



Queensland University of Technology

***THE EFFECTIVENESS
OF PUBLIC SECTOR
ASSET MANAGEMENT IN MALAYSIA***

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ABSTRACT

Property is an important factor in all businesses production in order to function. Nourse (1990) quoted “some businesses are real estate, all businesses use real estate”. In recent years, the management of property assets has become the focus of many organisations, including the non-real estate businesses. Good asset management is concerned with the effective utilisation of a property owner’s assets. It is the management process of ensuring that the portfolio of properties held meets the overall requirements of the users. In short, it is the process of identifying the user’s requirement and the rationalisation of property holdings to match that requirement best, followed by a monitoring and ongoing review of practice. In Malaysia, federal agencies and local authorities are among the largest property asset owners. Recently the federal government has released a Total Asset Management Manual (TAMM). It is at the preliminary stage of implementation. This thesis will study the international practices of asset management of public sector assets and assess the effectiveness of TAMM. This research will focus on current international practices for the effective management of public sector property assets. The current application in Malaysia will be highlighted, to determine the awareness and understanding of the current practices to the recently released TAMM. This research is an exploratory research. The basis of this research relies on the combination of qualitative and quantitative approach, whereby the qualitative approach focuses on the international practices and its application to the management of public sector property assets. Questionnaires survey will be conducted among the Malaysian public property assets managers and users in the quantitative approach to gauge the collective opinion on the current practices of TAMM and its implementation.

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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."



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CHAPTER 1: INTRODUCTION

1.0 Research Background

Property is no longer seen as a passive, inert bi-product of doing business or delivering services, but is perceived as a measurable component of organisational planning, to be provided efficiently and effectively as all other organisational resources (Harris, 2010).

It is clear that accountability is important to all government activities. Accountability must not only relate to the financial resources but also to the administrative/legal processes of government, as well as the overall net benefits of owning and occupying assets. The acknowledgement of making the government activities transparent, coupled with the idea of making the public sector property assets accountable, resulted in a growing tendency to introduce accrual accounting for local governments. In accrual accounting for governments, financial statements/ balance sheets should usually report all assets, liabilities, revenues, expenses, gains and losses. For capital assets, it shows asset values and related debt (Bond and Dent, 1998).

A study of the asset management policy in United States of America indicated that in February 2004, the Executive Order (EO) 13327 was introduced adding improved real asset management into the President's management agenda due to realisation of its real estate and its management under investment, the deterioration of federal property and lack of reliable data to decision makers. As for the local government, the United States introduced accrual accounting standards with The Governmental Accounting Standards Board in 1999. This accrual accounting standard was introduced to acknowledge the importance of public capital assets of local government coupled with the idea of making public authorities accountable. The idea was to report all assets, liabilities, revenues, expenses, gains and losses.

UK has set up systems to manage their public property assets effectively and efficiently with The Local Government and Housing Act 1989. However, it is unclear whether it governed the federal property assets. Institute of Asset Management has produced the PAS 55 which is a British Standard Institution (BSI) Publicly Available Specification. It was issued in 2004 to optimise management of physical assets and covers the whole of asset management. It provides guidance on achieving and sustaining good practices in all facets of acquiring, owning and ultimately disposing of physical assets. The Royal Institute of Chartered Surveyors (RICS) in 2008 came out with a guide to best practice of Public Sector Asset Management. It covered the whole subject of public sector strategic asset management for land and building from strategy development to implementation which also included financial management tools, information and performance monitoring and the use and management of the work place.

Asset management in Australia came into place with the introduction of regulatory requirements and accounting standards, for example Infrastructure Asset Management (RICS, 2008):

- AAS27 (local government)
- AAS29 (government departments)
- AA31 (government)

The Australian National Audit Office (ANAO) reported a strong improvement towards asset management at state level compared to central government. States in Australia have their own policies and guidelines that require departments and statutory bodies to manage assets in accordance with the asset management system. In 1995, the ANAO first examined asset management in the general government sector and found a need and significant scope for improvement. These required decisions about current and future asset holdings are made as an integral part of the corporate planning processes.

New Zealand reinforced the asset management to the local government with both The State Owned Enterprises Act 1986 and the 1989 Amendment to The Local Government Act 1974. However, there is no central body managing assets. Each department has its own autonomy. Each public entity in New Zealand is held individually responsible for delivery of services as required by the government. In 2002, the Local Government Act Legislation was then introduced where all assets held by a local authority would be identified, managed well and considered in every part of the planning process for all activities of the authority.

In Malaysia, asset management has been focussed on building operation that involved maintenance management, space management and security management and was lacking on performance monitoring (Mohd Isa, 2002).

The Government of Malaysia is committed to give quality services to the nation. It focuses on a comprehensive and integrated asset management and has introduced a policy and manual of asset management through the Total Asset Management Manual (TAMM, 2009). However, this manual is still at the preliminary stage of implementation.

In line with this new implementation, this research will examine the current policy and implementation of the Total Asset Management Manual (TAMM) and its effectiveness and acceptance, thus providing an assessment of current and proposed practice.

Table 1.1: Summary of the Policy of International Practices on Asset Management

Parameter	USA	UK	Australia	New Zealand	Malaysia
Regulatory framework	Presidential Order: Executive Order (EO) 13327 (Improved Asset Management)	The Local Government and Housing Act 1989	Regulation/Accounting requirements: AAS27 (local government) AAS29 (government departments) AA31 (government)	Centralised control to legislations Accounting reform and asset management reform The degree of separation of ownership from management and info systems <ul style="list-style-type: none"> • <i>State-Owned Enterprises Act 1986</i> • <i>State Sector Act 1988</i> • <i>Public Finance Act 1989</i> • <i>Fiscal Responsibility Act 1994</i> 	Total Asset Management Manual (TAMM) on federal assets. However, state authorities, statutory bodies and local authorities are not bonded.
Governance	Government Accountability Office	Different organisations: <ul style="list-style-type: none"> • Central Civil Government Estate (CCGE) • Local Authorities • Arms-Length-Bodies (ALBs) 	Australian National Audit Office (federal government) Public Works Committee in respect of major works	Different organisations: <ul style="list-style-type: none"> • LINZ • The Treasury • NZ Accounting Standards Review Board • NZ Property Institute • NZ Institute of Accountants • Institute of Professional Engineers • Building Industry Authority • Territorial Local Authorities 	Different organisations: <ul style="list-style-type: none"> • Ministry of Finance • Public Work Department • Department of Director General of Lands and Mines • Ministry of Energy, Green Technology and Water • Department of Irrigation and Drainage
Extent of devolution	-	Chartered Institute of Public Finance and Accountancy (CIPFA) and The Royal Institution of Chartered Surveyors (RICS) worked together to draw up guidelines for authorities	State level government responsibility and regulation	The above organisations set the regulations and standards, whilst many departments, Crown Entities and Crown-owned Enterprises, State-owned Enterprises contract out the property management functions	Prime Minister Department sets the policy and manual
Publications	Asset management plan. General Services Administration Department issued material on procedures and progress	<ul style="list-style-type: none"> • BSI: PAS55 • RICS Public Sector Asset Management Guidelines • Local Authority Asset Management Guidelines 	Asset Management Handbook	No central Government guidance, although some research being undertaken by the Treasury. The National Asset Management (NAMs) group publish manuals and guidelines for best practice	Total Asset Management Manual

