\bar{C}$ = average inter-item covariance among the items
$\bar{v}$ = average variance

Each factor of the questionnaire will be carried out by the reliability test using Cronbach alpha to find out whether the data obtained was reliable enough to be used in the research. The measurement for Cronbach α was fall within zero and one. It indicated that the data obtained are not reliable enough to apply to this research project when the result of Cronbach alpha is less than 0.5. According to (Hee and Abidin, 2016), Cronbach's Alpha of 0.6 is categorized as poor, 0.7 as acceptable, and 0.8 is considered good. (Taber, 2018) reported that Cronbach's Alpha of below 0.6 was poor, 0.6 to < 0.7 as moderate, 0.7 to < 0.8 as good, 0.8 to < 0.9 as very good, and ≥ 0.9 as excellent.

3.7.3 Relative Important Index (RII)

Relative important index (RII) will be used to carry out the analysis on the collected data in order to access and give a ranking on the variables for the investor perspective on sustainable green building in Malaysia. According to Akadiri (2011) in (Rooshdia et al., 2018), five significant levels are derived from RII values, as illustrated in Table 3.3 below:

Table 3.3: Important Level for RII

RII Value	Important level	
$0.8 \leq RI \leq 1$	High	H
$0.6 \leq RI \leq 0.8$	High Medium	H-M
$0.4 \leq RI \leq 0.6$	Medium	M
$0.2 \leq RI \leq 0.4$	Medium Low	M-L
$0 \leq RI \leq 0.2$	Low	L

Figure 3.5: The formula for relative importance index (RII)

$$\text{Relative Importance Index}(RII) = \frac{\sum W}{A * N}$$

$$= \frac{(5n5 + 4n4 + 3n3 + 2n2 + 1n1)}{5n}$$

Where w is the weighting given to each factor by the respondent, ranging from 1 to 5, (n1=number of respondents for not agreeable, n2= number of respondents for least agreeable, n3=number of respondents for less agreeable, n4= number of respondents for agreeable, n5=number of respondents for most agreeable).

A is the highest weight (which is 5 in the study) and N is the total number of respondents. The relative importance index ranges from 0 to 1.

The highest the RII value, the highest the ranking. As per Waidyasekara and Silva (2016), a lower RII value for a factor indicates its lesser significance and relevance to the research. While higher RII value show higher relevance and applicable to the research. The calculation formula for the RII was shown in Figure 3.5 above. From this analysis, we will rank the RII value for each factor to show the ranking of importance for the factors which were subject to the perspective of investors towards the sustainability building in Malaysia.

3.8 Chapter's Conclusion

In this chapter, the framework design for the research study was crafted to guarantee the accuracy and reliability of the data collected for the analysis phase of the research project. The methodology chapter held significance as it encompassed elements such as sample design, sample size determination, questionnaire development, and analysis. From this chapter, author concluded that out target location for this research was in Malaysia and the target respondents of potential investors of the green buildings. The questionnaire design was developed based on the research objective and also in reference to the literature review that we had conducted earlier. This questionnaire can be divided into 2 parts which Part 1 mainly focused on the respondent demographic profile while Part 2 focused on the factors that will be influencing the investor perspective toward the investment in green building in Malaysia by using the Likert scale. In the upcoming chapter, the gathered data will undergo additional analysis using the SPSS computer application to extract information for the purpose of commenting and discussing this research study.

CHAPTER IV

RESULT AND FINDINGS

4.0 Introduction

This chapter will concentrate on analyzing the results obtained from applying SPSS v26 to the questionnaire data output. At the beginning of this chapter, it will present the validity of the findings by conducting the pilot test. The aim of conducting a pilot test is to identify and address any potential errors and issues that may arise during the survey questionnaire phase. After verifying the study's validity, a descriptive analysis will examine the demographic profile of the targeted respondents. An in-depth examination of the Relative Importance Index (RII) will be conducted utilizing SPSS, determining the ranking for each factor based on the analysis results. The chapter will conclude with a summary of the key findings from the analysis section, which will then be elaborated on in the following chapter.

4.1 Descriptive Analysis

In this section, the descriptive statistics of the study will be analyzed. Initially, the demographic data of the targeted participants will be presented, followed by their background information. These findings were crucial for assessing the relevance of the study to the target participants.

4.1.1 Respondent Demographic Profile

For this research project, only 80 respondents participated in the questionnaire instead of the required sample size of 100 respondents as calculated using Taro formula. The deficit is ascribed to a lack of public awareness surrounding green building principles, resulting in a hesitancy to fully engage in the research project. From the demographic table 4.1 shown below, a total of 80 responses had been collected from the participants of the respondents in the study. As from the result obtained, it shown that 57.5% of the total respondents were male while 42.5% were female. It shown that male respondent were 15% more than female respondents, it because in society nowadays, male tend to be more willing to use their savings money for investment and can withstand the risks that may need to take for investment. Hence, when this research took place, they were more take into consideration to invest in the new and uncertain on green building in Malaysia.

