STANDARDISATION OF PLANT AND MACHINERY VALUATION PRACTICES IN MALAYSIA

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KEYWORDS

Plant and machinery valuation, international practices, valuation concept, valuation methodology, valuation process, awareness and application, Malaysian valuers
ABSTRACT

Plant and machinery valuation is important to every company’s annual financial reporting. It is reported under the non-current assets section, and the valuers are generally employed to provide the up to date valuation of the non-current assets valuation such as property, plant and equipment that can make up to 80% of the total assets of a company. The valuation of plant and machinery is also important for other purposes such as securing loan facilities, sales, takeover, insurance and auction. The application of 2005 International Financial Reporting Standard (IFRS) has a subsequent impact on the financial sector, as a whole. The accountants have to choose between the Historical Cost approach and Market Value approach in determining the value of the client’s assets. In Malaysia, the implementation of IFRS has a domino effect on the financial system, especially for plant and machinery valuation for financial reporting. The comparison data for plant and machinery valuation is limited unlike land and building valuation. The question of Malaysian valuer’s ability to comply with the IFRS standard keeps rising every day, not just to the accountants, but also other related parties such as financial institutions, government agencies and the clients. This is happening because of different interpretations of premise of value for plant and machinery, as well as methods been used and differences in standards of reporting among the valuers conducting plant and machinery valuation. The root of the problem lies in the lack of practical guidelines governing plant and machinery valuation practices and different schools of thought among the valuers. Some follow the United Kingdom’s RICS guidelines, whilst some valuers are more comfortable with the United State’s USPAP rules, especially on the premise of value. This research is to investigate the international best practices of plant and machinery valuation and to establish the common valuation concept, awareness and application of valuation methodology and valuation process for plant and machinery valuation in Malaysia. This research uses a combination of the qualitative and quantitative research approach. In the qualitative approach, the content analyses were conducted from the international practices and current Malaysian implementation of plant and machinery valuation. A survey (quantitative approach) via questionnaire was implemented among the registered and probationary valuers in Malaysia to investigate their understanding and opinion relating to plant and machinery valuation based on the current practices. The significance of this research is the identification of international plant and machinery practices and the understanding of current practices of plant and machinery valuation in Malaysia. It is found that issues embedding plant and machinery valuation practices are limited numbers of resources available either from scholars or practitioner. This is supported by the general finding from the research survey that indicates that there are immediate needs for practical notes or guidelines to be developed and implemented to support the Malaysian valuers practising plant and machinery valuation. This move will lead to a better understanding of plant and machinery valuation, reducing discrepancies in valuation of plant and machinery and increased accuracy among practising valuers.
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<tr>
<td>AFTA</td>
<td>Asian Free Trade Agreement</td>
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<tr>
<td>ANZVPS</td>
<td>Australia and New Zealand Valuation and Property Standard</td>
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<tr>
<td>API</td>
<td>Australian Property Institute</td>
</tr>
<tr>
<td>BOVAEA</td>
<td>The Board of Valuers, Appraisers and Estate Agents Malaysia</td>
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<tr>
<td>IAS</td>
<td>International Accounting Standards</td>
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<td>IVS</td>
<td>International Valuation Standards</td>
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<td>IFRS</td>
<td>International Financial Reporting Standards</td>
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<td>IVS</td>
<td>International Valuation Standards</td>
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<tr>
<td>IVSC</td>
<td>The International Valuation Standard Committee</td>
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<td>FSMP</td>
<td>Financial Sector Master Plan</td>
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<td>MASB</td>
<td>Malaysian Accounting Standards Board</td>
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<td>MFRS</td>
<td>Malaysian Financial Reporting Standards</td>
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<td>MVS</td>
<td>Malaysian Valuation Standards</td>
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<tr>
<td>PINZ</td>
<td>Property Institute of New Zealand</td>
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<tr>
<td>PPE</td>
<td>Property, Plant and Equipment</td>
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<tr>
<td>RICS</td>
<td>Royal Institute of Chartered Surveyor</td>
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<td>USPAP</td>
<td>United Standard of Professional Standard Practices, USA</td>
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STATEMENT OF ORIGINAL AUTHORSHIP

The work contained in this thesis has not been previously submitted to meet requirements for an award at this or any other higher education institution. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made.

Signature: ________________________________

04 March 2013

Date: ________________________________
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1.0 INTRODUCTION

1.1 Research Background

Globally, plant and machinery valuation is not a popular profession compared to land or building valuation even though the size and value of the plant and machinery can contribute up to 80% of the company’s total assets. In Malaysia, a plant and machinery valuation report is required if the companies rely on the market value approach of accounting.

In financial terms, assets are economic resources. Anything tangible or intangible that is capable of being owned or controlled to produce value and that is held to have positive economic value is considered an asset. Simply stated, assets represent ownership of value that can be converted into cash (Sullivan and Sheffrin, 2003). The balance sheet of a firm records the monetary value of the assets owned by the firm. In simple words, it is the money and other valuable belonging to an individual or business.

Two major asset classes are tangible and intangible assets. Tangible assets contain various subclasses, including current assets and fixed assets (Downes and Goodman, 2003). Current assets include inventory, while fixed assets include such items as land, building, plant, machinery and equipment. Intangible assets are nonphysical resources and rights that have a value to the firm because they give the firm some kind of advantage in the market place. Examples of intangible assets are goodwill, copyrights, trademarks, patents and computer programs, and financial assets, including such items as asset backed securities, account receivable, bonds and stocks (Siegel et al, 2005).

In Malaysia, under the current Malaysian Accounting Standards 116, all assets should be reported separately, and referred to as PPE (property, plant, and equipment). These assets are purchased for continued and long-term use in earning profit in a business. This group includes an asset such as land, buildings, plant, machinery, furniture, tools, and certain wasting resources such as timberland and minerals. They are written off against profits over their anticipated life by charging depreciation expenses (with exception of land assets). Accumulated depreciation is shown in the balance sheet or in the notes. These are also called capital assets in management accounting.

Property valuations are an important aspect of a modern economy. They support the banking system, setting the benchmarks for collateral values. In the corporate sector, property valuations are important inputs in balance sheets and property assets are sought after for business loans. Property valuations are also important for the ordinary layman when they buy, sell or rent, houses and other types of properties. Thus property valuations need to be carried out with a high level of integrity and professional competence.
The International Valuation Standard Committee (IVSC), an international institution for the valuation and property management discipline has recognised the needs for the international valuation structure via the International Valuation Standards (IVS). The standard is essential as there are major concerns from auditors, bankers, financial analysts and company directors that a consistent basis of valuation is used, to enable valid comparisons to be drawn, for the valuation of fixed assets throughout the world.

The emerging demands from national and international companies, financial institutions and other organisations for current valuations, reflecting the importance of asset values in new issues for shares (share prospectuses), acquisitions, mergers, takeovers, and as a basis for loans have been one of the factors for the formation of the IVS. The IVS have become more important as the result of simultaneous emergence of the professions whose principal activity is the valuation of fixed assets and with an interest in ensuring that only consistent and coherent valuation data is provided by the practitioners in a manner acceptable to users of valuations.

Mansfield and Royston (2006) highlighted that since the deregulation of international financial services in 1986, cross-border financial business expansion has led to a demand for a greater understanding and acceptance of internationally prepared financial statements. Various market systems have been changed accordingly with the aim to create greater efficiency in capital markets. The intention is that the regulatory changes would increase overall transparency, to provide broader market with more information of public listed companies and to enhance the benchmarking system against cross-border competitors (Ernst and Young, 2003).

This led to the historical move in February 2001, EU Financial Services Action Plan was approved by the European Union’s Council of Minister, which required all public listed companies in Europe to submit annual reports according to the International Financial Reporting Standards (IFRS) from January 2005. Furthermore, the Regulations PE-CONS 3626/02 (European Commission, 2002) requires significant changes in the way that a company’s assets, namely property, plant and equipment are being treated following the adoption of the international accounting standards. The changes have spread to the rest of the world, and Malaysian financial business response to this 2005 amendment has been varied. Some hold to the Historical Cost basis, whilst some venture more towards the present Market Value basis.

Plant and machinery valuation are stated and regulated under various international standards. From the valuers perspective, the IVSC Guidance Notes 3 provides brief explanations of the plant and machinery valuation practices. Furthermore, the plant and machinery valuation is recognised by the financial discipline, mainly from the current IFRS Standard 116 and International Accounting Standards 16 (IAS 16). Various countries valuation standards do recognise plant and machinery
valuation such as United Standard of Professional Standard Practices (USA), Royal Institute of Chartered Surveyors Red Book (UK), Australia and New Zealand Valuation and Property Standard as well as Malaysian Valuation Standards (MVS). However, in Malaysian Valuation Standards, there are deficiencies in the area of explanation and interpretation of the premise of value, methods of valuation to be adopted, data to be collected and no synchronisation between premise of value and methods of valuation to be used.

1.2 Research Problems and Research Questions

Previous studies show that the introduction of the 2005 International Financial Reporting Standard (IFRS) amendments, namely IFS 116 for property, plant and equipment changes the way accountants treat the assets assessment (Christensen and Nikolaev 2009; Spies and Wilhelm 2005; Herrmann et al. 2006 ). The amendments require accountants to choose between Historical Cost approach and Market Value approach in assessing the present value of the client’s assets. To arrive at the current present value of the assets, accountants choose Market Value to be implemented in the reporting sheet. This Market Value approach leads to the requirement of an independent valuer to assess the Market Value of the assets. The amendments have been applied in most countries including United Kingdom, Australia and Malaysia, one of the fastest developing nations in the world.

However, unlike land and building property valuation, plant and machinery transactions are often scarce and very limited resources exist in terms of information and comparison of data. For examples, the land and building sales transactions are registered with the National Property Information Centre (NAPIC) in Malaysia, while the Commonwealth of Australia, Commonwealth Property Review Branch and Australian Government Property Office Occupancy Report compiles the registered sales transactions in Australia. Commercial properties are also captured in NAPIC database and RP Data Commercial databases in Australia and New Zealand. There is no official registered database for plant and machinery transaction, and normally the transaction is recorded only in the sales and purchase agreement between the dealing parties. With these difficulties, even valuers treat plant and machinery valuation as specialised property. Herrman et al. (2006) illustrated that this perception has lead to the usual acceptance for Depreciated Replacement Cost method, which in most cases is accepted by accountants as Historical Cost.

The need for plant and machinery valuation to comply with the IFRS reporting standards has been a global issue. Previously, when it comes to plant and machinery valuation for securing loan facilities, financial businesses have a sceptical view on the reliability of the valuation under the Market Value basis, and somehow are more comfortable with Historical Cost basis. In contrast Malaysian Institute of Accountants and Malaysian Accounting Standards Board (2010) under the Malaysian IFS 116 recognised plant & machinery element of identification for valuation purposes such as the cost of
dismantlement, removal and restoration cost, exchanged of assets at Fair Value basis and components depreciation for plant and machinery.

This recognition is a compliment to valuation profession, as this leads to a better understanding of plant and machinery valuation by accountants and auditors, and indirectly increase the workload for the valuers. However, with regards to IFRS financial reporting, several issues arise as prescribed by Mansfield and Royston (2006):

- Are valuers qualified to conduct plant and machinery valuations?
- Are there any references or practical guidelines in order to conduct plant and machinery valuations?
- Can the accountants / auditors accept the Market Value basis of valuation conducted by the valuer for plant and machinery valuations?

In addition, the compliance of IFRS around the globe is varied. Herrmann et al. (2006) has examined the way the valuation of property, plant and equipment is conducted and compared with IFRS in five (5) countries as shown in Table 1.1 below:

<table>
<thead>
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<th>Item/ Countries</th>
<th>Australia</th>
<th>UK</th>
<th>NZ</th>
<th>Japan</th>
<th>USA</th>
<th>IFRS</th>
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<td>Valuation Basis</td>
<td>Cost or fair value</td>
<td>Cost or fair value</td>
<td>Cost or fair value</td>
<td>Cost</td>
<td>Cost</td>
<td>Cost or fair value</td>
</tr>
<tr>
<td>Independent valuation required for revaluation</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Not available</td>
<td>Not available</td>
<td>No</td>
</tr>
</tbody>
</table>

Source : Herrmann et al. (2005)

In Malaysia, the industry acceptance for plant and machinery valuation is varied from different institutions including bankers, accountants, auditors and valuers. To make the situation worse, the basis of valuation, method of valuation and reporting standards of plant and machinery valuation are different among the valuers themselves. Different interpretations on the premise of values results in the differences in methods of valuation, as well as the final determination of the value. The root of these problems stems back to the Malaysian Valuation Standards (MVS), which is silent on the plant and machinery valuation practical guidelines. Some other factors include:

- Different school of thought among the valuers, depends on the tertiary education background and working experience; and
- MVS, like other international standards, is more concerned with the process of valuation (French, 2003), and lacks interpretation and synchronisation of the basis of valuation and methods of valuation.

A comparison between MVS identification on plant and machinery valuation and the international standards related to plant and machinery valuation are shown in Table 1.2:

Table 1.2: Comparison between MVS and other international standards related to plant and machinery valuation

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Plant</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>b) Machinery</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>c) Equipment</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>d) Market Value</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>e) Fair Value</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Extension of Market Value Basis of Valuation (Premise of Value):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Market Value In-Situ</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>b) Market Value Ex-Situ</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>c) Market Value as a whole for removal</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Valuation Method for Plant &amp; Machinery</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Market Comparison</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>b) Replacement Cost</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>c) Income</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Standard of Reporting:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Data description</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>b) Valuation report</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Other relevant information:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Cost of erecting, testing and commissioning</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>b) Cost of transportation / removal</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>c) Tax and duties</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>d) Cost of decommissioning</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Table 1.2 clearly shows that there is limitation in the MVS on how plant and machinery valuations are determined. In brief, a crucial problem to be addressed in this research is to investigate the international practices of plant and machinery valuation and the state of plant and machinery practices in Malaysia. By determining this, it can be used as a basis for the development of plant and machinery valuation practical notes and guidelines in Malaysia in the future.

Indeed, the identification of the level of plant and machinery valuation understanding in Malaysia is a starting point in developing plant and machinery valuation guidelines and standards that will enable a consistency among Malaysian valuers which currently come from different school of thoughts in conducting plant and machinery valuation for various purposes.

Based on the research background discussed earlier, this research focuses on the following questions:

i. What are the elements that determine the best international practices in plant and machinery valuation?

ii. What is the level of understanding and application of plant and machinery valuation among the valuers in Malaysia?

1.3 Research Aim

This research aims to investigate the international practices of plant and machinery valuation and study the level of understanding and implementation of plant and machinery valuation in Malaysia. This will help towards the better understanding of the plant and machinery valuation principles and process, as well as creating common understanding among the valuers conducting plant and machinery valuation in Malaysia.

Currently, there is no study conducted in Malaysia to examine the plant and machinery valuation implementation and the related jurisdiction involved. Even though the Malaysian Valuation Standards have outlined the plant and machinery interpretation, it does not cover on how to conduct the plant and machinery valuation especially on the valuation premise of value, valuation process and valuation reporting of plant and machinery. By nature, the plant and machinery valuation lacks of information coverage and transparency. Therefore, it is important that this research synchronises the international plant and machinery valuation practices with Malaysian current implementation.

It is important to investigate the international practices of plant and machinery valuation so that the current Malaysian plant and machinery valuation implementation and the international practices are standardised when plant and machinery valuation being reported.
1.4 Research Objectives
This study focuses on the following objectives:

i. To investigate the international practices of plant and machinery valuation;
ii. To establish the common valuation concepts, awareness and application of valuation methodology and valuation process for plant and machinery valuation in Malaysia.

1.5 Research Scope
The scope of this research will initiate and enhance the common awareness, understanding and implementation of plant and machinery valuation in Malaysia. It will focus to improve the plant and machinery valuation section, and not for the valuation for the assets as a whole. This research is the first phase in developing plant and machinery valuation guidelines in Malaysia that can be evolved in the future. These future proposed plant and machinery guidelines will assist various organisations and individuals, such as the government agencies, financial sectors (accountants, auditors, and bankers) and clients to have a better understanding of plant and machinery valuation basis and process, as well as guidance for valuers in conducting plant and machinery valuation in Malaysia. This research will stimulate the needs to establish common valuation concept, awareness, and implementation of plant and machinery valuation among Malaysian valuers. It will provide consistency, as well as the best practice of plant and machinery valuation in Malaysia.

1.6 Rationale and Significance of Study
The 2005 International Financial Reporting Standards (IFRS) amendments outline the need for the synchronisation of the Malaysian financial reports to comply with the IFRS. Under IAS 16 and Malaysian FRS 116, it clearly states the choices between Historical Cost approach and Market Value approach in presenting the current assets value of companies. However, Malaysian Accounting Standard Board (MASB), a regulated body for accounting profession and practices in Malaysia, agrees for full compliance with IFRS by 1 January 2012 (MASB, 2008). This move has a direct impact for asset valuations and the valuers are now required to provide a professional opinion if companies use the Market Value approach in financial statements. Thus, the need for plant and machinery valuation guidelines is crucial to ensure the valuation profession as a whole can carry out the required valuations for this asset class.

Pivotal to the development process for the financial sector was the Malaysian Government’s Financial Sector Master Plan (FSMP) that was issued in 2001. The FSMP’s objective is to create a diversified, competitive, efficient and resilient financial sector that is able to facilitate the economic transformation process. The reforms and capacity building measures implemented have resulted in the emergence of more resilient financial institutions that are well-positioned to support the economy and
compete meaningfully, and provide a platform to be part of the international financial market players. As a result of the initiatives taken to develop the Malaysian financial sector, the financial sector has progressed to become a driver and catalyst of economic growth. This has produced high value-added business environment such as Islamic financing and technology-driven services (Aziz, 2009), attract investments and created employment both within the sector and produce spill over effects to other economic sectors. Over the years, the contribution of the financial sector in Malaysia to gross domestic product has grown from 9.2 per cent in 2000 to 11 per cent in 2008.

Figure 1.1: Malaysian Financial Sector Master Plan

RECOMMENDATION IMPLEMENTED IN 3 PHASES
OVER 10 YEARS SINCE 2001

Based on Figure 1.1, it is clearly stated that Malaysia is on the Third Phase of the financial liberalisation, particularly to assimilate with international platforms such as Asian Free Trade Agreement (AFTA). Therefore, the increase of local and international financial needs for new and expanding of businesses in Malaysia creates a demand for a reliable and transparent valuation report, which includes plant and machinery valuation. The valuers have to produce reliable valuation report for collateral facilities in the local and international arena.

In addition, the demand for financial facilities shows a rising trend every year. From Table 1.3, it can be seen that loans applied for various type of assets, namely transport vehicle, residential property, non-residential property and purchase of fixed assets other than land and building are the biggest contributor to the financial sector businesses. It creates almost 42 per cent to 50 per cent of the total loan amount applied every year since 2006 and the loans approved ranging from 45 per cent to 55 per cent during the same period. The demand from financial institutions creates increasing implications towards the valuation services. There have been issues raised among the bankers for valuation accuracy, in particular for plant and machinery valuation basis and methodology. Therefore, it is timely to conduct this study for standardising plant and machinery valuation in Malaysia.
<table>
<thead>
<tr>
<th>Year/Purpose</th>
<th>Purchase of securities</th>
<th>Purchase of transport vehicle</th>
<th>of which: Purchase of passenger cars</th>
<th>Purchase of residential property</th>
<th>Purchase of non-residential property</th>
<th>Purchase of fixed assets other than land and building</th>
<th>Personal uses</th>
<th>Credit cards</th>
<th>Purchase of consumer durable goods</th>
<th>Construction</th>
<th>Working capital</th>
<th>Other purpose</th>
<th>Total loans</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>Applied</td>
<td>14,522.1</td>
<td>44,984.7</td>
<td>42,439.8</td>
<td>53,356.6</td>
<td>23,748.9</td>
<td>10,167.5</td>
<td>21,592.8</td>
<td>116.9</td>
<td>9,685.9</td>
<td>87,663.4</td>
<td>29,605.4</td>
<td>300,843.1</td>
</tr>
<tr>
<td></td>
<td>Approved</td>
<td>11,837.1</td>
<td>32,013.6</td>
<td>29,992.2</td>
<td>32,848.5</td>
<td>15,250.9</td>
<td>4,882.5</td>
<td>6,189.6</td>
<td>14,838.2</td>
<td>67.0</td>
<td>4,161.7</td>
<td>13,301.9</td>
<td>188,320.9</td>
</tr>
<tr>
<td>2007</td>
<td>Applied</td>
<td>52,126.0</td>
<td>53,051.7</td>
<td>49,179.6</td>
<td>79,143.4</td>
<td>39,127.8</td>
<td>5,473.4</td>
<td>16,169.1</td>
<td>36,147.0</td>
<td>109.3</td>
<td>23,780.6</td>
<td>45,342.0</td>
<td>457,471.2</td>
</tr>
<tr>
<td></td>
<td>Approved</td>
<td>47,970.4</td>
<td>33,167.9</td>
<td>30,810.4</td>
<td>48,153.1</td>
<td>25,152.3</td>
<td>4,582.6</td>
<td>8,164.8</td>
<td>18,128.3</td>
<td>35.5</td>
<td>12,283.7</td>
<td>26,946.4</td>
<td>298,614.9</td>
</tr>
<tr>
<td>2008</td>
<td>Applied</td>
<td>17,667.8</td>
<td>59,639.8</td>
<td>56,253.6</td>
<td>98,308.2</td>
<td>46,213.4</td>
<td>6,000.2</td>
<td>22,936.0</td>
<td>32,933.6</td>
<td>28.9</td>
<td>24,447.6</td>
<td>39,796.6</td>
<td>474,730.0</td>
</tr>
<tr>
<td></td>
<td>Approved</td>
<td>14,132.6</td>
<td>37,921.0</td>
<td>35,680.5</td>
<td>57,954.3</td>
<td>30,664.2</td>
<td>4,539.9</td>
<td>11,536.4</td>
<td>23,547.8</td>
<td>14.6</td>
<td>12,643.1</td>
<td>22,937.8</td>
<td>291,101.8</td>
</tr>
<tr>
<td>2009</td>
<td>Applied</td>
<td>19,804.4</td>
<td>64,353.0</td>
<td>60,727.3</td>
<td>130,389.4</td>
<td>53,037.7</td>
<td>4,053.7</td>
<td>28,013.5</td>
<td>34,951.6</td>
<td>21.6</td>
<td>21,002.0</td>
<td>40,051.0</td>
<td>521,344.0</td>
</tr>
<tr>
<td></td>
<td>Approved</td>
<td>13,782.7</td>
<td>38,320.4</td>
<td>36,268.2</td>
<td>70,480.6</td>
<td>26,440.7</td>
<td>2,951.4</td>
<td>13,914.7</td>
<td>19,758.0</td>
<td>13.7</td>
<td>9,190.7</td>
<td>31,172.4</td>
<td>286,942.5</td>
</tr>
<tr>
<td>2010 (as at July)</td>
<td>Applied</td>
<td>12,557.2</td>
<td>45,409.5</td>
<td>42,587.0</td>
<td>93,825.0</td>
<td>43,729.0</td>
<td>2,982.7</td>
<td>18,516.9</td>
<td>14,532.7</td>
<td>121.8</td>
<td>19,885.3</td>
<td>75,591.6</td>
<td>349,897.2</td>
</tr>
<tr>
<td></td>
<td>Approved</td>
<td>10,048.5</td>
<td>26,661.9</td>
<td>24,965.2</td>
<td>47,060.8</td>
<td>22,164.4</td>
<td>2,271.6</td>
<td>9,530.8</td>
<td>8,623.8</td>
<td>15.9</td>
<td>6,967.8</td>
<td>13,801.5</td>
<td>189,555.3</td>
</tr>
</tbody>
</table>

*Source: Central Bank of Malaysia (July, 2010)*
This research will enable various related organisations, professional bodies, government departments and institutions in Malaysia to establish the best practice of plant and valuation in Malaysia. Some notable agencies/organisations that support this research include:

a. Malaysian Public Services Department;
b. Valuation and Property Services Department, Ministry of Finance, Malaysia;
c. The Board of Valuers, Appraisals and Estate Agents Malaysia; and
d. The Institute of Surveyors, Malaysia.