Source: RICS (2008) and author interpretation

The USA and Australian asset management practices were based on a need for centralisation coordination committee to develop and disseminate its best practice. Both countries have linked its asset management planning process into budgetary cycles. Even though both countries have produced central best practice guidance, however, Australia's state governments are developing their own approaches

with the introduction of regulatory requirements and accounting standards as stated in the above Table 1.1. In New Zealand, most asset management is undertaken by local authorities but the legislations are controlled by the central government. In contrast, UK is practising the centralisation basis where the federal government has a strong policy with a strong support by active engagement of local authorities, practitioners and professional organisations.

The Malaysian public sector is divided into federal government, state governments, local governments and statutory bodies. Comparatively in Malaysia, even though the federal government sets out the rules and regulations, it only governs the federal government organisations and ministries. As for the state and local governments in Malaysia, the ownership and functions of public assets are similar to the federal government, however, they are bonded with their own set of rules and regulations and budgetary systems.

1.1 Research Problem and Research Question

The largest ownership and occupation of property assets is usually the public sector organisations. The government is seen as a major stakeholder of properties and facilities, either by virtue of being the owner of the properties in question or by being the major beneficiary of the functions these properties contribute towards (Nutt and McLennan, 2000). The types of property owned by the public sector organisations include the schools, hospitals, universities, markets, airports, railway stations, sea ports, government administration buildings, power generation plants, military bases, armed forces quarters and offices and infrastructure such as roads. Public sector organisations in Malaysia are among the largest property owners and the richest in the term of operational property value (Ismail, 1996). The property assets of the public sector organisations can be considered as having financial contribution and effect upon annual financial statements, asset base and as well as on resale values in case of privatisations of any public entities.

Table 1.2: Supply and Occupancy of Purpose Built Office (PBO) in Selected States and Malaysia

Existing Stock (Quarter 2, 2010)

State	No. of Property			Total Space (sq.m.)			Total Space Occupied (sq.m.)			Occupancy Rate (%)		
	Private	Govt	Total	Private	Govt	Total	Private	Govt	Total	Private	Govt	Total
FT Kuala Lumpur	340	46	386	6,316,988	467,619	6,784,607	4,975,215	445,084	5,420,299	78.8	95.2	79.9
FT Putrajaya	5	22	27	138,880	1,423,040	1,561,920	69,129	1,418,425	1,487,554	49.8	99.7	95.2
Selangor	133	13	146	2,087,041	198,032	2,285,072	1,625,960	197,191	1,823,151	77.9	99.6	79.8
Johor	136	74	210	702,948	301,370	1,004,318	518,018	238,841	756,859	73.7	79.3	75.4
Pulau Pinang	178	57	235	872,000	205,395	1,077,395	647,526	201,183	848,709	74.3	97.9	78.8
MALAYSIA	1,357	863	2,220	12,181,293	4,300,611	16,481,903	9,643,874	4,174,004	13,817,878	79.2	97.1	83.8

Source: National Property Information Centre, Malaysia (NAPIC) (2010)

Table 1.2 indicates that as at Quarter 2, 2010 it can be clearly seen that overall, the total numbers of Purpose Built Office (PBO) buildings supplied in the market is 2,220 with 1,357 properties supplied by private building (12,181,293 sq. m.) outnumbering government buildings at 863 properties with approximately 4,300,611 sq. m. However, the market shows that the total occupancy rate for government offices exceed private offices at 17.9%. This is due to the current existing demand from government departments and agencies occupying the government's offices.

The low supply of office space of government buildings creates increasing demands that spill over to the private buildings in the market. Most of the 4 major states have greater supply of office space from private sector buildings, whilst the Federal Territory Putrajaya, is a purposely planned government administration state to centralise all the federal government's departments (NAPIC, 2010).

The demand for government buildings has shown an increasing trend, as illustrated by occupancy rates in every selected State. This demand and supply of government buildings create significant impact on the needs for proper asset management, to maintain the properties as well as to optimise the usage and occupancies for the long term to meet the strategic needs of the government sector.

Property assets, in the same way as human, financial and information resources, contribute to the success of the organisations and need to be managed effectively and efficiently. These property assets need to be professionally managed to ensure the asset value is maintained (Mohd Isa, 2002).

The Malaysian Government is looking seriously at the issues of management and maintenance of public property assets which can affect the reputation of the Government in providing good services to the public. Currently, the practice of asset management in Malaysian Government is based on maintenance works without proper systematic planning, whereby works are carried out on an ad-hoc basis or management by crisis (Abu Mansor, 2011).

The Government has taken the initial steps in these related issues with the set-up of the Government Asset Management Committee at federal level. This Committee is responsible for determining the policy and guidance on asset management to be applied to all government agencies.

The Government Asset Management Policy outlines the principles and strategies of the asset management applications for every government agency and one of the strategies is the Total Asset Management Manual (TAMM) with the emphasis on the management of government property assets systematically and holistically to obtain optimum asset benefits.

This TAMM is applicable to the Ministries and Federal Government Departments only. However, it is also extended to the State Authorities, Statutory Bodies and Local Authorities subject to their acceptance.

Based on the research background provided, this research focuses on the following research questions:

- i. What are the elements that contribute to the best practice of public sector asset management?
- ii. What is the Malaysian public sector asset management namely the Total Asset Management Manual (TAMM)?
- iii. What is the level of awareness and understanding among the various federal departments on TAMM?

1.2 Research Aim

The aim of this research is to provide a guidance framework for the areas of improvement of asset management that can be applied to the current practice in Malaysia.

1.3 Research Scope

The scope of this research is focused on the federal property assets, federal ministries and federal departments. The phase covers identifying and understanding of international practices and assessing the current Malaysian public sector asset management (to look at the level of readiness, training and supervision).

1.4 Research Objectives

This study focuses on the following objectives:-

- i. To examine the international practices of public sector asset management
- ii. To examine the Malaysian public sector asset management namely the Total Asset Management Manual (TAMM)
- iii. To assess the awareness and understanding of Total Asset Management Manual (TAMM)

1.5 Rationale and Significance of Study

Lyons (2004) commented that international evidence indicates that the reported efficiency gains from strategic asset management in organisational approach range from 10% - 30%. In public administration, the best example is in 2003 whereby a County Council in the East of England which achieved its target of £30 million of capital receipts by implementing an asset management programme that led to improvements across its property and asset portfolios (Lyon, 2004). It is clear that the Malaysian Government introducing TAMM is a good step in improving asset management practice.