As for age range, over half (52.5%) of all respondents belong to the age bracket spanning from under 25 to 35 years old. This category of people mostly tends to start their career and have the intention to buy a house as this was the age where most of the people will start to build their own family and want to have a more stable lifestyle. So this group of respondents can also be considered as the young generation who can accept new things and are more aware of the environmental issue that happen globally. Hence, they show more interest in understanding the green building development concept that started to develop rapidly in Malaysia.

Moreover, there are 47.5% of the total respondent that fall into age range of 36 years old to about 51 years old. People in this group of age tend to have a stable life and have more savings to make investments in order to secure a better future. However, they are not easy to accept new things especially when the investment involves risk to them.

Table 4.1: Numbers of Respondents Gender, Age

	Item	Frequency	Percentage (%)
Gender	Male	46	57.5
	Female	34	42.5
	Total	**80**	**100.0**
Age	Below 25	8	10.0
	25-30	16	20.0
	31-35	18	22.5
	36-40	10	12.5

	41-45	6	7.5
	46-50	5	6.3
	51 & above	17	21.2
	Total	**80**	**100.0**

As shown in table 4.2 below, for education level, there was 63.7% of total respondents had higher education level which was degree level and above. Hence, this higher education level group in society will have better knowledge of trend of green sustainable building and be more reachable to the information in order to increase awareness on green sustainable building. This group of people tend to be easier to accept the concept of sustainable building and are willing to share their opinions with the surrounding people. They also tend to have more sufficient buying power to invest in the green building. However, 21.3% of respondents who are still at the high school level and some of them are still on the way to pursuing higher education in the future. This group of people tend to have low income, but it didn't mean that they cannot become potential investors in green building in the future. This will be the category group that waiting to step into society and with unlimited potential to the investing of green buildings in Malaysia.

Following, as shown in table 4.3 below, in Malaysia the social class category and income distribution can be divided into three different income tiers which were B40, M40, and T20. For B40 tier, can be further subdivided into B1 which indicates the income threshold for those below RM2,800, B2 for the income threshold range from RM2,801 to RM3,169, B3 for the income threshold range from RM3,170 to RM3,969, and B4 for income threshold range from RM3,970 to RM4800. For M40 tier it can be subdivided into M1 for an income threshold range from RM4,801 to RM5,879, M2 for an income threshold range from RM5,880 to RM7,099, M3 for an income threshold range from RM7,110 to RM8,699 and M4 for income threshold range from RM8,700 to RM10,800. Lastly, for T20 tier, it can be further subdivided into T1 for an income threshold range from RM10,801 to RM15,039 and T2 for an income threshold above RM15,039. Based on the data collected from this research, it shown that there are 37.6% of respondents with an income threshold below RM 4,800 who are fall under the B40 segment, 49.9% of the respondent with an income threshold between RM 4,801 to Rm 10,800 who are fall under M40 segment. While for T20 segment whose income threshold above RM 10,801 contributes only 12.5% throughout this research. The research indicated that the majority of the respondents targeted possess purchasing power sufficient to invest in green buildings. Hence, it was in line with the target research population who has the money to invest in green buildings in Malaysia.

Table 4.2: Number of Respondent Education Level, Gross Income

		Frequency	Percentage (%)
Education level	High school	17	21.3
	Diploma	12	15.0
	Degree	45	56.3
	Master	5	6.2
	Professional	1	1.2
	Total	**80**	**100.0**
Gross income	≤ RM 2,800	17	21.3
	RM 2,801 - RM 4,800	13	16.3
	RM 4,801 - RM 6,800	11	13.7
	RM 6,801 - RM 8,800	14	17.5
	RM 8,801 - RM 10,800	15	18.7
	≥ RM 10,801	10	12.5
	Total	**80**	**100.0**

Table 4.3: Household income classification in Malaysia 2023

Income Group		**Income Threshold (RM)**
B40	B1	Less than 2,800
	B2	2,801 – 3,169
	B3	3,170 – 3,969
	B4	3,970 – 4,800
M40	M1	4,801 – 5,879
	M2	5,880 – 7,099
	M3	7,110 – 8,699

	M4	8700 – 10,800
T20	T1	10,801 – 15,039
	T2	15,039 and above

Source: Department of Statistics Malaysia (DOSM) (2019).

The paragraph was discusses on the data shown in Table 4.4 below which indicate the intention of the respondent to invest on green building in Malaysia. This question have been used to filter out the respondents with no intention to invest on green building in Malaysia. This group of respondents will not be considered as valid respondent to the part 2 of questionnaire as their answer is not relevant to the research project. Hence, it shown from Table 4.4 below that 10% of total respondents which was 8 out of 80 respondents that had no intention to invest on green building in the future. The valid respondents for our part 2 questionnaire will be 72 out of 80 respondents (90%) only.

