SELF ASSESSMENT GREEN BUILDING INDEX FOR RESIDENTIAL ESTATES

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SELF ASSESSMENT GREEN BUILDING INDEX FOR RESIDENTIAL ESTATES

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DEDICATION

This Report Project is lovingly dedicated to:

My respective parents who have been my constant source of inspiration. They have given me the drive and discipline to tackle any task with enthusiasm and determination. Without their love and support this project would not have been made possible. Lot of love for Haji Baharin bin Haji Umar and Hajjah Azizah Hashim.

My Siblings
Mohd Azwan, Noor Hidayah, Mohd Aiman and Mohd Azmin
"It stretches, from the fog into sunshine,
hopelessness into faith,between despair and joy"

A Part Of My Life
Mohd Nizam b Mohd Mokhtar and Nurul Arafah bt Ishak
"Friendship is the bridge, between lonely and loved,
between a glance and a gaze.It crosses the chasm
from hell to heaven, from Allah to man"

To All My Lovely Friends
Thanks for everything....

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ABSTRACT

This research studies an assessment of Green Building Index for existing building in Malaysia. The current action taken on the application of sustainability is more towards the development of Renewable Energy (RE) and Energy Efficiency (EE) initiatives in residential buildings, which is one of the key elements in sustainable building. In Malaysia, there is no green buildings that have age of over 5 year's in life cycles. Malaysia is also lacking behind in the application of green building, whereas there's no property edition adopted rating system available for resident. The most important thing is the governance structure of administration, management and the policy is not yet in place. This research is an effort to contribute an idea for better green building application for the future. Self assessment will reduce cost in Professional assessment for green building. The objective in this research is to identify the knowledge level on GBI parameter by the resident, develop self assessment form on green building application in Malaysia for residential house and to assess self assessment form and make an improvement for wide user adoption .Method that uses to achieve this objective is by quantitative method among resident and professional, also qualitative method with professional team such PAM and GSB. Several data showed that the lower understanding of resident in GBI term such as OTTV, RTTV, MASMA, regional material and many more. The self assessment developed based on the previous data, literature review and existing GBI. The last objective is to compare self assessment marking with professional marking and it showed that professional marking is higher than self assessment. And it conclude that the self assessment need to be improve. Some recommendation for the future study is also suggested and hope would help the construction professionals especially governance to make a better decision for better green building application in the future.

ABSTRAK

Kajian ini dijalankan bagi mengkaji piawaian bangunan hijau sediada di Malaysia. Kini dapat dilihat beberapa langkah telah diambil bagi menjalankan persekitaran mampan seperti pembangunan Tenaga Diperbaharui (RE) dan Kecekapan Tenaga (EE) dibeberapa bangunan kediaman, di mana elemen ini adalah merupakan salah satu kriteria di dalam bangunan hijau. Di Malaysia, masih tiada bangunan hijau yang telah melebihi 5 tahun kitarannya. Malaysia juga dianggap ketinggalan dalam pengaplikasian bangunan hijau ini, di mana masih tiada sistem penilaian yang disediakan untuk penduduk supaya dapat melihat manfaat daripada bangunan hijau itu sendiri. Dan yang paling penting ialah, struktur pentadbiran kerajaan seperti pentadbiran, pengurusan dan polisi masih tidak berada di tempatnya. Kajian ini merupakan salah satu usaha untuk menyumbangkan idea bagi perlaksanaan bangunan hijau yang lebih baik pada masa hadapan. Objektif kajian ini adalah untuk mengenalpasti tahap pengetahuan penduduk di dalam parameter bangunan hijau, membangunkan borang penilaian sendiri dan membuat perbandingan sistem permakahan diantara penduduk dan professional. Kaedah yang digunakan untuk mencapai matlamat ini ialah dengan menggunakan kaedah kuantitatif dikalangan penduduk dan kaedah penilaian terbuka terhadap pasukan professional seperti PAM dan GBS. Beberapa data menunjukkan tahap pengetahuan penduduk rendah di dalam parameter seperti OTTV, RTTV, MASMA, bahan serantau dan lainnya. Berdasarkan data objektif pertama, kajian literatur dan kaedah penilaian terbuka, borang penilaian sendiri telah dibina. Objektif terakhir dicapai dengan membuat perbandingan markah diantara professional dan penduduk dan disimpulkan bahawa penilaian sendiri perlu untuk diperbaiki. Beberapan cadangan untuk kajian masa hadapan telah dicadangkan dan diharapkan projek ini dapat membantu pihak professional terutamanya pentadbiran untuk membuat keputusan yang lebih baik bagi pengaplikasian bangunan hijau pada masa hadapan.