National Audit Office, UK (2007) reports that if the central government could bring the performance of individual buildings into line with the private sector benchmark buildings, that is comparing with the private sector average space and operating cost for the same type of building in the same location, the Government would reduce gross expenditure on offices by £326 million per annum.

Burns, P. (1999) noted that there has been good asset management conducted in Australia. The Hydro Electric Corporation was expecting a 30% savings over the ten year period following implementation of a strategic approach to asset management. The main features of its approach were the development of lifecycle management strategies, risk management, optimisation of refurbishment and replacement expenditure and development of a user-friendly assessment and prioritisation tools.

Based on the examples above, it is clear that good asset management practices leads to the optimisation of asset usage and in the end will save costs. Whether it is the practice in the government or the private sector, it is vital that the cost spent by an organisation should be minimised in all ways. Therefore, asset management can be a tool in achieving this. This study will assess the current asset management practices in Malaysia, and in the end will provide guidance frameworks for any improvement for the current practices for annual cost reduction, as well as improving optimisation of usage of the Malaysian government assets.

The Malaysian Government recommended and implemented various measures to enhance the national economy, in response to the regional and international economic downturn. In 2008, the government introduced the First Malaysian Economic Stimulus Package, to combat the effect of the American Sub-Prime Crisis that affected the world, with an allocation of approximately RM7 billion. The areas of improvement included upgrading and maintaining public facilities such as schools, hospitals and roads (RM500 million allocation) and the main focus on the police and army facilities with RM500 million investments (Malaysian Government, 2008).

The Second Stimulus Packages (Malaysian Government, 2009) were launched in March 2009 with a RM60 billion allocation for the overall economic growth for the nation. For infrastructure only, the government has allocated almost RM18 billion to upgrade and maintain various facilities with the notable ones including:

- Improving the level of implementation of Malaysian 9th Plan projects which has a high impact on Malaysian infrastructure (RM8.4 billion) and fostering investment on new public assets (RM1.6 billion);

- Improving, upgrading and maintaining the nation irrigation systems and public flats (RM200 million);
- Renovating, maintaining and refurbishment of hospitals, foster homes, school and fire brigade facilities (RM150 million);
- Providing basic amenities and facilities to the rural areas including water supply and electricity, roads in Sabah and Sarawak state (RM580 million); and
- Initiate RM1.2 billion infrastructure projects in Sabah and Sarawak, which includes Sibü Domestic Airport and Sibü Port enlargement.

Improvements to public asset facilities require provision for proper public assets management. In order to achieve this, the study is essential to help the government to produce the best practices of public asset management for the nation. This creates a transparency for tax-payer money, as well as improving government's accountability.

The Malaysian Federal Government development and operating expenditure on public utilities show an increasing trend since the 1970. The table 1.3 below indicates the growth:

Table 1.3: Malaysian Federal Government Development and Operating Expenditure on Public Utilities (1970 – 2009)

Year	Development Expenditure (RM Million)	Year	Operating Expenditure (RM Million)
1970	20	1970	NA
1971	31	1971	NA
1972	42	1972	NA
1973	49	1973	NA
1974	55	1974	NA
1975	118	1975	NA
1976	133	1976	NA
1977	250	1977	NA
1978	339	1978	NA
1979	395	1979	NA
1980	665	1980	NA
1981	748	1981	NA
1982	865	1982	NA
1983	1,027	1983	NA
1984	1,132	1984	NA
1985	789	1985	NA
1986	683	1986	NA
1987	648	1987	NA
1988	656	1988	NA
1989	468	1989	38
1990	798	1990	42

1991	681	1991	49
1992	834	1992	26
1993	610	1993	36
1994	790	1994	487
1995	654	1995	53
1996	733	1996	222
1997	1,496	1997	105
1998	1,968	1998	397
1999	1,850	1999	91
2000	1,517	2000	104
2001	1,092	2001	39
2002	1,808	2002	460
2003	920	2003	57
2004	945	2004	111
2005	1,481	2005	66
2006	2,244	2006	482
2007	2,358	2007	235
2008	2,795	2008	91
2009	2,899	2009	401

Source: Ministry of Finance, Malaysia (2010)

The allocation of public utilities development and operating expenditure indicates the needs for strategic asset management. The amount of government expenses on public utilities operating expenditure (maintaining, improving and refurbishing) can be reduced if the cost of maintaining and improving the public assets are low. This research is important to study the current public asset management practices in Malaysia and its implication to government spending on assets operating expenditure as well as the requirement to enhance the current implementation process.

In addition, Malaysian Government has spent a large amount on operating expenditure for government's assets as per Table 1.4 below:

Table 1.4: Malaysian Federal Government Operating Expenditure on Assets

Year	Assets Operating Expenditure (RM Million)
1999	460.6
2000	610.15
2001	1,149.55
2002	1,532.74
2003	1,612.98
2004	768.49
2005	1,414.42
2006	1,698.06
2007	2,106.17
2008	2,046.33
2009	2,361.44
July, 2010	524.55

Source: Ministry of Finance, Malaysia (2010)

As can be seen, the expenditure stated in the Table 1.4 is increasing each year, and it is timely that the government is looking at the asset management practices. There was an increase of about 413% on assets operating expenditure recorded from the year 1999 to 2009. This was consistent with the increase in the government development and operating expenditure due to the augmentation of the immovable assets to support the services function provided by the government. The highest figure was indicated in 2009 with an assessment of about RM2.36 billion. Even though it is only about 1.53% out of the total government 2009 expenditure (RM154.17 billion), the figure should be reduced to reflect a good practice of public asset management. This study addresses this issue and provides improvements to the current implementation.

As a summary, it can be seen that the significance of this research is firstly, it can help to ensure the high level of asset management performance can be achieved accordingly within the government services. Secondly, good practices of asset management can lead to cost effectiveness where each cost spent on an asset can be minimised and therefore can further lead to the optimisation of asset usage and lengthen the life cycle of an asset. Finally, with the high expectation of the people demands and needs, the government can meet the obligation to provide excellent infrastructure amenities.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

This section provides an overview of the current literature on real estate asset management from both an international and Malaysian perspective. The first part of the section will discuss various definitions of real estate asset management. The second part of the section will discuss the key parameters from various international practices for public sector asset management and the third part of the section will explore the extent and current implementation of public sector asset management in Malaysia.

2.1 Definition of Asset

The term 'asset' can be used to describe many different types of assets including financial assets, infrastructure assets, plant and machinery, equipment and property.