There are 45% of total respondent which was 36 out of 80 respondent that maybe will invest on green building in Malaysia. Green building concept tend to be quite new things to them and they have slight knowledge or awareness about green concept building. However, they are willing to accept this new green building concept and will considered to invest on green building in future. Moreover, it shown 45% of total respondent which was 36 out of 80 respondent that will invest on green building in Malaysia. This group of people are alert on the environment issue and have known well on green building concept. They know about the benefit that green building can bring them and also the society. This group of individuals possesses a strong understanding of environmentally-friendly practices and believes they can mitigate environmental damage while improving human quality of life by investing in green buildings in Malaysia.

Table 4.4: Respondent Consideration to invest in green building

		Frequency	Percent	Valid Percent
Valid	Maybe	36	45.0	45.0
	No	8	10.0	10.0
	Yes	36	45.0	45.0
	Total	80	100.0	100.0

There are the limitations of respondents to take part in the research as the green building concept was quite novel in Malaysia. Hence, there are not much of people who have the chance to know more about green building which reduce the interest within them to invest in green buildings as of now. Public awareness of the green concept was still low if compared to other developed countries as their green building development had been more advanced than Malaysia. Hence, increasing awareness of the public on green concept is crucial as it will affect the investor perspective to invest in green buildings in Malaysia. However, the green building concept will gain market share in society and we shall see exponential growth for green building in future.

Table 4.5: Data of percentage on education level to the decision for invest in green building

		Consider Green Building						Total	Frequency
		Maybe		No		Yes			
		Frequency	percentage	Frequency	percentage	frequency	percentage		
Education level	Degree	25	56%	2	4%	18	40%	100%	45
	Diploma	6	50%	2	17%	4	33%	100%	12
	High school	4	23.5%	4	23.5%	9	53%	100%	17
	Master	1	20%	0	0%	4	80%	100%	5
	Professional	0	0%	0	0%	1	100%	100%	1

Table 4.5 above indicates the effect of the education level on the decision to invest in greenhouse buildings. Through the interpretation of the result, it was shown that the respondents with lower education levels tend to have a higher percentage of no interest in investing in green buildings in future. It can be shown that 23.5% of the high school education level respondents, 17% of the Diploma education level respondents and 4% of degree education level respondents have no intention to invest in green building. This data can be analysed that the percentage of respondents who intention not to invest in green buildings had been reduced accordingly when it getting to the higher education level of respondents. This was mostly due to their lower education level and having no chance to keep in touch with the green concept building. They are not familiar with the advantages that green building might bring to them in their daily life and also what it can contribute to the environment in society. Moreover, a lower education level often means have lower salary income in society. Hence this group of low education respondents can't afford to have the money to invest in green buildings which are higher in price.

On the other hand, it has shown that respondents with higher educational levels tend to have strong intentions to invest in green buildings. The data had shown that 100% of the respondents with a professional education level and 80% of the respondents with master's education level have a firm intention to invest in green

building. This group of people tend to have higher awareness towards the environmental issue which happens globally and have more chances to get in touch with the green concept building knowledge as most of their social connectivity was elite and high-income salary people. They are more willing to accept the concept of green buildings and are aware of what the benefits of green buildings offer to them. The investor with a greater understanding of environmental issues tend to have a greater interest in investing in green buildings as they wish to bring in the positive influence from their action in order to contribute to minimizing the environmental impact to society.

4.1.2 Construct Validity

The initial questionnaire underwent validation by experts in the field. In this study, the researcher suggested employing content validity to assess the instrument's validity. According to (Cohen, Manion, and Morrison, 2011) content validity pertains to the extent to which the topics addressed in the research align with the scales utilized in the instrument. Hence, in the present study, the researcher and the supervisor evaluated the content validity, focusing on the Investor Perspective on Green Building in Malaysia. Moreover, the construct's validity is reinforced by the comprehensive literature review conducted in Chapter Two. Additionally, the results of the Cronbach Alpha validity test further confirm the robustness of the constructs utilized in the research.

4.2 Scale Measurement: Pilot Test

Conducting a pilot test is essential for validating the method or instrument used in research and for minimizing or eliminating errors in the study (Kallio *et al.*, 2016). For this research study, 30 representatives from the targeted population were chosen to participate in the test. The pilot test was conducted using a randomly selected sampling approach with the instrument.