CONTENT

CHAPTER	DESCRIPTION		PAGE
	DECLARATION		ii
	DEDICATION		iii
	ACKNOWLEDGEMENT		iv
	ABSTRACT		v
	ABSTRAK		vi
	TABLE OF CONTENTS		vii
	LIST OF TABLES		xii
	LIST OF FIGURES		xiii
	LIST OF APPENDIX		xv
1	**INTRODUCTION**		
	1.1	Introduction	1
	1.2	Research background	2
	1.3	Problem statement	4
	1.4	Research objective	5
	1.5	Research scope	5
	1.6	Significance of the Research	6
	1.7	Research methodology	6
	1.8	Arrangement of the report	9
	1.9	Case Study	9

2 LITERATURE REVIEW

2.1 Introduction 12

2.1.1 Issue of environmental in building construction 13

a) Energy Issues 14

b) Water Issues 15

c) Site Issues 15

d) Air Quality 16

e) Material and Resources Issues 17

f) Acoustics 17

2.2 Definition Of Green Building 19

2.2.1 Defining “Sustainable Construction” 21

2.3 Principles Of Green Building 22

2.3.1 Principle 1: Conserving energy 22

2.3.2 Principle 2: Working with Climate 23

2.3.3 Principle 3: Minimizing New Resources 24

2.3.4 Principle 4: Respect for Users 25

2.3.5 Principle 5: Respect for Site 25

2.3.6 Principle 6: Holism 26

2.4 Benefits Of Green Building 27

2.4.1 Costs and Lifecycle Savings 27

2.4.2 Economic Benefits 28

2.4.3 Natural Resources and Environment 29

2.4.4 Community or Municipal Enhancement 30

2.4.5 Productivity and Health Benefits 30

2.4.6 Learning Curve 31

2.5 Green Building Concepts 32

2.5.1 Energy Efficiency and Renewal Energy Efficiency 32

2.5.2 Heat Ventilation And Air Condition System 33

2.5.3 Lighting System 34

2.5.4 Material Efficiency 35

2.4.5 Water Efficiency Management 35

2.5.6 Cultivation Of Plantation 36

2.6 Rating Systems For Green Buildings 36

2.6.1 BREEAM 37

2.6.2 LEED 38
2.6.3 ENERGY STAR 40
2.6.4 CASBEE 41
2.6.5 NABERS 43
2.6.6 GREEN STAR 44
2.6.7 GREEN BUILDING LABEL 46
2.6.8 HK BEAM 47
2.6.9 GREEN MARK 49
2.6.10 MALAYSIAN GREEN BUILDING INDEX 52
a) Process of GBI assessment 52
b) Criteria GBI for RNC 54
c) Criteria GBI for NRNC 55
2.7 Barriers to Green Building 56
2.7.1 Separate capital & operation budget 56
2.7.2 Higher perceived/Actual first cost 57
2.7.3 Risk and Uncertainty 58
2.7.4 Split Incentives 58
2.7.5 Expense 59
2.7.6 Externalized Costs 60
2.7.7 Product Information & Sourcing 60
2.7.8 Client Knowledge 61
2.7.9 Code Barriers 61
2.8 Conclusion 62

3 RESEARCH METHODOLOGY

3.1 Introduction 63
3.2 Research Methodology 63
3.2.1 Identify the objective and mission 64
3.2.2 Literature Review 64
3.2.3 Data Collection 65
3.3 Research Design 65
3.3.1 Population 65
3.3.2 Sampling 66
3.4 Data Collection 67