One of the issues restricting and limiting the plant and machinery valuation practices in Malaysia is the differences in valuation methodology and standards of reporting among the valuers. Preliminary enquiries to various parties, such as government valuers, private practitioners and bankers conclude that it is mainly because there are no specific guidelines for best practice for plant and machinery valuation. Another factor is the different educational background among valuers training in plant and machinery valuation. Therefore, this research will investigate the level of understanding, awareness and application of plant and machinery valuation practices among different schools of thought of the valuers in Malaysia.

This research is to explore the international practices of plant and machinery valuation to be synchronised with the current Malaysian implementation. No guidelines or practical notes being issued to guide valuers in conducting plant and machinery valuation. This results in differentiation in the way plant and machinery valuation being presented. Some valuers used United Kingdom’s RICS Red Book as the main guidelines, whilst some used United States of America’s implementation. This creates confusion among the final report users, and sometime to the valuers themselves. Therefore, by synchronising the international practices of plant and machinery valuation with the Malaysian current implementation, it will lead to harmonisation and standardisation among the valuers in using the same understanding documents in exercising and producing plant and machinery valuation reports.

By exploring the Malaysian valuers understanding of plant and machinery valuation, it will provide the readers with the level of understanding and in what area does the valuers lack while conducting and machinery valuation in Malaysia. This research is the starting point for the introduction to the relevant authorities such as the Board of Valuers, Appraisers and Estate Agents Malaysia for the needs of similar documentation by valuers in Malaysia in the form of guidelines or practical notes to conduct plant and machinery valuation.

The main purpose of conducting this research and answering the research questions is to provide documented documents regarding the international practices of plant and machinery valuation, the current practices of plant and machinery valuation in Malaysia and provides verbatim information of
plant and machinery valuation areas that need to be addressed in helping the valuers profession in Malaysia. This leads to harmonisation on the way the plant and machinery valuation being treated and creates standardisation among the valuers especially with the valuation process, valuation methodology and final valuation report of plant and machinery. It will also enrich the limited known publication related to plant and machinery valuation in Malaysia and abroad.

In achieving this target, Chapter 2 will discuss in details the international practices of plant and machinery valuation especially on the areas such as plant and machinery valuation premise of value, related laws and international standards on the plant and machinery valuation, valuation methodology valuation process and valuation reporting. To study the level of understanding among the valuers in Malaysia in regards to plant and machinery valuation, the instrument that will be used is questionnaire surveys to valuers practising plant and machinery valuation in Malaysia. The finding from the international practices of plant and machinery valuation will be used to create questions in the survey. The finding will confirm the level of understanding of plant and machinery valuation in Malaysia and areas of improvements to enhance the level of understanding by suggesting the introduction of plant and machinery valuation guidelines or practical notes in Malaysia.

The study will also recognise valuers as the preferred profession to conduct plant and machinery valuation practices in Malaysia.

The contributions of each chapter in this research are as follows:

**Chapter 1 – Introduction**
This chapter explains the overall concept of the research. It highlights the research background, research problems and research questions that lead to the research aim and research objectives. The main idea being explored elaborated and supported by international and Malaysian examples. The idea of Malaysian valuers has limited resources and guidance in performing the valuation exercises indicates the needs of proper guidelines or practical of plant and machinery valuation in Malaysia. Research scope, rational and significance of the research are also discussed in this chapter.

**Chapter 2 – Literature Review**
This chapter performs the continuity from the previous chapter. Based on ideas and examples regarding the research problem, this chapter explores in details the current and previous literatures regarding plant and machinery valuation. The purpose of this chapter is to achieve the first objective of the research, which is to investigate international practices of plant and machinery valuation. It will be used to set up the parameter for the development of the research instrument for data collection,
which is the questionnaire. This chapter includes definition, relation to the financial reporting and international practices of plant machinery valuation.

Chapter 3 – Research Design
Research design explains procedures and steps in achieving the research objectives. It discusses on the research framework, the methods for data collection, the research data which explains the sample characteristic and the suitability, the forms of analysis employ in the research and what are the expectations in conducting the analysis in the next chapter. This chapter is important as it will integrate the research ideas from Chapter 1, the parameter from literature review in Chapter 2 and the research design in Chapter 3 to identify suitable methods and designs in answering the research questions.

Chapter 4 – Research Analysis and Findings
This chapter explores the finding from the research survey that has been conducted. It explains in brief the research data and technique and the research analysis of this research. The analyses are divided into two sub-headings, namely Part A: Respondent Background and Part B: Plant and Machinery Valuation Understanding and Awareness. Apart from collecting data to answer the research questions and objectives, the chapter is important to confirm the perception that lack of information and resources is the reason why Malaysian valuers are unable to standardise their plant and machinery valuation exercise. This chapter is also important as it will determine the perception of plant and machinery valuers in Malaysia regarding the needs for new guidelines or practical notes.

Chapter 5 – Conclusion, Suggestions and Future Research
The final chapter provides conclusion, suggestions and future research based on the findings from research analysis and literature review. This chapter concludes the findings from the previous chapter in determining the perception of Malaysian valuers regarding plant and machinery valuation understanding. It is important to relate the findings in this chapter with other chapters as it will determine whether there is a need for plant and machinery valuation guidelines or practical notes to be developed in Malaysia in assisting Malaysian valuers conducting their valuation exercise.
2.0 LITERATURE REVIEW

2.1 Introduction
This chapter outlines the topic of the plant and machinery valuation practices from an international interpretation and the future Malaysian implementation. In order to achieve objective 1 of the study, the literature review is vital to find key parameters or attributes that can contribute to the identification of plant and machinery valuation standards and to assess practical guidelines in Malaysia. The literature study includes the definition of the plant and machinery, the financial reporting of real estate performances according to the international accounting standards and the international practices of plant and machinery, which include valuation methodology and valuation process.

2.2 Plant and Machinery Definitions
Plant and machinery valuation is important to every company’s annual financial reporting. It is stated under Non-Current Assets, and is reported by accountants based on two methods, either Historical Cost or Revaluation basis. Independent valuers are employed to provide the current, up to date valuation on the non-current assets valuation such as property, plant, equipment and intangible asset. The property type and amount owned is dictated by the nature of its operation.

The valuation profession in Malaysia does not differentiate between the plant and machinery valuers and land and building valuers. The Board of Valuers, Appraisers and Estate Agents Malaysia (BOVAEA) has not formally regulated and differentiated on the valuers practising plant and machinery valuation in Malaysia, in areas such as valuation methodology and valuation reporting as long as the practising valuers follow the guidelines as in the Malaysian Valuation Standards (MVS). The provision of plant and machinery valuation is stated under MVS Standards 13 entitled Valuation of Plant, Machinery and Equipment. The Standard 13 is very brief and the valuers are subjected to provide detail explanations on the assumptions used in their plant and machinery valuation report in Malaysia. This situation leads to the issue of the reliability of the practising valuers in conducting plant and machinery valuation in the Malaysian market.

Table 2.1 shows the portion of property, plant and equipment for five (5) selected companies in Malaysia based on the annual financial report. For companies that rely upon assets as the major tools for their businesses, it is clearly justified that the percentage of property, plant and equipment is high with the range of 40 per cent to 85 per cent of the total assets. This high percentage indicates the high number of assets being used as a major business resource in producing incomes for the company. It
also represents the strength of the company which has high number of assets to cover its business security and attracting investors.

Table 2.1: Apportionment of property, plant and equipment in selected Malaysian companies annual financial report, 2007-2009.

<table>
<thead>
<tr>
<th>No</th>
<th>Company</th>
<th>Nature of Business</th>
<th>Total Property, Plant &amp; equipment</th>
<th>Total Non-Current Asset</th>
<th>Total Current Asset</th>
<th>Total Assets</th>
<th>Ratio of Property, Plant &amp; Machinery to Total Assets (%)</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Media Prima Limited</td>
<td>Broadcasting, Advertising and Printing</td>
<td>748,025,000</td>
<td>1,485,772,000</td>
<td>599,942,000</td>
<td>2,085,714,000</td>
<td>71.2</td>
<td>Media Prima Limited Annual Report 2009</td>
</tr>
<tr>
<td>2</td>
<td>Sime Darby Limited</td>
<td>Plantation, property, industrial, healthcare, motors and energy.</td>
<td>9,439,600,000</td>
<td>17,393,700,000</td>
<td>17,983,700,000</td>
<td>35,377,400,000</td>
<td>26.7</td>
<td>Sime Darby Limited Annual Report 2009</td>
</tr>
<tr>
<td>3</td>
<td>Petronas</td>
<td>GLC focussing on petroleum, petrochemical, shipping and petroleum related businesses.</td>
<td>154,056,144,000</td>
<td>197,769,098,000</td>
<td>141,783,120,000</td>
<td>339,552,218,000</td>
<td>45.4</td>
<td>Petronas Annual Report 2009</td>
</tr>
<tr>
<td>4</td>
<td>TNB Limited</td>
<td>Malaysia main electricity supplier.</td>
<td>56,405,300,000</td>
<td>57,528,900,000</td>
<td>10,195,700,000</td>
<td>67,724,600,000</td>
<td>83.3</td>
<td>TNB Limited Annual Report 2007</td>
</tr>
<tr>
<td>5</td>
<td>Fraser &amp; Neave Holding Limited</td>
<td>Malaysian major player in food and beverage industry.</td>
<td>1,102,372,000</td>
<td>1,362,640,000</td>
<td>1,397,262,000</td>
<td>2,759,902,000</td>
<td>39.9</td>
<td>Fraser &amp; Neave Holding Limited Annual Report 2009</td>
</tr>
</tbody>
</table>

Source: Various Malaysian companies’ annual reports

With this high percentage of plant and machinery involved in companies businesses as in Table 2.1, it is important to understand the definition and interpretation of the plant, machinery and equipment.

There are a number of definitions provided by various scholars, manuals and standards from different perspectives or professions. To start with, plant and machinery as defined by the International Valuation Standards Council (IVSC, 2010) is as follows:
(a) Plant - Assets that are inextricably combined with others and that may include specialised structures, machinery and equipment,
(b) Machinery - An apparatus used for a specific process in connection with the operation of an entity,
(c) Equipment - Other assets that are used to assist the operation of an enterprise or entity. (IVSC, 2010)

An extension to this interpretation was clearly stated in the IVSC Standards that plant and equipment collectively constitute a class of tangible assets that are (a) held by an entity for use in the production or supply of goods or services, for rental by others or for administrative purposes, and (b) expected to be used over a period of time. Plant and equipment assets have characteristics that distinguish them from the land and buildings in or on which they are located and that influence both the approach to and reporting of their value. Plant and equipment assets are normally capable of being moved or relocated without significant damage or disruption to the land or buildings, and usually will have a significantly shorter useful life (IVSC, 2010).

The IVSC and the International Accounting Standards Board (IASB) have worked closely to define plant and machinery terms. It is essential for IASB, since the application of valuers report under IVSC has a domino effect on the current IASB financial reporting standards. IASB has not defined plant and machinery. However, it recognised plant and machinery as part of tangible assets, which is categorised into lands, land and buildings, machinery, ships, aircraft, motor vehicles, furniture and fixtures, and office equipment. The International Accounting Standards 16 (IASB), particularly for property, plant and equipment has similar interpretation as in International Valuation Standards Notes 3 (IVS), which identified tangible assets as (a) has an entity for use in the production or supply of goods and services, for lease to third parties or for administrative purposes, and (b) are expected to be used for more than a year.

Most countries’ valuation standards have adopted the IVS definition of plant and equipment. It is set under tangible assets, and is frequently used in the financial and accounting reporting. For examples, Australian Property Institute (API) and Property Institute of New Zealand (PINZ) (2009) provide a similar interpretation of the plant and equipment under the Guidance Notes 3, IVS (2007 edition). However, United States (2010) has no separate definition of plant and equipment but instead categorised it under personal property. The term personal property in the United States is identified as “identifiable tangible objects that are considered by the general public as being personal, for example furnishings, artworks, antiques, gems and jewellery, collectibles, machinery and equipment; all tangible property that is not classified as real estate” as prescribed in the Uniform Standards of Professional Appraisal Practice (USPAP, 2010)
The Malaysia Valuation Standards (MVS, 2006) applied the definition of plant and machinery consistent with the IVS. Plant, machinery and equipment are identified as building services installations and process plant, machinery and equipment installed wholly in connection with the occupier’s industrial or commercial processes and also business occupation furniture and furnishings, fixture and fittings, vehicles, moulds and loose tools. It also constitutes a class of property other than real property, and for accounting standards these are classified as tangible assets. They are individually distinguished and defined as follows:

a. Plant includes assemblages of asset that may include specialised non-permanent buildings, machinery and equipment.

b. Machinery includes individual machines or collection of machines. A machine is an apparatus using or applying mechanical power, having several parts each with a defined function, and together performing certain kind of work.

c. Equipment includes ancillary assets that are used to assist in the functioning the function of the enterprise.

(MVS, 2006)

The Malaysian Accounting Standards Board (MASB) definition of plant, machinery and equipment is in line with the MVS and recognises plant, machinery and equipment as tangible assets. MASB (2010) definition of property, plant and equipment includes:

a. are held for use in the production or supply of goods or services, for rental to others, or for administrative purposes; and

b. are expected to be used during more than one period.

Various scholars, dictionary and law cases have defined plant and machinery in their useful context. The summarisations are shown in Table 2.2 below:
Table 2.2: Interpretation of plant and machinery from scholars, dictionary and law cases

<table>
<thead>
<tr>
<th>Author/ Source/ Law Cases</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Derry (2008)</td>
<td>Plant and machinery as the fixed assets of a company, other than land and building. Motor vehicle, mobile plant, ships, locomotive, airplanes and similar assets which are patently not physically fixed will normally be considered to be plant and machinery.</td>
</tr>
<tr>
<td>Budhbhatti (1999)</td>
<td>Plant and machinery are term used to refer to installations and support facilities for manufacturing in industry design to perform a specific pre-determined function, whether used singly or in combination with other items to enhance the productivity or operating facility; and includes all devices in fixed or movable form, other than real estate, deployed in manufacturing, processing or assembling of products from the stage raw materials to finished goods.</td>
</tr>
<tr>
<td>Oxford Dictionary (2010)</td>
<td>Plant is described as fixture, implements, machinery and apparatus used in carrying on any industrial process</td>
</tr>
<tr>
<td>Waratah Gypsum Pty Ltd vs Commissioner of Taxation (1965) 112 C.L.R 152 (NSW)</td>
<td>Plant as the fixture implements and machinery used in an industrial process.</td>
</tr>
<tr>
<td>Australian Gas Light Co. vs Valuer-General (1940) 14 L.G.R (NSW) 14</td>
<td>Plant as any fixed asset that could be removed without damage to the premise and it is relevant to consider not only its design, size, method of construction and mode of attachment at the soil, but also and most importantly, its use and its function.</td>
</tr>
<tr>
<td>Associated Blue Metal Quarries Ltd vs Valuer General(1935) (NSW)</td>
<td>Plant as housing for machinery and the tram lines used in connection with a quarry but do not include the factory building.</td>
</tr>
<tr>
<td>Cuttack Municipality vs Executive Engineer, S.E Board, ILR (1975) (India)</td>
<td>The machinery terminology was referred as an appliance and apparatus for applying mechanical power, having several parts, each with definite function. A machine is a device meant to convert a slow motion at some point into a more rapid motion at the other desire point or the device to convert rotator motion into linear motion or the device to step down electricity of higher voltage into lower voltage.</td>
</tr>
</tbody>
</table>

Source: Author

Based on the definition from various sources such as international standards, scholars, dictionary, and law cases, it can be concluded that the Malaysian Valuation Standards have covered the interpretation and explanation of plant, machinery and equipment terminology for financial and businesses purposes. It has been used in line with the financial reporting standards. Thus, this research will adopt the Malaysian Valuation Standards definition of plant, machinery and equipment.
2.3 The Financial Reporting of Real Estate Performances according to the International Accounting Standards

2.3.1 The IASB and IVSC and their standard setting process

The International Accounting Standards Board (IASB, former International Accounting Standards Committee IASC) was founded in 1973 as a result of an agreement by accountancy bodies in several countries with the objective to “develop … a single set of high quality, understandable and enforceable global accounting standards”.

To ensure compliance with the financial reporting regulatory background and due to other pressuring factors, it is further necessary to define a uniform set of valuation standards as a guideline for the valuation of assets. The IASB therefore works together with the International Valuation Standards Committee (IVSC), which issues the widely accepted International Valuation Standards (IVS). The IVSC was founded in 1981 and is a non-government-organization that works together with well-known organizations such as the World Bank, the Appraisal Institute, the Royal Institute of Chartered Surveyors and the IASB.

The primary purpose of the IVS is to provide uniformity to the valuation standards across country borders by establishing a superset of rules that are applicable in all countries and which increase the transparency for international investors. Examples of these differences include valuation purposes, valuation methodologies and valuation standard of reporting. The IVS rules have therefore a broader character compared to domestic standards like the USPAP, to take care of differing laws between countries. Similar to the IFRS concept, it is the undertaking of the domestic standard setting bodies to adopt these general standards (Dorchester and Vella, 2000).

2.3.2 The Recognition of Real Estate by IFRS

Within the International Financial Accounting Standards, there are several sections which relate to real estate depending on the use and function of it within the company. The six real estate relevant sections are IAS 2 Inventories, IAS 11 Construction Contracts, IAS 16 Property, Plant and Equipment, IAS 17 Leases, IAS 36 Impairment of Assets and IAS 40 Investment Property. For the purpose of this research, the researcher will focus discussion on the IAS 16.

The recognition of real estate by the IFRS is important to provide a common understanding between two professions, namely accountants and valuers. This will provide both parties with mutual interpretation, as the accountants have to rely on the valuation provided by the valuers, and the valuers deliver the same reports that are accessible by the accountants. The valuation of property, plant and equipment is clearly stated under IAS 16 and are described below.
IAS 16 – Property, Plant and Equipment

This section applies to all properties “that are held by an enterprise for use in the production or supply of goods or services, for rental to others, or for administrative purpose and that are expected to be used during more than one period” (IAS 16.6a and b, 2010). While the initial measurements of the property are the construction costs, the company can choose between two alternatives for the subsequent measurement: The Benchmark Treatment or the Allowed Alternative Treatment (IAS 16.28 and 16.29, 2010). The Benchmark Treatment carries the property at its cost less any accumulated depreciation and any accumulated impairment losses and is also a recognised method in the German HGB or US-GAAP.

The Allowed Alternative Treatment on the other hand is a peculiarity of the IFRS principle of a “true and fair view” and represents a market-to-market approach. Hereby the property “should be carried at a revalued amount, being its fair value less any subsequent accumulated depreciation and impairment losses”. To keep this value up-to-date a “sufficient regularity” of revaluations is required. IAS 16 also requires a detailed disclosure of the valuation methods used and their underlying assumptions.

2.3.3 Using valuation/ appraisal methods for a financial reporting according to IAS/ IFRS

The key question of this section is, whether the international valuation / appraisal methods are applicable for financial reporting according to the IFRS. As the international valuation / appraisal standards and the IFRS are not only two simple sets of rules which can be compared chapter by chapter, but very complex linkages between different concepts and rules, it is necessary to consider all compatibility criteria. These can be determined as the regulatory framework, the value concepts (premise of value) and the valuation methods (Milgrim, 2001).

2.4 International Practices for Plant and Machinery Valuation

2.4.1 Regulatory Framework

The regulatory framework plays a major role in the compatibility of the valuation methods for plant and machinery according to the IVS and IAS as it dramatically influences not only their flexibility, but also the consistency of their application (Spies and Wilhelm, 2005). In essence, most of the international standards provide sufficient elements of the regulatory framework (IVS 2010, IAS 2010 and USPAP 2010). UK and the United States standards differentiate between local and international valuation practices, however does not highlight the importance to synchronise between the methods of valuations and premise of value. The valuers/appraisers only need to justify any interpretation and usage of premise of value and methods of valuation in their valuation report.
Table 2.3: Summary of regulatory framework of plant and machinery valuation based from the International Standards

<table>
<thead>
<tr>
<th>Standards</th>
<th>Comments/ Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>International Valuation Standards (IVS)</td>
<td>IVS is managed by non-profit organisation in United Kingdom; consist of various nations in the board committee. It does not regulate any countries, but sets similar and consistent standards for nation standards to follow as a guideline. The IVS is a minimum benchmark, and will be assimilated into country standards for local adoption. For plant and machinery, it provides brief explanation on definitions, premise of value, methods and standards of reporting under IVS Guidance Notes 3.</td>
</tr>
<tr>
<td>International Accounting Standards (IAS)</td>
<td>IAS, governed by International Accounting Standards Board, provides standards for accountants and auditors to comply. For plant and machinery valuation, IAS recognised it as part of tangible assets in the financial sheet. The 2005 amendments provide more recognition to plant and machinery as it includes cost to install, erecting, maintaining and dismantle of plant and machinery to be part of tangible cost.</td>
</tr>
<tr>
<td>Uniform Standards of Professional Standard Practices (USPAP) – United States</td>
<td>USPAP are not only supported but also enforced by the government. It has been the de facto valuation standard in the United States. For plant and machinery valuation, it is prescribed as personal property, and the USPAP provides a general statement for the methods of valuation and how to conduct the valuation for plant and machinery. In general, the USPAP keeps the standards as general as possible, to make it manageable for users and valuers/appraisers. It allows the appraisers to operate overseas.</td>
</tr>
<tr>
<td>RICS Red Book – United Kingdom</td>
<td>The Red Book is the basis for the IVS Structures. However, the standards address the differences between UK’s practices and international application in the forms of local laws and needs. For plant and machinery, it provides practical notes for better understanding.</td>
</tr>
<tr>
<td>Australia &amp; New Zealand Valuation and Property Standards (ANZVPS) – Australia &amp; New Zealand</td>
<td>The regulatory body binds the local plant and machinery valuers, as Australia and New Zealand have different set of valuers, either land and building valuers, and plant and machinery valuers. For plant and machinery valuation, the standards applied the IVS, and put some addition for local Australian and New Zealand practices.</td>
</tr>
<tr>
<td>Malaysian Valuation Standards (MVS) - Malaysia</td>
<td>The standards must be complied by valuers, and only registered valuers are allowed to do plant and machinery valuation. Even though there is explanation on the definition of plant and machinery, the standards lack of premise of value, and silent on how to synchronise between valuation premises and valuation methods.</td>
</tr>
</tbody>
</table>

Source: Author

Generally, the premise of value is the extension from the market value definition. In plant and machinery valuation, the use of premise of value is important to determine the nature of valuation undertaken and the right method of valuation to be employed. For example, valuation of plant and machinery under the market value in-situ premises is defined as the same with the market value
definition with further assumption that the assets will be sold by way of a private treaty sale where the assets will remain in their existing place and location (in situ) following sale. It may use market comparison, cost or income approaches in the valuation of market value in-situ premises.

In the case of Malaysia, as it follows the UK’s Red Book, the Malaysian Valuation Standards have explained the definitions and how to conduct the plant and machinery valuation for financial reporting. For the premise other than market value, valuers have to provide an explanation of the premise used. The tabulation of the international framework of plant and machinery valuation by international standards and Malaysian Valuation Standards are as follows:

### 2.4.2 Valuation Concept (Premise of Value) for Plant and Machinery Valuation

According to Hitchner (2003) in general there are two premises of value, namely going concern value and liquidation value. American Society of Appraisers et al (2001) defines premise of value as “An assumption regarding the most likely set of transactional circumstances that may be applicable to the subject valuation, e.g. going concern, liquidation. It defines going concern value as “The value of a business enterprise that is expected to continue to operate in the future. The intangible elements of going concern value result from factors such as having a trained work force, an operational plant, and the necessary licenses, systems, and procedures in place.”