4.2.1 Cronbach Alpha Analysis

In this research study, 30 participants were randomly chosen to conduct a pilot test assessing the reliability of the instrument. The Cronbach’s alpha internal consistency approach was employed and applied to the

respondents selected from the target population pool. Analysts frequently use 0.7 as a benchmark value for Cronbach's alpha. At this level and higher, the items are considered as sufficiently consistent to indicate that the measurement is reliable. On the other hand, the value below 0.7 are not ideally reliable for the measurement in a research project. Refer to table 4.6 below, it had shown that the result of Cronbach alpha for factors of subjective norms (behaviour) value was 0.900. Hence, it showed that these construct reliability is excellent. Moreover, the result for factors of cost/price value was 0.738 which still acceptable although it was lower compared to other factors in the research study. Next, the result for factors of environment benefit value was 0.913, these factors were considered as the highest reliability value compared to other factors and were considered very good and reliable. Lastly, for factors of economic benefit, the result value was 0.845 and it was considered excellent for the reliable data for this research project. All the results shown were more than 0.7 which indicates that the questions on the survey were reliable for the application of the research project.

Table 4.6: Result for Reliability Statistics for the questionnaire using Cronbach's Alpha

Items	Cronbach's Alpha	N of items
Subjective Norms (Behaviour)	.900	6
Cost	.738	4
Environment Benefit	.913	4
Economic Benefit	.845	4
Overall	.849	18

4.3 Relative Importance Index (RII)

Refer to the Table 4.7 shown below, it shown the ranking for each factor which contribute to the influencing factor on investor perspective to invest on green building in Malaysia. Through the analysis using SPSS, the result showed that top three ranked for the factors fall within Economic benefits factors and environment benefit.

Table 4.7: Relative Importance Index value and ranking for each factor

VARIABLES	Not Agreeable (1)	Least agreeable (2)	Less agreeable (3)	Agreeable (4)	Most agreeable (5)	RII	RANK	CATEGORY RANK
DN1	7	10	17	35	3	0.647222	12	Subjective Norms (Behaviour)
DN2	6	10	11	34	11	0.694444	9	
DN3	10	16	18	26	2	0.583333	15	
IN1	7	7	17	36	5	0.669444	11	
IN2	7	9	14	35	7	0.672222	10	
IN3	10	14	20	26	2	0.588889	14	
C1	10	10	17	30	5	0.627778	13	Cost
C2	11	14	19	27	1	0.580556	16	
C3	8	7	20	34	3	0.647222	12	
C4	5	4	6	48	9	0.744444	8	
EB1	1	2	8	42	19	0.811111	4	Environment Benefits
EB2	1	2	5	48	16	0.811111	4	
EB3	1	4	3	45	19	0.813889	3	
EB4	1	2	4	42	23	0.833333	2	
EC1	2	2	13	33	22	0.797222	6	Economic Benefits
EC2	2	3	18	34	15	0.758333	7	
EC3	1	3	2	42	24	0.836111	1	
EC4	1	1	10	42	18	0.808333	5	

*Note: DN: Descriptive Norm , IN: Injunctive Norm , C: Cost, EB: Environment Benefits, EC: Economics Benefits

The first ranked factor was EC3 *(I will invest in higher water efficiency and electrical efficiency green building that can help save bills)* that fall within the economic benefits category which attributes for the RII score of 0.836111, this factors stated that the investors will invest in higher water and electrical efficiency green buildings that can help to save utility bills. This seems to be the most influencing factors among the respondents for this research study as the electrical bills cost huge chunks of money in household expenses especially when the government start to take off the subsidies for electrical bills which are implemented during MCO periods. This can be justified as most people nowadays like to open aircond at homes most of the time especially when facing hot weather in Malaysia. So green buildings which can help to save electrical costs have been a huge attraction to investors as they can save lots of money in the long run.

Next second ranked factor was EB4 *(I will invest in green building with easy access to public transportation)* that fall within the environment benefits category which attributes for the RII score of 0.833333, this factor stated that the investor will invest in green buildings that provide easy access to public transportation. Public

transportation are important to people who live and work in town. The heavy traffic that we are facing when travelling from place to place, it will use up lots of our precious time and also cost money on petrol for transportation. Hence, this justifies that investors will consider as transportation was important to people nowadays, Without good access to transportation, it will cause many problems in our daily life and eventually, the area will become congested with full vehicle and no place for parking as well. Eventually will cause more serious traffic issues in the future. The benefit that provided by public transportation is that it helps us to avoid heavy traffic especially at congested areas and also was cheap in price for travelling purposes. Besides that, it also helps lots in reducing air pollution when more people are taking public transportation which is one of the ways to save our planet earth and get a better living space.

Third ranked factor was EB3 *(I will invest in green building with more safe and healthy living space)* which also fall within the environment benefits category that attributes to the RII score of 0.813889, this factor stated that the investor will invest in green buildings that provide safer and healthier living space. This showed that the investor will be more focused on the surrounding environment when they decide to invest in green buildings. A healthy environment surrounding can help the residents to have better living conditions and at the same feel more relaxed when they get back home. The improvement of the surrounding environment into relaxed and chill space can become a huge attraction to people who are facing stressful days and would like to have a peaceful mind when back to home. It can increase the happiness level and this condition it can help to improve health when people tend to feel more relaxed with fresh natural air within their surrounding area.

