

SUSTAINABILITY IN MALAYSIAN HERITAGE BUILDING
CONSERVATION: INTEGRATION OF SUSTAINABILITY
PRINCIPLE THROUGH THE HERITAGE LEGISLATION AND
POLICY

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ABSTRACT

The study aims at investigating the possibilities of integrating sustainability principle into the Malaysian heritage building through legislation and policy. The emerging of concern toward sustainability worldwide has causing the raise of concern toward the viability of the sustainability of these historical structures. With over 170 buildings are currently registered in the Malaysian National Heritage Council heritage list, this issues should be taken into consideration when planning for the next or current heritage conservation procedure. This research investigates the importance and relevance of three bottom line principle of sustainability for the integration of sustainability in Malaysian heritage conservation. A comparative study between the current Malaysian and international heritage legislation and policy emphasis on finding the existing sustainable gap which in to be use as the basis on creating approaches in improving the sustainability integration of the current Malaysian heritage legislation. A review of literature concerning the sustainability principle and green maintenance, interviews with the Malaysian heritage governing and managing bodies are used as a tool of conducting qualitative and comparative research. The study perceived that through integration of the element of economic, social and environmental sustainability in the current Malaysian heritage legislation, the sustainability of the heritage building conservation can be improved. The study recommends approach method that can be adopted into the heritage legislation in improving the integration of sustainable principle in heritage conservation.

ABSTRAK

Kajian ini bertujuan untuk menyiasat kemungkinan untuk mengintegrasikan prinsip keselamatan ke dalam bangunan warisan Malaysia melalui undang-undang dan dasar. Lonjakan perhatian terhadap keselamatan di seluruh dunia telah menyebabkan isu keselamatan terhadap keupayaan bangunan warisan dari segi keselamatan. Dengan lebih daripada 170 bangunan yang kini didaftarkan di dalam senarai warisan Jabatan Warisan Kebangsaan Malaysia, isu ini perlu dipertimbangkan apabila merancang proses pemuliharaan warisan semasa atau di masa hadapan. Penyelidikan ini menyiasat kepentingan dan kaitan tiga prinsip dasar keselamatan bagi integrasi prinsip keselamatan di dalam proses pemuliharaan bangunan warisan Malaysia. Kajian komparatif antara undang-undang warisan semasa Malaysia dan antarabangsa bertujuan untuk mencari jurang mampan sedia ada yang akan digunakan sebagai asas untuk mewujudkan pendekatan dalam meningkatkan integrasi keselamatan undang-undang warisan Malaysia. Analisa literatur mengenai prinsip keselamatan dan penyelenggaraan hijau, temubual dengan badan pentadbiran dan pengurusan warisan Malaysia digunakan sebagai alat untuk menjalankan penyelidikan kualitatif dan perbandingan. Kajian ini menyedari bahawa melalui integrasi unsur ekonomi, sosial dan alam sekitar dalam keselamatan dalam undang-undang warisan Malaysia, keberkesanan dalam mengintegrasikan prinsip keselamatan dalam pemuliharaan bangunan warisan dapat ditingkatkan. Kajian ini mencadangkan kaedah pendekatan yang boleh digunakan dalam undang-undang warisan dalam meningkatkan integrasi prinsip keselamatan dalam bangunan warisan.

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LIST OF ABBREVIATIONS

CO ₂	Carbon Dioxide
ICCROM	International Centre for the Study of the Preservation and Restoration of Cultural Property
ICOMOS	International Council on Monuments and Sites
NHPA	National Historic Preservation Act
NGO	Non-Government Organization
IUCN	International Union for Conservation of Nature
PWD	Public Work Department
SHPO	State Historic Preservation Officer
UNESCO	United Nations Educational, Scientific and Cultural Organisation

LIST OF APPENDIX

Appendix A

CHAPTER 1: INTRODUCTION

Globally, heritage buildings are considered as an important assets as they carry the past history and culture of a nation (Essays, 2013). Similar in Malaysia, heritage buildings are categorised as an important assets which carries important values and lesson from past. Throughout the world there are several variation of how heritage building are defined. One of the most referred definition globally is from The United Nations Educational, Scientific and Cultural Organisation (UNESCO). UNESCO, an organisation responsible for coordinating and managing the World Heritage list, defines heritage building as a tangible cultural heritage, a physical artefacts that carry significant values from the past generations of a society that are, which are maintained and preserve for the benefit of future generations (UNESCO, 1972). In Malaysia context, heritage building are define as “monument” which have significant values in term of history, art or science in its elements or structures (The Commissioner of Law Revision, 2005). Preserving these heritage assets is important to ensure that the future generation can learn for the significant value contain in those assets toward the development of modern world.

Globally, there has been rise in acceptance where the conservation of heritage building are benefiting the society in term of economic, cultural and social (Bullen & Love, 2010). However with the emerging of concern toward sustainability worldwide, there have been issues concerning the viability of the sustainability of these historical structures. In the United Kingdom and Europe region, the main sustainability concern in historical buildings is the reduction of Carbon Dioxide (CO₂) emissions which in result this issues has become an integral part in the region major political, economic and social agenda (Godwin, 2011). Hence, these heritage building need to fully adapt with this change of sustainability concern in ensuring them not to be an asset which considered as sustainably obsolete (Cassar, 2009). Sustainability can be define as the principle of reducing the

resource consumption in achieving the present needs for the sustainable future (Godwin, 2011). In order to achieve sustainability, three fundamental bottom line need to be considered when planning an action which is environmental, economic and social (Adams, 2006).

With application of sustainability principle in heritage building conservation, we can sustainably pass these valuable assets onto the future generation. Therefore, this research investigates the importance and relevance of three bottom line principle of sustainability for the integration of sustainability in Malaysian Heritage conservation. Subsequently, this research informs the development of a guideline for integrating sustainability principle in the adaptation, conservation and restoration of heritage building in Malaysia.

1.1 Problem Statement

The practice of conserving and refurbishing an old heritage building to carter new use and prolong its life in some ways are in line with the ideology of sustainability. Globally, there has been rise in acceptance where the conservation of heritage building are benefiting in term of economic, cultural and social (Bullen & Love, 2010). Through the conservation of heritage building, it mitigate the consumption of energy required for demolition, waste disposal and construction of new building, and at the same time promoting sustainable development through the conservation of the existing building embodied energy (Sodangi, Khamidi, & Idrus, 2013). With over 170 building are currently registered in the Malaysian National Heritage Council heritage list, the issues of sustainability integration should be taken into consideration when planning for the next or current heritage conservation procedure (National Heritage Council, 2015). However the main challenge in achieving sustainable heritage conservation is how to obtain it without sacrificing its valuable architectural or historical significance of the building (Godwin, 2011).

In a new development projects, the main approach of achieving sustainability is through the integration of sustainable principle in the decision making. This are achieve through consideration of the environmental, social and economic impact during the decision making (Dernbach & Mintz, 2011). From a study done by Nicholas Ashford and Ralph Hall, through the integration of sustainability requirement into development legislation, it will cause a surge of innovation and approach created by the developer to achieve the sustainability requirement (Ashford & Hall, 2011). This proven the effectiveness of the usage of legislation as the governing tool for sustainability which can also be adopt in the heritage conservation legislation. However, there is a need to efficiently integrate the sustainability principle into the existing heritage conservation legislation. Therefore this research is aim to study the possibilities of integrating sustainable principle approach in Malaysia heritage building conservation through the legislation and policy.

1.2 Research Aim

The aim of this research is to study the possibilities of integrating sustainability principle into the Malaysian Heritage Building through legislation and policy.

1.3 Research Objectives

In order to achieve the research aim, several research objectives has been laid out in assisting the research to obtain the desired research outcome.

1. To understand the current Malaysian heritage building conservation legislation and policies in terms of the triple bottom line elements of sustainability.
2. To benchmark international sustainable heritage building conservation legislation and policies.
3. To recommend sustainable approach into the current Malaysian heritage building conservation legislation and policies.

1.4 Research Questions

For ensuring that research objectives can be achieved, several research questions has been laid out which the answer of the question will achieve the research aims.

1. What are sustainable heritage conservation and how it is being implement in Malaysia?
2. What is the current situation of heritage conservation in term of sustainability integration internationally and how does it compare to the current Malaysian heritage conservation?
3. How can we adopt and improve the Malaysian Heritage Conservation in term of the sustainability?

1.5 Research Limitation

In every research, there is limitation that may cause problem and error during the progression of the research and need to be control in order to ensure the result obtain in this research are reliable. The first limitation of this research are, due to the nature of the research method which analysing the heritage legislation from other country, accessibility and language barrier are the issues which can cause some misunderstanding and error in the data analyse. The second limitation is during the second part of the data analysing which require data to be obtain from interview with heritage governing and managing organisation. The issues of permission and accessibility to hold the interview limit the amount of data that can be obtain to support the discussion.