There are two types of liquidation value, orderly liquidation and forced liquidation. Orderly liquidation value is defined as ‘Liquidation value at which the asset or assets are sold over a reasonable period of time to maximise proceeds received’. In contrast, the term forced liquidation value is defined as “Liquidation value at which the asset or assets are sold as quickly as possible, such as at an auction.” It is also defined as “The net amount that can be realised if the business is terminated and the assets are sold piecemeal. Liquidation can be either ‘orderly’ or ‘forced’ (American Society of Appraisers, 2001).

Sze (2006) claims that the main problem for the plant and machinery valuation is to standardise the usage of premise of value since it differs from one country to another. Some international standards do implement the extension of premise of value, and provide descriptions and definitions of Market Value In-Situ, Market Value Ex-Situ, Market Value for Removal and others (IVS 2010, ANZPVS 2010). However, the United States provides different terms, implementation and understanding of premise of value such as Liquidation Value, Orderly Liquidation Value and Forced Liquidation Value (USPAP 2010).
Different interpretation and usage of premise of value terms have significant effect on the current Malaysian plant and machinery valuation. Apart from Market Value, the MVS lacks in the interpretation of the other concepts of premise of value, which is already differentiated by continents (either UK or United States basis). This has a major impact on how the valuers in Malaysia reported their plant and machinery valuation.

However, all international standards, including MVS agree with the definition of Fair Value and Market Value. This is because most of the time, the term Fair Value and Market Value are accepted by other professions, namely accountants and auditors. The term Fair Value is accepted as equivalent to the Market Value (Christensen and Nikolaev, 2009). The definition of Market Value and Fair Value are as follows:

Table 2.4: Definition of market value and fair value from different perspectives

<table>
<thead>
<tr>
<th>Premise of Value</th>
<th>Source</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market Value / Fair Value</td>
<td>International Valuation Standards, Guidance Notes 3 (Proposed amendment 2011)</td>
<td>The estimated amount for which a property should exchange on the date of valuation between a willing buyer and a willing seller in an arm’s-length transaction after proper marketing wherein the parties had each acted knowledgeably, prudently, and without compulsion.</td>
</tr>
<tr>
<td></td>
<td>International Accounting Standard 16 (2005)</td>
<td>Same as definition by IVS.</td>
</tr>
<tr>
<td></td>
<td>Uniform Standard of Professional Standard Practices (2010/2011) United States</td>
<td>Is the estimated amount, expressed in terms of money that may be reasonably expected for a property in an exchange between a willing buyer and a willing seller, with equity to both, neither under any compulsion to buy or sell, and both fully aware of all relevant facts, as of a specific date.</td>
</tr>
<tr>
<td></td>
<td>Australia &amp; New Zealand Valuation &amp; Property Standard 2009</td>
<td>Same as definition by IVS.</td>
</tr>
<tr>
<td></td>
<td>Malaysian Valuation Standard 2006</td>
<td>Same as definition by IVS.</td>
</tr>
</tbody>
</table>


Even though there are similarities among the international standards to accept the definition of Market Value and Fair Value, the extension of the premise of value varies either from UK or the United States definition. The differentiation and application of premise of value being used are tabulated in Table 2.5 below:
Table 2.5: Summarisation of application of premise of value among the international standards

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Market Value In-Situ</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Market Value Ex-Situ</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Market Value-Removal</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Reproduction Cost New / Reinstatement New</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Replacement Cost New</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Fair Market Value In Continued Use</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Fair Market Value – Installed</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Fair Market value – Removal</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Liquidation Value in Place</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Orderly Liquidation Value</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Forced Liquidation Value</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

*Source: IVS 2010, USPAP 2010, ANZVPS 2009 and MVS 2006*

From Table 2.5, it can be seen that term ‘Market Value In-Situ’ used in IVS and ANZPS is equivalent to ‘Fair Market Value-Installed’ used in USPAP. The problems lie in the premise of value which is not stated as equivalent, such as Liquidation Value in Place, Orderly Liquidation Value and Forced Liquidation Value. The MVS is silent on all of these value premises. Therefore, this research is to address a common understanding of premise of value and methodologies to be applied in Malaysian plant and machinery valuation.

The IVS (2010), IAS (2005) and USPAP (2010) provide recognition on some elements or factors that constitute the market value of plant and machinery, such as cost of installation, testing and commissioning, cost of dismantling and cost of removal. However, there are no significance synchronisation in any of the international valuation standards, to link between different types of premise of value, factors affecting value and methods of valuation (Sze, 2006). The same situation happens in relation to the Malaysian Valuation Standards.
The detailed explanation of every extension of the market value in Table 2.5 is attached as Appendix 1.

2.4.3 Plant and Machinery Valuation Methodologies
Korner (2009) and MacDonald (2001) describe that there are three internationally recognised approaches to value, namely market, income and cost approaches. Each has certain strengths and weaknesses, and their application depends on the purpose, type of property involved, nature of the market and availability of specific data that a valuer must consider in every project.

It should be noted that all of these approaches should reflect, when possible, market data. When a variety of information sources are relied upon, such as cost new of a plant, exchanges in used markets or a rate of return required by the investors, each should reflect the circumstances prevailing in a particular market at the valuation date. Theoretically, all methods should yield the same result, but in reality, this is often not the case. The valuer must reconcile the facts and circumstances applicable and consider the data, the premise of value and the assumptions employed (Korner, 2009).

2.4.3.1 Market Approach
Most authors agree that the direct sales comparison method is the most common under the Market Approach for plant and machinery valuation (IVSC, 2010; Korner, 2009; Maninggo, 2010; Derry, 2008 and Budhbatti, 1999). The basic fundamental for this method is on the assumption that an informed purchaser would not pay more for an item than the cost of acquiring an existing one with the same utility. This method is preferred when valuing plant and machinery for which there is a known and active secondary market. In applying it under the ‘in-use’ premise, an allowance then is made to reflect the costs of delivery, installation, taxes, fees and duties (Korner, 2009). In some countries, it is known as 'additional cost'. Differences in the premises of value require different identification of additional cost. This research is trying to identify and suggest the appropriate additional costs for different type of premise of value and valuation approaches in Malaysia.

The second method under market approach for plant and machinery valuation is the comparable match method. This technique establishes value based on the analysis of similar (but not identical) assets using some measure of utility (size, capacity, year manufactured) as the basis of comparison. The main differences from the direct sales comparison method is that the comparisons may not be similar in terms of model and year built, but has other similarities such as capacity, brand acceptance in the market or same country of origin. Some adjustments have to be made on the comparable before the value of the asset can be derived.
Another variant of the direct sales comparison method is the use of market relationship (Korner, 2009), also known as percent of cost method (Maninggo, 2010; Derry, 2008 and Budhbbatti, 1999). Recent market prices for items of plant, machinery and equipment in a particular asset class that has an active secondary market are reviewed with respect to age and condition. Then they are compared with a benchmark price, such as the duplication (reproduction) cost new. The ratios of the market prices to benchmark amounts are applied to similar assets in the class if the specific secondary market is too thin to exhibit sufficient, appropriate and direct comparability.

The market analysis can be made on either a direct or a statistical basis:

a. Direct by comparing subject asset with identical or very similar items that have been sold (Direct comparison method and comparable match method);

b. Statistical by examining a significant sample of market transactions to establish similarities and dissimilarities of various attributes (Percent of cost method).

While direct matching provides the best indication of market value, the process of finding identical or very similar items may be somewhat lengthy and require consideration of the different items of equipment involved, distinguishing them by model, size, capacity and the like. There is no guarantee that the valuer will find any direct comparable (Korner, 2009). For unique items of plant and machinery this often requires comparison with items sold in other countries, where valuation and market condition vary.

Therefore, in practice, statistical comparisons are generally used because they have the advantage that data can be collected and analysed in advance, providing immediate information when needed for a specific assignment. Moreover, such information can also be used, where appropriate, for direct matching. Market data collected over long periods and on a global basis can supply information regarding past changes and general trends in specific markets, variations of geographically different but economically similar markets, and the identification of a lack of demand for a specific brand, thus resulting in discounted or lower price (Budhbbatti, 1999).

The most common sources of market data are published auction results and transactions reported by dealers in similar items. Maninggo (2010) highlights that price used as the basis of comparison may come from dealer’s asking or selling price, auction, direct offer of surplus equipment, direct exchange between parties or unspecified sources. Actual sales price, such as by a dealer or a direct exchange between parties, provide reasonably reliable information about completed transactions. However, they may need adjustments, depending on the specific purpose of the valuation or the nature of the transactions.
Derry (2008) highlights that auction price is considered the last resort before scrapping if the asset could not be disposed of through an orderly or forced liquidation process. As such, they typically represent the lower end of an item’s value. Auctions provide reasonably information for liquidation values, but their applicability for any other purpose must be carefully considered.

The internet represents a huge source of data on equipment sales, but there is great difficulty in establishing the nature of the transactions or offerings. Reported prices for unspecific types of sales should be considered somewhat unreliable because of the impossibility of making appropriate adjustments. However, the data from internet is useful for cross checking with other methods, especially for rarely exchanged assets (Korner, 2009).

The main differences between the asking price on the internet and the actual final selling price is that the asking price normally excludes other additional costs such as cost of transportation, installation, testing, commissioning, relevant government taxes and duties, and other elements that should be determine in order to arrive at the final selling price. Valuers understanding of the specialise market requirement is essential in order to derived at the final selling price and the internet price can be used as a guidance.

2.4.3.2 Income Approach

The main principle behind this approach is that an informed buyer would pay no more for a property or asset than an amount equal to the present worth of anticipated future benefits (income) from the same or equivalent property with similar risk (IVSC, 2010; Korner, 2009; Derry, 2008 and Budhbhatti, 1999). The most convenient and applicable method in this approach is discounted future cash flow. This method applies to investment and general-use properties where there is an established and identifiable rental market or where a specific measurable stream of benefits may be attributed to the subject. In applying this method to plant and machinery, consideration is given to either the income-generating or the cost-savings potential of the item and the associated risks and uncertainties. The income approach is suitable to be used if the plant and machinery economic life span can be determined or the terminal value in the end of useful life is known.

The benefit/income capitalisation method presents a number of obstacles. Some notable obstacles are as follows:

a. For most plant, machinery and equipment, the potential earnings (benefits) cannot be reasonably separated from those of overall business and often the information regarding their respective operating costs is unavailable (Korner, 2009).
b. It is difficult to develop one of the most critical factors: The discount rate (Korner, 2009 and Derry, 2008).

c. The risks of specialised items or those involving unique technologies are typically higher than for units alternative uses because of plant and machinery is not as liquid as current assets and lacks comparable market data (Budhbhatti, 1999). Therefore, the risks and returns associated with plant and machinery are higher than those for current assets.

Ideally, the best source of required returns comes from investors who directly participate in various markets. However, this information is usually confidential. Therefore, indirect methods have to be applied to determine supportable rates of return. Below are some suggested indirect methods that can be applied (Korner, 2009):

a. Market price method – With this, the selling prices of comparable investments are compared to anticipated future benefits to derive an indication of the implicit rates of return. However, the problem is a general lack of market-based data.

b. Comparison of quality attributes method – The desirability of the subject is compared to those alternatives having known rates of return.

c. Build-up method – Starts from a known risk-free rate to which factors are added for additional risks, the burdens of management and the lack of liquidity to derive a suitable rate of return.

The weighted average return on assets (WARA) method – This method is based on assumption that a business is a portfolio of financial, physical and intangible assets. The fair value of the long term debt plus that of the equity is equal to the sum of the fair values of net working capital and fixed and intangible assets. WARA is the rate of return of each category weighted by its fair value.

The main restriction in applying the income approach is sometimes the value is overstated. This happens when an income method is applied to plant and machinery using an earnings stream based on a proportion of the overall entity (not a market rental). In this case, normally the valuer must subtract returns on contributory assets. Those include net working capital, real property, operational know-how, trademarks and trade names, customer relationships, an assembled workforce, and other inherent intangible assets. A value using this method includes elements of goodwill and such, is overstated (Korner, 2009 and Budhbhatti, 1999).

Based on the above discussion, it is clear that the application of income approach is limited to plant and machinery which may be leased out at a specific market rent or to assets that are by nature cash generating, such as power or process plants being valued as a whole or games machinery and equipment in a modern theme parks.
2.4.3.3 Cost Approach

Budhbhatti (1999) indicates that the cost approach is based on the principle that assets decrease in value (or depreciate) through aging, changes in function utility, as well as from negative external influences. The underlying assumption is that an informed purchaser would not pay more for an item than the cost of a substitute with the same utility and functionality. Methods under this approach generally provide a meaningful indication of value for specialised items associated with a viable business or justified by economic demand (Derry, 2008).

According to Korner (2009), the cost approach offers the only applicable method when valuing property that is not traded, market transactions of comparable items are not available, data cannot be extrapolated from larger transactions, transactions are nonexistent and there is lack of financial data concerning the subject property or item. It should be noted that application of the cost approach is not without problems. The major difficulties are measuring economic obsolescence and avoiding dependence on the valuer’s subjective judgements.

In the cost approach, the starting point is the determination of the duplication (reproduction) cost new or the replacement cost new (RCN) (IVSC, 2010; Korner, 2009; Derry, 2008 and Budhbhatti, 1999). The cost to reproduce or replace the subject with a new asset, either identical (reproduction) or having the same utility (replacement), establishes the highest amount a prudent investor is likely to pay for new and unused property. This will include both direct and indirect costs, including fees (Maninggo, 2010; Mohd Khairuddin 2008 and Budhbhatti, 1999).

Most plant and machinery authors agree that there are three methods to determine the duplication cost new or replacement cost new (IVSC, 2010; Maninggo, 2010; Korner, 2009; Derry, 2008 and Mohd Khairuddin, 2008). They are the trending method, direct pricing and benchmarking techniques. The application of trending method presumes that the current value of plant and equipment may be obtained from the original (historic) acquisition cost, which typically is recorded in the entity’s records, through adjusting (multiplying) it by an appropriate price index.

However, Maninggo (2010) observes that the trending method is applicable generally and provides a reliable result when the subject property is relatively new, located in a stable economy situation, sold in stable prices, historic data is available and the subject asset has been purchased new, which might not work with second hand assets. Providing these conditions exist, the trending method is especially suitable for large amount of assets in a valuation engagement, where direct pricing is not practical.

Another method to arrive at the replacement cost new or duplication cost new is by direct pricing (Korner, 2009; Derry, 2008). Although the trending method provides a quick indication of cost new,
direct pricing is definitely preferable. It is the process of applying current new unit prices to the
subject. Typically they are obtained from current manufacturers’ price lists, quotations, and
catalogues that provide the recent prices for a subject item. In valuation under the ‘in-use’ or ‘in-situ’
premise, they have to be increased by transportation and installation costs.

However, the only obstacle in using this method is the availability of data. Prices for certain items
may not be available at all (the item is no longer manufactured, or the supplier is out of business). In
some cases, the manufacturer may not be willing to disclose them. An alternative version to direct
pricing is by adding the cost of material, labour, engineering, and other expenses needed to reproduce
the item. This is practical for individual specialised unit, except that it requires specific knowledge
and expertise of the particular industry. Therefore, the alternative method to the direct pricing is rarely
used.

Lastly, the replacement cost new can be arrived by using benchmarking techniques. In benchmarking,
the cost of an item is estimated from known prices of equipment with similar characteristics,
functionality, and utility. Some valuers may use 6/10 rules (Korner, 2009), and some may use battery
limits and rules of thumbs. The 6/10 is based on the assumption that the subject asset is at 40% lower
than the new market price for similar machine because the differences in technology and year built,
without considering physical depreciation. Provided that the the 6/10 rules applies when the subject is
compared with the new similar machine in the market, it only applies if it have similar functionality,
even though different capacity. In battery limits technique, the subject is benchmarked against the
total needed to construct a production plant. Rules of thumb should not be given much weight, as they
are approximations, not estimates.

Once the cost new is determined, it has to be adjusted to reflect any form of depreciation. This is
defined by IAS (2010) as “the systematic allocation of depreciable amount of an asset over its useful
life” (IAS 16.6 and IAS 36.6). In valuation practices, depreciation is “actual loss in value or worth of
a property from all causes including those resulting from physical deterioration, functional
obsolescence and economic obsolescence (IVSC, 2010). Depreciation is either ‘curable’ defined as
“that part of physical deterioration and functional obsolescence which is economically feasible to
rectify”, or ‘incurable’ – “that part of which it is not economically feasible to deal with” (IVSC,
2010).

Physical deterioration for plant and machinery is the loss in value caused by wear and tear from
operation and exposure to the elements, including any lack of maintenance (IVSC, 2010). The term
‘physical deterioration’ is treated as synonymous with ‘depreciation’, especially when there is no
functional obsolescence. Friction, impact, vibration, fatigue, deformation or distortion due to stress or
force may cause physical deterioration, and may arise from the passage of time, exposure to natural elements, or the impact of the operating environment (Korner, 2009). Some indication of machinery physical deterioration includes product rejection, waste of material, excessive maintenance needs and repair costs running far above similar machine.

In theory, physical deterioration can be measured objectively such as a machine can produce X number of parts in its lifetime or a pump will lift Y cubic meters, and the physical deterioration can be easily calculated. Unfortunately, such conditions do not exist in the real world. A valuer must rely on how similar assets have performed in the past to make a judgement of the physical condition of the subject. Therefore, determination of physical deterioration may be rather subjective. Improvements and modifications made to the plant and machinery over time could actually increase the value or extend the life of the item (Korner, 2009).

The physical condition observed during inspection can be verified by conducting discussions with operating, maintenance and engineering staff, review past and present replacement, maintenance, analysing production records and consulting industrial experts (Maninggo, 2010 and Mohd Khairuddin, 2008). An important fact to be taken into account is that two machines of the same type, performing the same function but from different suppliers may differ not only in price and quality of output but also in their ability to withstand use (Korner, 2009 and Derry, 2008). To depreciate them at the similar rates, based on the age and units produced, may lead to an incorrect conclusion of value.

Most authors agree that physical depreciation can be measured using straight line depreciation (Maninggo, 2010; Abdul Rahman, 2010; Derry, 2008, Mohd Khairuddin, 2008 and Budhbhatti, 1999). In practice, physical deterioration is most commonly estimated by the economic or actual life/age methods; both are based on an accounting-like straight-line depreciation model developed by dividing the actual or effective age by an estimate of the normal useful life. The problem is that the depreciation rate is not derived from market evidence, and it assumes that all elements, parts, components or subsystems within the piece of equipment depreciate at the same, constant, average rate (Korner, 2009; Mohd Khairuddin, 2008 and Budhbhatti, 1999).

Korner (2009) highlights the basic equation of the age/life method that is:

\[
\text{Total depreciation rate} = \frac{\text{effective age of property}}{\text{normal useful life}}
\]

Some modifications that take into consideration the salvage value (if the property is sold for the materials it contains or for an alternative use), at the end of useful life are:
Total depreciation rate = \frac{\text{Effective age of the property X (1-net salvage value at the end of useful life)}}{\text{Normal useful life}}

(Korner, 2009)

In determining the normal useful life of the property, particularly plant and machinery, authors have different opinions. However, all agreed that the inherent relationship between maintenance and depreciation must be considered (Maninggo, 2010; Abdul Rahman, 2010; Korner, 2009; Derry, 2008; Mohd Khairuddin, 2008 and Budhbhatti, 1999;). By increasing maintenance, often the useful life may be prolonged, thereby reducing annual depreciation. Whilst no exact measure of this relationship is possible (Korner, 2009), it is advisable to consider the general level of maintenance when reviewing plant and machinery’s depreciation.

In valuation, the term ‘useful life’ has many interpretations regarding definition and usage. Some practitioners consider it to be the physical life (Bhudbhatti, 1999 and Derry, 1992), whereas current practitioners regard it as the economic or normal useful life (Maninggo, 2010; Abdul Rahman, 2010; Mohd Khairuddin, 2008). RICS (2006) defines physical life as “how long the asset, ignoring any potential for refurbishment or reconstruction, could be used for any purpose.” It is the period during which a property can be operated using normal preventive maintenance, as recommended by the manufacturer. Although the physical life often reasonably indicates an item’s useful life, Korner (2009) identified several issues that should be considered by the valuers namely:

a. Overhauling or rebuilding can renew a plant and machinery’s life, this may be undertaken several times until no longer economical.

b. Functional obsolescence factors, such as technological substitution, deregulation, increased competition and rising market demands, may have a profound impact on the life of a plant, machinery or equipment.

IVSC (2010) has defines economic life as the “period in which an asset is expected to be economically useable by one or more users.” It is the estimated number of years that a new plant, machinery or equipment can be used before it would pay for the owner to replace it with the most economical replacement that could perform equivalent services. As agreed by Korner (2009), it considers the time from when operations begin to the point at which the subject becomes uneconomical.

According to Korner (2009) and Mohd Khairuddin (2008), the obvious advantage of this life concept is that it considers, in addition to external economic factors, the benefit utilisation from the owner’s perspective. Governmental regulations may be imposed and market conditions or industry economics
may change. At current, economic obsolescence factors change so quickly that many assets can suddenly become uneconomical. The drawback is that it requires the valuer to analyse the utilisation of the asset from an economic point of view, and this task is not always possible due to the complexity of such analyses and general lack of appropriate data (Maninggo, 2010).

However, the American Society of Appraisers (2001) has a different definition of normal useful life that is “the physical life, usually in terms of years, that a new property will actually be used before it is retired from service. A property’s normal useful life relates to how long similar properties actually tend to be used, as opposed to the more theoretical economic life calculation of how long a property can profitably be used.” Typically, this definition is used for valuations as it takes into account market-based experience in the industry, allows for normal wear and tear, anticipates functional and economic obsolescence, as well as other factors that might result in an early retirement (Korner, 2009).

It is ultimately the valuer’s decision whether the remaining useful life is derived from normal useful life, economic life or physical life concept. The valuer must, however, provide a credible justification of the method chosen that can be explained, quantified and defended.

In relation to the functional obsolescence, IVSC (2010) defines it as” a form of depreciation resulting in a loss in value caused by conditions within the property, such as changes in design, material or process, and resulting in inadequacy, overcapacity, excess construction, lack of utility, or excess operating costs.”

As the conclusion for valuation methodologies, the logic underlying the understanding and use of multiple methods is that different types of information are available for the variety of factors that influence fair value. Since valuing plant and machinery depends frequently on subjective measures and interpretation of both qualitative and quantitative data, the valuer skills are a key factor.

2.4.4 Plant and Machinery Valuation Process
Plant and machinery valuation requires both on-site and desktop data gathering. In general, there are five valuation processes that include; (1) identifying the ownership of assets and compilation of assets inventories, (2) field inspection and verification of asset and equipment involved, (3) explain the scope of valuation, (4) describe the approach taken in the valuation exercise; and (5) conclusion and recommendation (Abdul Rahman, 2010 and Mohd Khairuddin, 2008). It is clear that that the two earlier process relates to the data gathering (on-site process) whilst the last three processes involves research process (desktop process). This supports the claims by MacDonald (2001) and Maninggo
(2010) which indicates that the two most important parts of the plant and machinery valuation process consist of:

a. Gathering data in the field, e.g. listing the equipment with good asset descriptions that include: item, make, model, serial number and descriptions of attachments, controls and capacities such as horsepower and size.

b. Research consists of finding comparable sales of the subject equipment and, in some instances, contacting the plant and machinery manufacturers.