	3.4.1	Data Collection Instrument	68
		a) Questionnaire	68
		b) Interview	68
3.5	Data Analysis		70
3.6	Conclusion		70

4 DATA ANALYSIS, RESULT AND DISCUSSION

4.1	Introduction		71
	4.1.1	Race Represented By Residents	72
	4.1.2	House Classification By Residents	73
	4.1.3	Years Of Live By Residents	74
	4.1.4	Household Amount By Residents	75
4.2	Case Study		75
	4.2.1	LICUALA Garden Housing Estates	75
4.3	Knowledge Levels Among Residents In Green Building Practices		77
	4.3.1	Knowledge Levels On Green Design	77
	4.3.2	Knowledge Levels On Green Purchasing	79
	4.3.3	Knowledge Levels On Ms1525:2007	81
	4.3.4	Knowledge Levels Of Residents On GBI	82
4.4	Knowledge Levels On GBI Parameter		83
	4.4.1	Energy Efficiency (EE)	83
	4.4.2	Indoor Environmental Quality (EQ)	85
	4.4.3	Sustainable Site Planning & Management (SM)	87
	4.4.4	Material & Resources (MR)	89
	4.4.5	Water Efficiency (WE)	90
	4.4.6	Innovation (IN)	91
4.5	Develop Of A Guideline For Self Assessment Green Building Index In Malaysia		92
	4.5.1	Parameter In Energy Efficiency (EE)	93
	4.5.2	Parameter In Indoor Environmental Quality (EQ)	94
	4.5.3	Parameter In Material & Resources (MR)	94
	4.5.4	Parameter In Sustainable Site Planning And Management (SM)	95

	4.5.5	Parameter In Water Efficiency (WE)	96
4.6	Comparison GBI Self Assessment With GBI Professional		96
	4.6.1	Comparison Energy Efficiency (EE)	97
	4.6.2	Comparison Indoor Environmental Quality	98
	4.6.3	Comparison Sustainable Site Planning And Management (SM)	99
	4.6.4	Comparison Material & Resources (MR)	100
	4.6.5	Comparison Water Efficiency (WE)	101
	4.6.6	Comparison Innovation (IN)	102
4.7	Knowledge Residents On Benefit Green Building		103
4.8	Conclusion		105
5	**CONCLUSION AND RECOMMENDATION**		
5.1	Introduction		106
5.2	Level knowledge of resident in Green building index Malaysia		107
5.3	Develop of a guideline for self assessment green building index in Malaysia		110
5.4	Comparison of self assessment green building index in Malaysia with Professional green building index Malaysia		110
5.5	Recommendations		112
5.6	Recommendations for Future Study		112
5.7	Problem of Data Collection		113
5.8	Conclusion		114
REFERENCES			115
Appendix			

LIST OF TABLES

TABLE NO	TITLE	PAGE
2.1	Evironmental impacts of construction	18
2.2	Comparison between of non green building and green building	20
2.3	BREEAM assessment the performance of building	38
2.4	Rating system on Green Star	46
2.5	Rating Green Mark system For New Buildings	51
2.6	Rating Green Mark system For Existing Buildings	51
2.7	Rating GBI system for Residential new construction	54
2.8	Rating GBI system for Non Residential new construction	55
3.1	Size of sampling based on population	66
4.1	Summary of respondents	72
4.2	Knowledge on green design	77
4.3	Level knowledge of residential on green purchasing	79
4.4	Knowledge level of code MS1525: 2007	81
4.5	Knowledge level on Malaysian Green Building Index	82
5.1	Summarize of the low knowledge GBI term by resident	107
5.2	Summarize of the mean index knowledge of GBI term	108
5.3	Summarize of the point marking system.	111

LIST OF FIGURE

FIGURE NO	TITLE	PAGE
1.1	Flow chart for research methodology	8
1.2	Type of double storey house (Licuala Ray)	11
1.3	Type of double storey house (Licuala Lush)	11
4.1	The race represented by residents	72
4.2	The classification of house by residents	73
4.3	The years of live in the residential by residents.	74
4.4	Amount of household by residents.	75
4.5	Specification of Licuala Ray house	76
4.6	Specification of Licuala Lush house	76
4.7	Example of Green design in Ken Rimba Legian (Certified GBI)	78
4.8	Example of Green design in Sime Darby House (Gold GBI)	78
4.9	Example of Green design in The Enclave Bangsar (Certified GBI)	79
4.10	Example of Green purchasing such as Solar Panel	80
4.11	Example of Green purchasing, Sensor motion Led Bulb	80
4.12	Example of Green purchasing, Low VOC paint	81
4.13	Knowledge levels on energy efficiency parameter	83
4.14	Knowledge levels on indoor environmental quality parameter	85
4.15	Knowledge levels on sustainable site and management parameter	87
4.16	Knowledge levels on material and resources parameter	89
4.17	Knowledge levels on water efficiency parameter	90
4.18	Knowledge levels on innovation parameter	91
4.19	Comparison mark on Energy Efficiency criteria	97
4.20	Comparison mark on Indoor Environment Quality criteria	98
4.21	Comparison mark on Sustainable Site Planning & Management	99