CHAPTER 2: LITERATURE REVIEW

2.1 Sustainability Principle

With the rising of interest and awareness in sustainability issues, various definition of sustainable are created to emphasise its important in nowadays global situation. However throughout the world, one of the most adapted definition for sustainability are from the Brundtland Commission's which define it as ensuring the needs of present are meets without sacrificing the prospect of meeting the need of future generation (World Commission on Environment and Development, 1987). There are three overlapping main aspect of sustainability which is environment, economic and social. In year 1992, the Agenda 21 was created during the Rio declaration which explain the criteria of "sustainable development" which are based on these three conceptual element of sustainability (United Nations Conference on Environment Development, 1992).

In the "sustainable development" concept, the criteria that being emphasize in the economic sustainability are the growth, development, productivity and trickle-down. The criteria that are being emphasize in the social sustainability are equity, empowerment, accessibility, participation, sharing, cultural identity and institutional stability. The criteria that being emphasize in the "sustainable development" concept in environment sustainability are eco-system integrity, carrying capacity and biodiversity (United Nations Conference on Environment Development, 1992). In order to achieve sustainability, these criteria from each of the three element need to be considered and harmonized. Figure 2.1 highlights the relationship between the three elements of sustainability. Each one of this aspect are inter related between one another but at the same time is unique and important in their own way.

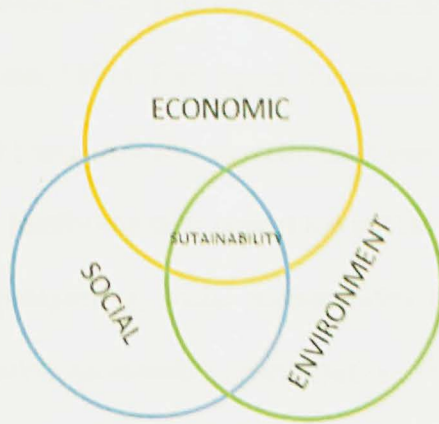


Figure 2.1: The three Element of Sustainability

Source: (Adams, 2006)

'Economic sustainability' emphasis on ensuring that the current resource consumption level to meet the current needs are not compromising needs of future (Kahn, 1995). The economic growth trend, development, and productivity has always been use in measuring the economic sustainability in the past (Basiago, 1999) which is in line with the Agenda 21 criteria. However, in the past consumption of the natural resources were devoured as if it was infinite, and this has led toward the issues of uncontrolled allocation of resources in the market, uninterrupted levels of growth and consumption. The assumption that these uninterrupted growth of economic will eventually gradually benefit the poor has always existed, which further harm the economic sustainability in the past (Basiago, 1999). The emergence of 'sustainable development' concept has led a change in the economic scene toward efficiently consuming and reducing the depletion of natural, social and human resources, which need to be considered in the development expenditure (Kahn, 1995). In general, the economic element of sustainability focusing on ensuring that all communities throughout the world are able to maintain their independence and have equal access to the resources which are required fulfil their needs but at the same time preserving it for the future generation.

'Social sustainability' in general highlight the important of creating a human community which can that lessen poverty level (Basiago, 1999). From fundamental point of view,

'social sustainability' emphasis on the relation between social status such as poverty and environmental impact (Ruttan, 1991). This aspect of sustainability focusing on the human rights and ensuring that all human are able to attain their basic necessities in ensuring the health and security of their family and their impact toward the balance of the environment. From the human rights perspective, social sustainability emphasises on the measure toward equity, empowerment, accessibility, participation, sharing, cultural identity, and institutional stability (United Nations, 2005). It aims to create a measure of preserving the environment through the growth of economic and the mitigating the issues of poverty. Basiago (1999) suggested that in order for a poor country to be economically develop, there will be trade off that need to be accepted which is the degradation of environment. However, there are some argument that these degradation of environment can be mitigate through optimisation of resource allocation (Kahn, 1995).

'Environmental sustainability' highlight the importance roles of provider and consumer on maintaining the natural resources (Pearce, Barbier, & Markandya, 1990; Pearce, Markyanda, & Barbier, 1990). From the provider point of view, this aspect emphasis on ensuring that rate of resource yielding are not exceeding the natural replenish rate of the resources. On the consumer side, it highlight the importance of ensuring and controlling the capacity of industrial waste emissions to not exceed the environment capacity in to soaking up these waste without degrading the environment (Goodland, 1995). In general, the environment aspect of sustainability emphasis on ensuring the ecological integrity is maintained by keeping the rate of consuming natural resources and the replenish rate of these natural resources are in balance. This involves the process of monitoring the ecosystem integrity, carrying capacity and biodiversity. Kahn (1995) summarise that the rate of harvesting resources must be slower than their regeneration rates and the rate of waste emission should be lower than what the environment can soak up. This to ensure that issues of resources depletion are mitigated in order for the future generation to fulfil

their need and the environment are not degraded by the process of meeting the present need.

The globalisation of concern toward the sustainability has also driven the increase of concern toward the viability of historical structure in term of sustainability (Akande, Odeleye, Coday, & JimenezBescos, 2016). As a result, multiple studies on improving the building maintenance process has been done as measure in managing this surge of concern. One of the solution created from this measure are the 'green maintenance concept' which integrating the sustainability element into the heritage building maintenance process through the emphasis of the heritage maintenance environmental impact (Kayan, Alan, & Phillip, 2016).

2.2 Green Maintenance in Heritage Building

One of the main objectives in building conservation is to preserve and maximize the usage of the building. The process of conserving heritage buildings is very important in protecting its cultural resources and to preserve the historical and architectural values of the building (Kayan, 2017). Heritage building is a finite resource and a valuable asset further strengthens the concept. Although architects tend to argued that the creation of heritage is a continuous process, but the concept of conserving heritage building are still remain relevant (Godwin, 2011). Globally, the ideology of conserving heritage buildings are well accepted as an approach in ensuring that the resources invested in constructing the building is retained. This highlight the importance and impact of all the processes involve in maintaining, repairing and restoring the building fabric and structures.

Bell (1997) highlight the important principles of building conservation philosophy which are reducing intervention, equivalent material replacement, honesty and distinguishability, integrity, reversibility, respect for historic appearance, and respect for traditional craft skills. By referring to these principle, a proper performance measurement for

heritage building maintenance are created where the performance of the maintenance not only emphasis on the quality of the repair work, but also its compliance against these philosophy.

Throughout the world, it is agreeable that cost of repairing the heritage building is greater than normal building due to the used traditional materials which is high cost and techniques which require specialist contractor (Forster & Kayan, 2009). This situation further worsens with the issues of depletion in resources and surge of cost which lead to the issues finding appropriate alternative to competence these issues. However, it is proven that most of the measure which are comply to the building conservation philosophy produce a higher quality and more compatible with the building existing fabric and structure (Forster, Carter, Banfill, & Kayan, 2011).

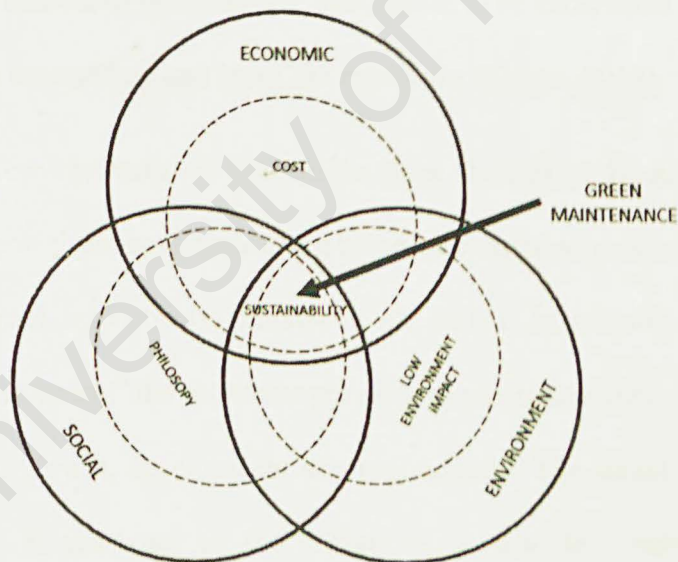


Figure 2.2: Indicator in evaluating green maintenance (Forster et al., 2011)

The globalisation of sustainability issues has lead toward the surge of awareness in improving the building maintenance process toward sustainable approach. Thus the ‘green maintenance concept’ are created as solution toward this issues where it emphasis on the environmental impact of heritage maintenance. The relationship between the indicator in evaluating green maintenance with the traditionally aspect of sustainability

are highlighted in Figure 2.2 (Forster et al., 2011). Maintenance for heritage building is considered sustainable when it covers the aspect of cost, philosophy and environment impact in its measure.