Most authors agreed that there are two major procedures in the identification in plant and machinery valuation (Maninggo, 2010; Abdul Rahman, 2010; Derry, 2008; Mohd Khairuddin, 2008 and Budhbhatti, 1999). They are macro identification and micro identification. Macro identification describes the identification of plant and machinery function and purposes as a whole. It includes major components that contribute to the design and capability of the plant and machinery. Macro identification considers the market of the identical asset, as well as the similar comparability in the market.

Maninggo (2010), Abdul Rahman (2010) and Mohd Khairuddin (2008) identified information relating to the macro identification, namely:

a. Company name and location.

b. Original date of construction and expansions, if any.

c. Engineering design firm and contractor.

d. Products produce.

e. Plant processes including by product, if any.

f. Plant capacities (design capacity, rated and actual consistent capacity).

g. Plant efficiency or obsolescence.

h. Yield or losses and reason for losses.

i. Operating mode.

j. Market for the industry being assesses.

Micro identification explains the plant and machinery being inspected in detail. This includes name of machine, manufacturer’s name, manufacturer’s location, trade name, model, size, capacity (horsepower or other adjective that control the basic price), further description of the machine (process performed, material of construction), serial number or other permanent identification, optional accessories, drive arrangements and prime mover type and foundation (above ground, below ground or self-standing) (Maninggo, 2010; Abdul Rahman, 2010 and Mohd Khairuddin, 2008). The data specification is in line with the Malaysian Valuation Standards, Standards 8.2.2(g), which outline “where the valuation includes plant, machinery and equipment, details such as brand name, model
number, size, capacity, age and other identifying characteristics must be included in the report.” As explained earlier, the plant and machinery valuation process includes (1) site inspections, and (2) research, analysis and value determination (Maninggo, 2010 and MacDonald, 2001). The two processes are detailed as follows:

Table 2.6: Plant and machinery valuation process

<table>
<thead>
<tr>
<th>Phase I: Site Inspection</th>
<th>Phase II: Research, Analysis and Value Determination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verify or develop asset list.</td>
<td>Research new machinery cost.</td>
</tr>
<tr>
<td>Confirm or compile brand, model, serial number, description, configuration, condition.</td>
<td>Identify technological developments at variance to the subject assets.</td>
</tr>
<tr>
<td>Note special features, modifications or defects.</td>
<td>Develop replacement or reproduction cost as new.</td>
</tr>
<tr>
<td>Photographs key items or processes.</td>
<td>Research local secondary markets including rental, if any.</td>
</tr>
<tr>
<td>Investigate manufacturing layout, manufacturing capabilities, operating characteristic,</td>
<td>Analyse known sales.</td>
</tr>
<tr>
<td>maintenance program.</td>
<td>Adjust new costs for physical condition and expected physical life.</td>
</tr>
<tr>
<td>Collect or develop process flowcharts and material flow diagrams.</td>
<td>Adjust for technological variations and expected future advances.</td>
</tr>
<tr>
<td>Collect historical machinery purchase contract information and accounting data.</td>
<td>Adjust for economic factors pertinent to the industry.</td>
</tr>
<tr>
<td></td>
<td>Develop values from cost and market approaches.</td>
</tr>
<tr>
<td></td>
<td>Prepare draft reports and detailed schedule of assets.</td>
</tr>
</tbody>
</table>


Table 2.6 above explained the detailed process of plant and machinery valuation. It comprises two phases which are (a) Phase I: Site Inspection; and (b) Phase II: Research, Analysis and Value Determination. Phase I involves detailed data collection including data identification, data verification and data collection. Phase II is more related to the desk-top works which include research for new machinery cost, market analysis and value determination. These phases are based from the practitioners in the market and there are no standardisation and exact rules of how to implement the phases. Therefore, without seeking knowledge from the experience plant and machinery valuers, it is hard to get information on how to conduct plant and machinery valuation. The guidelines or practical notes are imminent in providing valuers in Malaysia with the fundamental knowledge in conducting plant and machinery valuation.

In regards to Malaysia, there are no guidelines or rules to be followed for the plant and machinery valuation process. There are limited Malaysian books or academic papers discussing the valuation
process, and most likely the best reference comes from the practitioner in the market. However, it is subject to the experience and level of exposure to the specific industry that can determine the valuers’ level of knowledge in conducting plant and machinery valuation. The gap keeps increasing every day, with the IFRS amendments in 2007. Therefore, there is a need for proper guidelines for plant and machinery valuation practitioners, to guide and equip them with the basic fundamentals of plant and machinery valuation to ensure compliance and acceptance by all end valuation users.

2.4.5 Standard of Reporting for Plant and Machinery Valuation

In general, there are slight differences on the plant and machinery valuation report compared to the normal real estate valuation report. The standards of reporting for plant and machinery valuation are more detailed, in terms of data information, regarding the asset being valued, the comparison being used and market analysis of specific industry.

Internationally, a standard of reporting is based on IVSC (2010) International Valuation Standard 3 – Valuation Reporting which should consider the followings; 1) Date of valuation, date of the report and date of the inspection, 2) Purpose and basis of valuation, 3) Property rights or interest to be value, 4) Physicals and legal characteristics of the property, 5) Scope of valuation, 6) Assumptions and limiting conditions, 6) Valuation Methodology, 7) Market analysis, 8) Value consideration, and 9) Valuer signature and professional qualification. This IVSC standard of reporting was accepted by most countries such as United Kingdom, Australia, New Zealand, India and others. The IVSC stated as a general guidelines, and the countries includes their addition to the IVSC version of standard of reporting to suite their country’s needs.

In Malaysia, the MVS (2006) has outlined the contents of the real property valuation report that stated under MVS Standard 9 – Valuation Reports. The contents of a valuation report are set out in Table 2.7:

<table>
<thead>
<tr>
<th>Table 2.7: MVS 9: Valuation report contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valuation Contents</td>
</tr>
<tr>
<td>1. Instruction to value.</td>
</tr>
<tr>
<td>2. Interest to be valued.</td>
</tr>
<tr>
<td>3. Purpose of valuation.</td>
</tr>
<tr>
<td>4. Date of valuation.</td>
</tr>
<tr>
<td>5. Date of inspection.</td>
</tr>
<tr>
<td>6. Title particulars.</td>
</tr>
<tr>
<td>7. Description of property – Neighbourhood, location, physical description of property, property condition, available services etc.</td>
</tr>
<tr>
<td>8. Tenancy/lease details.</td>
</tr>
<tr>
<td>10. Assumptions.</td>
</tr>
<tr>
<td>12. Evidences of value.</td>
</tr>
<tr>
<td>14. Name and signature of the Valuer.</td>
</tr>
<tr>
<td>15. Plan – Building plans, location plans.</td>
</tr>
</tbody>
</table>

*Source: MVS (2006)*
In regards to plant and machinery valuation, the Malaysian Valuation Standards puts a minimum referencing for the reporting which is highlighted in MVS (2006) Standard 8, Item 2.2(g) which stated “where the valuation includes plant, machinery and equipment, details such as brand name, model number, size, capacity, age and other identifying characteristics must be included in the report.” These statements provide limited understanding on how the plant and machinery valuation report should be addressed.

The problem is not restricted to Malaysia. Many authors agreed that for plant and machinery valuation reporting, additional details should be considered and included (Maninggo, 2010; Abdul Rahman, 2010; Mohd Khairuddin, 2008; Barton, 2007 and Budhhatti, 1999). These authors agree that the plant and machinery valuation report should include the Plant Valuation Schedule in the appendix section. This schedule is a detailed description of every machine being valued.

Descriptions of the plant and machinery valuation report are set out in Table 2.8:

<table>
<thead>
<tr>
<th>Addition to Normal Valuation Report Contents</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nature of assets</td>
<td>Explaining the nature of assets, description of the purpose of machines, production capacity, age and condition of assets, average age and photographs of major components.</td>
</tr>
<tr>
<td>Basis of valuation (Premise of Value)</td>
<td>The report should explain clearly on the basis being employ, whether it is market value in-situ, market value remain in-situ or market value ex-situ. Even though all considered under market value, different premise of value provide different valuation methodology to employ.</td>
</tr>
<tr>
<td>Valuation Methodology</td>
<td>Detailing on the valuation methodology as the plant and machinery valuation should consider different approach within the same methodology. Example: Direct comparison method or percent of cost method under Market Approach.</td>
</tr>
<tr>
<td>Market Analysis</td>
<td>Descriptive studies or explanation on the specific industries should be highlighted considering the second hand market, average life span of plant or machinery, changes in technology and the use of machinery by other type of industries.</td>
</tr>
<tr>
<td>Plant Machinery Schedule</td>
<td>Determine the plant or machinery brand, model, serial numbers, capacity, asset descriptions and supporting equipments. It can include year of manufacture, asset age, estimated life, asset size, length or country of origin.</td>
</tr>
</tbody>
</table>

Most likely, it depends on the valuer's experience and ability to explain the plant and machinery being valued in their reports. There are no strict guidelines on this matter, however standard guidelines in Malaysia will help current and new practitioners providing consistency in reporting plant and machinery valuation, as well as addressing the similar ground of reporting to other professions.

2.5 Summary of Literature Review

This literature review highlights the needs for research to establish the best practice or approach of plant and machinery valuation in Malaysia in the forms of guidelines, practical notes or standard by itself. Through literature review, it is found that most international plant and machinery valuation practices are specific to be applied or imposed in certain countries or areas only. For example, USPAP is only suitable in United States based on the culture of businesses and financial regulatory implemented in the country. Therefore, it is timely that the valuers in Malaysia are provided with detail information that suits with the Malaysian plant and machinery valuation needs.

This research is significant in establishing the common valuation concept, awareness and application of plant and machinery valuation practices in Malaysia. This is the preliminary step for Malaysian valuation profession to establish the common procedures for plant and machinery valuation. The future plant and machinery valuation guidelines will assist in providing recognition to the valuers profession as a whole and creates harmonisation among the Malaysian plant and machinery valuers in conducting their tasks. The purpose of the proposed guidelines is to provide solutions and structures of best plant and machinery valuation practices in Malaysia.

Based on the above literature review, it can also be argued that the international valuation standards can assist in a solution for plant and machinery valuation practices in Malaysia. It is also clear that the main purpose of the international standards, either for valuation or accounting profession, is to provide the users with universal introduction to the basis and implementation process, but lack in solving the differences for different national users. Therefore, it is best that the nation interprets the standards according to the country needs. Direct referencing to international standards will create confusion among the valuation practitioners and users in Malaysia. A similar practical notes or guidelines will help to overcome the issue on the different plant and machinery valuation implementation among valuers.

This chapter has reviewed the international and Malaysian perspectives of plant and machinery area of interest such as premise of value and valuation approaches. However, Malaysian plant and machinery valuations are currently reliant on the information and experiences of the practitioners either from the government or the private valuers. It is likely that the establishment of Malaysian plant
and machinery valuation practical notes or guidelines will educate and provide necessary information for the current practicing valuers and universities students on the subject areas of plant and machinery valuation. In the long run, it creates similar plant and machinery valuation practices, increase plant and machinery valuation accuracy and upgrade the Malaysian valuers practising plant and machinery credibility.

As a matter of fact, plant and machinery valuation is important to any business operations in Malaysia either the small or large scales. It has been reported annually in the company’s financial reporting on the non-current asset section to determine the real value of the companies. Companies with higher property, plant and machinery asset value usually attract more new investments. Valuers provide the accounts and the companies with the current market value of the plant and machinery and they need guidance in doing so. Therefore, the research is to establish the common practices and sources of guidance on the plant machinery valuation in Malaysia.

The limitation in implementing plant and machinery valuation practices in Malaysia was pictured through the lack of reliable and published sources of information regarding this type of asset valuation. This has created problems such as different valuation applications especially in determining the different type of plant and machinery premise of values and valuation approaches. This limitation can be reduced by enacting new guidelines or practical notes for plant and machinery valuation in Malaysia.

There are no previous studies ever discussed on the plant and machinery valuation in Malaysia. Limited current or previous literature discussing on the information and process of plant and machinery valuation has made the valuers in Malaysia, unable to produce a standard valuation report when plant and machinery valuation is involved. Most opinions or literatures are based from the practitioner in market, either in the form of lecture notes or presentation papers. Therefore, this research is important to enrich the plant and machinery valuation literature in Malaysia. It can be used to formulate guidelines or practical notes for plant and machinery valuation practices in Malaysia.
3.0 RESEARCH DESIGN

3.1 Introduction
This research project has been undertaken to investigate and analyse the current valuation practice in Malaysia for plant and machinery to establish the extent, emphasis and compliance of current valuation practice in Malaysia compared to other developed and developing countries.

A range of methods was used to answer all the research questions in achieving the research objectives. This research used a combination of qualitative and quantitative approaches in determining the research outcome. The qualitative method via content analysis was conducted to review the international and Malaysian current practices of plant and machinery valuation for identification and discussion of plant and machinery subject areas for Malaysian future practices. Quantitative approach through research survey was conducted to gather the Malaysian valuers mass opinion on their knowledge, understanding and current implementation of plant and machinery valuation in Malaysia.

This chapter describes the design adopted in this research to achieve the aims and objectives stated in Section 1.4 of Chapter 1 as follows:

i. To investigate the international best practices of plant and machinery valuation;
ii. To establish the common valuation concepts, awareness and application of valuation methodology and valuation process for plant and machinery valuation in Malaysia.

Based on the research objectives, the investigative questions are as follows:

1. What are the international practices in plant and machinery valuation?
   
   *Investigative questions:*
   a. What are the international standards for plant and machinery valuation?
   b. What are the contents of the international valuation standards for plant and machinery?
   c. To what extents are the international standards for plant and machinery valuation being applied?
   d. Are there any differences between international standards for plant and machinery valuation from one country to another?

2. What are the common valuation concepts, awareness and application of valuation methodology and valuation process in plant and machinery valuation?
Investigative questions:

a. What are the valuation concepts for plant and machinery valuation?
b. Are there any differences between the valuation concepts from one country to another?
c. What are the methodologies for plant and machinery valuation?
d. What is the level of awareness of plant and machinery valuation among the registered and probationary valuers in Malaysia?
e. What is the level of application of plant and machinery valuation among the registered and probationary valuers in Malaysia?

The purpose of these questions is to ensure that the research plan has considered possible strategies for data collection and analysis procedures involved is driven by these questions (Saunders, 2009; Singleton and Straits, 2005). Most of the studies in the property area adopted social science research strategy. The social science strategy focused on the two approaches, namely qualitative, quantitative or combination of both approaches (Cavana et al, 2001; Newman and Benz, 1998). This research will adopt the combination of the qualitative and quantitative approaches to create a better understanding of the issue being discussed. The qualitative approach is used to achieve the first and second research objectives using content analysis, while the third objective is answered using quantitative approach via survey.

The data were analysed using manual content analysis for the qualitative data and Microsoft Excel for statistical analysis of quantitative data. The outcomes of both approaches were used to study the level of plant and machinery valuation understanding, awareness and application of plant and machinery practices in Malaysia.

3.2 Research Framework

Fellows and Liu (2008) outline that the researcher should indicate the suitable methodological approach in finding solutions to the research problem or research questions addressed. A detailed research design is a key for a framework in data collections and observations, as well as to link every topic.

According to Trochim (2008) the research design is used to structure the research, display the functions of major parts of the research project and explain the contribution of each part in addressing the central research questions. This research tries to implement various international practices and theoretical framework to be tested, improved and assimilated with Malaysian plant and machinery valuation practices, with participation from various individuals from the related fields and suggestion from various organisations for the proposed guidelines. The framework for this research is as follow:
Figure 3.1: Research framework

Stage 1

Objective 1: Qualitative via Content Analysis

Definition of Terminologies

The Financial Reporting of Real Estate Performances according to International Accounting Standards and International Financial Reporting Standards

Stage 2

International Practices of Plant and Machinery Valuation
- Regulatory Frameworks
- Valuation Concept
- Valuation Methodology
- Valuation Process
- Standards of Reporting

Stage 3

Key Parameters from Objective 1 & 2

Pilot Study

Stage 4

Questionnaires Survey

Key Parameters from Objective 1 & 2 plus the Survey’s findings

International Practices of Plant and Machinery Valuation and the level of understanding among Malaysian valuers on the Common Valuation Concept, Awareness and Application of Valuation Methodology and Valuation Process for Plant and Machinery Valuation
Based on Figure 3.1 above, this research is divided into four stages to be completed. The explanation of each stage is as follows:

Table 3.1: Stages for the research

<table>
<thead>
<tr>
<th>Stage</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Preliminary stage. The idea for the research is gathered and strengthened through preliminary literature review. The research problems were identified and the research plan was constructed.</td>
</tr>
<tr>
<td>2</td>
<td>Extensive data collection via content analysis was retrieved. This stage is important to identify the key parameters in the study area, as well as to justify the relevancy of each parameter to be included in the questionnaires survey.</td>
</tr>
<tr>
<td>3</td>
<td>Based on the findings in Stage 2, the research will conclude the parameters for the questionnaire survey.</td>
</tr>
<tr>
<td>4</td>
<td>Main survey will be conducted to gauge the respondent’s opinion on the plant and machinery valuation. The finding from Stage 1, 2 and 3 will be combined to form the findings of the level of awareness and application of common valuation concept and plant and machinery valuation practices in Malaysia.</td>
</tr>
</tbody>
</table>

The research framework (figure 3.1) and stages for research (table 3.1) above are important because this will provide conformity that valuer in Malaysia need guidance in conducting plant and machinery valuation exercise. The guidance may come in the form of guidelines or practical notes. The introduction of the guidelines or practical notes will standardise the valuation reporting of plant and machinery valuation. This will increase valuers credibility and accuracy in performing their duties.

3.3 Research Method for Data Collection

This research employs a combination of qualitative and quantitative approaches to answer the research problems. An appropriate method is needed to answer all the research objectives Therefore, the methods applied in this research are as follows:

3.3.1 Gap Identification through Literature Review

A literature review is essential in each research study. The purpose is to develop the knowledge of the researchers with the background of the research project. McMurray et al. (2004) stated that the objective of the literature review is to increase researcher’s knowledge of the problem, which illustrates that the researchers are conversant and familiar with the latest relevant research projects. The other purpose is that literature review will highlight the gaps in the existing bodies of knowledge and theory. This statement was supported by Cavana et al. (2001) that literature reviews explore all important and non-important variables. Ignorance of certain variables may lead to the questioning of reliability and validity of the research problem impact.
Therefore, the first stage of this research is an extensive literature review on the plant and machinery valuation area. The extensive review is conducted to achieve objectives 1 of the research. The sources are books, journals, conference proceedings paper, theses, governments’ regulations and standards, newspaper articles and magazine articles. The purpose of literature review in this research is to identify the research frameworks and key parameters including:

- Definition of Plant and Machinery
- The Financial Reporting of Real Estate Performances according to the International Accounting Standards (IFRS)
- International Best Practices for Plant & Machinery Valuation
  - Regulatory Framework
    - International Valuation Standard (IVS)
    - International Accounting Standards (IFRS)
    - Uniform Standard of Professional Standard Practices (USPAP) – USA
    - RICS Red Book – UK
    - Australia and New Zealand Valuation and Property Standard
    - Malaysian Valuation Standard
  - Value concept in Plant and Machinery valuation from different perspective
  - Plant and machinery Valuation Approaches – Market Comparison, Cost and Income approaches.
  - Valuation Process – Macro and micro identification, inspection.
  - Valuation Standards of Reporting for Plant and Machinery Valuation.

Furthermore, to strengthen and reinforce the basis of theoretical establishment of this research, all publications including academic and non-academics were reviewed. This method is employed to achieve objectives 1 and 2 of this research. An understanding of plant and machinery valuation framework has enable this research to come out with the relevant parameters/attributes for 1) questionnaires survey, and 2) parameters for the development of the plant and machinery valuation practical notes in Malaysia in the future.

3.3.2 Questionnaire Survey
This research employed a questionnaire survey in order to gather qualitative and quantitative data to achieve objective 2. Attributes from objectives 1 were used as a basis to develop the question
structure of the questionnaire. This primary data will determine the level of understanding, awareness and application of plant and machinery valuation methodology and valuation process in Malaysia.

3.3.2.1 Preliminary survey as a Pilot Survey

Before the questionnaire survey commenced, a pilot survey was conducted to produce a precise survey format that is usable and visualise the expected data needed. Rea and Parker (2005) indicate that this early stage is important to identify and consider relevant issues possibly related to the research. As mentioned by Fellows and Liu (2008), all questionnaires should be piloted using a small sample of participants. The strategy is to ensure the questionnaire is clarified, comprehensive and can be accepted.

Another reason to conduct a pilot survey is that the validity and reliability of the collected data is dependent on the design of the questions and structure of the questionnaire (Saunders, 2009). In examining the validity and reliability of the questionnaire, a preliminary survey in the form of a structured postal questionnaire was prepared. This allows the researcher to test whether the questions can be understood and answered by the selected respondents. In the preliminary survey, comments and feedback from the respondents regarding the accuracy and adequate coverage of investigative questions as well as the format, instruction and wording of the questionnaire was solicited.

The pilot study was conducted in the month of November 2011 and was made through personal emails to the selected respondents. The researcher has obtained permission from the Board of Valuers, Appraisers and Estate Agents Malaysia for the use of the respondents email addresses. The researcher has provided the respondents with the sample questionnaire for them to answer and stated clearly the purpose of the email and asked their comments and suggestions for the improvements of the questionnaire.

For the purpose of this research, the researcher has selected 10 respondents for the pilot study. These 10 respondents were selected from the government agencies and the private valuation firms. The respondents were 5 registered valuers and 5 probationary valuers, currently registered with the Board of Values, Appraisers and Estate Agents, Malaysia. The reason for the researcher to select this 10 respondents was because they were involved with the plant and machinery valuation, previous Malaysian experiences with plant and machinery valuations and the practices or courses they have attended to master the plant and machinery valuation.

As for the 5 government respondents (3 registered valuers and 2 probationary valuers), they are working with the Valuation and Property Services Department, Ministry of Finance, Malaysia and have been trained with the private valuation firm in New Zealand on the plant and machinery valuation.
valuation and have conducted plant and machinery valuation. The 5 respondents from the private valuation firms (2 registered valuers and 3 probationary valuers) are currently or previously have conducted plant and machinery valuation, have adequate knowledge and experience in plant and machinery valuation and have gathered knowledge of plant and machinery valuation through short courses either conducted by the National Institute of Valuation (INSPEN), Institute of Surveyors Malaysia and the Board of Valuers, Appraisers and Estate Agents Malaysia.

The questionnaire can be divided into close ended question and the open ended question. The purpose of the questions is to obtain the subjective assessment (perception) of the respondents regarding the level of understanding, acceptance and suggestions of the following plant and machinery areas:

- Definition of Plant and Machinery
- The Financial Reporting of Real Estate Performances according to the International Accounting Standards (IFRS)
- International Best Practices for Plant & Machinery Valuation
  - Regulatory Framework
  - Value concept in Plant and Machinery valuation from different perspective
  - Plant and machinery Valuation Approaches – Market Comparison, Cost and Income approaches.
  - Valuation Process – Macro and micro identification, inspection.
  - Valuation Standards of Reporting for Plant and Machinery Valuation.

This perception is quantitatively measured using a Likert rating scale. The perceptual basis of the survey and investigation is proposed since the indicators being measured are intangible. The respondents have to rely on the knowledge and their previous experience to answer the questions. The findings from the questionnaire were used as base structure to (a) Study the level of understanding, awareness and applications of plant and machinery valuation methodology and valuation process; and (b) develop the Malaysian plant and machinery valuation guidelines in the future.