Fernholz & Fernholz (2006) and Howarth (2006) have pointed out that the term asset can be both tangible and intangible assets which include financial assets such as money, intellectual assets such as knowledge and physical assets such as buildings. However, the Kyle et al (2000) definition of real property begins with the surface of a parcel of land and moves on the owner's right of the air above the surface as well as soil and minerals beneath the surface, as well as anything permanently attached to this land either by nature or by human hands.

A broader interpretation of assets was employed by Lyons (2004) as not only land and buildings but also intangibles assets such as intellectual property, the radio spectrum and government shareholdings.

However, another definition of public property assets which refers to physical resources that are neither owned privately nor by the state including those assets that are not closely regulated by the state (Berge, 2007).

The International Federation of Accountants (1995) in their studies has distinguished public property assets as financial assets which include cash, receivables, contractual rights to exchange financial instruments with another enterprise under potentially favourable conditions, and the equity instruments of another enterprise such as shares in Souls Private Equity Limited (SOEs), and physical assets which include inventories, long-term fixed assets, infrastructure, heritage assets, defence assets, natural resources, community assets and intangible assets.

Public assets can be described as any assets belonging or under the control of the government and classified as movable assets such as inventories, immovable assets such as lands and buildings, live assets such as plants and animals and intellectual properties.

For the purpose of this research, the scope of the assets is limited to the study of lands and buildings of the public sector organisations.

2.2 Definition of Asset Management

Although there is no universally acceptable definition of asset management; it is a term that is widely being recognised across the world (Kaganova & McKellar, 2006) with the words sometimes referred to as property management, asset management, real estate management, real estate asset management and others. Burns (2002) agrees that the term is neither well defined nor understood. Due to its unclear definition, it can be interpreted to have different meanings by different people. Gibson (1999) states that there are relationships in the term of property management, facilities management or estate management and in some cases where asset management is seen as embracing property management and other related activities whilst in other cases asset management is identified as a division of property management.

However, Consilian (2007) argues that the differences between the asset management and other terms such as property management or facilities management are derived from opinions based on its roles and the nature of asset management itself.

Table 2.1 below details the definition of asset management by different scholars.

Table 2.1: Definition of Asset Management

Year	Author	Definition
1965	Thorncroft, Michael	the direction and supervision of an interest in landed property with the aim of securing the optimum return, this return need not always be financial, but may be in terms of social benefits, status, prestige, political power or some other goal or group of goals
1994 1996	Singh, Gurjit	an activity that seeks to control interests in property taking into consideration the short and long term objectives of the property owner and particular purpose for which the property is held
1995	Scarett, Douglas	seeking advice on the establishment of an appropriate framework within which to oversee property holdings to achieve the agreed short and long term objectives of the estate owner and particularly to have regard to the purpose of which the estate is held

1996	Ismail, Iskandar	all necessary reporting, accounting, maintenance and decision making to ensure the economic and physical vitality of property assets
1999	Wong, K.S.	the work carried out to manage and maintain the development including its facilities at the level that will retain or enhance the value of the development, create a safe, functional and conducive living environment for occupants, keep or restore every facility in efficient working order and in good state of repair and project a good appearance or image for the development
1999	Department of Environment, Transport and the Regions	optimising the utilisation of assets in term of service benefit and financial return
2004	Lyons, Michael	a key part of business planning which connects at a strategic level decisions about an organisation's business needs, the deployment of its assets, and its future investment needs
2004	Leong KC	a process of guiding the initiation, acquisition, use and maintenance and disposal of assets, to make the most of their service delivery potential and manage the related risks and costs over the full life of the assets
2005	Local Government Asset Management Guidelines, RICS/ODPM	a structured process that seeks to ensure best value for money from property assets in serving the strategic needs of local authorities
2006	University of Leeds	a structured, holistic and integrating approach for aligning and managing over time service delivery requirements and the performance of property assets to meet business objectives and drivers within a central government organisation
2007	Davis, Jim	A continuous process-improvement strategy for improving the availability, safety, reliability and longevity of assets which is systems, facilities, equipment and processes
2008	RICS Public Sector Asset Management Guidelines	the activity that ensures that land and buildings matters are dealt with so that they operate efficiently and effectively

Source: Author

2.3 Corporate Real Estate Asset Management

Landlords and property investors have been enjoying rising rentals and market value on their properties without realising the importance of real estate asset management. However, when the property economic crisis hit the world, it taught many investors to be more efficient. It is during these times that properties are more properly managed, property investments are more carefully planned and real estate asset management received more attention from the public.

Corporate real estate asset management (CREAM) is evolving into a recognised management activity that stands in need of a more formal and systematic approach while retaining its identity as a service function of overall corporate mission and purpose (Veale, 1989).

Becker and Joroff (1995) and Nichols (2005) observe that many organisations treat property as a passive activity and it becomes important on senior management agenda when a significant activity looms on the horizon.

Nourse (1990), Then (2000) and Edwards and Ellison (2004) defines CREAM as the study of the management of corporate real estate assets by non-real estate companies as a complement and input to their core business.

The pioneer of CREAM initiated by Zeckhauser and Silverman in 1983 where they found that 25 percent or more of corporate assets are in real property and 40 -50 percent of net operating incomes are property related operating costs.

Teoh (1992) in his study on CREAM in New Zealand indicates that having a positive corporate perception on CREAM is primary to the success of the said function. McDonagh (1999) continued the study of Teoh and agrees that far more organisations have recognised the importance of real estate assets to their core activities and are seeking to improve their performance in the CREAM area.

In the early 1990s in UK, Reading and Oxford Brookes Universities has simulated CREAM which highlights the effect of non-aligned business and asset strategies, has resulted to under-management of operational assets in most businesses and waste of resources. The first study on the private sectors which was focused on office, retail and industrial properties was undertaken by an economist in 2002. Bottle (2002) reported that UK businesses were wasting a figure of around £18 billion a year on the inefficient use and management of property.

Many corporate real estate companies as proven by the finding of Massachusetts Institute of Technology study (1987), have not been maintaining adequate information on their real estate assets which led to more than half of the companies surveyed not knowing if returns from their real estate assets were greater, less or equal to overall corporate returns.

CREAM activities tend to be transaction- or project-oriented, prescribing certain real estate ventures – sale-leasebacks, equity leases, master-limited partnerships and other well-intended projects aimed at enhancing corporate real estate. The composition of CRE varies with the type of business being carried out by the respective companies. The property type and amount owned is dictated by the nature of its operations.

CREAM, as a field, has been inhibited by the low prestige and priority accorded it in companies, in management consultant groups, and in business schools (Veale, 1989).

However, CREAM has moved toward developing a strategic approach involving principles and practices of general management to develop a proactive, comprehensive and portfolio-wide decision-making process.