Table 4.8: Relative importance index value and ranking for the Category factors

VARIABLES	Average mean	RII	Overall Rank	Category Factors
DN1	0.64259	0.647222	4	Subjective Norms (Behaviour)
DN2		0.694444		
DN3		0.583333		
IN1		0.669444		
IN2		0.672222		
IN3		0.588889		
C1	0.65000	0.627778	3	Cost
C2		0.580556		
C3		0.647222		
C4		0.744444		
EB1		0.811111		Environment
EB2		0.811111		

EB3	0.81736	0.813889	1	Benefits
EB4		0.833333		
EC1	0.80000	0.797222	2	Economic Benefits
EC2		0.758333		
EC3		0.836111		
EC4		0.808333		

*Note: DN: Descriptive Norm , IN: Injunctive Norm , C: Cost, EB: Environment Benefits, EC: Economics Benefits

Table 4.8 above shows the overall ranking for the factors that influence the investing decisions for green sustainable building. With the result of average mean RII score, most of the factors were found to be at or above high medium level with a score of more than 0.6. Based on the result, we can see that the first ranked for category factors was environment benefits factor which attributes for average mean RII score of 0.81736. The findings indicate that the primary consideration for investors interested in green buildings is the environmental quality, as a favourable environment can significantly attract investors who recognize the promising potential of environmentally-friendly buildings, thus leading to higher investment returns. As for facts, without a good surrounding environment, it does provide not enough convincing elements for investors to take a look at green buildings and not to say want to invest on them. Investors would have been seeking green buildings with healthy lifestyles and a friendly environment which would be put into consideration when finding a place to stay for the long term.

Next for second ranked was economic benefits factor which attributed to an average mean RII score of 0.8, it also plays a major part in the investment decision made by the investor as their main priority for investment was to maximize their investment return. This can be achieved by having higher rental rates for the green building with the attraction of reducing the cost of electrical and water bills which can eventually save up house utility bills for tenants. Besides that, an investor can also optimize their profit by getting a higher investment return when they sold their green building at better price for the better green technology and green environment which can be provided by green buildings with the healthy lifestyle that people want to live for.

While for the cost factor which attributes for average mean RII score of 0.65 and was third in the category ranked, the investors are less concerned about these category factors as most of them are aware that the green building would be selling much higher price than the conventional building with the green concept that implement in the building. As most of the respondent from this research was from the M40 segment group with a gross income of range between Rm4,800 – Rm 10,800, they can have the income to afford the price of green building and most of them are educated enough to conduct their own survey before investing in green building as they believe that green building can be gain more with better investment return in future if

compare with the cost of the house price that they paid for now. Most of them are more concerned about their ability to secure the loan from bank as they know that the high green building price might affect to their credibility to get loan from bank since now the bank has more strict regulations to secure loans to the borrowers. Respondent from the M40 segment group tends to have higher monthly expenditures as they seem to be spending more on their daily lifestyle with the buying power that afford them to do so. Due to that reason, the bank might take into consideration on such expenses when calculating their DSR for the credibility of loan and eventually, it might cause lower credibility to obtain loan.

Subjective norms (Behaviour) factor come last in the category ranked which attributes for average mean RII score of 0.64259. It showed that the investor not affected much by the influence of their surrounding social when they comes to making decision for invest on green buildings. This is due to most of the respondents with higher educational levels can analyse the pros and cons of the investment in green building by themselves. They can make their decision based on the facts that the potential higher investment return for the green building and they are well aware that the green building trend is approaching and will soon dominate the property market future.

4.4 Chapter's Conclusion

This chapter began with the pilot test, aimed at assessing the reliability of the collected data, ensuring its accuracy and relevance to the research objectives of this study. The RII scores for each factor were determined using the SPSS application. The scores identified in this study offer a clear insight into the primary influencing factors for investors concerning the investment in green buildings in Malaysia. Based on the analyse result above, we can conclude that the top 3 influence factors for investor to make the invest decision on green building was EC3 *(I will invest in higher water efficiency and electrical efficiency green building that can help save bills)* with RII score of 0.836111, EB4 *(I will invest in green building with easy access to public transportation)* with RII score of 0.833333 and EB3 *(I will invest in green building with more safe and healthy living space)* with RII score of 0.813889 respectively. Besides that, we had also conducted the analysis for the overall category factor which can be analyse further based on the RII value that obtained. The RII value for environment benefit was 0.8176, followed with RII value for economic benefit was 0.8000, RII value for cost/price was 0.6500, and lastly is the RII value for subjective norm (behaviour) was 0.64259. The data presented here will be expanded upon and discussed further in the following chapter. However, the discoveries outlined in this chapter offer valuable insights into investors' perspectives on investing in green building projects in Malaysia.