3.3.2.2 Main Survey

The feedback and comments from the preliminary survey were analysed to strengthen the main questionnaire. The structured questionnaire was distributed to the Malaysian respondents to determine the level of understanding, acceptance and suggestions from the respondents to form the Malaysian plant and machinery valuation practical notes elements.
The major principle to describe a good questionnaire design is that it should consider three components: 1) Principles of wording, 2) Principles of measurement and 3) General appearance. These components will affect the efficiency of the design questionnaire. According to Naoum (2008) questionnaire survey is suitable when a large amount of data needs to be collected from respondents regarding their opinion and experience of a particular phenomenon. In addition, the time available for data collection is limited. Therefore, this method is the best method to be adopted for this research. The main survey for this research was based on the questionnaire improved from the pilot study conducted earlier. It consisted of two parts, namely Part A: Respondent Background, and Part B: Plant and Machinery Valuation Understanding and Awareness. The contents and type of question asked on each part of the questionnaire were as follows:

Table 3.2: Questionnaire content and their rationale

<table>
<thead>
<tr>
<th>Nos.</th>
<th>Content</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Type of respondent</td>
<td>To gather information on status of respondents either registered or probationary valuers.</td>
</tr>
<tr>
<td>2</td>
<td>Level of education</td>
<td>Respondent level of education was collected to see whether they were school leaver, diploma holder, degree holder, master degree holder or doctorate holder. This would determine their level of experience and knowledge on plant and machinery valuation before entering employment market.</td>
</tr>
<tr>
<td>3</td>
<td>Location of education background</td>
<td>This relates to the issue of different educational background that would determine whether the respondent were UK orientated, European orientated, USA orientated or locally Malaysia orientated in pursuing their work.</td>
</tr>
<tr>
<td>4</td>
<td>Years in valuation practices</td>
<td>To study the level of the respondent experience, either beginner, intermediate or highly experience.</td>
</tr>
<tr>
<td>5</td>
<td>Location of valuation practices</td>
<td>Location of valuation practices would determine the type of cases received. The bigger cities like Kuala Lumpur, Georgetown (Penang State), Johor Bahru (Johor State) and Shah Alam (Selangor) would likely received more complicated cases of valuation, including plant and machinery.</td>
</tr>
<tr>
<td>6</td>
<td>Experience with plant and machinery valuation</td>
<td>To gather information on respondent involvement with plant and machinery valuation.</td>
</tr>
<tr>
<td>7</td>
<td>Number of plant and machinery valuation cases</td>
<td>To study the number of cases received by valuers.</td>
</tr>
<tr>
<td>8</td>
<td>The last time conducting plant and machinery valuation</td>
<td>To see when was the last time the respondents have conducted their plant and machinery cases.</td>
</tr>
<tr>
<td>9</td>
<td>Current main source of plant and machinery valuation used</td>
<td>The researcher has outlined 4 sources: Malaysia Valuation Standards, Asset Valuation Guidelines (Securities Commission, Malaysia), International Valuation Standards and International Accounting Standards. This was to study the dependability of respondents on type of sources in conducting their tasks. The researcher also provided room for other type of sources in others.</td>
</tr>
<tr>
<td>10</td>
<td>No differences between plant and machinery valuation and land and building valuation</td>
<td>To study the perception of the respondent on these two classes of non-current assets.</td>
</tr>
<tr>
<td>11</td>
<td>Factors limiting valuation of plant and machinery in Malaysia</td>
<td>This open ended section required respondent to provide as many factors limiting plant and machinery valuation in Malaysia.</td>
</tr>
<tr>
<td>12</td>
<td>Plant and machinery valuation methodology should be made available to practitioner</td>
<td>The study of current perception of respondent on the plant and machinery valuation methodology.</td>
</tr>
<tr>
<td>13</td>
<td>Forms of information to educate Malaysian valuers on plant and machinery valuation methodology</td>
<td>The researcher has provided the option as follows: (a) Inclusion in university syllabus; (b) Practical or guidance notes on plant and machinery valuation; (c) Manual of plant and machinery; and (d) Executive diploma. This question was to study the trend of type of demand for plant and machinery information.</td>
</tr>
</tbody>
</table>

**PART B: PLANT AND MACHINERY VALUATION UNDERSTANDING AND AWARENESS**

| 1 | Market value as equal to fair value. | To capture the respondent opinion on the level of similarities and dissimilarities of these two basis. |
| 2 | Interpretation of Premise of Values | To identify the level of knowledge among respondent on the different type of premise of values, namely market value in-situ, market value ex-situ, market value for removal, reproduction cost new, replacement cost new, fair market value in continued use, fair market value installed, fair market value removal, liquidation value in place, orderly liquidation value and forced liquidation value. |
| 3 | Source of interpretation for different type of premise of value | To see respondent opinion on their preference of source of information for premises of value, such as International Valuation Standards, Uniform Standards of Professional Standard Practices (USA) and RICS Red Book (UK). |
| 4 | Premise of value was silent in Malaysian Valuation Standards (MVS) | To gather respondent opinion and stand regarding the premise of value availability in MVS. |
| 5 | Valuers in Malaysia need resources in conducting plant and machinery valuation for different type of premise of value | This question was to clarify the need for whether resources in plant and machinery valuation. |
| 6 | Plant and machinery valuation approaches preferences | The opinion of respondent regarding the rank of valuation approaches usage and reliability was conducted between market comparison approach, cost approach and income approach. |
| 7 | Selection for the best valuation approaches for different type of premise of value | To describe the preference of valuation approaches among the respondent on different type of premise of value. |
| 8 | The importance of Macro identification | The opinion of respondent was collected regarding the level of importance of macro identification in plant and machinery valuation. |
The importance of Micro identification

The opinion of respondent was collected regarding the level of importance of micro identification in plant and machinery valuation.

Plant and machinery valuation process should be made clear to the valuers in Malaysia

The importance of plant and machinery valuation process was tested and identified.

Current plant and machinery valuation reporting is following MVS 9, on standard of reporting

This question is to gather the respondent opinion on the standardisation of plant and machinery valuation report in line with the current MVS Standards 9.

Suggestions on the improvement of plant and machinery valuation reporting

The respondent was asked on the improvements/addition on the plant and machinery valuation reporting, in terms of description on the nature of asset, description on the premise of value, description on the valuation methodology, description on the market analysis and description on the plant and machinery schedule.

The above improvement will create confusion among the Malaysian Valuers

The respondents were to be tested on their acceptance of the above improvements/additions.

Valuers free to interprets and explain plant and machinery valuation reporting as long as it follows MVS 9

The question was asked to confirm the respondents opinion in the previous question on the level of acceptance of plant and machinery standard of reporting.

The addition and improvement in standard of reporting will create standardisation in plant and machinery valuation reporting in Malaysia

The reason for this question is to confirm the needs for the improvement and additions in plant and machinery valuation reporting as it will standardise the Malaysian valuers practices.

The addition will provide necessity of the practical notes to be developed in Malaysia

To standardise the Malaysian valuers implementation, the level of the practical notes necessity was studied from the respondent’s opinions.

The practical notes or guidelines will standardise the plant and valuation practices in Malaysia

This question acted as conformity to the previous question on the level of importance of the practical notes for the Malaysian valuers.

The implementation of practical notes or guidelines will increase the valuers’ integrity in conducting plant and machinery valuation

This question tried to identify the importance of similar implementation of plant and machinery valuation reporting in the long run. It will create commonality among the valuers and increased valuation accuracy and integrity.

Source: Author

The main findings of the pilot study that were included in the main survey were as follows:

(a) Question 11 of Part A on the factors limiting plant and machinery valuation was suggested from the pilot study. To make it more flexible to the respondents in the main survey, the respond for this question is in open-ended form, and allowed respondents to provide as many
factors as possible. The researcher would determine the similarities among the factors to be grouped and tabulated in the finding and analysis chapter.

(b) Questions 9 to 13 of Part A of the questionnaire were not assigned in the original pilot study. The respondents from the pilot study have suggested that there were needs for the question to be answered from all respondents even though some of them have never conducted plant and machinery valuation.

(c) Questions 15 and 17 of the Part B were added to create conformity and supplement the judgement and opinion on the previous questions imposed on the respondents, namely question 14 and 16 of the Part B. These questions have also been suggested by the respondents from the pilot study.

The pilot study has provided the researcher with the area of improvements before the final questionnaire was distributed. The responds from the respondents have made the information needed in determining the level of current knowledge and understanding of plant and machinery valuation achieved.

3.4 Research Data
In order to achieve objectives 1 of the research, an extensive literature review was conducted using content analysis procedures. The source of the literature review comes from different type of sources, such as books, journals, monographs, conference paper, unpublished reports and presentations, newspaper articles and others.

As for the survey respondents, the proposed data were described as follows:

<table>
<thead>
<tr>
<th>Type of Questionnaire Survey</th>
<th>Registered Valuer/ Valuer*</th>
<th>Probationary Valuer / Designated Assistant**</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preliminary</td>
<td>5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Main</td>
<td>75</td>
<td>93</td>
<td>168***</td>
</tr>
<tr>
<td>Total Numbers (Population)</td>
<td>700</td>
<td>840</td>
<td>1540</td>
</tr>
</tbody>
</table>

Note:  * - Registered Valuer/ Valuer was defined by Malaysian Valuation Standards as “a person who is registered as a registered valuer or a registered appraiser with the Board of Valuers, Appraisers and Estate Agents, Malaysia”. The respondent will be selected
from various institutions, namely government sector, private sector, securities commission and banking/financial institution.

** - Probationary Valuer/Designated assistant was defined by Malaysian Valuation Standards as “a person who is employed on a full time basis by a firm registered with the Board to carry out valuations and who is under the supervision of a Valuer. The Designated Assistant must be a person who has been carrying out relevant property inspections for not less than six months. The target respondent will be from various institutions such as government sector, private sector, securities commission and banking/financial institution.

*** - The 168 sample is based on the formula by Yamene (1967):

\[ n = \frac{N}{1 + N \left( \frac{\varepsilon}{N} \right)^2} = \frac{290}{1 + 290 \left( \frac{0.05}{290} \right)^2} = 168.1 = 168 \text{ company/organisations} \]

A member of these groups will be selected randomly and there will be 168 respondents for the questionnaires survey.

The respondents for the main survey were the registered valuer/valuer and probationary valuer/designated assistant registered with the Board of Valuers, Appraisers and Estate Agents Malaysia (BOVAEA). The reason for the chosen of this valuers and probationary valuers is that they form the back-bone of valuation profession in Malaysia. They were the person involved in the plant and machinery valuation exercise starting from day instruction to value the plant and machinery received by the company to the production of final plant and machinery valuation report.

Simple random sampling has been used to determine the size of survey sample. As at April 2011, there are 290 companies registered to conduct valuation, property management and estate agencies businesses with BOVAEA. In overall, the numbers of registered valuers and probationary valuers is 1,540 people. The formula adopted for the 168 samples is based on the sample size with 95 per cent confidence level and P = 0.05 as stated above.

3.5 Data Analysis

The aim of data analysis is to extract useful information and develop conclusions. It is a process to summarise the data collected. It is important to begin the analysis by examining the raw data in order to search for its patterns. Therefore, the data will be analysed after it has been collected (Fellows and Liu, 2008).
This research has employed a combination of qualitative and quantitative methodology to analyse the data. Both methodologies were applied either in parallel or sequential. However, both procedures are not combined in regards that qualitative data will be analysed qualitatively and quantitative data will be analysed quantitatively (Saunders et al, 2009). Multiple methodologies are essential to provide a best answer to the research questions and to have a better evaluation on the extent of findings trustworthy and inference made from them.

3.5.1 The Qualitative Method

Patton (2002) describes that the best method to analyse qualitative data is by using content analysis. In this research, the content analysis was conducted to various sources such as open ended answers from the questionnaire, and reference such as books, journal papers, conference papers and others.

There are no standard approaches or methods to employ content analysis. Blaike (2000) suggest that the content analysis is to be based on the research general aims and theory generation. However, Tesch (1990) as cited by Saunders et. al. (2009) have classified the content analysis method into several categories, namely understanding the nature of the language, understanding the meaning of text or action, discovery of consistency, and reflections.

This research has used a deductive approach. Patton (2002) verifies that this approach will analyse the data in line with the existing framework. Yin (2003) observed that the deduction approach rely on either pattern matching or explanation building. This research will demonstrate both procedures in order to test theoretical propositions as well as to explain the propositions. In conducting the content analysis, the following activities will be undertaken:

a. Categorisation. Based on the theoretical framework, data will be classified into several coding and labels. The research questions and objectives will determine the suitable coding or label categories.

b. Data unitisation. The next step is to combine several categories into general broader categories. This unitisation process was formalised in this research through manually conducted.

c. Recognising relationship and developing categories. In this stage, the pattern or relationship of the reduced and arranged data is performed. This is to determine the pattern of the data finding, as well as to constitute the final hierarchy of data.

d. Developing and testing hypothesis or propositions. This research will determine the finding of the qualitative data with the current propositions gathered from the literature review using deduction process. (Saunders et.al., 2009)
3.5.2 The Quantitative Method

Descriptive analysis has been adopted in analysing the quantitative data (closed ended answer in questionnaire survey). Analyses of the descriptive data were carried out by establishing frequency distribution to know the achieved score of each variable. The achieved score will determine the characteristic of the examined variables. The Likert’s scale categorisation such as 1) strongly disagree, 2) disagree, 3) agree, and 4) strongly agree will be used.

The Microsoft Excel 2010 has been used to carry out the appropriate quantitative calculations and presentation of the research data. Microsoft Excel 2010 is suitable for quantitative data analysis as it provides the descriptive result or outcomes as well as quantitative results.

3.6 Research Expectations

At this level, this research has established the common valuation concept, awareness and application of plant and machinery valuation practices in Malaysia. This research has determined the key parameters or elements to be used in developing the future plant and machinery valuation guidelines in Malaysia. The fundamental elements of plant and machinery valuation were discussed, highlighted and shared with the valuers in Malaysia. In addition, it is anticipated that the research findings should assist the key stakeholders in providing the solution to standardise the plant and machinery valuation practices in Malaysia. It will also assist in identifying issues and requirement to produce a benchmark to enable the valuation profession to implement plant and machinery valuation exercises with a view to increasing the integrity of the profession in the future.

3.7 Summary

This section has described the research methodology for this research. It outlines the employed strategies adopted for data collections and data analysis. This section is essential to provide guidance to achieve research questions and research objectives. The summary of the research methodology is as Table 3.4 below:
<table>
<thead>
<tr>
<th>Research Question</th>
<th>Data Collection Strategies</th>
<th>Method of Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What are the international best practices in plant and machinery valuation?</td>
<td>Content Analysis</td>
<td>A qualitative method</td>
</tr>
<tr>
<td>Investigation questions:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. What are the international standards for plant and machinery valuation?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. What are the contents of the international standards of plant and machinery valuation?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. To what extents are the international standards for plant and machinery valuation being applied?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Are there any differences between international standards for plant and machinery valuation from one country to another?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Responding to the Objective 1 of the research)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. What are the common valuation concepts, valuation methodologies and valuation process in plant and machinery valuation?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Investigation questions:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. What are the valuation concepts for plant and machinery valuation?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Are there any differences between the valuation concepts from one country to another?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. What are the methodologies for plant and machinery valuation?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. How to link between the different type of valuation concepts to valuation methodologies?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. What is the level of awareness of plant and machinery valuation among registered and probationary valuers in Malaysia?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Responding to the Objective 2 of the research)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• A qualitative method to question a to c</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• A mixed approach, quantitative and qualitative approach to question d and e to Malaysian valuers practising plant and machinery valuation. This is to determine the level of understanding of plant and machinery valuation from the valuers</td>
</tr>
</tbody>
</table>

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4.0 ANALYSIS AND FINDINGS

4.1 Introduction
This chapter focuses on the data analysis of this study. In achieving objective 1 of the study, the tool used is the content analysis via literature review on the international plant and machinery valuation parameters as discussed in detailed in Chapter 2. In continuation to this, objective 2 which is “to establish the common valuation concepts, awareness and application of valuation methodology and valuation process for plant and machinery valuation in Malaysia” is based on the quantitative approach on the Malaysian respondent through questionnaire survey using parameters found in objective 1 of the study. This chapter analyses the current level of understanding and application of plant and machinery valuation among Malaysian Valuers, in regards to the plant and machinery valuation methodology and valuation processes.

4.2 Research Data and Technique
Prior to the data collection, an approval was granted by the Board of Valuers, Appraisers and Estate Agents Malaysia (BOVAEA) for the use of their email listing published on the BOVAEA website for questionnaires distributions. The listing provided consists of 290 valuation companies’ emails addresses that are registered with BOVAEA. These 290 companies email addresses represent the overall population of 1,540 registered person either as registered valuers (700 person) or probationary valuers (840 person) working in government and private sectors (290 organisations). The registered valuers or probationary valuers were voluntarily invited to participate with this survey through their organisation email addresses as the BOVAEA does not provide individual emails to the researcher. The 290 emails were distributed in different periods and the responses are set out in Table 4.1:

<table>
<thead>
<tr>
<th>Period</th>
<th>Date</th>
<th>Distributed</th>
<th>Responds Received</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot</td>
<td>1 November 2011 to 10 November 2011</td>
<td>10 individual email</td>
<td>10</td>
</tr>
<tr>
<td>1</td>
<td>1 December 2011 to 31 December 2011</td>
<td>290 companies email</td>
<td>40</td>
</tr>
<tr>
<td>2</td>
<td>1 January 2012 to 31 January 2012</td>
<td>290 companies email</td>
<td>64</td>
</tr>
<tr>
<td>3</td>
<td>1 February 2012 to 29 February 2012</td>
<td>290 companies email</td>
<td>44</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>160</td>
</tr>
</tbody>
</table>

*Source: Author (2011)*

The researcher conducted a pilot study successfully with 10 respondents have participated. The respondents’ were 5 from the public sector and 5 from the private sector. 3 of the respondents from
the public sector were registered valuers whilst the remaining 2 were probationary valuers. The private firm participation has gathered 2 registered valuers and 3 respondents were probationary valuers.

For the main survey, initially the researcher planned to collect at least 168 respondents inclusive of the pilot study. However, after the 3 period of this survey that ended on 29 February 2012, there were only 160 respondents responded to the survey. The difference was 4.7 per cent compared to the initial plan. In the researcher’s opinion the reason for slow take-up rate for the survey is mainly based on the valuers experience in conducting plant and machinery valuation in the Malaysian market. The specific needs for valuers with plant and machinery knowledge and experience for the survey has limited the number of responds. Therefore, the difference of below 5 per cent from the initial plan is considered acceptable.

From the 290 emails to companies addresses distributed during four (4) periods, there were 160 responds received. This actually represented the percentage of practicing plant and machinery valuers (registered or probationary valuers) since BOVAEA did not differentiate plant and machinery valuers from real property valuers. For the pilot study, the researcher has emailed 10 individuals that have been known to have conducted plant and machinery valuation in Malaysia. Comments and suggestion were gathered from these 10 respondents to improve the questionnaire before the actual launching of the main survey on 1 December 2011.

The respondents were different in such a way that it can be differentiated through the different internet addresses identification. The data collection was conducted using online survey mechanism called Kwiksveys.com (www.kwiksurveys.com). The link that was used for the respondents to answer the online questionnaire was https://www.kwiksurveys.com?s=ONOOMF Cad6a849. Based on the planned figures to achieve the response number stated in chapter 3 (Item 3.3.2.2 – Research Data) that was 168 respondents, 160 respondents were considered sufficient for this research (The difference of 5% from the expected respondents). The original calculation was based on the 290 companies registered with the BOVAEA. The 160 respondents represented 160 various organisations in the valuation profession in Malaysia.

The research questionnaire consisted of two parts. The first part (Part A) focused more on the respondent’s background with the purpose to obtain the respondents information relating to the plant and machinery valuation practices in Malaysia, in terms of educational background and years of experience with plant and machinery valuation. Part B of the questionnaire was planned to capture the plant and machinery valuation understanding and awareness in Malaysia. This part is very significant in achieving the second objective of this research study. The purpose of Part B was to obtain the
respondents opinions, understanding and suggestions in relation to the plant and machinery valuation concepts (premise of value), plant and machinery valuation methodology, plant and machinery valuation process and plant and machinery standards of reporting. The sample of the research questionnaire is attached as Appendix II.

The responses from the pilot study were added to the min survey and particularly related to the issues of sources for plant and machinery valuation in Malaysia (Question 9 and 13, Part A), dissimilarities of plant and machinery valuation compared to land and building valuation (Question 10, Part B), factors limiting the plant and machinery conduct (Question 11, Part A) and availability of plant and machinery valuation methodology in Malaysia (Question 12, Part B). As for the Part B of the survey, suggestions came in the form of creation of questions that acted as conformity to the suggestion and answer in previous questions. Question 15 acted as conformity to Question 14 of Part B and Question 17 played the same role to Question 16 of Part B. This was to create integrity to the answer provided.

The technique of analysis employed in this study is Microsoft Excel 2010. The descriptive analysis was conducted in regards to mode analysis to study the trend of respondents among the Malaysian valuers on various questions. Likert scaling was used to justify the respondent’s opinions and selections. The analysis was presented in the forms of tables, pie charts and bar charts.

The output of this chapter is to study the level of understanding and applications of plant and machinery valuation in Malaysia. It concludes the international parameters used in objective 1, and test the parameters finding (objective 1) on the Malaysian valuers community via questionnaires survey to achieve objective 2 of this study, which answered this research aim, which is ‘to investigate the international practices of plant and machinery valuation and study the level of understanding and implementation of plant and machinery valuation in Malaysia’.

4.3 Research Analysis
This research analysis consists of two parts, which is Part A: Respondent Background, and Part B: Plant and Machinery Valuation Understanding and Awareness.

4.3.1 Part A: Respondent Background

4.3.1.1 Type of respondent
From the 160 respondents, registered valuers made up the highest respondents with 55 per cent (88 people) of the total respondents compared to the probationary valuers with 45 per cent responding. It should be highlighted that plant and machinery valuation has been considered difficult and requires extensive experience. Higher responds from the registered valuer demonstrate the nature of plant and
machinery valuation preference; with more experienced and registered valuers have conducted the valuation compared to the lower responds from probationary valuer. The responds are as shown in Chart 4.1:

4.3.1.2 Level of education
Investigation of the respondents reveal that most have a bachelor degree and at minimum either diploma or advance diploma (88.2 per cent); whilst 15 respondents have master degree (11.8 per cent). No respondents have Doctorate qualification. It can be assumed that all respondents have adequate knowledge on asset valuation exercise through their tertiary education. At least the respondents were familiar with valuation methodologies, valuation processes and valuation standards of reporting, without specification on plant and machinery valuation (Refer Chart 4.2).
The basic asset valuation principles and methodologies should be clear among the respondents since they have gone through the tertiary education. This is because plant and machinery valuation requires expertise and the basic training are important to prepare the respondents with plant and machinery valuation understanding, even at the beginner level.

### 4.3.1.3 Location of education background

The reason behind this question is to identify the school of thoughts among the respondents. From Chart 4.3, it is found that 87.5 per cent (140 people) of the respondents have graduated from Malaysian universities, 10 per cent from United Kingdom (16 people), 2.5 per cent from Australia/New Zealand (4 people) and no respondent graduated from either European Countries or American continent. This indicates the similar education background among the respondents, since Malaysia, Australia and New Zealand shared similar historical education background with United Kingdom on property valuation compared to the American and European countries which have different school of thoughts.

![Chart 4.3: Location of education background](source: Author (2012))

The respond from this question indicated that there were no respondents from the United States of America or Europe educational background. The question was posted to study the difference in group of respondents based on their tertiary education backgrounds. However, it is found that all of the respondents have come from the same tertiary system, mainly from UK, Australia, New Zealand and Malaysia.