According to Veale (1989) such an approach must begin with a strategic framework for connecting the many elements associated with corporate real estate such as physical plant maintenance and repair, leasing, space planning, project management, housekeeping and tenant services, development and acquisition, furniture inventory and capital budgeting. Secondly, a means for prioritising real estate demands and guiding overall policy and strategic direction and thirdly, the development of management tools and systems that can inform, support and improve the actual decision making process.

2.4 Public Sector Asset Management

There has been an increasing initiative to improve the efficiency and accountability of government organisations with respect to their role in the provision, management and maintenance of the public assets due to the increasing expectations of the community and changes of government legislative and financial control.

In the last two decades of the 20th century, many countries started to invest in the modernisation of the public sector which often summarised under the term of New Public Management (NPM) and refers to the overall set of financial and administrative reforms in the public sector. The changes in the public asset management and governance policies are considered as the greatest challenges of NPM (Grubisic et al, 2008).

The effective and efficient direction and utilisation of a department's resources to sustain its business and meet the outputs required by the Government, Ministers and the departmental Management Board is the Strategic Resource Management (SRM). It involves the planning and prioritisation of investment across tangible and intangible assets, the deployment of that investment and monitoring its use against targets and Key Performance Indicators, and also holding departmental units accountable for performance. Strategic Asset Management is a subset of SRM and is the effective and efficient direction and utilisation of assets to sustain business whilst Asset management is a subset of Strategic Asset Management (University of Leeds, 2006).

Kaganova and Nayyar-Stone (2000) agree that the term asset management when it refers to public real property or public management varies substantially depending on the country and the institutional and professional viewpoint. However, they further pointed out that an approach to analysing public real asset management is to compare it with the private sector real estate asset management at non-real estate corporations. Kaganova et al (2006) further indicate that asset management in relation to the management of government real estate assets should also be referred to as the process of decision making and implementation related to acquisition, use and disposal of real estate.

Ching (1994) in his study on implementing CREAM in local authority asset management states that asset management is the management of activities that are undertaken to fulfil occupancy and functional requirement of any asset where the implementation of those activities are divided into facilities management, building management and portfolio management.

Having observed the different opinions of the definition of asset management, for the purpose of this study, and for the intention of its overall purpose and scope it is appropriate to define asset management as:

“Managing the public assets strategically and holistically in order to optimise the assets benefits for the public”

As a summarisation, public sector asset management is a subset of the following:

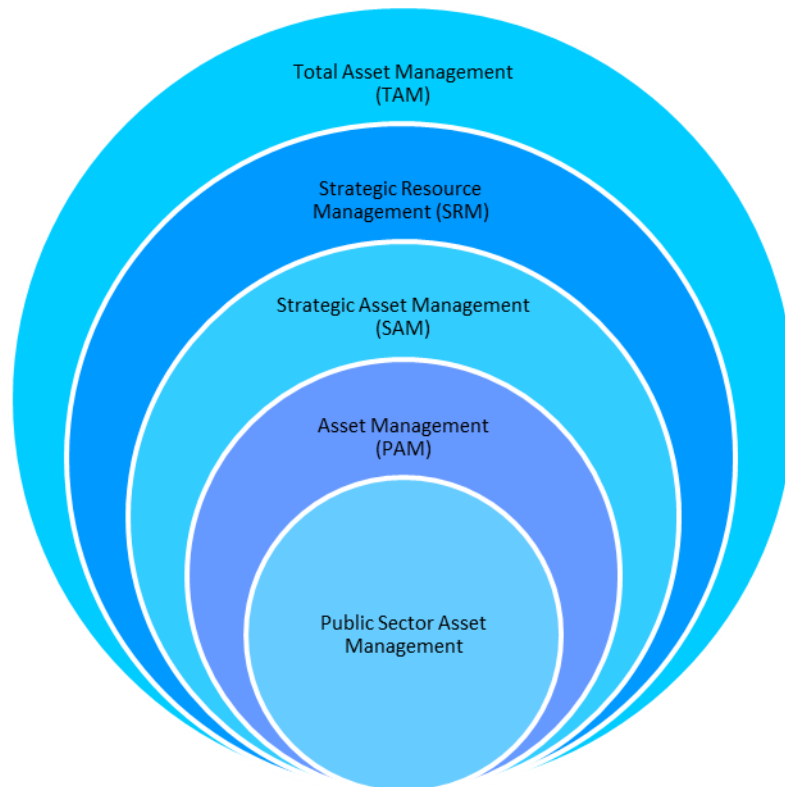


Figure 2.1: Total Asset Management Subsets

Source: Author

2.5 Emergence of Public Sector Asset Management

Public sector asset management can be seen as a parallel movement to the private sector corporate real estate asset management (CREAM). Simons (1993) and Kaganova and Nayyar-Stone (2000) agree that the public sector should adopt the approaches and asset management techniques of private non-real estate corporations.

Cooper (1993) also agrees that there is a requirement that public sector institutions adopt the private sector business practice and become more accountable for their roles and activities by requiring them to report in a more comprehensive manner.

In United Kingdom, the reports by the Ceri Davies Committee on the National Health Services in the early 1980s and in 1985 with Lord Gowrie's report on office accommodation have raised questions on the quality of public sector property management. A further study was later taken by the National Audit Office and the Audit Commission which drew attention to the serious under-management of accommodation and the problems to be addressed and monies which could be saved by public sector bodies, both central and local government.

In 1999, the Department for the Environment Transport and the Regions, United Kingdom gave detailed insights into local authority asset management and emphasised that real estate should be a means of more efficiently delivering services to users and a more strategic focus was required in the management of real estate portfolios. They came out with the asset management good practice guidance in 2000 to oversee the management of local authorities and this was subsequently updated and re-issued in 2008 by the Department for Communities and Local Government as an asset management framework.

The central government was concerned when issues were raised by the academics and increasing experience of local authorities on the benefits of a coordinated approach to real estate management. The Gershon Report (2004) reported and recommended that efficiency and cost reduction programmes across the public sector would save £20 billion after four years.

Sir Michael Lyons (2004) sets down the asset management challenges for the UK central government portfolio which included capital recycling from the sale of surplus properties, the imperative of developing asset management strategies and linking them with business plans and ensuring senior management understood their responsibilities for the management of their department's assets.

Similar situation applies to United States, where in 1981, a Harvard University study highlighted the lack of priority given to property in both private corporations and public authorities and their failure to recognise real estate assets as a key resource and later was supported by a Massachusetts Institute of Technology study in 1987.

Another study was conducted in 1987 by the Department of Land Management, University of Reading on public and private sector organisations and these findings on asset management reinforced the US findings and the earlier studies of the public sector in the UK. In both cases either in the private and public sectors, even though property is a vital and valuable resource, it was not given the same priority and attention as much as personnel, finance and operational processes (Avis, 1990).