The “green maintenance” concept incorporates the environmental impact aspect through the evaluation of embodied carbon expenditure of the repair work. Process analysis assessment methods of Life Cycle Assessment are one of the evaluation model that can be adopted in evaluating carbon expenditure of historic masonry buildings maintenance (Kayan et al., 2016). The implementation of locally sourced repair materials, engagement of regional repairs contractor and selection low embodied carbon materials are emphasis in Green Maintenance concept. Repair technique with higher longevity are also highlighted in Green Maintenance concept due to the ideology the higher the longevity of repair, the less number of maintenance intervention to be undertaken resulting in lower embodied carbon expenditure and less CO₂ emissions (Kayan, 2015).

Overall, in the green maintenance concept the three element of the sustainability which is the economic, social and environment are being emphasize on cost, philosophy and low environment impact respectively (Forster et al., 2011). In relation to the criteria of “Sustainable development” the economic principle of green maintenance are emphasizing on the criteria of growth, development and productivity. The social principle of green maintenance are emphasizing on the criteria of accessibility, participation, cultural identity and institutional stability. The environment principle of green maintenance are emphasizing on the criteria of the eco-system integrity and carrying capacity.

In relation to the research, “Green Maintenance” concept is in line with the move towards sustainable heritage conservation. This is due to the concept of “Green Maintenance” in general cover all the aspect of sustainability where the economic, environment and social aspect are being considered in the maintenance process. This concept can be used as a guide during planning of the approach in integrating sustainability into the heritage

conservation especially in term of environment where low environmental impact are being used as the main measuring criteria.

2.3 Heritage Conservation Legislation and Policies

This part of literature review will focus on analysing the current available heritage conservation legislation and policies internationally and locally, and to explore the current integration of the legislation and policies toward sustainability aspects of environment, economic and social. These legislation and policies will be analysed in terms of sustainability which is based form the sub criteria of each sustainability element (refer table 2.1). These criteria are adopted from the Agenda 21 document which highlighting the economic, social and environment criteria for “Sustainable development” concept (Kahn, 1995).

Table 2.1: The Principle of sustainable development

Element	Criteria
Economic Sustainability	Growth Development Productivity Trickle Down
Social Sustainability	Equity Empowerment Accessibility Participation Sharing Cultural Identity Institutional Stability
Environmental Sustainability	Eco-System Integrity Carrying Capacity Biodiversity

Source: adopted from (Kahn, 1995)

This analysis will be done into two parts, starting with international legislation and policies, and then reviewing the Malaysian context. The aim of this separation is to understand the sustainable gap that exists in current Malaysian heritage legislation and policy and to compare it with the global heritage legislation and policy. The outcome of

the comparison is the improvement measure for the current Malaysian heritage legislation and policy in term of the existing sustainability gap.

2.3.1 International Heritage Conservation Legislation and Policies

Internationally there are several conservation policies that have been produced in order to ensure the survival of heritage value and also the retention of its originality. These international conservation legislation and policy can be used as reference in improving the Malaysian conservation legislation and policy in term of sustainability aspect. One of the common international policies that are used in Malaysia is the UNESCO Operational Guidelines for the Implementation of the World Heritage Convention. This is due to Malaysia having several sites listed under UNESCO World Heritage Convention which is located in Malacca, Penang, Perak and Sarawak (UNESCO, 2017). In this section of literature analysis, the international legislation and policies that will be analysed are the UNESCO Operational Guidelines for the Implementation of the World Heritage Convention; the United Kingdom Building Regulations and Historic Buildings 2004; the Australian Burra Charter, the United States National Historic Preservation Act 1966, the Japanese Law for the Protection of Cultural Property 1950, the Singaporean Preservation of Monuments Act 1971, and the Indonesian Cagar Budaya.

Each of these selected legislation and policies are representing the different region where it based and drafted on. The distribution of the legislation and the policy are, the Building Regulations and Historic Buildings 2004 representing the European region, the Burra Charter represents the Oceania region, the Law for the Protection of Cultural Property 1950 representing the Asian region while the Preservation of Monuments Act 1971 and Cagar Budaya further representing the South-east Asian region. The UNESCO Operational Guidelines for the Implementation of the World Heritage Convention on the other hand are representing the document which are being implemented internationally. The idea

behind this is to identify the variation of the sustainability principle integration approach throughout different region.

2.3.1.1 UNESCO, Operational Guidelines for the Implementation of the World Heritage Convention

The Operational Guidelines for the Implementation of the World Heritage Convention is a Non-Government Organisation (NGO) document, which function to encourage the convention to protect the world heritage. It acts as a supporting document for the 1972 World Heritage Convention document (UNESCO, 2016). In general the document consist of identification of world heritage list, procedure for protecting and conserving the world heritage properties, international funding for conservation work through world heritage fund and mobilization of support for the convention.

Part 1.G of the document listed out the advisory bodies for the committee which is ICCROM (International Centre for the Study of the Preservation and Restoration of Cultural Property), ICOMOS (International Council on Monuments and Sites), and IUCN (International Union for Conservation of Nature) (UNESCO, 2016). All of these advisory bodies function to provide advice on their field of expertise on the implementation of the World Heritage with IUCN being the responsible advisory body for sustainability. This is one of the approach the can be considered in the research in incorporating sustainable principle in Malaysian heritage conservation.

The process of declaration for world heritage property are defined in Part 2.D of the document in which, ten (10) criteria are laid out for building to be considered for World Heritage property (UNESCO, 2016). These ten (10) criteria emphasize on sustaining social element in term of the cultural identity, and the environmental element which is biodiversity and ecosystem integrity. This highlight that, sustainable element of a heritage building can even be monitor from the selection stage. Hence this can be taken into

consideration as one of the approach which can be adopted in incorporating sustainable principle in Malaysian heritage conservation.

Part 2.F of this document highlights the importance of protection and management of World Heritage properties are being emphasis. It emphasises on ensuring that the property Outstanding Universal Value are sustained or enhanced over time. In the operational guideline, it mentions that any World Heritage properties can be adapted for ecologically and culturally sustainable and which in resultant can contribute to improving the life quality of the communities. However, it is highlighted that any changes to the building shall not damage the Outstanding Universal Value of the property. This section of document highlight that it is possible to adapt a heritage building into a sustainable building without sacrificing the Outstanding Universal Value of the building.

In summary, the UNESCO, Operational Guidelines for the Implementation of the World Heritage Convention provide several good approach example for the integration of the sustainability element into the heritage conservation. Some of the interesting integration approach are the usage of requirement criteria for heritage status declaration and the appointment of expertise advisory agencies.

2.3.1.2 English Heritage, Building Regulations and Historic Buildings 2004

The English Heritage, Building Regulations and Historic Buildings 2004 function as a guide for mitigating issues conflicts between energy conservation policies and the revised Building Regulations and policies in term of conservation of the historic property. The document highlight the aim of English Heritage organisation which to conserve the usage of fuel and power through adaption but without compromising the special interest, character and appearance of heritage building buildings which is in line with the aim of this research. The document emphasize on the organisation measure in developing

methods to be adopted in applying the Building regulation to heritage. This highlights the viability of using legislation as tool in enhancing the sustainability of heritage building.

In the document, it highlights the principles of repair and alteration for heritage buildings in relation to part L of Building regulation 2000. It discuss on the method of identifying the special elements of the building, provide guidance on repairing and altering the heritage building with minimum intervention to comply with the part L of Building regulation 2000. In relation to adapting the building into lower energy use and low greenhouse gas emission building, the document act as a guide on achieving this approach but at the same time retaining the heritage value of the building. This highlights the possibilities of adopting environmental sustainability into heritage conservation through managing the building environmental impact.

In summary, the English Heritage, Building Regulations and Historic Buildings 2004 provide a good example for heritage conservation environmental sustainability integration approach which is through the requirement for carbon emission reduction in heritage building.

2.3.1.3 ICOMOS, the Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance Australia

The Australia ICOMOS Burra Charter, 2013 is one of the most significant document on heritage conservation in Australia for the last thirty years (Heritage Perth, 2011). The Burra Charter function as a guidance for the conservation and management practice of heritage property. In general, the document emphasis on defining the heritage property, and the principle, processes and practices in managing and conserving the heritage property.