### 4.3.1.4 Years involved in valuation practices

The investigation found that most respondents have experiences between 11 years to 20 years’ experience group and more than 20 years group with combined figures of 67.5 per cent. 57
respondents are from between 11 years to 20 years group and 51 respondents are above the 20 years group. This indicates that most respondents are matured with valuation exercise, have vast experience, and the plant and machinery topic has attracted them to participate in the survey. The lowest group of experience is between 1 year to 4 years with 8 respondents and the remaining 44 respondents come from group of between 5 years to 10 years of experience as per Chart 4.4:

![Chart 4.4: Years of experience in valuation practices](image)

*Source: Author (2012)*

The years of experience among the respondents in practising valuation indicated the experience they had in doing asset valuation. This respond is general and it can be either land or building valuation experiences, plant and machinery valuation experiences or both. With higher number of responses from the valuers with more than 10 years of experience, the level of integrity for the survey has increased.

### 4.3.1.5 Location of valuation practices

This survey has received responses from valuers located in all Malaysian States. From Chart 4.5, the highest concentration came from the Klang Valley area (33.8 per cent), with 27 respondents (16.9 per cent) originated from Selangor and 27 responds (16.9 per cent) came from the Federal Territory of Kuala Lumpur. This is followed by Johor with 19 responds (11.9 per cent) and Pulau Pinang with 18 respondents (11.3 per cent). These four states (Kuala Lumpur, Selangor, Pulau Pinang and Johor) represent the major states with higher economic businesses and entrepreneurship compared to the other states, and the valuation companies in the four states also recorded high in numbers compared to the others. By region, central region (Selangor, Kuala Lumpur, Putrajaya and Negeri Sembilan scored the highest response with 61 respondents (38.1 per cent) whilst the lesser response comes from Borneo States (Sabah, Sarawak and Labuan) with only 12 responses (7.5 per cent). However, this survey has provided responses from valuers across all states in Malaysia.
4.3.1.6 Involvement in plant and machinery valuation

Out of 160 respondents, 92 respondents (57 per cent) have been involved in plant and machinery valuation previously as shown in Chart 4.6. The remaining 43 per cent (68 people) have never conducted a plant and machinery valuation. From 92 respondents who have been involved in plant and machinery valuation, 56 respondents (60.8 per cent) were registered valuers whilst the remaining 36 respondents (39.2 per cent) were probationary valuers.

Further investigation revealed even though these 68 people have never conducted plant and machinery valuations, they have reasonable knowledge on plant and machinery valuation either through courses or seminars conducted by various organisations such as the Board of Valuers, Appraisers and Estate Agents Malaysia, Malaysia Institute of Surveyors (ISM) or by National Institute of Valuation (INSPEN), the training and research institute under the Valuation and Property Services Department, Ministry of Finance Malaysia.

Some actual cases have been conducted by the valuers on plant and machinery valuations were Kuala Lumpur International Airport, Sepang International Circuit and Petronas Chemical Plant in Federal Territory of Labuan.
4.3.1.7 Numbers of plant and machinery valuation cases per year
From the 92 respondents who have had experience in plant and machinery valuation previously, it was found that most of them (83 per cent) have carried out less than 5 cases per year. This is followed by between 5 to 10 cases per year (14 respondents or 15 per cent), only 2 respondents have conducted cases between 10 to 20 cases per year and no respondent have more than 20 cases conducted per year (Please refer Chart 4.7). This indicates that plant and machinery valuation was less practiced by Malaysian valuers each year. Investigation and further clarification from the respondents indicated that plant and machinery valuation was not compulsory under the Malaysian Accounting Standards for financial reporting. Malaysian companies have option to use Historical Cost approach that use original acquisition price as the base and does not require fresh market value valuation in their accounting practices. Fresh market value valuation is only required if the company is using the Market Value approach in their accounting.
4.3.1.8 Latest plant and machinery valuation conducted
Based on the Chart 4.8, 48 respondents (52.2 per cent) have conducted plant and machinery valuation more than a year ago. However, 44 respondents (47.8 per cent) have practiced the plant and machinery valuation within the past 12 month (Just recently, within the last 6 month and from 6 month to 1 year). This shows that plant and machinery valuation exercise is emerging and the number of cases conducted by different valuers is increasing. More companies’ accountants are tending to shift from historical cost approach towards the market value approach. Even though the number of cases for plant and machinery is low (as indicated in item 4.3.1.7 above), the number of valuers receiving instructions for this type of valuation is increasing within the last 1 year from the data collection date.

![Chart 4.8: Latest plant & machinery valuation conduct](source: Author (2012))

4.3.1.9 Sources of references for plant and machinery valuation in Malaysia
Table 4.2 shows 92 respondent opinions on the sources used for plant and machinery valuation in Malaysia. The sources are based on the findings from the literature review which have explored all form of regulatory frameworks and cores for plant and machinery valuation in Malaysia. All respondents agreed that the most reliable sources in conducting plant and machinery valuation is the Malaysian Valuation Standards published by the Board of Valuers, Appraisers and Estate Agents Malaysia (BOVAEA). BOVAEA is the governing organisation that supervises and monitors the valuation profession in the country under the Valuers, Appraisers and Estate Agents Act 1981. The second most referenced source is the International Valuations Standards (88 responds) that has various standards and practical notes which provide brief explanation on different type of valuation
such as valuation for financial reporting, plant and machinery valuation and others. This is followed by the Asset Valuation Guidelines by Securities Commission, Malaysia which detailed on the plant and machinery valuation specifically for public listing purposes (60 responds).

The above three (3) sources received numerous responses from the respondents due to the fact that these are the current applicable sources of knowledge in Malaysia for plant and machinery valuation. Other forms of sources include International Accounting Standards, Plant and Machinery Valuation Technical notes and Public Work Department notes that were also used by the respondents in their valuation exercises.

Even though MVS lacks of detailing on plant and machinery valuation, it do provide details on the way of reporting, asset valuation terms of references and is being used as the main source when conducting plant and machinery valuation in Malaysia. International Valuation Standards was accepted internationally and in the case of weakness in references in MVS, Malaysian valuers will use International Valuation Standards as their references. Asset valuation guidelines have provided details on plant and machinery valuation application; however it is more applied towards asset listing in Kuala Lumpur Stock Exchange.

<table>
<thead>
<tr>
<th>Source</th>
<th>Ranking</th>
<th>Responds (Respondents can choose more than 1 option)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malaysian Valuation Standards</td>
<td>1</td>
<td>92</td>
</tr>
<tr>
<td>International Valuation Standards</td>
<td>2</td>
<td>88</td>
</tr>
<tr>
<td>Asset Valuation Guidelines by Securities Commission, Malaysia</td>
<td>3</td>
<td>60</td>
</tr>
<tr>
<td>International Accounting Standards</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Technical notes (P&amp;M Courses)</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Public Works Department Notes</td>
<td>6</td>
<td>4</td>
</tr>
</tbody>
</table>

*Source: Author (2012)*

4.3.1.10 Plant and machinery valuation should be no different from any type of real property (land and building) valuation

Based on the Chart 4.9, 160 respondents were divided into two groups when deciding whether plant and machinery valuation should be no different from real property (land and building) valuation. 54 per cent agreed that there should be no difference between these two types of asset valuation in terms of valuation methodologies and standards of reporting. However, 46 per cent or 74 respondents believed that there should be differences between them.
Further clarification from certain respondents revealed that the plant and machinery valuation was complex in nature, with various reasons such as lack of transaction data, different machinery appreciation in different industries or market, and valuers have to provide in-depth analysis before arriving to the suggested valuation. They need sources for common plant and machinery valuation practices in Malaysia.

The implication of this question clearly shown that there were mixture understanding of plant and machinery valuation acceptance among the respondents whether to accept plant and machinery as normal land and building valuation or as specialised asset valuation. The lack of references and transaction data for plant and machinery valuation increased the perception of insecurity among the valuers while conducting plant and machinery valuation in Malaysia.

4.3.1.11 Factors limiting plant and machinery valuation practices in Malaysia

The factors (Table 4.3) were provided by 160 respondents of the survey and it was grouped into 10 different factors based on the common ideas provided from them. The main factor that limited the plant and machinery valuation in Malaysia was the difficulty in obtaining comparable information from Malaysian suppliers/manufacturers with regards to brand, age and location of plant and machinery. Other factors included of lack of specification information (factor number 2) and no database of plant and machinery valuation transaction (factor number 4) and plant and machinery previous cost (factor number 3).
Factor number 5 was more concerned with the practicality during the inspection whereby the valuers did not have knowledge whether the machinery was functioning or in good maintenance unless explained by the person in charge of the machinery or the supervisor. This has limited the valuers capability, thus affected the valuation accuracy especially when the valuation was for foreclosure or auction proceedings where nobody could provide information on the status of repair of the machinery. Some valuers tended to provide assumptions in order to overcome this issue.

The common factors from number 6 to 10 were related to the post inspection process of plant and machinery valuation. In conducting the plant and machinery valuation, information from the market (factor number 6), technology appreciation in different countries (factor number 7), information on substitute modern machine or replica machine (factor number 8) and economic life and effective of machinery (factor number 10) were important to the valuers before deciding the best range of value for the machinery. However, in reality these factors were limited and need to be studied in depth. It was subjected to valuers experience, interpretation and understanding of the machinery market in order to provide the end value.

The time factor (factor number 9) was not relevant in plant and machinery valuation compared to real property valuation because the plant and machinery depreciates and could be obsolete faster than real property. It depended on the state of maintenance, type of machinery and market of machinery that would determine the rate of depreciation. Same identical machinery from the same manufacturer and year produced could be different in value after 3 years because differences of maintenance schemes were being employed.

Most of the factors described above are related to the limited resources in obtaining necessary information during the plant and machinery valuation process as discussed in Chapter 2. The need for proper guidelines or practical notes is imminent in helping Malaysian valuers have better understanding of plant machinery valuation process.

Table 4.3: Factors limiting plant and machinery valuation practices in Malaysia

<table>
<thead>
<tr>
<th>Nos</th>
<th>Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Difficulties in obtaining comparison information from Malaysian supplier/manufacturer with regards to brand, age, location of plant and machinery.</td>
</tr>
<tr>
<td>2</td>
<td>Lack of specification information on plant and machinery being valued (mostly for liquidation or foreclosure proceedings).</td>
</tr>
<tr>
<td>3</td>
<td>No database on plant and machinery current and previous costing/ acquisition price.</td>
</tr>
<tr>
<td>4</td>
<td>No actual plant and machinery database on sales transactions.</td>
</tr>
<tr>
<td>5</td>
<td>Difficulties in determining the functionality of plant &amp; machinery during inspection.</td>
</tr>
</tbody>
</table>
6 Unavailability of plant and machinery in the market.

7 Difficulties in determining technologies appreciation in the country or region and the existing condition.

8 Difficulties to differentiate between substitute modern machines compared to replica machine.

9 No identical time factor can be used for plant and machinery valuation.

10 Lack of information of plant and machinery economic and effective life.

*Source: Author (2012)*

### 4.3.1.12 Plant and machinery valuation methodology should be made easier to valuers in Malaysia

As shown on the Chart 4.10, 97 per cent of 160 respondents agreed that the plant and machinery valuation methodology should be made easier and included in public education in Malaysia. There were only 4 respondents (3 per cent) who were against the idea. The plant and machinery valuation methodology should not be mutually exclusive to certain group of valuers, and it was timely that the profession should be educated regarding plant and machinery valuation methodology.

Further statements from respondents revealed that currently plant and machinery valuation was being treated as an elective subject within the asset valuation syllabus in Malaysian universities. The subject was very brief and at introduction level, with lack of descriptions on the plant and machinery valuation premise of value and synchronisation of premise of value with plant and machinery valuation methodologies. There were also comments that the valuers received information and education of plant and machinery valuation through the on-the-job training, rather than at the university.

Demands for plant and machinery valuations from other professions as well as clients are increasing, and the valuers should be equipped and familiarised with the methodology. Common understandings reduce discrepancies and avoid mistakes, and it provides the clients with the common methodology applied by the valuation communities.
4.3.1.13 Forms of information to educate Malaysian valuers regarding plant and machinery valuation methodology

The response for this question was significantly important to indicate the level of sources for plant and machinery knowledge needed by the valuation community in Malaysia as shown in Table 4.4. The four (4) top place ranks were the most chosen by the respondents because it was the solutions for the problems addressed in point 4.3.1.11 (Factors limiting plant and machinery valuation in Malaysia). 154 respondents have agreed to the introduction of practical or guidance notes of plant and machinery valuation methodology by the BOVAEA.

Another choice by respondents was the introduction of plant and machinery valuation standards. However, the researcher believed that the practical or guidance notes were sufficient in providing the valuers in Malaysia with information of plant and machinery valuation methodology. Standards would put definite governance to the valuers’ profession conducting plant and machinery valuation whilst the practical notes would guide them through the plant and machinery valuation understanding and process, with room for improvement and changes in the future.

Another information source for plant and machinery valuation was the introduction of plant and machinery transaction and information database (132 responds). The Valuation and Property Services Department (JPPH), with their National Property Information Centre (NAPIC) have the capability and experience in dealing with management of sales transaction data in Malaysia even though currently it was only on the real property (land and building). Plant and machinery valuation transaction should
be made public and the data should be managed by the government agencies. This would benefit the valuation community in particular and financial market as a whole. The introduction of transaction data of plant and machinery would provide data access to the valuers for their valuation usage. It would also increase valuation accuracy and made the plant and machinery valuation more transparent in the financial market.

Inclusion of plant and machinery valuation syllabus in higher education learning/universities in Malaysia was another highly rated survey response (120 responses). Currently, there are universities in Malaysia implementing plant and machinery valuation as elective subjects such as Universiti Teknologi Malaysia (UTM) and Universiti Teknologi Mara (UiTM). Both universities cover the basic fundamental of plant and machinery valuation subject area such as valuation methodology, data collection and valuation processes but lack in areas of explanation of premise of value and synchronisation between plant and machinery valuation premise of value and the valuation methodologies. However, with the demands for valuers to be equipped with plant and machinery valuation knowledge, the best solution is to provide the undergraduates with basic knowledge of plant and machinery valuation conduct. The knowledge and skills will develop through experience, and the universities should play their roles in supporting the industry needs.

National Institute of Valuation (INSPEN), training and research arms of the Valuation and Property Services Department, Ministry of Finance, Malaysia is in the process of launching a plant and machinery valuation professional diploma. This initiative is significant since the target group is the experienced valuers with at least a degree in property studies. This move is another approach to educate valuers in the industry on the plant and machinery valuation.

Another solution to increase information on the plant and machinery valuation methodology is by enforcing the declaration of plant and machinery transaction by the relevant government agencies. At current, the sales transactions that need to be declared are on the property (land and building) sales. Therefore, by enforcing the declaration of sales price of plant and machinery to agency such as National Property Information Centre, the government can capture the sales data and used it to generate income by selling the transaction data to the valuation firms. This will create a transparent market for plant and machinery transaction, as well as providing the valuers with the latest and reliable plant and machinery sales data.

Other steps that can be made to increase the level of plant and machinery information is by sending valuers or valuation officers for attachment in foreign countries that have numerous cases of plant and machinery valuation. Countries like United Kingdom, Australia and New Zealand have an active market for plant machinery valuation. The government agencies and private valuation firms can
provide training for Malaysian valuers to educate them with the practices of plant and machinery valuation. For example, since 1996 the Valuation and Property Services Department, Ministry of Finance Malaysia have send officers each year to do the on-the-job training with different plant and machinery valuation companies in New Zealand such as Rolle Pte Limited, DTZ and Jones Lang Lasalle. This move has increased the knowledge of the participants and when they conducted the plant and machinery valuation in Malaysia, the knowledge gained spread to other officers and staffs. However, the only drawback is the cost that will be incurred if the steps are to be applied.

Lastly, the respondents also agreed that the information of plant and machinery valuation methodology can be increased among Malaysian valuers through seminars, forums or Continuous Professional Developments (CPD) programs. Institutions such as the Institute of Surveyors, Malaysia or National Institute of Valuation (INSPEN) can provide courses or CPD programs to the practitioners in the market in regards to the current plant and machinery valuation methodology. The valuers should take the opportunity to gain as much information as possible since the knowledge is important for the plant and machinery valuation exercise.

Table 4.4: Forms of information to educate Malaysian valuers regarding P&M valuation methodology.

<table>
<thead>
<tr>
<th>Form</th>
<th>Ranking</th>
<th>Response (Respondents can choose more than 1 option)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practical or guidance notes by The Board of Valuers, Appraisers and Estate Agents Malaysia (BOVAEA)</td>
<td>1</td>
<td>154</td>
</tr>
<tr>
<td>Manual of plant and machinery valuation by itself.</td>
<td>2</td>
<td>141</td>
</tr>
<tr>
<td>Introducing plant and machinery transaction and information database.</td>
<td>3</td>
<td>132</td>
</tr>
<tr>
<td>Inclusion of plant and machinery valuation syllabus in higher education learning/ universities in Malaysia.</td>
<td>4</td>
<td>120</td>
</tr>
<tr>
<td>Relevant government department to introduce compulsory plant and machinery transactions declaration.</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>Attachment of valuers to some firms that specialised in valuing plant and machinery valuation worldwide.</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Seminar, forums, Continuous Professional Developments (CPD)</td>
<td>7</td>
<td>5</td>
</tr>
</tbody>
</table>

Source: Author (2012)
4.3.2  Part B: Plant and Machinery Valuation Understanding and Awareness

4.3.2.1 Market value is equivalent to fair value in plant and machinery valuation

Based on 92 respondents, most of them either agreed (44 per cent) or strongly agreed (44 per cent) that market value should be defined similar to fair value in plant and machinery valuation. However, in reality and application of accounting, fair value can be different from market value if the net book value method is adopted by the accountant for financial reporting. This method uses original acquisition price followed by some deduction of depreciation of an asset. However, since 2007, International Accounting Standards Board (IASB) and International Valuation Standards Committee have agreed that both terms have similar meaning and both professions must state clearly the type of approach being employed as discussed in Chapter 2. From the Chart 4.11, it is also shown that 8 per cent of respondents were against the idea of similar interpretation of both terms and 5 per cent of respondents (5 peoples) did not know if market value was equivalent to fair value in plant and machinery valuation.

Chart 4.11: Should market value equivalent to fair value in P&M valuation?

Source: Author (2012)

4.3.2.2 Knowledge on the extension of market value in plant and machinery valuation

Compared to the land and building valuation, plant and machinery valuation is unique in such a way that it may use different types of market value extension depending on the purpose of valuation and type of plant and machinery such as market value in-situ, market value ex-situ and market value for removal. Different types of market value extension or premise of value may require a different type of valuation methodology. These extensions of market value have been discussed in detailed in Chapter 2 of this research. The response to respondents’ knowledge of market value extension is shown in Chart 4.12. Most of the respondents (56.5 per cent) did not know or were unclear on the extension of
market value in plant and machinery valuation. There are only 40 respondents (43.5 per cent) who either agreed or strongly agreed that they have the knowledge. From this response it can be concluded that there is room for improvements for plant and machinery knowledge in Malaysia. Higher numbers of respondents who did not know or were unsure on the knowledge reflect the low understanding and application of plant and machinery extension of market value among the respondents.

![Chart 4.12: Knowledge on the extension of market value in P&M valuation](image)

*Source: Author (2012)*

### 4.3.2.3 Understanding the interpretation of plant and machinery premise of value

Table 4.5 and Chart 4.13 demonstrate the 92 respondents’ opinions on the level of knowledge on different type of premise of value in plant and machinery valuation. This is to confirm the level of understanding of plant and machinery premise of value as discussed in Chapter 2. Major observation is that most respondents have knowledge on the item (a) market value in-situ, to item (h) fair market value (removal) as indicated between 58 per cent to 92 per cent level of knowledge. However, the last three items that were (i) liquidation value in place, (j) orderly liquidation value and (k) forced liquidation value have indicated low level of knowledge among the respondents. This was proved with the higher number of respondents with ‘do not know’ and ‘unsure’ comments.

The reason for these trends among the respondents is that all the respondents were educated in United Kingdom, Australia, New Zealand and Malaysia. These countries have similar understanding and historical background that do not differ from one another. For those who have been educated in plant and machinery valuation in the above countries, similarities in terms of valuation application can be expected. The last three (3) items, which are item (i), (j) and (k) originated from United States of America application of market value extension. It should be noted that plant and machinery in United States is considered as personal property. The accounting application and valuation are somewhat
different from other countries of the world. That is why most of the respondents did not possess adequate knowledge on these items (i), (j) and (k).

### Table 4.5: Understanding of interpretation of P&M premise of value

<table>
<thead>
<tr>
<th>Premise of Value</th>
<th>Numbers of Respondent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Know</td>
</tr>
<tr>
<td>a. Market Value In-Situ</td>
<td>85</td>
</tr>
<tr>
<td>b. Market Value Ex-Situ</td>
<td>70</td>
</tr>
<tr>
<td>c. Market Value-Removal</td>
<td>62</td>
</tr>
<tr>
<td>d. Reproduction Cost New</td>
<td>81</td>
</tr>
<tr>
<td>e. Replacement Cost New</td>
<td>84</td>
</tr>
<tr>
<td>f. Fair Market Value In-Continued Use</td>
<td>62</td>
</tr>
<tr>
<td>g. Fair Market Value – Installed</td>
<td>66</td>
</tr>
<tr>
<td>h. Fair Market Value – Removal</td>
<td>53</td>
</tr>
<tr>
<td>i. Liquidation Value in Place</td>
<td>29</td>
</tr>
<tr>
<td>j. Orderly Liquidation Value</td>
<td>19</td>
</tr>
<tr>
<td>k. Forced Liquidation Value</td>
<td>24</td>
</tr>
</tbody>
</table>

*Source: Author (2012)*

From the Chart 4.13, we can also see that the two (2) highest premise of value that the respondents understood were market value in-situ and replacement cost new at 92 per cent level of understanding. The lowest percentage of understanding among the respondents were on item (j) orderly liquidation value, with 20 per cent level of understanding compared to 80 per cent who mentioned either ‘do not know’ or were ‘unsure’. Even though the level of understanding is high from item (a) to item (j), there were respondents who either did not know or were unsure such as item (h) with 42 per cent.

Therefore, it is suggested that the information of market value extension or premise of value should be made easier for plant and machinery valuation practitioners in Malaysia. Similar understanding leads to valuation accuracy in the long run as discussed in Chapter 2. The above findings spark the idea for consistency and commonality in Malaysian plant and machinery valuation practices. The solution is the establishment of plant and machinery valuation guidelines in Malaysia.
Chart 4.13: Knowledge on different type of premise of value in P&M valuation

Source: Author (2012)
4.3.2.4 **Source of interpretation for plant and machinery premise of value**

In relation to the previous question on the knowledge of premise of value/market value extension, this question was asked to show the source of interpretation for plant and machinery premise of value. Based on the Chart 4.14, the International Valuation Standards (IVS) is the most common source of interpretation chosen by respondents at 53 per cent (49 peoples) and followed by Royal Institute of Chartered Surveyors (RICS) Red Book with 29 respondents (32 per cent). 9 respondents chose Uniform Standards of Professional Standard Practices (USPAP) from United States of America and 5 respondents used other types of sources such as textbooks, lecture notes, seminar and conference papers. All of these resources were gathered from the literature review in Chapter 2.

IVS is the more reliable source of information for valuation profession around the world and the high number of respondents indicates the significance of it to be used as a major tool of knowledge. Most of the respondents are from the British or Malaysian education background; therefore it is likely that they will refer to RICS Red Book as an additional source of interpretation for plant and machinery premise of value. The complexity of some premise of value terms made some respondents refer to USPAP from USA and other types of sources such as textbooks and lecture notes.