CHAPTER V

DISCUSSION AND CONCLUSION

5.0 Introduction

This section expands on the study's discoveries by engaging in discussions. Initially, there's a broad exploration of the research findings. Subsequently, the research questions are addressed via analysis of RII scores followed by additional discussions. Following this, the study's limitations are outlined, along with potential avenues for future research, prior to concluding the research.

5.1 Summary of Statistic Analysis

The result of this study showed that the investor with higher level of education have a more positive outlook towards the investment on green building concept in Malaysia. However, there was still lack of acceptance among the public as the green building concept was not well aware by the public. It also showed limitation to the investor when it comes to the higher cost price which are not affordable to the lower income group of respondent in this research study. This highlight the need from the initiative steps of government to implement more on the green development in Malaysia to bring down the overall construction cost price for the green development so that it within the affordable range for most investor in Malaysia. Besides that, this study finding also suggest that to increase the awareness among the public so that the more people can increase their self-awareness on the green building concept so that public self-awareness can serve as positive influence to encourage more investors to make the investment on green building which can be the pushing factors to the green development in Malaysia. By pinpointing and tackling the precise factors that influence investors' decisions to invest in green buildings, policymakers and practitioners can collaborate to establish a framework that promotes green building investment in Malaysia.

5.2 Discussion on major findings

5.2.1 Discussion on the research objective 1: To determine the main factors that influence the investor decision when investing in green building in Malaysia

In this study, four category of attributes which influence the investment decision by the investor towards green building had been studied namely, subjective norms, cost, environment benefits and economic benefits. The data collected by using questionnaire method to the potential green building investors. The data collected for this survey was limited because there weren't many participants willing to engage in green building research, largely due to a lack of intention to purchase such buildings stemming from insufficient awareness. The majority of survey participants were highly educated and possessed a greater understanding of the future benefits of green buildings, demonstrating a willingness to invest more in them for the potential of significant returns. In this study, we analyzed the question by utilizing SPSS version 26 to obtain the results for the Relative Importance Index (RII) regarding the factors investigated.

Analysis from the research data showed that all attribute had above high medium importance index level to the investor which implying that investor tend to considered these attributes when they invest on the green building in Malaysia. The result indicate the importance of these attributes in the research to be adopted in future green sustainable building development. These study weight and demonstrate the essence of taking into consideration for the environment benefits which can be contribute the most to the invest decision by the investor for green building. From the investor perspective of view, they will takes these factor into priority consideration as they foresee that this can maximize their profit return in future. As we know that green building was mainly focused on provide the greenery environment and sustainable system for the resident within building which was also the main attributes that potential green building investor would have seek for. This discovery aligns with earlier research indicating that investors tend to show increased interest in purchasing green buildings when they possess a deeper understanding of environmental issues. It suggests that higher levels of environmental concern among investors positively impact their attitudes toward sustainable green buildings. (Rashid, 2009).

Cost of green building had been take into consideration by investor when they have the intention to invest on green building as generally the green building would have cost much higher if compare to conventional building. However, as nowadays green building had been in upward trend and with the aggressive initiatives

from government for green development, we believes that within short time the green concept will become the common practice in construction industry which eventually will bring down the construction cost and to provide greater attraction to the investor when making comparison to invest in conventional building and green building in future. It showed that high interest rates would discourage the green building investment among the investors which would eventually hinder the green building development in Malaysia while on the other hand low interest rate would improves profit maximization and increase green building investment. In term of investment return, green building investors can get higher rental rate or selling price in the future as we believe that the demand for green building will be increase with the improvement of knowledge and awareness among public toward green building.

We believe that the green building development in Malaysia was greatly influence by the awareness of investor on the cost saving that can bring by the green building which seldom been ignore by the investor as they don't really understand what is the benefit that associate by the green building. This findings is tally with the studies that carry out previously which showed that the lack of awareness and knowledge gap of the cost savings associated with green building could as well affect green building development whereas high interest rates and long-term payback time of green building discourage investment in green building (Kasai and Jabbour, 2014).

As the study showed, the subjective norms factors also contribute to influence decision making to investor when making investment decision. People around us always play an important part to the decision that we make especially on major decision making such as invest in green building, it was showed that most of the respondent tend to seek advice from other or will seek for resonance from other through social media to gain the confidence to make decision in their life. This study could offer insights into investor perspectives, which can be utilized in future green building development or marketing strategies, contributing to sustainable development in the industry. This study show the concern of investor when making investment to the green building and this could be used to serves as the factor to motivate other to invest in green building thus gives the government a key insight to takes action on green building development in future. It can also facilitate the developer with the meaningful view when formulating their marketing strategy that could lead them with better selling point and enhance the demand for sustainable development of green building, emphasize on the need of establishment a model for green building. Future research can be done further on the other country and on the way of maximize the profit return on investment to green building. This study can be used as the stepping stone to explore further in this field as the potential for green building is huge and was waiting to be explore deeper by the researcher on the way to improve it and imply the strategy into the green market to achieve the sustainable development in Malaysia.