The Burra Charter, has set out several principle throughout the document which act as the guidance for the conservation and the management of heritage properties. The first

principle emphasizes on the defining the value of keeping the heritage properties. The second principle highlights the important of identifying the important element of property which carries the significant cultural value to the heritage property. This important element can exist in many forms such as the properties fabric, location, contents, function, associated documents, and meaning to the properties users. The third principle focuses on the importance of understanding the cultural significant of understanding the heritage properties. This principle highlight the significance of the data gathering and analysing process in making decisions during the conservation and management process of the properties. The last principle focuses on the importance of documenting the decision and changes that has been done to the heritage properties.

In general, the Burra Charter provide the several possible approaches that can be used in managing the social sustainability of a heritage building. The document approach emphasis on retaining the cultural identity criteria through ensuring that the any decisions that been made regarding the future of a heritage place are based on the understanding of the property, its cultural significance and its values to people, and ensuring that the significant property fabric and the site are being properly care. Hence the document is a good reference document for the integration approach for social sustainability.

2.3.1.4 National Historic Preservation Act 1966, United States of America

The National Historic Preservation Act (NHPA), was introduce in 1966 with the intention of protecting the United States of America historical and archaeological sites from the surge of federal development. The NHPA function as a policy which support and encourage the preservation of nation heritage property. The policy emphasize on urging the consideration from the federal agencies toward their development impact on the historic properties. Through NHPA, a multifaceted preservation scheme is set out in achieving the policy at the state and federal levels.

The first part of NHPA is emphasising managing the National Register of Historic Places, an inventory of gazetted heritage properties. The act emphasis on authorising the Secretary of Interior on updating and maintain the inventory. Several criteria and procedure are list out in determining the eligibility of a property to be listed. The criteria emphasize on the significant value of the properties toward the American history, architecture, archaeology, engineering and culture.

The second part of NHPA focuses on heritage preservation program. This section encourages the state to prepare a preservation program which can be submitted for the secretary approval. A State Historic Preservation Officer (SHPO) will be designated to administrate the program. The SHPO are responsible in identifying and inventories the historic properties of the states which the SHPO are designated to. SHPO are also responsible in preparing and implementing a heritage preservation plan and to provide information, education and technical assistance to the public. In relation with the amendment in 1992, the SHPO being equally responsible to rural heritage properties such as the Indian tribe. This amendment is made to manage the social sustainability of the diversity of tribe in the United State of America. The roles of SHPO may differ from state to state to further efficiently manage this diversity of heritage background.

In the third part NHPA, the act also emphasis on managing the economic sustainability of the preservation program. Any program that has been authorized for grant will be supported by the Historic Preservation Fund which functioned to provide finance for sustaining the heritage preservation projects. The historic Preservation funds are also providing financial assistance to individual which their properties are listed in the National Register. The financial assistance are provided for two categories of grant which is the first on emphasis on providing essential financial support for administration of the preservation program while the second one emphasis on providing the financial assistance for the "bricks and mortar" preservation or rehabilitation of historic properties.

The last part of NHPA emphasis of establishing the Advisory Council on Historic Preservation. The council are consist of 20 mixed private and public sector members which will employs a professional staff trained in many aspects of preservation. The council function as an advisor to the President and Congress on historic preservation matters, reviewing and improving the policies and programs of Federal agencies, conduct training and educational programs, and to encourage public interest in preservation.

2.3.1.5 Law for the Protection of Cultural Property 1950, Japan

The enactment of Japan's Law for the Protection of Cultural Property 1950 was to encourage the preserving and utilising the nation heritage property. The law focus to enhance the importance of cultural quality of the nation. With the Meiji Restoration in 1968, The National government of Japan has further promoting the importance of these by Law since (Tadanao, 2006). The law has several part which emphasis on identification and classification of heritage property, management and conservation process of the heritage property.

The first part of the law emphasis on the defining the heritage properties, designating role of responsible person for the listed heritage properties. The document has laid out a several requirement and procedure in managing the designation of responsible present to manage and conserve the heritage properties. In this section also encourage the responsible person to care and open the properties for the public to enhance the awareness of conserving their cultural heritage which improve the social sustainability.

The second part of the law emphasis on identifying and registering the heritage properties. The document has laid out criteria in identifying the properties which can be classified into several group such as tangible and intangible cultural properties, monument, and groups of historic building. Interestingly most of the designated tangible cultural properties are properties which are classified as religious facilities (Tadanao, 2006).

Interestingly also in this part, there is a section which allow removing the listed properties. Article 31 focus on the requirement for annulment of a properties from heritage property registry (Agency for Cultural Affairs, 2007). This part of the law also emphasize on managing the conservation of the heritage property. Under this section, the law provide assistance for the finance the heritage property conservation work through providence of heritage conservation material subsidy which is covered in article 35.

The last part of the law emphasis on involvement of the public with the heritage property conservation. In part of the law encourage the opening the access the property for the public viewing. This section emphasize on the designating the role and responsibility of the property owner or management body in giving access for the public to view the heritage properties. The main purpose of the open for public viewing is to enhance the awareness and educate the public on the importance of conserving the heritage property.

In general, the Law for the Protection of Cultural Property 1950 provide the several possible approaches that can be used in managing the social sustainability of a heritage building through retaining cultural identity, sharing, participation, and accessibility criteria.

2.3.1.6 The Preservation of Monuments Act 1971, Singapore

Enacted in 1971, The Preservation of Monuments Act emphasis on preserving and managing Singapore's historical monuments. The act are consist of six (6) part which in general focusing on managing the roles and responsibility of Preservation of Monuments Board, defining the function preservation order, managing maintenance of monuments, and enforcing penalties regarding to heritage monument (Secretariat, 2008).

In part two (2) of the document, article 2 defined the board are responsible in identifying the heritage monument where historical, cultural, traditional, archaeological, architectural, artistic or symbolic significance and national importance are highlighted as

the criteria for considering a heritage monument. All of this criteria emphasize on retaining the cultural identity. Part four (4) of the act emphasize on provision for monument preservation where the function of preservation order are define. Under preservation order, the monument owner shall be responsible for preserving the facilitate access and providing proper management of the monument.

In summary, the Preservation of Monuments Act emphasis on social sustainability where the criteria such as retaining cultural identity, empowerment and accessibility are being manage throughout the document.

2.3.1.7 Cagar Budaya 2010, Indonesia

Cagar Budaya was introduced by the Indonesian Government in 2010 to enhance the conservation and management of the cultural heritage in Indonesia. The document covers on the issues of managing the heritage categorization, heritage register and multidisciplinary approach in heritage conservation work (Fitri, Ahmad, & Ratna, 2016). Chapter two (2) of the document highlighted sustainability as one of nine (9) principle which the cultural conservation preservation shall be based (People's Consultative Assembly, 2010).

Chapter three (3), part one (1) of the document emphasis on defining the criteria of the cultural conservation where four main criteria are laid out for the identification of heritage properties. In general, all of these laid out criteria were emphasis on retaining the cultural identity. The documents also manage the criteria for preserving the heritage properties. Under chapter seven (7), part one (1) of the document highlighted that any cultural conservation procedure done must be based on a feasibility study which are academically, technically and administratively reliable (People's Consultative Assembly, 2010). It also mentioned that any procedure which may bring negative impact to the environment shall be preceded with environmental impact analysis. Under the same chapter, Part three (3)

emphasize on the development for the heritage conservation. In this section of the document, it highlights the development of heritage conservation shall be carried out by taking into account the utilization, safety, maintenance and the significant values of the properties. Overall, the *Cagar Budaya* is a very interesting document as it provides some possible approach for the integration of sustainability principle into heritage conservation.

2.3.1.8 Summary of international Heritage Legislation and Policy

The detail analysis of the integration for each of these international heritage legislation can be referred in Table 2.1. The analysis will identify the integration of criteria of each sustainable principle throughout the legislation. Each of the requirement in the section of the legislation were analysed for any means of sustainability criteria integration. The document will then be categorised into direct integration, indirect integration or no integration. This categorisation will be done for all of the criteria of the sustainability element.

A direct integrated document shall consist of legislation section where the mean of its requirement directly manage the sustainability criteria such as the cultural identity. These requirement need to be directly emphasise the importance of managing the sustainability criteria in the heritage conservation. Indirect document on the other hand categorise the document which consist of legislation section where from the impact of complying with the requirement of the legislation, it will resulting in the sustainable criteria benefits such as the low environmental impact. This method of legislation analysis was an adaptation of research done by Sarnacki et al. (2015) which assessed and summarized the level of environmental integration into other sector policies and legislation. The purpose of this categorisation is to further assist the understanding and benchmarking of the current integration of sustainability principle in the international and Malaysian legislation and policy.