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**Chart 4.14: Source of interpretation for P&M premise of value**

Source: Author (2012)

4.3.2.5 **Malaysian Valuation Standards (MVS) has not covered the plant and machinery premise of value**

This question was asked to obtain respondents’ opinions whether MVS has covered the plant and machinery premise of value/market value extension. Chart 4.15 indicates that most respondents either agreed or strongly agreed that MVS has not covered the plant and machinery premise of value. The responses were at 72 per cent of the total 92 respondents. 22 respondents did not know and there were 4 respondents who disagreed.
The MVS has not provided an explanation on the plant and machinery premise of value. However, Standard 2 of the MVS does provide definition of valuation bases other than market value such as investment value, value in use, going concern value, insurance value and others. The use of these bases is not specific for plant and machinery premise of value. The Board of Valuers, Appraisers and Estate Agents Malaysia should consider practical or guidance notes for plant and machinery valuation premise of value and their interpretations. This finding proves the fact from Chapter 2 that lack of information and guidance in performing plant and machinery valuation in Malaysia leads to inaccuracy and non-standardisation of valuation process and reporting.

4.3.2.6 Valuers in Malaysia need resources in conducting plant and machinery for different type of premise of value

In regards to the need for the resources to implement plant and machinery valuation in Malaysia, the majority of the respondents either agreed or strongly agreed that the profession needs some new resources explaining premise of value implementation in Malaysia with 96 per cent of respondents (88 peoples) in total (As shown in Chart 4.16). There are only 4 respondents (4 per cent) who were against the idea.

The misconception of plant and machinery valuation premise of value will lead valuers to use different valuation methodology that may affect the valuation accuracy. The resources needed to overcome this issue may come in form of valuation practical or guidance note by the Board of Valuers, Appraisers and Estate Agents Malaysia (BOVAEA) or circulation among the valuation firms.
in Malaysia regarding the interpretation of premise of value. The information for the practical notes can be gathered from the Chapter 2 of this research.

![Chart 4.16: Valuers in Malaysia need resources in conducting P&M valuation for different type of premise of value](chart.png)

_Source: Author (2012)_

**4.3.2.7 Overall rank of the preferred plant and machinery valuation approaches**

The respondents were questioned on their preferences for the plant and machinery valuation approaches. As shown in Chart 4.17 below, for Rank No 1, market comparison approach is at the top choice with 59 respondents, followed by the cost approach with 33 respondents and no response for income cost. For second rank, cost approach was the most accepted approach with 59 respondents and 33 respondents for market comparison approach. All respondents agreed that income approach is the last approach to be adopted in plant and machinery valuation.

Market comparison is the most common accepted approach since it relies on the market evidences to justify the valuation consideration. It is defendable, based on market transaction and the only setback is the limited number of plant and machinery sales data comparison for specialised machinery. Cost approach requires valuers to justify the cost of reproduction or replacement of the similar machinery if ever sold in the active market. The original price sum of the machinery can be used as a guide.

However, income approach is least used by valuers since it requires more detailed information on the source of income generated by the machineries which is difficult to obtain even from the client. Therefore, market comparison and cost approach are the two major approaches being currently adopted in Malaysia. This confirmed the international findings from Chapter 2 that most valuers
around the globe are comfortable with market comparison and cost approach of valuation compared to income approach.

![Chart 4.17: Overall rank of preferred plant and machinery valuation approaches]

Source: Author (2012)

4.3.2.8 Respondent’s opinion on suitability of valuation approaches on different type of premise of value

Table 4.6 and Chart 4.18 illustrate the volume and percentage of respondents’ opinions on the suitability of valuation approaches on different types of premise of value in plant and machinery valuation. Higher figures were recorded for the use of market comparison approaches with 48 per cent to 82 per cent on the items (a) to (g). Item (h) which is fair market value – removal has a similar number of acceptance on market comparison and unsure at 36 per cent. The trend of unsure was high on the last 3 items which are items (i) to (k).

Another trend was developed for the premise of value that related closely to cost approach which is item (d) reproduction cost new, and item (e) replacement cost new. These two items recorded higher level of cost approaches acceptance from the respondents at 70 per cent to 73 per cent respectively compared to market comparison approach which ranged from 22 per cent to 23 per cent. For item (c) market value for removal, the cost approach is chosen higher by the respondents compared to the market comparison with the difference of 4 per cent. The researcher believes that market value for removal requires information of decommission, dismantling, transportation and removing of
machinery. This is part of element contributed by the cost approach. Therefore, cost approach is more appropriate.

Item (a), market value in-situ recorded the highest usage for market comparison since the data comparison and the suitability of the premise of value interpretation. This may be in relation to market value in use or going concern value basis of valuation. The additional cost to set up a business can be justified through finding similar assets in the market. Availability of data, similar machinery market and limited adjustments are the major factors for market comparison approach adopted by most valuers.

The least adopted approach of valuation being accepted by the respondents is the income approach. Items (a) to (e) and (h) show that income approach was neglected in the time of market comparison or cost approaches were dominantly used. In the area where availability of data and cost were limited especially on item (i) to (k), respondents tended to shift to an income approach in justifying their valuation considerations. However, evidences of income were difficult to gather from the market and the valuation figure was sometimes overstated. Therefore, the application of income approach is very limited since it requires valuer’s expertise and experience in certain machinery market or environment to determine the flow of incomes and cost related to specific machinery.

By rank, the most accepted and usable approach is the market comparison. Secondly, the cost approach and lastly, the income approach. It should be noted that for items (i) to (k), the level of unsure is very high from 50 per cent to 52 per cent because these terms were mostly used in the United States of America. The terms were not well understood by the Malaysian valuers. This was significantly similar to the finding on the level of understanding of premise of value (Discussed on Item 4.3.2.3 above) whereby most valuers in Malaysia were educated in United Kingdom, Australia, New Zealand and Malaysia. Therefore, the application terms from the American continent were not familiar.

In plant and machinery valuation, market comparison and cost approaches were the most adopted valuation methodologies because of the reliability to collect sales transactions and current cost for the plant and machinery being valued. In contradiction, income approach was the least preferred due to the limitation in comparison data and difficulties in differentiating between plant and machinery with building services that did not contribute to the businesses as a whole.

The level of uncertainties among several premises of value for adoption of valuation approaches was because it was originated from United States of America and was not well adopted by Malaysian valuers. This has also confirmed the international findings from Chapter 2 that most valuers around
the globe are comfortable with market comparison and cost approach of valuation compared to income approach.

Based on the above discussion, it significantly shows the requirement of plant and machinery guidelines to be adopted in the Malaysian valuers community. This will lead to similar application throughout the country, educate the new and current valuers of similar plant and machinery valuation application and create consistency in the term of premise of valuation being used. This will also provide security for the various stakeholders such as clients, financial institutions, accountants and investors.

Table 4.6: Respondent’s opinion on suitability of valuation approaches on different type of premise of value

<table>
<thead>
<tr>
<th>Premise of Value</th>
<th>Valuation Approaches/Responds</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Market Comparison</td>
</tr>
<tr>
<td>a. Market Value In-Situ</td>
<td>75</td>
</tr>
<tr>
<td>b. Market Value Ex-Situ</td>
<td>59</td>
</tr>
<tr>
<td>c. Market Value-Removal</td>
<td>38</td>
</tr>
<tr>
<td>d. Reproduction Cost New</td>
<td>20</td>
</tr>
<tr>
<td>e. Replacement Cost New</td>
<td>21</td>
</tr>
<tr>
<td>f. Fair Market Value In Continued Use</td>
<td>48</td>
</tr>
<tr>
<td>g. Fair market Value – Installed</td>
<td>44</td>
</tr>
<tr>
<td>h. Fair Market value – Removal</td>
<td>33</td>
</tr>
<tr>
<td>i. Liquidation Value in Place</td>
<td>21</td>
</tr>
<tr>
<td>j. Orderly Liquidation Value</td>
<td>18</td>
</tr>
<tr>
<td>k. Forced Liquidation Value</td>
<td>21</td>
</tr>
</tbody>
</table>

*Source: Author (2012)*
Chart 4.18: Respondent’s opinion on suitability of valuation approaches on different type of premise of value

Source: Author (2012)
4.3.2.9 Macro identification is the best description of current market situation and the potentiality of plant and machinery being valued

Macro identification is defined as identification description of plant and machinery function and purposes as a whole. It includes major components that contribute to the design and capability of the plant and machinery. Macro identification considers the market of the identical asset, as well as the similar comparability in the market. Thus, this question was asked to obtain the respondents opinions if that macro identification was the best description of current market situation and the potentiality of plant and machinery being valued. Even though there was no guidelines on how valuers in Malaysia should report their plant and machinery market descriptions, most of valuers who have conducted plant and machinery valuation understood the importance of detail market descriptions. It has been discussed in plant and machinery valuation process in Chapter 2 of this research.

Based on the Chart 4.19, 83 per cent of the respondents (76 peoples) agreed or strongly agreed that macro description was the best description of plant and machinery market and its potentiality. However, 12 respondents (13 per cent) did not agree with this because they mentioned that the use of Macro Identification would create more burden of explanation on valuers. There were 4 respondents (4 per cent) who did not know on the explanation Macro Identification. This was because there was no guidelines in the Malaysian Valuation Standards on how to address the market and potentiality of plant and machinery being valued and some valuers did not want to be bonded by any regulations or rules.

Chart 4.19: Macro identification is the best description of current market situation and the potentiality of P&M being valued

*Source: Author (2012)*
4.3.2.10 Micro identification of plant and machinery best describe the individual plant and machinery that includes brand, model, size, capacity, machinery descriptions and additional features

Contrast to macro identification as discussed previously, micro identification was described in the Malaysian Valuation Standards under item MVS 13 Valuation of Plant, Machinery and Equipment of subheading 13.3.4 (as discussed in Chapter 2 of this research). This subheading clearly describes that micro descriptions of plant and machinery should include brand, model and function of the plant, serial number, capacity, accessories and country of origin. From Chart 4.20, there are 92 respondents who either agreed or strongly agreed on the statement. However, there are 8 respondents who either disagreed or did not know on the statement. They may against the micro description as per MVS or simply did not have any knowledge.

![Chart 4.20: Micro identification is the best to describe the individual P&M that includes brand, model, size, capacity, machinery descriptions and additional features](image)

Source: Author (2012)

4.3.2.11 Valuation process of plant and machinery should be explained in the form of guidance or practical notes to assist valuers conducting plant and machinery valuation in Malaysia.

All of the respondents agreed that the valuation process of plant and machinery should be explained in the form of guidance or practical notes to assist valuers conducting the plant and machinery valuation in Malaysia. 36 respondents have agreed on this and the remaining 56 respondents have strongly agreed with the suggestion by the researcher as presented in Chart 4.21. This shows how important standards, guideline or practical notes on the valuation process need to be formed and inserted in the
MVS. This conforms that lack of information leads to valuers lack of accuracy in performing their valuation tasks as described in Chapter 2 of this research.

![Bar chart showing respondent's selection](chart.png)

**Chart 4.21: Valuation process of P&M should be explained in the form of guidance or practical notes to assist valuers conducting P&M valuation in Malaysia**

*Source: Author (2012)*

### 4.3.2.12 Current plant and machinery valuation report is in line with the Malaysian Valuation Standards 9, which is for valuation standard of reporting

This question is significant to determine the respondent’s current implementation of valuation reporting of plant and machinery. It is different with the level of understanding of plant and machinery valuation premise of value or valuation approaches. Chart 4.22 has indicated that most respondents (68 peoples) have agreed that their current plant and machinery valuation reporting is in line with the MVS Standard 9. Further investigation revealed that the valuers used various assumptions and explanations to support their valuation considerations in the plant and machinery valuation report. One of the examples was “the client should get professional advice on the state of the machinery being valued as the valuation is based on the data and information obtained by the valuers at the date of valuation”.

However, 12 respondents mentioned that they did not agree that their valuation reports are in line with MVS Standards 9. It was also found that some of the MVS Standards 9 requirements are not significant to be applied in the plant and machinery valuation report. 12 respondents also mentioned that they did not know or were unsure of their valuation reports. It could be that the respondents did not have the knowledge of the plant and machinery valuation reporting or the differences were
minimal. There should be some guidance or practical notes to assist valuers with their plant and machinery valuation reporting.

![Chart 4.22: Current P&M valuation report is in line with the MVS Standards 9, which is for valuation standard of reporting.](chart)

*Source: Author (2012)*

4.3.2.13 Some improvement and modification should be made on the valuation reporting of plant and machinery

The researcher has outlined suggestions on improvement and modification to valuation reports involving plant and machinery. This is based on suggestions by various authors and scholars in Chapter 2 regarding plant and machinery valuation reporting. The responds are as follows:

a) **Nature of assets (description of the purpose of machines, production capacity, age and conditions of assets, average age and photographs of major components)**

This concept was fully supported by the respondents (Please refer Chart 4.2). They either agreed (61 per cent) or strongly agreed (39 per cent) with the suggestion on the implementation of nature of assets in plant and machinery valuation report. The introduction of nature of assets will help the valuation users with significant information of the machines details, with explanation on the purpose, normal capacity, age, conditions and photographs of machinery being valued. Even though it takes an extra effort for the valuers to familiarise with the machines, the depth of understanding on the nature of assets will help in creating conformity and assurance when it comes to the valuation methodology and consideration of value.
The above finding was also supported by authors such as Maninggo (2010), Abdul Rahman (2010), Mohd Khairuddin (2008), Barton (2007) and Budhbhatti (1999). Most of them were plant and machinery valuers by profession. The comments are in conformity with the authors’ suggestion to uplift the plant and machinery valuation profession around the globe.

<table>
<thead>
<tr>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>56, 61%</td>
<td>36, 39%</td>
</tr>
</tbody>
</table>

**Chart 4.23: Improvement on the P&M valuation reporting: Providing nature of assets**

*Source: Author (2012)*

**b) Premise of value (explain clearly on the basis of valuation being employed, whether it is market value in-situ or market value ex-situ since different premise of value require different valuation methodology)**

The premise of value is crucial in plant and machinery valuation and it distinguishes plant and machinery from other types of asset valuation. The importance of premise of value was significantly emphasized through respondents’ opinions as tabulated in Chart 4.24. Every respondent either agreed (56.5 per cent) or strongly agreed (43.5 per cent) that type of premise of value being used in the valuation report should be made clear.

This will create valuation accuracy if the premise of value is well presented and justified. However, the differences of premises of value should be made applicable and knowledgeable to the valuation profession in Malaysia through guidance or practical notes. The premise of value is unique and it will determine the way the plant and machinery should be valued and the methodology to be adopted.
c) **Valuation methodology (detailing on the valuation methodology since each valuation approach has different type of valuation methodology for different type of premise of value)**

Most of the respondents have either agreed (56.5 per cent) or strongly agreed (39 per cent) that valuation methodology should be made clear in the plant and machinery valuation report (Please refer to Chart 4.25). Currently, the way the valuation methodology is being employed is very general to suit the MVS Standard 9 requirement. Plant and machinery valuation requires specific valuation methodology to be applied for different type of premise of value. Therefore, the implementation of detailed valuation methodology will assist valuers in defending their valuation as well as to educate the readers of the valuation report.

The above finding was also supported by authors such as Maninggo (2010), Abdul Rahman (2010), Mohd Khairuddin (2008), Barton (2007) and Budhbhatti (1999). This is to ensure that plant and machinery valuers produce reliable and reputable valuation reports to the market.

On the other hand, 4 respondents were against the idea of detailing on the valuation methodology. They might not want to be regulated or perhaps more complacent with the current implementation.
d) Market analysis (descriptive studies or explanation on specific industries including second hand market, average life span of plant and machinery, changes in technology or the use of same machinery by other type of industries)

Chart 4.26 below indicates the respondents’ opinions when questioned on the need for market analysis in plant and machinery valuation reports. It was found that the majority of respondents agreed with the idea of having the market analysis in their valuation reports, with 87 respondents (95 per cent) either agreed or strongly agreed.

There were only 5 respondents who are against the idea of market analysis detailing in the plant and machinery valuation report. However, a majority agreed that market analysis will make the plant and machinery valuation report more transparent, valuers look more reliable and educated; and the valuation consideration is defendable.
e) **Plant and machinery schedule (detailing of each machinery involved in the valuation such as brand, model, serial number, capacity, machinery descriptions and supporting equipment)**

A plant and machinery schedule is important because it is the list of machinery that was itemised by the valuers during the inspection. It details all the machinery inspected by the valuers, with descriptions on the status of the machinery owned, leased, sold or not in use. The schedule acts as an asset register to the client when the plant and machinery valuation report is concluded.

Therefore, the importance of the plant and machinery schedule is again shown in Chart 4.27 whereby most respondents (88 peoples) agreed or strongly agreed that the schedule is needed in the plant and machinery valuation report. There were only 4 respondents who were unsure whether plant and machinery schedule would benefit them. When the criteria of respondents were analysed, it is found that these 4 respondents came from the valuers with less than 10 years of experience in plant and machinery valuation.
4.3.2.14 Improvement in plant and machinery valuation reporting will creates confusion among valuers in Malaysia

The respondents were questioned whether the addition of the schedule in valuation report for plant and machinery as discussed in item 4.2.3.13 will create confusion among the valuation practitioners in Malaysia. Most of the respondents have disagreed and strongly disagreed (72 respondents or 79 per cent) that it will not create confusion whilst there were 20 respondents (21 per cent) mentioned that it will create confusion if the valuation population was not educated regarding plant and machinery valuation application (Refer Chart 4.28).

Currently there are various styles of reporting plant and machinery listings by valuers in Malaysia. The plant and machinery schedule will create similarity in the way valuers produce plant and machinery listing in the valuation report. The application of common plant and machinery valuation will increase the valuers’ credibility and accuracy.
4.3.2.15 It depends on valuers interpretation and explanation to report the plant and machinery valuation as long as it follows the MVS 9 standard of reporting requirement

Even though in the previous questions the researcher found that most respondents want plant and machinery valuation reporting to be regulated, however, Chart 4.29 shows a contrast trend. It is found that most respondents either agreed or strongly agreed that it depended on the valuer’s interpretation to report the plant and machinery valuation as long as it followed MVS 9 requirement.

The researcher has confirmed with several respondents that they did not want regulation, what was needed is the guidance to conduct the plant and machinery valuation. It may come in the form of guidance or practical notes. This will help the valuation profession to strengthen their plant and machinery knowledge and application, as well as to create similarity in plant and machinery valuation reporting. Based on the same Chart 4.29 above, only 16 respondents wanted the plant and machinery reporting to be regulated and 8 respondents were unsure.
4.3.2.16 Improvements on plant and machinery reporting will help to standardise the key elements of plant and machinery valuation reporting

The respondents have significantly agreed or strongly agreed that improvements to the plant and machinery valuation reporting will standardise the valuation reporting as shown in Chart 4.30.

This will contribute to similar understanding among the valuers, creates common grounds for understanding and knowledge within the valuation community as a whole and provides the clients and other professions that use valuation reports such as bankers, accountants, investors and economists with a common practice of plant and machinery valuation. The common key element reduces the valuation discrepancies, increase valuation accuracy and level of valuers’ integrity.

This was also supported by authors such as Maninggo (2010), Abdul Rahman (2010), Mohd Khairuddin (2008), Barton (2007) and Budhbhatti (1999) as stated in Chapter 2 of this research. Standardisation is needed to provide commonality among the practitioners.
4.3.2.17 The provision of suitable guidance notes and practical standards is required in Malaysia

Based on Chart 4.31, 96 per cent or 88 respondents agreed and strongly agreed that improvement of plant and machinery will lead to necessity of the plant and machinery practical notes in the future. However, 4 respondents were against the idea. The improvement of plant and machinery reporting is needed to increase the level of valuers’ integrity. This is in line with the demand for better plant and machinery valuation accuracy from the market and the increased number of valuation cases of plant and machinery. The practical notes are suitable to govern or guide the valuers to conduct their valuation exercises.
4.3.2.18 The plant and machinery guidance notes/ practical standards will standardise the plant and machinery valuation practices in Malaysia

The idea behind this question is to identify the respondents’ opinions on whether plant and machinery valuation should be regulated or just be guided through practical notes or guidelines. Every respondent agreed that practical notes or a guideline is adequate to create standardisation of the plant and machinery valuation practices in Malaysia (Refer Chart 4.32). To regulate valuers with new law will create uneasy situation within the valuation community. Therefore, the introduction of plant and machinery valuation practical notes will help educate the profession, as well as to create consistency among the users.

![Chart 4.32: The P&M guidelines/ practical notes will standardise the P&M valuation practices in Malaysia](source: Author (2012))

4.3.2.19 The application of practical notes/ guidelines will increase the valuers integrity in conducting plant and machinery valuation

In previous questions, there have been a lot of discussions on whether plant and machinery practical notes or guidelines will increase valuers integrity in conducting the plant and machinery valuation. The similarities in key elements of plant and machinery valuation have to be based on some resources. Therefore, in a Malaysian context, the best resource of plant and machinery is the introduction of plant and machinery valuation practical notes. The similar application of plant and machinery valuation from the same resource will reduce discrepancies, and in the long run will increase the level of valuation accuracy. When the level of valuation accuracy is increased, the level of valuation integrity is increased accordingly. Chart 4.33 indicates that all respondents agreed that the application of the practical notes will increase the valuers integrity in conducting plant and machinery valuation.
Chart 4.33: The application of the practical notes/guidelines will increase the valuers’ integrity in conducting P&M valuation

Source: Author (2012)

4.4 Conclusion

This chapter analysed the findings from the online survey conducted during the data collection periods. The objective was to study the level of understanding and awareness of Malaysian valuers regarding the current plant and machinery valuation in Malaysia. This is important to determine how plant and machinery is being currently treated during the whole valuation exercise.

Based on the respondent’s background analysis, one significant finding is that most respondents conducting plant and machinery valuations were experienced registered or probationary valuers. They have practices various type of plant and machinery valuation cases in Malaysia. Even though these valuers were experienced, the lack of guidelines or practical notes of plant and machinery valuation have resulted in various kinds of plant and machinery valuation reports. This difference is significantly connected with other findings such as lack of plant and machinery information in the market and that most valuers were trained through on the job experience.

Another prominent finding is that there were limited resources for plant and machinery valuation practices in Malaysia. Unlike other types of asset valuation such as land and building valuation with sales transactions and ownership database, plant and machinery is lacking in terms of evidence, sales transactions and references resources. To compound the scenario, even the Malaysian Valuation Standards (MVS) provides limited knowledge on plant and machinery valuation application. Information on the plant and machinery premise of value and valuation approaches were not available
widely. Practitioners have to rely on foreign sources such as International Valuation Standards, RICS’s Red Book, USA USPAP and others.

This chapter has also discussed the importance of some important additions to the plant and machinery valuation report. These additions should include the nature of assets, the explanation on the premise of value being used, detailing in valuation methodologies, current market analysis and plant and machinery itemised detail in plant and machinery schedule. These additions will provide better understanding of plant and machinery valuations to the clients and the valuation users such as accountants, bankers, investors and other interested parties.

However, the main finding of this chapter is that there is a need for practical guidance notes and standards of plant and machinery valuation to be developed. These practical guidance notes and standards should include all the key elements for plant and machinery valuation in terms of the premises of value, valuation approaches and methodologies and the standard of reporting. The note or guideline is not to govern the profession, but to educate and provide common knowledge among the valuers conducting plant and machinery valuation. The development of plant and machinery guidance notes and standards is highly needed in Malaysia.

The introduction of plant and machinery valuation practical notes/guidelines will increase the level of valuation accuracy and minimise potential valuation discrepancies. It will also provide guidance to the valuers practicing plant and machinery in Malaysia, as well as significantly increase the valuers level of integrity in the long term.

The next chapter will conclude on the overall research findings of this study.
5.0 CONCLUSION, SUGGESTIONS AND FUTURE RESEARCH

5.1 Introduction
The objective of this chapter is to conclude on the findings of this research, illustrate suggestions and propose a plan for future research. It will synchronise the findings from each research objectives, the methodology employed and the conclusions based on the analysis and the findings. It is important to identify the major findings and conclude them, so that it can answer all the research questions and research objectives of this research. The conclusions can be a first step in determining the future research that can be explored.