Throughout the 1990s, further research was conducted, not only on cost cutting but also to identify new approaches to the use of physical assets as a catalyst for long term investment. A study by the National Audit Office (NAO), UK on the management of office space in the Ministry of Defence indicated how to use space effectively by giving the whole area a “new working practices”. Another study by NAO in 2007 indicates that the central government expects to save £1 billion to £1.5 billion from the whole government civil property estate by 2013 generated from reducing the amount of space occupied, increasing and improving space utilisation, improving the procurement of facilities management contracts and improving the procurement of leasehold contracts.

In the US, in the early 1980s, asset management came into existence when the cities of Denver, Colorado and San Diego, California adopted a number of approaches that treated public real estate as a productive asset or a cost-neutral asset. Some cities began managing government-owned and used properties more efficiently and disposed of surplus property to ease budget shortfalls.

2.6 Best Practice of Asset Management

A key component of asset management is to take a strategic view of which assets are best retained and efficiently exploited, as well as to identify those which should be disposed of to generate resources for reinvestment (Lyons, 2004).

Dillion (1990) emphasises that local authorities need to set up and maintain accurate and active property management systems for three important reasons which are:

1. To ensure the realisation of surplus and underutilised property assets within a planned acquisition and disposal programme
2. To keep control of non-domestic buildings' usage to ensure the minimum national non-domestic rates (NNDR) charge
3. To ensure proper costing of in-house bids under the requirements of compulsory competitive tendering (CCT) which make up-to-date and accurate valuation of property assets essential.

The above reasons do not only apply to the local authorities only but can also be applied to the central government as well, since the function of the government either its local or central government is to benefit the public.

A study by Massachusetts Institute of Technology (1987) has shown that despite the great values of property itself, corporate real estate assets are seriously undermanaged. One of the most significant factors attributing to this under management is that many corporate real estate managers do not maintain adequate information about their real estate assets.

The Leeds University Report (2006) suggests that yearly savings in central government real estate costs of over £150 million were possible with additional efficiency savings of up to £380 million per annum from flexible workplace and work style strategies. The study also found that the linkage between business strategy and asset resource planning, clear asset management responsibilities within departments, the use of performance metrics to track progress and efficiency in accommodation use with the disposal of surplus space and the adoption of saving workplace strategies is recommended. The same report ignites the publication of resource audit and matrix for effective asset management and a report

emphasising the linkage between performance measurement and better management. It agrees that for government departments to succeed in effective management and rationalisation of the estate, access to base data on what is best in class – in order to match and exceed expectations is fundamental.

Veale (1989) has attempted to identify the key factors in the effectiveness of real estate management in various organisations. He found that effective real estate management means moving beyond reactive and decentralised decision making, fragmented across the organisation, towards a proactive, comprehensive, and portfolio-wide decision-making process, well supported by adequate and timely information and the commitment of upper management.

Other scholars, Pittman and Parker (1989) pointed out how difficult it is to construct measures of efficiency of real estate management. However, Lyon (2004) reported that with the modernisation of the public sector under the New Public Management (NPM) in United Kingdom, the improved asset management results in better service delivery to and outcomes for the public.

Summerell (2005) suggests that by applying asset management processes, local government could improve the effectiveness and efficiency of service delivery through reduced and fully auditable operating costs, reduced vacancy rates and improved delivery timescales, better managed value and reduced churn as well as lower moving costs.

Lemer (1999, p. 255) indicates that one of the challenges to the better management of public assets is that they are managed by different agencies and at many jurisdiction levels. Authorities involved in management have their own regulations, procedures and policies, which sometimes contradict each other, because they have their own objectives and there is little coordination between them. Priest (2006) agrees that this lack of coordination between property departments and public service divisions might lead to an imbalance of supply and demand of public services. NAO (2007) also agrees that in order to improve efficiency, it is important that one department should coordinate activity with other departments. Central Government should offer stronger guidance and practical help on improving the individual efficiency and property portfolios.

The NAO (2007) reports an estimation of 13 million square metres of floor space with a value of £30 billion were the size of the central government office portfolio. The NAO using estimation instead of an exact figure shows that data is still a problem in public sector asset management. Kooymans and Abbott (2006) point out that possession of readily usable information is an integral part of the organisation's strategic planning which includes physical lives of assets, expected amount and timing of major capital and maintenance expenditures, asset replacement values and market value. With this information

available, the asset managers are able to influence organisational decisions that affect the operations. It also enables access to financial information which results in good decision making. Audit Commission (1988), Avis et al (1989) and Hillier Parker (1994) also reveal that the lack of data information about property holdings has hindered the ability in managing property in a strategic and proactive way.

Kaganova et al (2006) reveal that the demand for space changes is faster than the governments' capability to reutilise or dispose of surplus public assets. The presence of large portfolios of vacant or underused properties caused by the continuing change of structure or the scope of services provided by the government is one source of inefficiency. There is no incentive or financial benefit to dispose of the property as the cost of holding the asset is not highlighted in any chart of accounts.

The Operational Efficiency Review 2009 indicates that the key requirements for better asset management were noted being the commitment of senior managers to asset management and work style changes, the shortage of experienced asset management staff, the unreliability of data and the absence of sharing accommodation by public bodies across organisational boundaries.

Kaganova et al (2006) report that in 1996, only 65 percent of local governments in New Zealand and 66 percent in England and Wales have computerised records of their public assets. In 1997, Washington DC had duplicative and inconsistent inventory record of the city's owned buildings and a substantially incomplete inventory of leases. In USA, there was still no reliable federal government property holdings data in early 2002. As a result, revenues and expenses are not tracked on property-to-property basis as there was no information collected by property within the governments' financial systems. In the Guidelines for Implementing Total Management Planning (Asset Management) (2009) for Water Service Providers (WSPs), the WSPs face an array of regulatory, reporting and cost pressures and related operational challenges, all demanding ready access to information to facilitate management decisions on customers, human resources, finance, asset management and corporate management. The complexity of this information needs make effective and efficient information management essential. Many WSPs have already found that appropriate investment in good data bases has produced significant gains in efficiency.

Buckley (1998) recognises an appropriate inventory and information database as one of the eight steps of the strategic plan for effective corporate real estate. Information on square feet or metres per person, occupancy costs and capital expenditures will allow benchmark comparisons to commercial market-rate properties. The Australian Government Office Occupancy Report 2009 reports that one of the elements to the efficient and effective management of Commonwealth property set by The Commonwealth Property Management Framework is the occupational density target of 16 square metres per occupied workpoint (16 m²/OWP) whilst in the UK, the Investment Property Databank (IPD) as reported by the

Office of Government Commerce in the effective management of government estate recommended a setting maximum area for space standards of 15 square metre per full time equivalent.