In summary, it is identified that currently all of the studied international heritage legislation has already emphasis on the sustainability principle integration. Throughout all regions, it can be identified that the integration of the social and economic sustainability criteria are having some direct integrated into the legislation. It is identified that the economic criteria of cost, productivity and growth are the criteria emphasized in directly integrating the economic sustainability in heritage building. On the social sustainability integration, the criteria that being emphasis in the direct integration measure are institutional stability, cultural identity, sharing, participation, accessibility, accessibility, and equity. In term of environmental sustainability criteria, most of the legislation are indirectly integrating the criteria into their document. However it is identified that the Indonesian, United Kingdom and the UNESCO document has emphasis on direct integration of the environmental sustainability criteria into their document. The importance of these documents analysis, other than benchmarking, is an approach method can be derived and considered in improving the integration of sustainability principle into the current Malaysian heritage legislation.

Table 2.2: International Heritage Legislation and Policies against Sustainability Criteria

Document	Coverage	Sustainability Element													
		Economic				Social						Environment			
		Growth	Development	Productivity	Trickle Down	Equity	Empowerment	Accessibility	Participation	Sharing	Cultural Identity	Institutional Stability	Eco-System Integrity	Carrying Capacity	Biodiversity
UNESCO, Operational Guidelines for the Implementation of the World Heritage Convention 2016	International	•	•	•	x	•	o	•	•	•	•	•	•	•	•
English Heritage, Building Regulations and Historic Buildings 2004	United Kingdom	•	o	•	x	x	o	o	•	•	•	•	•	•	x
ICOMOS, the Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance 2013	Australia	•	o	•	x	•	o	o	•	•	•	•	o	x	o
National Historic Preservation Act 1966	United States of America	•	o	•	x	•	•	•	•	•	•	•	o	x	o
Law for the Protection of Cultural Property 1950	Japan	•	o	•	x	•	•	•	•	•	•	•	o	x	o

Table 2.2: Continued

Document	Coverage	Sustainability Element													
		Economic				Social							Environment		
		Growth	Development	Productivity	Trickle Down	Equity	Empowerment	Accessibility	Participation	Sharing	Cultural Identity	Institutional Stability	Eco-System Integrity	Carrying Capacity	Biodiversity
The Preservation of Monuments Act 1971	Singapore	o	x	•	x	o	•	•	•	•	•	•	o	x	x
<i>Cagar Budaya</i> 2010	Indonesia	•	•	•	x	•	•	o	•	•	•	o	o	•	x
Legend											•	Direct Integration			
											o	Indirect Integration			
											x	No Integration			

Source: Adopted from (Agency for Cultural Affairs, 2007; English Heritage, 2004; Heritage Perth, 2011; Office of the Law Revision Council, 2016; People's Consultative Assembly, 2010; The Law Revision Commissioner, 2011; UNESCO, 2016)

2.3.2 Malaysian Heritage Conservation Legislation and Policies

Many previous research highlighted the importance in maximizing the preservation of the original character values of the heritage building during its conservation process (Ismail., 2012). This is to ensure the preservation of values in the heritage building. Hence, conservation policies are laid out in ensuring the originality of the heritage buildings are retained. The enforcement of these policies is to ensure the survival of the historic building. In Malaysia, there are several existing guidelines or policy that need to be referred to when dealing with the heritage building. Some of the example for the guidelines or policies are the National Heritage Act 2005 (Act 645), Malacca Enactment no.6 of 1988 and State of Penang Heritage Bill 2011.

2.3.2.1 National Heritage Act 2005 (Act 645)

National Heritage Act 2005 (Act 645) was created for managing the conservation and preservation of all the heritage property in Malaysia. In general this Act 645 focusing on managing of the national heritage assets, council, fund and listing. The Act 645 consists of 16 parts.

In the document, the process of declaration for heritage property is defined. This are being highlighted under section 67(2), where nine criteria (refer table 2.3) are laid out for potential heritage building to be considered for National Heritage property declaration (The Commissioner of Law Revision, 2005). From this nine criteria, it can be summarise as that the National Heritage Act 2005 have direct implication of social sustainability where it emphasis on sustaining the cultural identity.

Table 2.3: Criteria for National Heritage Property Declaration

National Heritage Property Declaration criteria	
i.	<i>The historical importance, association with or relationship to Malaysian history;</i>
ii.	<i>The good design or aesthetic characteristics;</i>
iii.	<i>The scientific or technical innovations or achievements;</i>

Table 2.3: Continued

National Heritage Property Declaration criteria	
iv.	<i>The social or cultural associations;</i>
v.	<i>The potential to educate, illustrate or provide further scientific investigation in relation to Malaysian cultural heritage;</i>
vi.	<i>The importance in exhibiting a richness, diversity or unusual integration of features;</i>
vii.	<i>The rarity or uniqueness of the natural heritage, tangible or intangible cultural heritage or underwater cultural heritage;</i>
viii.	<i>The representative nature of a site or object as part of a class or type of a site or object; and any other matter which is relevant to the determination of cultural heritage significance.</i>

Source: adopted from (The Commissioner of Law Revision, 2005)

Part 5 of the Act focusing on receive and managing the world heritage fund. From the document, once a building are listed as National Heritage property the building owner can request for the heritage fund in funding the maintenance and conservation work of the building (The Commissioner of Law Revision, 2005). This indicates the direct implication of economic sustainability where the issues of accessing to the resources in fulfilling needs are being mitigated.

This act also highlights the importance of preserving and conserving the heritage. The document focuses on retaining old buildings and tries to mitigate issues of heritage building demolition through the introduction of fines. This highlights the indirect implication of environmental sustainability in term of reduction of carbon expenditure and waste emission. Referring to past research, the demolition and constructing new building yield more carbon expenditure and waste emission than preserving the building (Forster et al., 2011).

2.3.2.2 Malacca Enactment No.6 of 1998

The Malacca enactment no.6 of 1998 in general focuses on managing heritage property, council, and fund. This enactment highlight the allowance for local government to obtain its revenue from taxes, rates, fees and fines from the rate payers within conservation area

to fund the conservation work (Ismail., 2012). This indicates the direct implication of economic sustainability where the issues of accessing to the resources in fulfilling needs are being mitigated. It also highlights the people responsible for managing the conservation of old building. The enactment also emphasis on the preservation or conservation of declared heritage building by the responsible person, which will be inspected at all reasonable times by an officer authorized by the Local Authority. The enactment ensured the identity of the conservation town are retain through no allowance of new building to be built within the historic town and no allowance for old building demolition (Ismail., 2012). The height of the new building around the conservation area are also been control in the enactment to ensure the retention of the identity of the area (Ismail., 2012). This part highlighted the indirect implication of environment sustainability through reduction of demolition and construction carbon and waste expenditure and direct implication of social sustainability in term of cultural identity.

2.3.2.3 Penang State Heritage Enactment 2011

Penang State Heritage Enactment 2011 is an adaptation of Act 645 for state use. It is created for managing the conservation and preservation of all the heritage property in Penang. Similar to Act 645, this enactment in general focuses on managing of the national heritage assets, council, fund and listing.

In the document, the declaration of heritage property is defined. This are being highlighted under section 29(2), where six criteria (refer table 2.4) are laid out for potential heritage building to be considered for State Heritage property declaration (Penang State Authority, 2011). The six criteria highlight the direct implication of social sustainability where it emphasis on sustaining the cultural identity.

Table 2.4: Criteria for Penang Heritage Property declaration

Penang Heritage Property Declaration criteria	
i.	<i>The state heritage importance;</i>
ii.	<i>The good design or aesthetic characteristics;</i>
iii.	<i>The scientific or technical innovations or achievements;</i>
iv.	<i>The social or cultural associations;</i>
v.	<i>The potential to educate, illustrate or provide further scientific investigation in relation to Penang state cultural heritage;</i>
vi.	<i>The rarity or uniqueness of the natural heritage, tangible or intangible cultural heritage or underwater cultural heritage;</i>

Source: adopted from (Penang State Authority, 2011)

Under section 36(1), the act highlighted that the owner of heritage site can request for loan or grant from the commissioner to fund the maintenance and conservation work of the property (Penang State Authority, 2011). This indicates the direct implication of economic sustainability where the issues of accessing to the resources in fulfilling needs are being mitigated.

This document also highlights the importance of preserving and conserving the heritage building is being highlighted. The document emphasises on retaining of the old buildings. This highlights the indirect implication of environmental sustainability in term of reduction of carbon expenditure and waste emission. Referring to past research, the demolition and constructing new building yield more carbon expenditure and waste emission than preserving the building (Forster et al., 2011).

2.3.2.5 Summary of Malaysian Heritage Legislation and Policy

The detail analysis of the integration for each of these Malaysian heritage legislation can be referred in table 2.5. The method of this analysis is similar to the international analysis will emphasis on identifying the integration of criteria of each sustainable principle throughout the legislation. Each of the requirement in the section of the legislation were analysed for any means of sustainability criteria integration. The document will then be

categorised into direct integration, indirect integration or no integration. This categorisation will be done for all of the criteria of the sustainability element.