4.22	Comparison mark on Material and Resources criteria	100
4.23	Comparison mark on Water Efficiency criteria	101
4.24	Comparison mark on Innovation criteria	102
4.25	Knowledge levels of respondents on benefit of green building.	103

LIST OF APPENDIX

APPENDIX	TITLE	PAGE
A	Questionaire Form	119
B	Self Assessment sheet	120
C	Green Building Index For RNC Sheet	121

CHAPTER 1

INTRODUCTION

1.1 Introduction

Green building refers to a buildings which are built and use using process that is environmentally responsible and resource-efficient throughout its life-cycle: it shall foster from cradle to grave inception to design, construction, operation, maintenance, renovation, reuse, refurbish and demolition. This practice expands and complements with the classical building design that are concerns with economy, safety, utility, durability, and comfort. Building and construction, land development, local, urban and regional planning, provision of services; all these are inextricably linked in the web of urban formation. By considering all components sequentially parallel, each facilities and supports the successful implementation of the other.

Green buildings also known as green construction or sustainable building are becoming increasingly a norm for both residential and commercial buildings. The high demand for green design spurs greater than ever as world consciousness for the environment and sustainability. In many cases, green structures may provide a lower lifetime cost alternative to conventional building methods. Although green technology is more expensive than traditional technologies, it has the potential to

have a shorter return of investment due to significant reduced of utility bills. With the current economic condition, cost-effective designs will certainly drive the market forward.

The idea of green design is still a new concept. Therefore, the definition of what is, and what is not green has sometimes confusing. However, there are many emerging ways to define a green design. In Malaysia, rating system for green design called GBI has existed. GBI (Green Building Index) was developed by the PAM (Malaysia Architect Associate) and provides a checklist to achieve sustainable building design. Features in the checklist include a range of construction aspects from site selection, to energy sources, to materials of construction. Energy-efficient appliances, alternative heating/cooling sources, solar energy and water conservation are all contribute to what is widely considered to be green. (Ministry of Energy, Water and Communications, MEWC, 2010)

A well-planned and designed built environment will consider the natural environment and able to validate its importance for wellbeing. The human built environment must be the one that supports ongoing wellness and integrity of the natural environment as well as the individuals and society, far maintaining social and economic prosperity. The sustainability of our built environment, and our physical health and emotional wellbeing is intrinsically linked to the quality of the environment.

1.2 Research background

A capital at large requires to build a green buildings. When compared with the lifetime of the ordinary buildings, this building is to save the overall costs. Malaysian government is appreciating the potential of green technology sector and

allocated approximately RM 1.52 billion under 2010 budget to promote and encourage the growth of the industry. These enable companies of green technology to have a financial borrowing capacity to finance their activities. For supplies, the maximum loan of RM50 million can be made and RM10 million for end users of buildings. Government has also provided various incentives such as in the form of tax allowance, exemption from import duty and sales tax for building which have been recognized as Green Building Index (GBI). (Chin, PFK 2009)

The construction sector stands as a focus of global efforts to reduce its "carbon footprint" has started to gain traction with startling speed, though in reality, the forces propelling the greening of real estate have been mounting for at least a decade. Some construction practitioners have long advocated greener approaches to how and where property is developed and operated, but a new paradigm seems have to be reached by critical mass beside awareness to action. Industry publications, conferences and popular press are suddenly filled with account of how developers can and how to produce more environmentally-friendly high performance product. The near ubiquitous motto is: "Green is Green".

The construction industry has always had its core of practitioners who recognize the special responsibility to the sector for built environments. But it has been only in the last few years that these voices have gained wider attention within the construction and real estate community. Now, organizations across the construction spectrum are recognizing the importance of addressing the environmental challenges.

1.3 Problem statement

The 9th Malaysian Plan was launched in the early of 2006, that include sustainability aspect of development that sets the tone for development over the subsequent 5 years (2006 – 2010). The Malaysian government, in its recent five year 9th Malaysian Plan emphasizes the following:-

- The importance of EE (Energy Efficiency) initiatives in Residential, industries, transport and commercial sectors as well as government buildings.
- The development of Renewable Energy (RE) and the Enhancement of energy efficiency (EE) will be fore fronted by the Ministry of Energy, Water and Communications (MEWC).