5.2 Research Findings and Conclusion
The research aim is to investigate the international practices of plant and machinery valuation and study the level of understanding and the implementation of plant and machinery valuation in Malaysia. The expectation and reason behind this aim is to help towards better understanding of plant and machinery valuation principle and process, as well as to create common understanding among the valuers practicing plant and machinery valuation in Malaysia.

The research aim comprised two (2) research objectives which are, (a) to investigate the international practices of plant and machinery valuation; and (b) to establish the common valuation concepts, awareness and application of valuation methodology and valuation process for plant and machinery valuation in Malaysia.

The discussions on the research conclusion based on the research objectives are as follows:

(a) Research Objective 1: To investigate the international practices of plant and machinery valuation
The main issue impending plant and machinery valuation in Malaysia is the limited number of reliable sources of references for this subject area. Even though plant and machinery valuation has been legally formalised at the international level through International Valuation Standards, in reality there are no further explanation or supporting documents in Malaysia on how to properly conduct the plant and machinery valuation process, valuation methodology, valuation reporting as it is widely accepted that the nature of plant and machinery valuation is different from land and building valuation. It should be noted that the application of plant and machinery valuation is different from one country to another, and normally each country has its own interpretation based on the country’s standard such as RICS Red Book (United Kingdom), USPAP (United State of America), Australia and New Zealand Valuation and Property Standards and others.
Therefore, this research aim to identify, develop and present the international practices of plant and machinery to help the Malaysian practising valuers with resources for the Malaysian chapter. The finding enhance the current implementation of the practising Malaysian valuers, uses as references in higher learning education and adding to the body of knowledge in this subject area.

Based on the extensive literature review of international and Malaysian plant and machinery valuation practices, this research has covered the following subject area in term of sources for plant and machinery valuation:

i. Plant and machinery definition.
ii. The financial reporting of real estate performances according to the International Accounting Standards.
iii. Plant and machinery valuation regulatory framework (International and country standards).
iv. Valuation Concept (Premise of Value) for plant and machinery valuation.
v. Plant and machinery valuation methodologies (Market comparison, cost and income approaches).
vi. Plant and machinery valuation process.
vii. Reporting standard of plant and machinery valuation.

The above plant and machinery subject areas have been discussed in detail in Chapter 2.0, Literature Review. It has the current up to date on the implementation and resources in plant and machinery valuation areas and will help the Malaysian practising valuers educate and familiarise with this type of asset valuation. It should also be noted that since the transformation of financial reporting standards in 2007, internationally more companies are relying on the up to date market value basis of valuation in their accounting reporting. By providing the above source of information, apart from educating the valuers, indirectly it will help to create consistency and accuracy among the valuers practising plant and machinery valuation while reporting their valuation to the clients.

This thesis will be submitted to the Board of Valuers, Appraisers and Estate Agents Malaysia, the governing body of the valuation, estate agency and property management in Malaysia for consideration for publication as a practical/guidance notes supporting Malaysian Valuation Standards for the Malaysian valuers. In regard to this, the first objective of this study has been achieved.
(b) Research Objective 2: To establish common valuation concepts, awareness and application of valuation methodology and valuation process for plant and machinery valuation in Malaysia.

Based on the findings from research objective 1, the parameters or subject areas within plant and machinery valuation were used to create the research questionnaire to determine the current understanding of valuation concepts, awareness and application of valuation methodology and valuation process for plant and machinery valuation among Malaysian valuers.

The overall conclusion that can be made from the research survey is that the level of plant and machinery valuation application, understanding and awareness are at the intermediate level. The root of this is mainly because there are limited resources for plant and machinery valuation references available. The Malaysian Valuation Standards has not covered on the extension of market value basis for plant and machinery valuation (premise of value) which has opened different interpretation among the valuers in Malaysia. Most of the valuers who have conducted plant and machinery valuation were the experienced valuers with limited or basic training in plant and machinery valuation.

It can be concluded that there is imminent needs for plant and machinery valuation guidelines or practical notes published or supported by the Board of Valuers, Appraisers and Estate Agents Malaysia (BOVAEA). The practical notes or guidelines can provide guidance for the Malaysian valuers practicing plant and machinery valuers. The establishment of these practical notes will help in educating the valuation profession, create consistency, act as a tool of reference for any dispute and in the long run, create accuracy among the practitioners valuers. These notes can be used as a basic fundamental in universities syllabus and prepare the undergraduates for the expectation of the real market regarding plant and machinery valuation. Based on the above findings, the research objective 2 of this study has been achieved.

Major findings from this research are as follows:

i. This study has succeeded in gathering plant and machinery valuation structure or subject area via the content analysis in achieving research objective 1. Subject area for plant and machinery valuation includes the definition, international regulatory framework, valuation concept (premise of value), valuation methodologies, valuation process and standard of reporting.

ii. Through the analysis on plant and machinery subject area, it is also found that there were various areas that differentiate between plant and machinery valuation with land and building valuation, especially in the area of the using of valuation concept (premise of value), varieties in valuation methodologies, detailing in valuation process when describing the plant and machinery; and additions for standards of reporting. The above areas distinguished plant and
machinery valuation to be more complex that require valuers to gain knowledge before practicing this type of valuation.

iii. The importance of plant and machinery valuation education among the current practicing valuers or students has been highlighted with the increase number of plant and machinery valuation requests from the market and better understanding of plant and machinery valuation application. Plant and machinery valuation was regarded as not important. However, with the 2007 international financial reporting amendment that required more market value valuation, there were increased demand for current, up-to-date valuation for plant and machinery compared to the previous accounting practices that relied more on the book value. Malaysian valuers should equip themselves with knowledge of plant and machinery valuation. The standardisation of application among the valuers is required and currently there is no a formal guideline or practical notes to standardise the plant and machinery valuation practices in Malaysia.

iv. Plant and machinery valuation is not an easy task and many valuers are not well versed with the application of plant and machinery valuation for different type of valuation purposes such as financial reporting, auction, acquisition, mergers, public listing and others. This respond from the respondents’ feedback of the survey indicates the idea for the development of Malaysian plant and machinery valuation guidelines or practical notes. This move can lead to better application of plant and machinery valuation and provide references for the valuers.

v. The premise of value (valuation concept) of plant and machinery valuation should be formally recognised by the Board of Valuers, Appraisers and Estate Agents Malaysia. The application of different type of premise of value rose from various needs in plant and machinery valuation whereby the machinery was movable and subjected to various market conditions. Thus, the recognitions of plant and machinery valuation premise of value that suit with the Malaysian market is important to provide the valuers and the valuation users with the understanding of premise of value. The premise of value can be used in the terms of references in the plant and machinery valuation report.

vi. Suggestion for addition in valuation technique of plant and machinery valuation has received positive responds from the research survey. The importance to differentiate between macro and micro descriptions in plant and machinery valuation report was vital due to the factors such as lack of data comparison, differences in comparison data, limited plant and machinery ownership information and plant and machinery is specific in nature and normally requires detailed explanation in the valuation report. Therefore, addition of explanation in the plant and machinery valuation report on area of nature of asset, premise of value, detailing in valuation methodology and plant and machinery schedule will increase the valuation report credibility.

vii. Plant and machinery valuation should be formally distinguished from other type of asset valuation such as land and building valuation. The responds from the survey found that
majority of respondents’ supported the idea and request for plant and machinery valuation guidelines or a practical note to be developed since it is a specialised valuation. The plant and machinery valuation has various differences from other type of asset valuation starting from the determination of premise of value until the market value considerations. The differences were huge and it was timely to recognise plant and machinery valuation by developing the guidelines or practical notes.

viii. The increasing demand from other professions such as accountant, economist and clients for market value based on the plant and machinery valuation for financial reporting indicates the need for the valuers to equip themselves with the plant and machinery valuation education. Similarity in plant and machinery valuation through the development of plant and machinery valuation guidelines of practical notes will create consistency, improve accuracy and increase acceptance from other professions.

ix. Common application of plant and machinery valuation will reduce valuation differences and increase valuation accuracy. Currently plant and machinery valuation was regarded as difficult and required in-depth explanation and expertise to conduct. The problem rose because the Malaysian valuers have no formal references in conducting the plant and machinery valuation exercise. Therefore, the differences in valuation application can be reduced through the introduction of similar references that will limit the discrepancies. Practical notes and guidelines of plant and machinery are needed to prove to the Malaysian financial market that valuers can produce reliable and accurate plant and machinery valuation.

x. There is a major need for plant and machinery valuation practical notes and continuous training to be provided to the Malaysian valuers. Respondents’ have highlighted various factors that has limited the plant and machinery valuation compared to other types of asset valuations. The difference between plant and machinery valuation with land and building valuation was recognised by the respondents. The need for references for the Malaysian valuers was also pictured through their responds. Thus, the development of plant and machinery valuation practical notes or guidelines is vital in helping not just the valuers practicing it, but to the valuation users as well with better understanding of plant and machinery valuation in Malaysia.

5.3 Research Suggestions

Based on the findings of this research, some suggestions that can be implemented in the future are as follows:

(1) Short Term Suggestions

i. Introduction of plant and machinery valuation courses by the stakeholders and Malaysian government agencies to provide immediate training, update information and sharing knowledge and experience among valuers involve in plant and machinery valuation.
ii. Recognises plant and machinery valuation as different or specialised asset valuation and requires that only companies with experience and expertise can conduct plant and machinery valuation. These companies should inform the Board of Valuers, Appraisers and Estate Agents Malaysia regarding their plant and machinery exercise regularly, for example, quarterly. This is to increase market acceptance with only the professional plant and machinery valuers conducting the valuation and the monitoring of plant and machinery valuation exercise can be done.

(2) Long Term Suggestions

i. There is a need for plant and machinery valuation structure for universities syllabus to educate new generation of valuers entering the market.

ii. There is a need for the introduction of similar plant and machinery valuation practices throughout Malaysia in regards to the plant and machinery premises of value (valuation concept), valuation methodology, valuation standard of reporting and valuation process.

iii. Plant and machinery practical notes or guidelines should be developed by valuation profession stakeholders in Malaysia, namely the Board of Valuers, Appraisers and Estate Agents Malaysia or the Institute of Surveyors, Malaysia. This is to educate practising valuers in the Malaysian market and it can come in the form of guidelines, practical notes or on the job training. The result will create valuation consistency, reducing discrepancy and increase valuation accuracy.

5.4 Future Research

Based on the findings of this research, there are numbers of research that can be ignited in the future. Firstly, the study on the plant and machinery fundamental structure for Malaysian practices can be conducted in the future. The fundamental structure can be replicated from Chapter 2 of this research and be tested in the Malaysian market on their suitability to be applied. This research has provided a platform for the implementation and development of the plant and machinery fundamental structure in Malaysia.

Secondly, there should be a research on the level of understanding of plant and machinery premise of value in Malaysia. The findings of this research show that there are extensions of plant and machinery valuation premise of value compared to land and building valuation. The study on the level of understanding and the suitability of the plant and machinery premise of value should be tested in Malaysia for better acceptance from the valuers and valuation users. The findings will improve the proposed future guidelines or practical notes.

Third research that can be suggested for future research is the implementation of plant and machinery valuation methodologies on different type of plant and machinery premise of value in Malaysia.
Different type of premise of value requires different type of valuation approach of valuation in plant and machinery valuation. The study of the right valuation approach on the right plant and machinery premise of value can provide inputs for the valuers and practitioner on the suitability of valuation approaches on different premise of value. This will lead to standardisation of valuation approaches and added accuracy in valuation of plant and machinery valuation.

Another area of research resulted from this research is the research on the current plant and machinery valuation process and standard of reporting in Malaysia. Currently, there are many differentiations in terms of valuation processes and valuation reporting of plant and machinery in Malaysia. The research of the plant and machinery valuation process discrepancy and standard of reporting will reduce the gap of differences in the way plant and machinery valuation being conducted and reported.

The comparative studies of international plant and machinery valuation governance and valuation application should be conducted in the future. The governance involves the current and future law that can be imposed to strengthen the plant and machinery valuation governance. The plant and machinery valuation application need to be guided in the form of guidelines or practical notes since currently Malaysian valuation scenario is lacked of it. The comparative study will provide suggestion from international best practices of governance and application of plant and machinery valuation to be implemented in Malaysia.

Lastly, the study entitled “Plant and machinery valuation practices: Should be regulated or deregulated?” can be implemented in Malaysia. In some countries, regulation imposed creates confusion and inconsistency in the way valuation is being reported. This type of research is important to guide the relevant authority such as the Board of Valuers, Appraisers and Estate Agents Malaysia (BOVAEA) with the information for the need to regulate plant and machinery valuation process and reporting. The inputs from various professions such as lawyers, accountants, economists, valuers, planners and others can be used as a sample data. The finding will help BOVAEA to plan strategies of plant and machinery valuation in Malaysia.
REFERENCES/ BIBLIOGRAPHY


Derry, Chris (2008). Valuation of Plant and Machinery. UK: RICS.


Ernst and Young (2003). Damn if we don’t? How E law is challenging and changing the UK tax system. Ernst and Young: London.


## Appendix I

### Explanation for Extensions of Market Value

<table>
<thead>
<tr>
<th>Premise of Value</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market Value In-Situ</td>
<td>The estimated amount for which an asset should exchange on the date of valuation between a willing buyer and a willing seller in an arm’s length transaction after proper marketing wherein the parties had each acted knowledgably, prudently and without compulsion. The valuation further assumes that the assets will be sold by way of a private treaty sale where the assets will remain in their existing place and location (in situ) following sale.</td>
</tr>
<tr>
<td>Market Value Ex-Situ</td>
<td>The estimated amount for which an asset should exchange on the date of valuation between a willing buyer and a willing seller in an arm’s length transaction after proper marketing wherein the parties had each acted knowledgably, prudently and without compulsion. The valuation further assumes that after the proposed sale, the plant and machinery is to be removed from its existing site and the value of installation and commissioning should not be included in the valuation. The cost of decommissioning, removing from site and re-commissioning should be taken into account.</td>
</tr>
<tr>
<td>Market Value-Removal</td>
<td>The price that each individual asset would realise, were it to be sold by private treaty, auction or tender, as may be most appropriate under the prevailing circumstances and assuming that there is a reasonable period of time for completing the transaction.</td>
</tr>
<tr>
<td>Reproduction Cost New / Reinstatement New</td>
<td>The cost of replacing the existing asset with a substantially similar new asset. It is calculated by establishing the current ex – works cost of a new replacement asset, making any adjustment that may be necessary to reflect obsolescence in the existing item and adding to it costs of transport, costs of installation and, where appropriate, duties and taxes.</td>
</tr>
<tr>
<td>Replacement Cost New</td>
<td>The cost of replacing an existing asset with one of equal utility, although the same materials or the same design may not be used, reflecting changes in technology, design, building techniques and costs.</td>
</tr>
<tr>
<td>Fair Market Value In Continued Use</td>
<td>The estimated amount, expressed in terms of money that may reasonably be expected for an installed property in an exchange between a willing buyer and a willing seller, with equity to both, neither under any compulsion to buy or sell and both fully aware of all relevant facts, including installation as of a specific date. This amount includes all normal direct and indirect costs, such as installation and other assemblage costs necessary to make the property fully operational.</td>
</tr>
<tr>
<td>Fair Market Value – Installed</td>
<td>The estimated amount, expressed in terms of money, that may reasonably be expected for a property in an exchange between a willing buyer and a willing seller, with equity to both, neither under any compulsion to buy or sell, and both fully aware of all relevant facts, including installation, as of a specific date and assuming the business earnings support the value reported. This amount includes all normal direct and indirect costs, such as installation and other assemblage costs to make the property fully operational.</td>
</tr>
<tr>
<td>Premise of Value</td>
<td>Definition</td>
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<td>----------------------------------</td>
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</tr>
<tr>
<td>Fair Market value – Removal</td>
<td>The estimated amount, expressed in terms of money, that may reasonably be expected for an item of property in an exchange between a willing buyer and a willing seller, with equity to both, neither under any compulsion to buy or sell and both fully aware of all relevant facts, considering removal of the property to another location, as of a specific date.</td>
</tr>
<tr>
<td>Liquidation Value in Place</td>
<td>The estimated gross amount, expressed in terms of money that could typically be realised from a failed facility, assuming that the entire facility would be sold intact with a limited time to complete the sale, as of a specific date.</td>
</tr>
<tr>
<td>Orderly Liquidation Value</td>
<td>The estimated gross amount expressed in terms of money, that could be typically realised from a liquidation sale, given a reasonable period of time to find a purchaser(s) with the seller being compelled to sell on an as-is, where-is basis, as of a specific date.</td>
</tr>
<tr>
<td>Forced Liquidation Value</td>
<td>The estimated gross amount, expressed in terms of money, that could typically be realised from a properly advertised and conducted public auction, with the seller being compelled to sell with a sense of immediacy on an as-is, where-is basis, as of a specific date.</td>
</tr>
</tbody>
</table>

PART A: RESPONDENT BACKGROUND

* 1. Type of respondent
   - Registered Valuer
   - Probationary Valuer

2. Level of education
   - MCE/SPM
   - Diploma
   - Bachelor Degree
   - Master Degree
   - Doctorate
   - Others
     Please specify: Professional diploma etc
     
3. Location of education background
   - Malaysia
   - United Kingdom
   - USA
   - Australia/New Zealand
   - Europe
   - Others (Please specify)
     
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4. Years involved in valuation practices

☐ 1 to 4 years
☐ 5 to 10 years
☐ 11 to 20 years
☐ More than 20 years

5. Location of valuation practices (You may answer more than one)

☐ Fed. Territory
  ☐ Kuala Lumpur
☐ Selangor
☐ Pulau Pinang
☐ Johor
☐ Negeri Sembilan
☐ Melaka
☐ Perak
☐ Kedah
☐ Perak
☐ Pahang
☐ Terengganu
☐ Pahang
☐ Sabah
☐ Sarawak
☐ Federal Territory
  ☐ Labuan
☐ Federal Territory
  ☐ Putrajaya
☐ Kelantan

* 6. Have you conducted any plant and machinery valuation in your valuation work?

☐ Yes (Please continue)
☐ No (Please go to question 10 – 13 ONLY.)

7. Number of plant and machinery valuation cases per year.

☐ Less than 5 cases
☐ 5 to 10 cases
☐ 10 to 20 cases
☐ More than 20 cases
8. When was the last time you conducted a plant and machinery valuation?

☐ Just recently
☐ Within the last 6 month
☐ Within 6 month to 1 year
☐ More than 1 year

9. What were the main sources of references for plant and machinery valuation in Malaysia that you have been using? (You may answer more than one)

☐ Malaysian Valuation Standards
☐ Asset Valuation Guidelines by Securities Commission
☐ International Valuation Standards
☐ International Accounting Standards – Financial Reporting
☐ Others (Please specify)

10. Do you think that plant and machinery valuation should be no different to any type of real property (land and building) valuation?

☐ Yes
☐ No

11. In relation to plant and machinery valuation what factor do you consider as the most limiting for the valuation of this asset class?
12. Do you agree that plant and machinery valuation methodology should be made easier to valuation practitioner in Malaysia?

☐ Yes

☐ No

13. What are the forms of information that are suitable to educate Malaysian valuers regarding plant and machinery valuation methodology? (You may answer more than one)

☐ Inclusion of plant and machinery valuation syllabus in higher education learning / universities in Malaysia.

☐ Practical or guidance notes by Board of Valuers, Appraisers and Estate Agents, Malaysia (BOVEA).

☐ Manual of plant and machinery valuation by itself.

☐ Introduction of plant and machinery valuation as executive diploma by related institutions.

☐ Others (Please specify)

PART B: PLANT AND MACHINERY VALUATION UNDERSTANDING AND AWARENESS

Please choose appropriate answer

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>Do not know</th>
</tr>
</thead>
</table>

1. In valuation practices, do you agree that market value should be considered as equal to fair value? ☐ ☐ ☐ ☐ ☐

2. Do you know that there are extensions of market value in plant and machinery valuation? ☐ ☐ ☐ ☐ ☐
3. Do you know the interpretation of the following premise of value:

<table>
<thead>
<tr>
<th>Know</th>
<th>Do not know</th>
<th>Not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Market value in-situ</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>b. Market value ex-situ</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>c. Market value for removal</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>d. Reproduction cost new/ reinstatement with new</td>
<td>☐</td>
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</tr>
<tr>
<td>e. Replacement cost new</td>
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<td>☐</td>
</tr>
<tr>
<td>f. Fair market value in continued use</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>g. Fair market value installed</td>
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<td>☐</td>
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<tr>
<td>h. Fair market value removal</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>i. Liquidation value in place</td>
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<tr>
<td>j. Orderly liquidation value</td>
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<tr>
<td>k. Forced liquidation value</td>
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</tbody>
</table>

4. If you ever use any of the above premises of value, what is the source for the interpretation? (You may choose more than one answer)

- [ ] International Valuation Standards (IVS)
- [ ] Uniform Standards of Professional Standard Practices - USPAP (USA)
- [ ] RICS Red Book (United Kingdom)
- [ ] Others (Please specify)
Please choose appropriate answer

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>Do not know</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. MVS is silent on the extension of the market value/premises of value as stated in question 3 above.</td>
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<tr>
<td>6. Valuers in Malaysia need resources in conducting plant and machinery for different type of premise of value.</td>
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</table>

7. Rank the most approach of valuation being used in plant and machinery valuation (Number 1 is the best rank).

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<th></th>
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<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market comparison approach</td>
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<tr>
<td>Income approach</td>
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<tr>
<td>Cost approach</td>
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</tbody>
</table>

8. In your opinion, please provide the best valuation approaches for different type of premise of value as follows:

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<tr>
<th></th>
<th>Market comparison approach</th>
<th>Income approach</th>
<th>Cost approach</th>
<th>Unsure</th>
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<tbody>
<tr>
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<td>[ ]</td>
</tr>
</tbody>
</table>
h. Fair market value removal
i. Liquidation value in place
j. Orderly liquidation value
k. Forced liquidation value

Please provide appropriate answer

9. Macro identification is the best description of current market situation and the potentiality of the plant and machinery being valued.

10. Micro identification of plant and machinery best describe the individual plant and machinery that include brand, model, size, capacity, machinery descriptions and additional features.

11. Valuation process of plant and machinery should be explained in the form of guidance or practical notes to assist valuers conducting plant and machinery valuation in Malaysia.

12. The current plant and machinery valuation report in line with the MVS Standards 9, which is for valuation standard of reporting.

13. Some improvement and modification should be made on the valuation reporting of plant and machinery as follows:

a. Nature of assets (Description of the purpose of machines, production capacity, age and condition of assets, average age and photographs of major components).

b. Premise of value (Explain clearly on the basis of valuation being employed, whether it is market value in-situ or market value ex-situ since different type of premise of value will require different type of valuation methodology).
c. Valuation methodology (Detailing on the valuation methodology since each valuation approach has different type of valuation methodology for different type of premise of value).

d. Market analysis (Descriptive studies or explanation on specific industries including second hand market, average life span of plant and machinery, changes in technology or the use of same machinery by other type of industries).

e. Plant and machinery schedule (Detailing of each machinery involved in the valuation such as brand, model, serial numbers, capacity, machinery descriptions and supporting equipments).

Please provide appropriate answer

14. The above additions will create confusion among valuers in preparing valuation report of plant and machinery in Malaysia.  

15. It depends on the valuer’s interpretation and explanation to report the plant and machinery valuation as long as it follows the MVS 9 standard of reporting requirement.

16. The addition as stated in question 13 (a) to (e) will help to standardise the key elements of plant and machinery valuation reporting.

17. Provide necessity of the practical notes or guidelines to the valuers’ community in Malaysia.

18. The plant and machinery practical notes/guidelines will standardise the plant and machinery valuation practices in Malaysia.

19. The application of practical notes/guidelines will increase the valuer’s integrity in conducting plant and machinery valuation.

THANK YOU FOR YOU TIME AND COOPERATION