In summary, all of the studied Malaysian heritage legislation has already emphasis on the sustainability principle integration. It is identified that the integration of the social and economic sustainability criteria are mostly directly integrated into the legislation. It is identified that the economic criteria of cost and productivity are the criteria that being emphasis in directly integrating the economic sustainability in heritage building. On the social sustainability integration, the criteria emphasized in the direct integration measure are institutional stability, cultural identity, empowerment, sharing, accessibility, accessibility, and equity. In term of environmental sustainability criteria, most of the legislation are indirectly integrating the sustainable criteria into the document. The importance of this analysis is to identify the current performance of the legislation in term of sustainability integration and to benchmark against the international counterpart in order for approach method to be derived in improving the integration of sustainability principle into the current Malaysian heritage legislation.

Table 2.5: Malaysian Heritage Legislation and Policies against Sustainability Criteria

Document	Implementing Body	Sustainability Element													
		Economic				Social					Environment				
		Growth	Development	Productivity	Trickle Down	Equity	Empowerment	Accessibility	Participation	Sharing	Cultural Identity	Institutional Stability	Eco-System Integrity	Carrying Capacity	Biodiversity
National Heritage Act 2005 (Act 645)	Department of National Heritage	o	o	•	o	•	•	•	o	•	•	•	o	x	•
Malacca Enactment no.6 of 1998	Historic Malacca City Council	o	o	•	o	•	•	•	o	•	•	•	o	x	x
Penang State Heritage Enactment 2011	Penang Island City Council	o	o	•	o	•	•	•	o	•	•	•	o	x	•
Legend											•	Direct Integration			
											o	Indirect Integration			
											x	No Integration			

Source: adopted from (Ismail., 2012; Penang State Authority, 2011)

CHAPTER 3: RESEARCH METHODOLOGY

This chapter will discuss on the methodology used in achieving the research aim. Based from the three objectives that has been laid out in order to achieving the research aim, a methodological structure has been design for this research. The methodology for this research is structured into two part, a literature analysis and structured interviews, both part are using a qualitative approach. Qualitative approaches are chosen based on the structure of the research objective which emphasis on understanding and benchmarking the available conservation legislation or policy in Malaysia with its relevant international counterpart. Figure 3.1 highlight structure of the research method and the relationship between both parts toward achieving the research aim. Detailed explanation of this research framework is discussed in proceeding subheadings.

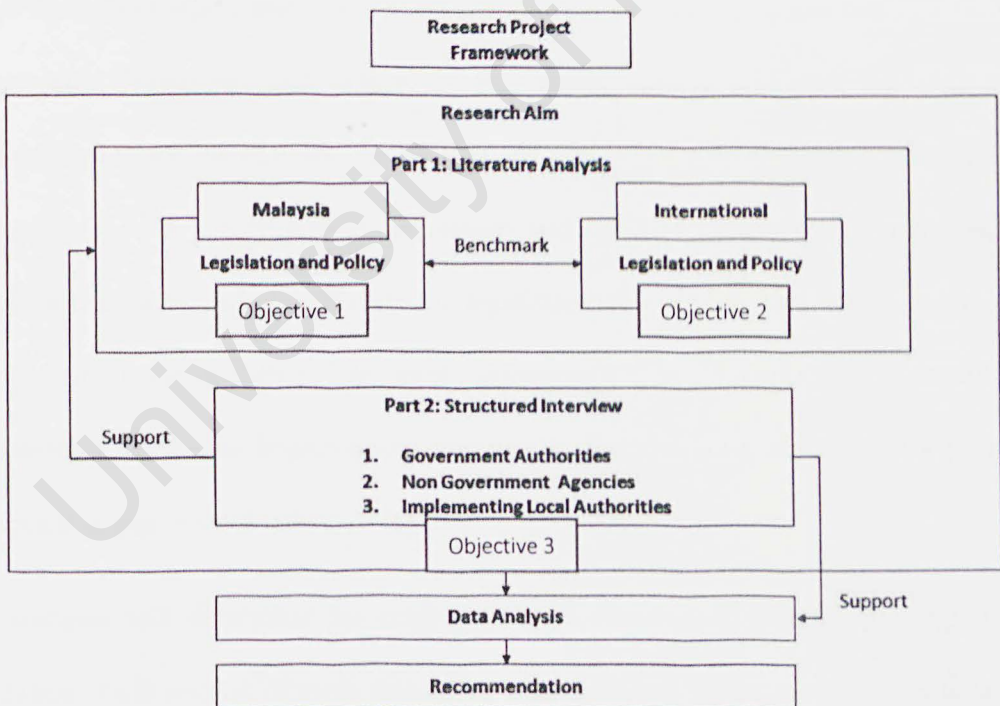


Figure 3.1: Research Method Structure

3.1 Literature Analysis

In the first part of the research method structure is the literature analysis. This literature analysis focusing in achieving the research objective one and objective two which

emphasis on the understanding and benchmarking the available conservation legislation or policy in Malaysia with its relevant international counterpart. To ensure that these research objectives can be achieved, the literature analysis is structured into two phases.

In the initial phase of this part, focuses on achieving research objective one, which is to understand the current Malaysian heritage building conservation legislation and policy. In this stage, the Malaysian legislation or policy will be analysed in relation to the three bottom line of sustainability which is the environment, economic and social aspect. This stage emphasises on analysing the existing sustainable gap in the current Malaysian legislation or policy.

The second phase of the literature analysis part focusing on achieving research objective two, which is to understand the available international sustainable heritage building conservation legislation and policy and benchmark it against Malaysian heritage building conservation legislation and policy. In this stage, similar approach are also being implemented to the international legislation and policy but with different emphasis to its. The analysis of the international legislation and policy emphasizes on analysing and benchmarking it against the Malaysian legislation or policies, in relation to the three bottom line of sustainability. The main purpose of the benchmarking is to analyse the availability of possible improvement measure in incorporating sustainability principle into existing gap in the Malaysian legislation or policy.

The analysis will determine the criteria of each sustainable principle throughout the legislation. Each section of these document were analysed for sustainability criteria. The document will to be categorised as a direct integration, indirect integration and no integration. A direct integrated document shall consist of legislation section where the mean of its requirement directly manage the sustainability criteria such as the cultural identity. These requirement need to be directly emphasise the importance of managing the sustainability criteria in the heritage conservation. Indirect document on the other

hand categorise the document which consist of legislation section where from the impact of complying with the requirement of the legislation, it will resulting in the sustainable criteria benefits such as the low environmental impact. The purpose of this categorisation is to further assist the understanding and benchmarking of the current integration of sustainability principle in the international and Malaysian legislation and policy. This method of legislation and policy analysis was adapted from study done by Sarnacki et al. (2015) which analyse the integration of environmental into other sector policies and legislation. The purpose of this categorisation is to assist in further understanding and benchmarking the current implementation of sustainability principle in the international and Malaysian legislation and policy.

3.2 Structured Interview

This is the second part of the research method. Seven (7) organisations which govern or manage the Malaysian heritage conservation are being targeted for the interview sessions. The seven (7) targeted organisation are the National Heritage Council, The Heritage of Malaysia Trust, Public Work Department (PWD), PERZIM and three city councils which is Kuala Lumpur, Melaka, and Penang. This to ensure that the outcome which summarise from the information gather through interview are taking into consideration of the perspective and understanding variation between government, non-government and implementing organisation on the integration of sustainability into heritage conservation through legislation and policy. This structured interview focusing in supporting the research objective three which emphasis on analysing and proposing sustainable approach into the current Malaysian heritage building conservation legislation and policy.

The structure of the interview will emphasize on analysing the issues and challenges in incorporating the sustainable principle into the current Malaysian legislation and policy. The objective of this interview is to determine the best possible measure that can be used

in improving the sustainable gap in the current Malaysian legislation and policies, which has been identified during the first and second stage of the literature analysis part.

The sample of the interview question can be referred to Appendix A of this research. The interview questions are structured into three section. The first section of the interview question focusing on identifying the understanding and knowledge of the interviewee on the sustainability principle. The second section of the interview question focusing on identifying the issues and challenges of implementing the integration of sustainability principle into heritage building conservation. The last section is focusing on obtaining recommendation and additional input from the interviewee on improving the sustainability of the Malaysian heritage building conservation.

Once the data has been gathered through the structured interview, framework analysis are carried out in analysing the data gathered. The framework analysis is an analysis method which are design for applied policy research where the aim of the research are to obtain specific information needs and provide outcomes or recommendations (Lacey & Luff, 2007). This analysis method shares several common traits with 'thematic analysis' which define by Braun and Clarke (2006) as the process of identifying, analysing and reporting the pattern the within the data. Framework Analysis are design with a systematic and visible stages in analysing the data to ensure that the result obtain are clearly reflected from which stage of data it is obtain.