Based on the current Malaysian Plan, it can be seen that action taken on the application of sustainability is more towards the development of Renewable Energy (RE) and Energy Efficiency (EE) initiatives in residential buildings, which is one of the elements of sustainable or green building. This effect seen as various housing estates in Johor are categorized as 'sustainable' or 'green' but the adoption is unplanned and uncoordinated by the local authority and fragmented in only parts of Pulai spring, Setia Tropika residential and some area in Johor Bharu.

In Malaysia, the green buildings are under 5 year's life span. Malaysia is also behind in the application of green building, and there is no client rating system available for resident to encourage the assessment to their own buildings. The governance structure of green initiatives such as the administration, management and the policy is still in installation format. Considering the previous fact, this research is an effort to contribute an ideas for better green building application in the future at developing governance level of structure in green building application. This research will be addressing this issue through the questions as stated below:-

(1) What is the level of knowledge among resident about green building practices in construction?

(2) Was it other ways to assess green building index for residential building and how to assess it?

(3) What are the difference and benefit between self assessment of green building index and professional assessment?

1.4 Research Objectives

This proposed research seeks to achieve the following objectives:

(1) To check the level of knowledge among resident in green building practices in construction.

(2) To develop a guideline for self assessment of green building index.

(3) To contrast between the self assessment green building index to an existing green building index attribute in Malaysia.

1.5 Research scope

In this context, scoping refers to the geographical and respondent scope. The geographical scope is limited to resident with single and double storey housing near Johor Bharu, Johor Darul Takzim, to build the self assessment guidelines, the respondent of green building resident and professional selected.

1.6 Significance of the Research

The outcomes of this research are to reveal the household of their knowledge level about green building. The community needs to be alerted and be prepared to meet the outcomes of the building they choose to live and to provide better places for the future generation.

The second contribution of this research is to propose a self assessment of green building index form for the resident. This idea is important as it provide the decision maker with the framework on how the green building should be manage at granular level of society.

Another important contribution of this research is to compare the different between self assessment index with professional index. Outcomes from this self assessment will provide knowledge on where green building in Malaysia is headings. By knowing where our self is positioned, foster further actions to be identified and mitigate to fulfill the needs of the applications on the holistic concept of green building.

1.7 Research methodology

The realization of this research considers the following methodology:

(1) Literature revision on element of green building.
(2) Diagnosis of current green building situation and concept in Malaysia such as guidelines, policy and intensives available and develop quantitative form.

(3) Develop the research instrument. Semi-structured questionnaire will be developing to assist in developing a self assessment green building index in Malaysia.

(4) Analyzing the information collected from self assessment using Statistical Packages for Social Science (SPSS)

(5) Generation of a self assessment on the resident in Malaysia context.

(6) Compared the professional marking of forms with self assessment marking and concluded with some recommendation.