5.2.2 Discussion on the research objective 2: To evaluate the most main factors that influence the investor decision when investing in green building in Malaysia.

Green building concept was important to change of climate for the world especially when the condition of weather was getting worse nowadays. Promoting sustainable development in Malaysia is crucial, especially considering the current low level of sustainable practices in the country. In this study, one of the objective is to evaluate the most main factors that influence the investor decision when investing in green building in Malaysia.

Based on the conducted survey that we had carry out from the study, it had covered for several factors such as subjective norms (behaviour), cost, environmental benefits and economic benefit. Among these factors, we had analyse it into RII for each factors and overall category factors. This shown that the RII for each factors which ranked top 3 in influencing factors when investor making decision to invest in green building was EC3 *(I will invest in higher water efficiency and electrical efficiency green building that can help save bills)* with RII score of 0.836111, EB4 *(I will invest in green building with easy access to public transportation)* with RII score of 0.833333 and EB3 *(I will invest in green building with more safe and healthy living space)* with RII score of 0.813889 respectively. From the results above, it showed that mostly the influencing factors which will taking into consideration by investor was more on the overall benefits that can bring by the green technology as they will evaluate more on to which extent the green technology will help them to save up the electrical and water bills, at the same time can also give them more good healthy environment and can make their life easier.

Furthermore, when we look into bigger picture, the investor point of view not only fall on their own preferences but also to concern on the choices of investment on green building can help to make the world better by reducing more on the pollution to the environment by using those renewable energy the green technology can offered to them. Most of the investor are willing to invest more on green building as they are well aware that an efficient designed building can largely cut down the operational energy that will be use in its lifetime as compared to a conventional building which has not designed for it instead of just keeping the energy efficiency and conventional renewable energy use optimization in mind. It's important for everyone to be able to make their own small contributions in order to achieve the sustainable goals for green development in Malaysia.

While for the overall category sections, we found out that the environmental benefits with the RII value of 0.81736 is the most influencing category factors to the investor when they want to invest on green building in Malaysia. This result can be evaluate that the confluence of the glowing demand for addressing health and well-being in the built environment had proven to be the template for the investor to invest in the green building. The built environmental that creates by the green building had seem to create an exciting set of opportunities to create healthier communities in national scale. The demand for such environment had growing rapidly along these day when the hot weather was getting severe and sicker environment had been developed inside the country. Especially when the pandemic Covid-19 cases that strike globally without any warning which cause millions of life around the world. This health issue had lead the public to increase their self-awareness toward the healthier lifestyle and living environment.

5.3 Implication of the Study

5.3.1 Managerial Implication

The findings of this study have significant implications for investor to make investment toward the green building in Malaysia. Specifically, the analysis of result would suggest what is the influencing factors that investor would tend to take into consideration when make investment on green building. For example, from the results, it showed that investor was more biased toward environmental benefit when making the decision to invest on green building. This insight can help to improve the understandable on the need from investor point of view which eventually would help the policy maker and industry players to make strategic approach to promote the development of green building in Malaysia.

5.4 Limitations of the Study

The study's constraints should be acknowledged when interpreting the findings. A primary limitation is the sample size, with only 80 respondents participating. Considering Malaysia's sizable population, this sample might not fully represent the intended population. Moreover, the study concentrated on prospective investors in Malaysia, where green development is still at an early stage and lags behind other nations. Consequently, the findings may not be applicable to all investors. Future research could enhance its findings by increasing

the sample size through partnerships with industry associations like the Real Estate and Housing Developers' Association (REHDA) Institute and the Construction Development Board (CIDB). This collaboration would enable a broader network of stakeholders to be included in the study of green development building. Additionally, the utilization of online tools might have imposed a constraint by potentially limiting the participant pool to individuals with greater technological proficiency, thus potentially excluding other demographics.

5.5 Recommendations for Future Research

Future research can be improve by expand the research to other developing country which have more mature development on green building such as America, Canada and etc. We can gather the data from investor who comes from different country in the world and not just limited it in the perspective of view from the investor in Malaysia. As the matter of facts, we can gather more valuable information from investor perspective of view from other different country which had more advanced green development if compare to Malaysia, as we believe that they can have more advanced insight as they were participated in lots of investment toward green building which they know what is the pros and cons that can be taking into consideration when making an investment to green building. They would know better what is the attraction point and rejection point that will affect to their decision toward their investment portfolio.