Framework analysis consist of five (5) main stage which is familiarisation, identifying a thematic framework, indexing, charting and lastly mapping and interpretation (Lacey & Luff, 2007). The five stages are carried out in a linear fashion. The first stage of framework analysis is familiarisation, where the data gathered are go through to identify the main issues and any other emerging issues. The second stage are identifying a thematic framework. In this stage, initial coding framework are develop from the main issues and emerging issues identified during the first stage. The next stage is indexing

where the data are being applied with thematic framework to identify specific pieces of data which corresponding to differing themes. This stage then are follow with the charting stage which the data are transform into charts for assisting in analysing the whole dataset. The final stage of framework analysis is the mapping and interpretation stage. This stage emphasize on identifying patterns, relations and description of the dataset.

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CHAPTER 4: DATA FINDING AND ANALYSIS

This chapter focus on analysing the data obtain from the research methodology which is through literature analysis and interviews. The data analysis is done into two part. The first part focus on analysing and benchmarking the current Malaysian heritage legislation with other international heritage legislation in term of sustainability principle. This part of data analysis emphasis on achieving the research objective one and two, which are to understand the current Malaysian heritage building conservation legislation and policies in terms of the triple bottom line elements of sustainability and to benchmark international sustainable heritage building conservation legislation and policies. The second part focuses on analysing the suitable approach to be adopted into the current Malaysian heritage legislation to improve the sustainability principle integration. This overall analysis will help achieve the research objective three, which is to recommend sustainable approaches into the current Malaysian heritage building conservation legislation and policies.

4.1 Sustainability gap between Malaysian and International Legislation and Policies

From the summary of Malaysian and International heritage legislation summary which Table 2.1 and Table 2.2, benchmarking between the two are carry out to identify the existing gap in term of sustainability aspect. The focus of analysing this existing sustainability gap is to identify approach method which can be adopted into the current Malaysia legislation and policies to improve the integration of sustainability principle.

4.1.1 Economic sustainability Gap

From the benchmarking against the International legislation and policies, in term of economic sustainability, the current Malaysian heritage policies are integrating the economic element on par with the international counterpart. The current Malaysian

legislation and policy are integrating the economic sustainability with a direct approach despite having different approach method in each document. Despite the differences, the ideology behind these approach are similar which is to provide the owner or the managing parties of the heritage properties with ways of obtaining resources in managing the property. This approach ideology can also be identified throughout all of these benchmarked International documents. For example, the UNESCO document were using the approach of providing access to World Heritage Fund resources to the managing parties of the listed world heritage site (UNESCO, 2016). This approach is similar with the National Heritage Act approach which is providing access for the managing parties to the National Heritage Fund (The Commissioner of Law Revision, 2005).

However, small gap can be identify when these document are being benchmark in term of the development and growth criteria. When being compared to the Indonesian document, the current Malaysian document fall short in term managing the heritage properties development. In the Indonesian document, the *Cagar Budaya*, under chapter seven (7), there is a specific section which emphasis on managing the development of the heritage properties (People's Consultative Assembly, 2010). This section aims to encourage the development of the heritage properties but at the same time retaining the significant values of the properties. This is the area which can be look into for improving the current Malaysian heritage sustainability.

Overall, the current Malaysian heritage legislation adopts similar approach in integrating economic sustainable element. However, the sustainable performance of the current heritage legislation can be further improved in terms of development criteria aspect.

4.1.2 Social Sustainability Gap

In term of integrating social aspect of sustainability, the Malaysian legislation and policies are performing similarly with the international counterpart. Throughout the document, the

issues of social are directly integrated and manage. Different from economic approach, all of the analysed Malaysian heritage legislation and policy are having the similar emphasis in sustaining the social pillar of sustainability. The approach used in most document mostly emphasis on sustaining the cultural identity, equity, accessibility and sharing.

Despite performing similarly with the international counterpart, there are minor sustainable gap that that exist in the current Malaysian heritage legislation. Currently, the Malaysian documents are lacking in term of managing participation criteria for the social sustainability. In the UNESCO document, they integrate the participation criteria of social sustainable though encouraging the involvement of society with the heritage conservation project. Method such as organising educational and information programmes which emphasis in strengthen appreciation and respect by their peoples of the cultural and natural heritage are used as an approach in managing the social sustainability (UNESCO, 2016).

Overall, the current Malaysian legislation which is the National Heritage Act 2005, Malacca Enactment no.6 of 1998, Control of Rent (Repeal) act 1997, Penang State Heritage Enactment 2011 are performing on par with the international counterpart in term of integrating social sustainable element. However, the current can still be improved through integrating the participation criteria of the social element.

4.1.3 Environmental Sustainability Gap

A few notable differences of sustainable integration approach can be found when benchmarking the current Malaysian legislation and policy against some of the international counterpart in term of environmental. From analysing the Malaysian heritage legislation, the result indicates that the current document mostly indirectly integrating the environmental sustainable element. Most of the integration comes through

the impact of implementing several requirement or specification of the legislation and regulation which resulting in reduction of waste emission. For example, through controlling the disposal an old building (Penang State Authority, 2011; The Commissioner of Law Revision, 2005) it assist in reducing the waste emission.

There is currently no direct integration of environmental sustainability criteria in the current Malaysian document. However when compare to the European based international legislation policy, there are some sustainability gap exist. Most of the analysed European document has opted to use a direct integration approach in managing the environmental sustainability element. The UNESCO Operational Guidelines for the Implementation of the World Heritage Convention, 2016 has a section which requires the integration of sustainable development principles into the management system. Other that, the document also encourage the usage of heritage properties toward more ecologically and culturally sustainable purpose (UNESCO, 2016). Besides, the document also listed out selected advisory bodies for sustainability. In the United Kingdom, the direct approach method used are through the integrating the requirement of energy use and greenhouse gas emissions reduction measure in their building regulation (English Heritage, 2004). Besides that, the current Indonesian heritage legislation has also directly integrated the environmental sustainable element in term of reducing the environmental impact. Under chapter seven (7), the document integrate the environmental criteria trough the requirement for environmental impact analysis before making any decision making (People's Consultative Assembly, 2010).

Overall, the current Malaysian heritage legislation are lacking in the integration of the environmental sustainable element. Through the identified sustainable gap, environmental sustainable measure which is adopted from the international counterpart can be used to improve that current performance of Malaysian heritage legislation. The

measure such as requirement for carbon emission reduction and environmental impact analysis can be adopted in improving the current Malaysian heritage legislation.

4.2 Improving the Sustainability of Malaysian Heritage Legislation

From the outcome of the sustainable gap benchmarking analysis, interview session were held with several representative from Malaysian heritage governing and managing bodies. The interview is analysed using the framework analysis method to gauge the stakeholder's perception in suitability of integrating the identified sustainable improvement approach during the sustainable analysis gap analysis. The interview were targeted for seven (7) organisation which govern or manage the Malaysian heritage conservation with only (3) organisation interviewed for this research.

The interview questions are structured into three sections. The first section of the interview question focusing on identifying the understanding and knowledge of the interviewee on the sustainability principle. The second section of the interview question focusing on identifying the issues and challenges of implementing the integration of sustainability principle into heritage building conservation. The last section is focusing on obtaining recommendation and additional input from the interviewee on improving the sustainability of the Malaysian heritage building conservation.

4.2.1 Understanding and Knowledge of Sustainability

The first section of the structured interview question are focusing on identifying the understanding and knowledge of the interviewee on the sustainability principle. The data obtain from this section are the tabulated into a table for analysis (refer table 4.1). From the analysis, for the understanding of sustainability principle, the interviewees are sharing common understanding of sustainability principle which emphasizing on sustaining for the future. This show that currently all of the interviewees are familiar with the sustainability principle. As for the knowledge of sustainability, all of the interviewees has

either previously or currently involve with the sustainable project which indicate that all of the interviewees have knowledge in managing sustainable project.

Table 4.1: Interviewee understanding and knowledge of Sustainability

	Understanding of sustainability principle	Involvement in sustainable project
Session 1	<ul style="list-style-type: none"> • Emphasis on the term of “keeping the longevity” when define sustainability principle 	<ul style="list-style-type: none"> • Previously involve with carbon reduction project
Sessions 2	<ul style="list-style-type: none"> • Emphasis on the term “retaining” in defining sustainability principle 	<ul style="list-style-type: none"> • Currently involve with refurbish project which emphasis on carbon reduction
Sessions 3	<ul style="list-style-type: none"> • Define sustainability principle as sustaining the environment, economy, culture, and social 	<ul style="list-style-type: none"> • Currently involve with sustainable project

4.2.2 Issues and Challenges in Integration Sustainability Principle

The second section of the structured interview question are focusing on identifying the issues and challenges of implementing the integration of sustainability principle into heritage building conservation. The data gathered in this section are tabulated and analysed for similarity of issues brought up by the interviewees regarding the integration of sustainability principle. The issues and challenges identified during of the interview session are summarised in table 4.2.