From the above literature review, it can be concluded that several key parameters of international best practices of asset management include adequate inventory and information data base, commitment of upper management, coordination between property departments and demand of space changes. This research will study the applicability of this best practice to the Malaysian public sector asset management.

2.7 Malaysian Public Sector Asset Management

The Malaysian public sector organisations include the federal government, the state governments, local governments, statutory bodies and the Non-Financial Public Enterprise (NFPE).

In the context of Malaysian asset management, it mainly focuses on the building operations that involves maintenance management, space management or user requirements of space and security management. Apart from that, it also undertakes the property valuation, acquisitions and disposal which normally focus on the development of new buildings. As far as tenancy is concerned, the public sector organisation involvement is limited to the occupation of the office space in private buildings (Mohd Isa, 2000).

The Government practices of asset management can be reactive in nature whereby maintenance works are carried out without systematic planning, on the basis of ad-hoc, fire fighting or management by crisis. These practices objectively do not solve problems but incur high costs and are often not controllable. The situation creates problems such as unrealistic budget, shorten assets' life and it affects the effectiveness of service delivery to the public and can be very disadvantageous to the nation.

On 31 March 2009, the Malaysian Government enacted and launched a Government Asset Management Policy to outline the direction and the implementation of Government assets. The Government is giving serious emphasis to asset management because large amounts of money have been invested to provide various facilities to the nation. This policy is the beginning of a total asset management plan to ensure that the government's assets will continue to be the pride of the nation and able to provide continued benefits to future generations. The objectives of the Government Asset Management Policy is in line with the government's effort to create first class maintenance culture, which in accordance with first class infrastructure asset development that have been and will be implemented in Malaysia. It explains the Government roles and commitments to ensure the assets are managed strategically and systematically to provide quality service to the nation. It also serves as a guide to be used by every Government agency through the Total Asset Management approach so that the assets effectiveness and utilisation benefits attain optimum levels.

With the motto of ‘One Malaysia, people first performance now’, peoples’ need and requirements have increased. It is the government’s obligation to provide excellent infrastructure amenities such as good and safe roads, efficient public transportation services, world class airports and other facilities. Due to this demand, the government has taken the initiatives to develop the Total Asset Management Policy.

2.8 Malaysian Total Asset Management Manual (TAMM)

2.8.1 Malaysian Total Asset Management Policy

The Government of Malaysia has taken a step forward on the issues of management and maintenance of public assets with the introduction of a policy and manual of property management in 2009. The government has set up the Asset Management Committee to determine the policy and guidelines on asset management for all government agencies.

One of the strategies in the Government Asset Management Policy is the Total Asset Management Manual (TAMM) which places emphasis on the management of the government property assets in a systematic and holistic way in order to achieve optimum benefits of the assets. It also outlines the strategies and principles of the asset management applications to every government organisations.

However, this TAMM is only applicable to the Ministries and federal government departments. The State Governments, Local Authorities or statutory bodies are subjected to their own willingness and acceptance to follow. Although initiated in 2009, this plan is now only at the preliminary stage of implementation.

In general the structural documentation of the Government Asset Management is divided into four (4) levels namely the policy, manual, procedure and supported document as follows:-

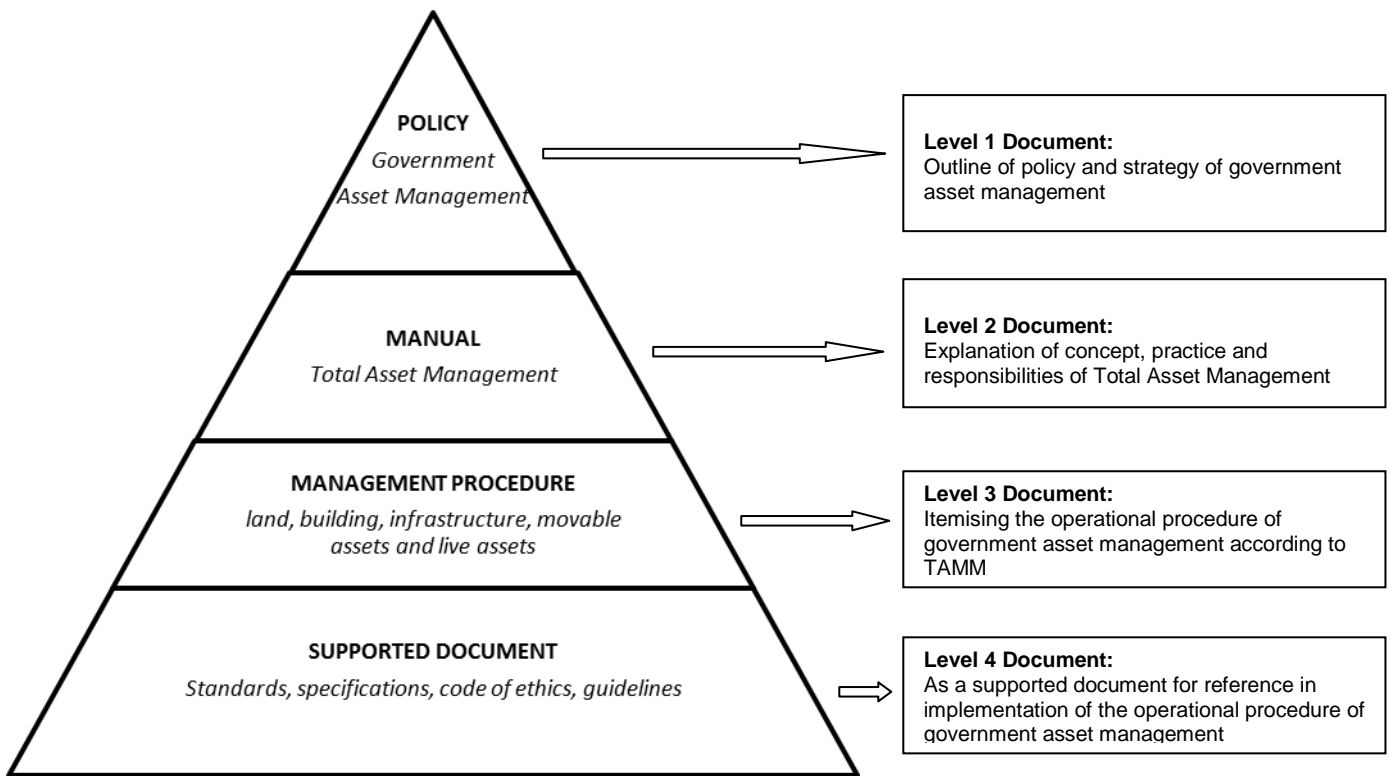


Figure 2.2: Malaysian Government's Asset Management Structural Document

Source: General Circular No 1 Year 2009, Prime Minister Department, Malaysian Government

Currently, the government is starting its implementation of TAMM on the non-movable assets. The Government non-moveable assets are divided into three (3) categories i.e. land assets, building assets and infrastructure assets covering roads, sewerage and drainage. All central government departments are in the process of integrating their assets into single asset management registration system. This asset management registration system is called Non Moveable Asset Management System (MySPATA). This system is developed by Malaysia Administrative Modernisation and Management Planning Unit (MAMPU) and with the Public Work Department (PWD) as the subject matter expert and owner of the system. The purpose of MySPATA is to create a database containing comprehensive and accurate non moveable assets information for systematic, integrated and accessible management and monitoring. This system is still under trial run at the public service organisations and currently all the 24 ministries have responded to this registration system.