Moreover, the research can also involve more on foreign investor who are interested to invest on property in Malaysia. As in recent years, Malaysia has become an attractive destination for foreign investors looking to tap into its burgeoning property market. The country's strategic location, favourable economic policies, and robust infrastructure have made it an attractive destination for foreigner to buy property in Malaysia. According to the Q3 2021 Juwei IQI Property Survey & Index, foreign buyers accounted for 10 percent to 15 percent of new and second-hand property transaction in Malaysia's largest cities which accounting for investment value range of RM1.8 billion of real estate per quarter, or RM7.2 billion per year. This showed that foreign investor contributes for quite huge portions to the property market in Malaysia. Hence it was worth to be take into consideration for future research.

Another crucial aspect for future research involves adopting a mixed method approach to gathering data. While the present study utilized Google Forms for data collection, forthcoming research could explore employing physical questionnaires distributed at construction and property-related gatherings. This method would allow researchers to extend their reach to a broader audience, encompassing individuals who might

lack internet access or feel uneasy completing online surveys. Employing both digital and paper questionnaires can enhance the sample's representativeness and mitigate potential biases in the data. Moreover, physical questionnaires offer researchers a chance to interact with respondents and address any inquiries they might have. Thus, employing a combination of data collection methods can bolster the accuracy and dependability of the results, yielding a more holistic comprehension of the factors impacting green building development in Malaysia.

5.6 Chapter Conclusion

The study emphasizes that considering the influencing factors affecting investors' decisions to invest in green building projects in Malaysia is crucial for promoting sustainable development in the country. Despite the introduction of green building initiatives in the construction sector, overcoming the barriers posed by investor influence remains a challenge for policymakers and developers. Investors play a vital role in fostering the growth of green building in Malaysia by generating demand for green building development. Developers and policymakers can implement diverse and efficient strategic plans to address the factors that investors take into serious consideration.

The data gathered from the research study is crucial to explore further and utilize effectively by all stakeholders in the construction industry. It is their responsibility to promote green building practices and encourage industry development. Each party plays a significant role in enhancing green development in Malaysia. For instance, architects are instrumental in advancing green building initiatives through the creation of environmentally sustainable structures. Real estate agents have the potential to promote green buildings to potential investors through effective marketing strategies, while governments can offer incentives or tax breaks to foster green development in construction. Particularly, investors play a vital role in the growth of the green building sector by embracing innovative building techniques and being receptive to new initiatives. Thus, through establishing an ecosystem fostering collaboration among all stakeholders, the advancement of Malaysia's green building sector can be bolstered. Such efforts will not solely foster sustainability but also bolster the nation's economic prosperity. Ultimately, this outcome offers valuable insights into enhancing green development in Malaysia by presenting additional investor-centric data on the influencing factors surrounding green building investment. This dataset will facilitate a deeper comprehension of the factors motivating or deterring investment choices in green building projects.

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APPENDIX

Approval for Ethical Clearance in Research Project

Re: U/SERC/56(A)-309/2024

22 March 2024

Sr Dr Elia Syarafina Binti Abdul Shakur
Department of Building & Property Management
Faculty of Accountancy and Management
Universiti Tunku Abdul Rahman
Jalan Sungai Long
Bandar Sungai Long
43000 Kajang, Selangor

Dear Sr Dr Elia,

Ethical Approval For Research Project/Protocol

We refer to your application for ethical approval for your research project (Master student's project) and are pleased to inform you that your application has been approved under Expedited Review.

The details of your research project are as follows:

Research Title	The Investor' Perspective on Sustainable Green Building
Investigator(s)	Sr Dr Elia Syarafina Binti Abdul Shakur Eng Cheng Wei (UTAR Postgraduate Student)
Research Area	Sustainable Green Building
Research Location	Malaysia
No of Participants	100 participants (Age: 20 - 80)
Research Costs	Self-funded
Approval Validity	22 March 2024 - 21 March 2025

The conduct of this research is subject to the following:

(1) The participants' informed consent be obtained prior to the commencement of the research,

(2) Confidentiality of participants' personal data must be maintained,

(3) Compliance with procedures set out in related policies of UTAR such as the UTAR Research Ethics and Code of Conduct, Code of Practice for Research Involving Humans and other related policies/guidelines; and

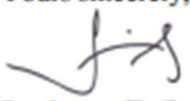
(4) Written consent be obtained from the institution(s)/company(ies) in which the physical or/and online survey will be carried out, prior to the commencement of the research.

Should you collect personal data of participants in your study, please have the participants sign the attached Personal Data Protection Statement for your records.

The University wishes you all the best in your research.

Thank you.

Yours sincerely,



Professor Ts Dr Faidz bin Abd Rahman
Chairman
UTAR Scientific and Ethical Review Committee

c.c Dean, Faculty of Accountancy and Management
Director, Institute of Postgraduate Studies and Research