Table 4.2: Issues of Sustainability Gap

Sustainability	Identified Gap	Identified Issues and Challenges
Economy	<ul style="list-style-type: none"> • Development 	<ul style="list-style-type: none"> • Society perception heritage building as their assets are not financially beneficial for their business. • Higher maintenance fee and tighter legislation.
Social	<ul style="list-style-type: none"> • Participation 	<ul style="list-style-type: none"> • Most of the current heritage building conservation is carried out by the heritage conservation governing and maintaining bodies.
Environmental	<ul style="list-style-type: none"> • Low Environmental Impact • Eco-System Integrity • Carrying Capacity 	<ul style="list-style-type: none"> • Malaysian heritage conservation are more emphasising on reducing cost and retaining the building value than environmental issues. • Amending the legislation will take time due to this movement are not deemed to be profitable by the government.

4.2.2.1 Environmental Sustainability Integration

From the gap analysis, it is identified that the current Malaysian heritage legislation are lacking in integrating the environmental criteria. The interview focuses on identifying the issues and challenges which contribute to this lack of environmental criteria integration. The outcome of the interview indicated a mixed result regarding the issues of environmental sustainability. From the outcome, it is agreeable that currently the Malaysian heritage legislation are lacking in term of integrating the environmental sustainability.

One of the identified issues during the interview sessions which contributed to this lack of environmental sustainability integration are the fact that currently Malaysian heritage legislation are more emphasized on managing the cost and management rather than environmental issues. The current conservation practices are managed with the emphasis on cost reduction and retaining the building significant values. However, most of the interviewee responded that even though the current Malaysian heritage legislation are lacking in term of environmental sustainability integration through legislation, however the approach of conserving the heritage building is actually already environmentally sustainable. They further explain that the process of demolishing and constructing a new building is contributing toward increment of carbon and waste emission compare to the measure of retaining the heritage building. This similar with the global understanding of heritage conservation which perceived the action of conserving heritage building are actually sustainably benefiting in term of economic, cultural and social (Bullen & Love, 2010).

From the interview, it is further identified that although there are currently no requirement from the heritage legislation to integrate environmental sustainability criteria, there is currently movement toward reducing the environmental impact. Through the current policy of reducing the operating and maintenance cost of the heritage building, the

heritage building were refurbish with energy efficient equipment which in result reducing the environmental impact of the heritage building. This indicated that one of the improvement approach identified during the gap analysis which is the requirement for carbon emission reduction can be adopted into the current Malaysian heritage legislation.

4.2.2.2 Social Sustainability Integration

The outcome of the sustainability gap study shows that the current Malaysian Heritage legislation are integrating the social sustainability similarly with the international counterpart. It is identified that the approach of integrating the social sustainability mostly emphasis on the cultural identity, equity, accessibility and sharing criteria. However it is identified that the integration participation criteria of social sustainability are the area where the current Malaysian heritage legislation can be improved.

The interview identified issues which are related to the lack of participation criteria integration in the heritage conservation. From the interview, the outcome indicated that currently the participation of Malaysian society in conserving heritage building is really low. Most of the Malaysian heritage building conservation carried out throughout the country are mostly being pioneered by the heritage conservation agencies. From the interview, they also highlight that these low number of participation from the society in mainly due to the fact that from the business perspective, it is deem to be not financially beneficial for them to use the heritage building as their assets due to higher maintenance cost and tighter legislation requirement.

The approach method used by UNESCO in integrating participation criteria of the social sustainability emphasis on strengthening the appreciation and respect toward heritage building by the society (UNESCO, 2016). Through the adoption of this approach, the views of Malaysian society toward heritage building conservation can be shift from

financial value biased toward a more social value consideration which in result will bring improvement of participation of the society in conserving heritage building.

4.2.2.3 Economic Sustainability Integration

Though the sustainable gap analysis, it is identified that the currently the Malaysian heritage legislation are performing similarly in term of economic sustainability integration with the other international document. The only notable gap that exists is being compare with the Indonesian heritage document where the criteria of development are being integrated into the document. The approach used in the Indonesian document emphasis on allowing for the society to develop on the heritage assets without damaging the significant values of the asset through consideration of the utilization, safety, maintenance and the significant values of the properties.

Through the interview, it is identified that currently in Malaysia the participation of the society in heritage conservation are low due to the general understanding that utilizing heritage building as their assets are not financially beneficial for their business. The issues of higher maintenance fee and tighter legislation are being highlighted as the main setback for their consideration in utilizing heritage building as their business assets. Through adapting Indonesian the development criteria integration approach, the issues of tighter legislation can be mitigate. Through the allowance for these heritage assets to be develop with the consideration of the utilisation, maintenance and significant values of the properties, this will change the negative perspective of the society on the rigidity of the heritage legislation on developing the heritage building to suit their business need. Furthermore, with most of the Malaysian heritage building are starting to involve with the cost reduction policy, these building are being refurbish with the installation of more energy efficient equipment. Hence as a result, this may improve the issue of maintenance cost of these heritage building.

Therefore through adopting the approach of integrating of development criteria into the heritage legislation, the perspective of the society toward considering developing heritage building as their assets which in result improve the economic sustainability of the current Malaysian Heritage legislation.

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CHAPTER 5: CONCLUSION

The research aim was to study the possibilities of integrating sustainability principle into the Malaysian Heritage Building through legislation and policy. From the analysis of the data, in improving the sustainability of the Malaysian Heritage Conservation, the current heritage conservation legislation can be used as a tool in integrating the sustainable principle into the heritage conservation. Currently, Malaysian heritage conservation legislation which is the National Heritage Act 2005 (Act 645), Malacca Enactment no.6 of 1998, Penang State Heritage Enactment 2011 are reviewed and through stakeholder interview findings indicated that are already identified with some of the sustainable principle of economic, social and environmental features are already being integrated in it.

The first research objective was to identify current Malaysian heritage building conservation legislation and policies in terms of the triple bottom line elements of sustainability. From the outcome of the analysis it is identify that overall, the current Malaysian heritage conservation legislation has already integrated with the sustainability principle. The second research objective was to benchmark the current Malaysian heritage conservation legislation with other international sustainable heritage building conservation legislation and policies. The findings of the analysis indicated that the current Malaysian heritage conservation legislation are socially and economically sustainable when being compare with other nation heritage legislation conservation legislation and policy. This is mainly due to the nature and ideology of heritage conservation which is to preserve the cultural significant of the heritage properties for the future generations which in result benefiting the social and economic sustainability. Some minor improvement can be done in further improving the integration of the social and economic sustainability such as improving the integration participation criteria and development criteria. However in term of environmental sustainability, improvement

needed to be done in integrating the environmental sustainable criteria into the Malaysian heritage conservation legislations. The third and final research objective was to recommend sustainable approaches into the current Malaysian heritage building conservation legislation and policies. From the analysis, it was identified that the approach integration of the carbon reduction requirement are identified as the suitable environmental integration approach in improving the current Malaysian Heritage conservation legislation. For the economic sustainability, the approach of allowance for these heritage assets to be developed with the consideration of the utilisation, maintenance and significant values of the properties are identified as the suitable approach in integrating the development criteria directly into the heritage. As for social integration, the approach of organising educational and information programmes which emphasis in strengthen appreciation and respect by their peoples of the cultural and natural heritage are identified as the improvement approach which can be adopt into the current heritage legislation

In conclusion, from the outcome of data analysis, in improving the sustainability of the Malaysian Heritage Conservation, the current heritage conservation legislation can be used as a tool in integrating the sustainable principle into the heritage conservation. Hence the aim or this research project which is to study the possibilities of integrating sustainability principle into the Malaysian Heritage Building through the usage of legislation and policy are achieved.

CHAPTER 6: RECOMMENDATIONS

Recommendation for future research ensure continuity and makes the best used of the result obtain from previous research. For this research, one further recommendation is to conduct a pilot project in recommending sustainable principle integration approaches identify during this research to further identify the suitability, viability and reliability of the proposed approaches. Besides that, it is recommended in the future to further analyse and benchmark the current Malaysian heritage legislation with other international heritage legislation which has not being analyse yet in this research to further identify the differences of sustainable principle integration approaches adopted in other regions.

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