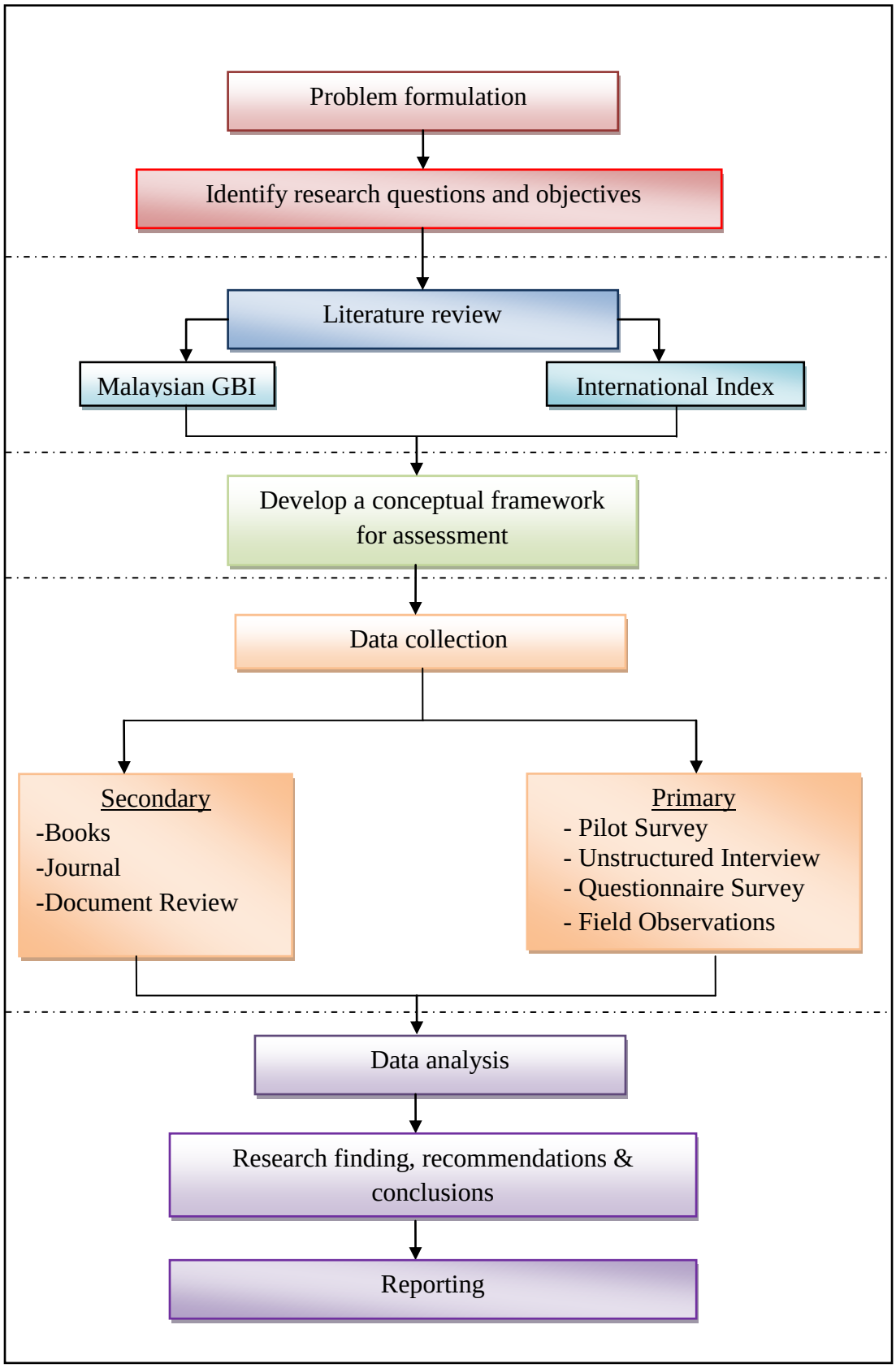

Figure 1.1: Flow chart for research methodology

1.8 Arrangement of the report

1) The First Chapter is the introduction of the study includes the problem statements, the aim and objectives of the study, the scope of work and the methodology of study.

2) The Second Chapter is on literature review which focused on the green building definition, concept of green building, impact of green building, assessment green building index available and benefit of green building.

3) The Third Chapter describes about the method of study and data analysis.

4) The Fourth Chapter discusses the results and data analysis of the study.

5) The Fifth Chapter includes the conclusion of the study and some recommendations for the future study.

1.9 Case Study

Setia Tropika is a township that claims on innovation to provide a lifestyle that is above the rest. Setia Tropika is a showcase of modern-day living at its best with the perfect combination of chic, contemporary home designs set within landscaped greenery.

Spread across 740 acres of prime land, Setia Tropika's most defining features are its groundbreaking designs that lend the homes a contemporary modernistic twist yet remain functional for family living. Among the striking architectural elements are rooftop garden terraces, indoor water features, built-in courtyards and double volume porches.

Being touted as one of the fast-growing development in Johor Bahru, Setia Tropika, since its inception 5 years ago, currently has more than 2,500 units of occupied residences and commercial lots. Setia Tropika also developed the CBD (*Central Business District*), an integrated flagship commercial hub of the township that offers total conveniences and amenities to the residents of Setia Tropika as well as the general public.

The Setia Tropika township is situated next to the North-South Highway, which has a projected traffic flow of 6,000 cars every hour. Setia Tropika has built the Exit 255B for its residents so that they can travel to and from the CBD faster and easier. The construction of the new EDL (*Eastern Dispersal Link*) is currently in progress and is estimated to completed by 2011. The EDL connects the North-South Highway to the new Customs, Immigration and Quarantine Complex (CIQ) reducing the traveling time to the CIQ to only 10 minutes.

This thriving township also extensively embraces the "Green Street" development concept to ensure a conducive living environment for its residents. With a 12-acre town park forming the heart of the vibrant township, residents can enjoy various features of signature Setia landscaping such as playground, reflexology path, amphitheatre and mini parks.

Figure 1.2: Type of double storey house (Licuala Ray)

Figure 1.3: Type of double storey house (Licuala Lush)

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