The documentation structure for Malaysian government asset management consists of four stages. The Stage 1 document explains the government asset management policy as a whole. It determines the direction, principles and implementation of asset management strategy to be followed by Malaysian government agencies. In Stage 2, the document explains the concepts, practices and responsibilities in government asset management policy through Total Asset Management Manual (TAMM), divided into

five chapters, namely (1) Introduction, (2) Concepts and principles of Total Asset Management (TAM), (3) Total Asset Management general practice and responsibility, (4) Total Asset Management specific practice and responsibility, and (5) Conclusion.

The Stage 3 document is a TAM operation ordinance that follows specific classification/types of asset. It explains the process of asset operation based on the Tamm practices. Lastly, the Stage 4 document is the supporting document that describes the activities/ processes/ work instructions supporting the asset management procedures. Supporting documents are created based on the specific requirements of an asset. These documents include standards, specifications, code of practice, guidelines and current reference documents.

Under the Total Asset Management Manual /Tamm (2009), government assets have been identified as property belonging to or owned or under the control of the government which includes movable assets, immovable assets (land, infrastructure and buildings), live assets, and intellectual property. The Tamm manual covers the whole of the government asset as mentioned above, except for the intellectual property.

In this manual, Malaysian government has committed to provide the citizens with the quality services by providing properly managed properties where by :-

- i) each agency is responsible for the government properties under its controls;
- ii) all government properties shall be dealt properly through asset management in systematic and strategic approaches; and
- iii) each agency must implement the TAM approach in managing the government assets.

The objectives of the Malaysian asset management policy include the creation of assets to meet the needs of government services, asset management being implemented in a systematic, holistic and sustainable way to achieve the optimum benefit of the asset, availability of assets information in a systematic, integrity and accessible structures, and the practice of TAM being implemented and monitored.

The current method of government asset maintenance in Malaysia is based on the reactive maintenance via ad-hoc planning without systematic and regular maintenance approach. Reactive maintenance has many disadvantages such as no asset maintenance management plan, reduces the life expectancy of assets, uneconomical long term cost, slow repairing process and increase the agencies burden. In combating this, the government has taken the initiatives which are not solely responsible for maintenance management but to include TAM as a whole (Abu Mansor, 2011).

Noting the government agencies services becoming more complex every day with most agencies located within the government properties, ancillary facilities such as parking, security, landscaping and other amenities have to be catered to support its service delivery. Therefore, the government is considering the implementation of facilities management which covers the overall operation and maintenance management.

However, the government has planned to go beyond the facilities management, in view of the sustainable development, addressing the level of quality, safety, health, environment to the citizens. With this, the best practice of asset management approach known as TAM is introduced, with TAMM as part of the implementation strategy. The relationship between the maintenance management, facilities management and TAM are shown in figure 2 below:

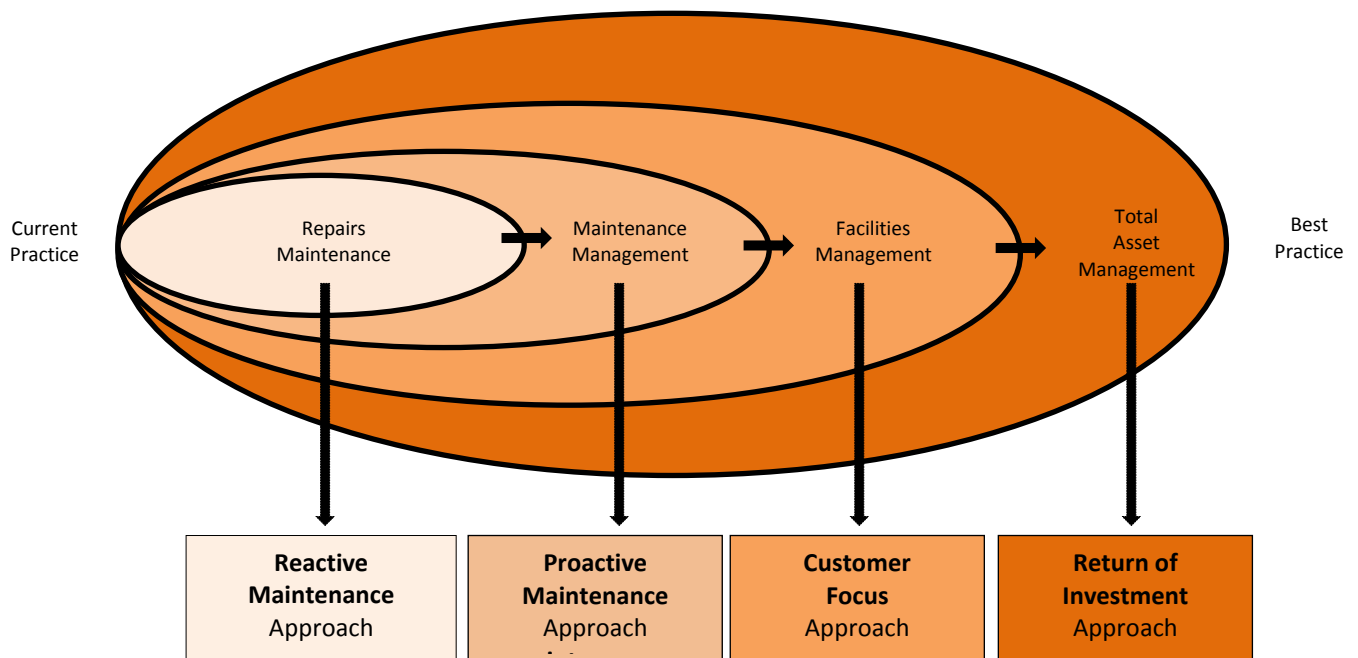


Figure 2.3: Relevance of the Government Asset Management Approach

Source: Total Asset Management Manual (2009)

The TAMM manual has identified the implementation strategy of the TAM which is summarised as follows:

Table 2.2: Malaysian Total Asset Management (TAM) Strategy of Implementation

Area	Strategy	Explanation
Governance	Clarify the responsibility of the Controlling Officer	<ul style="list-style-type: none"> • Comply with the circulars. • Ensure the establishment of asset management structural mechanism such as Asset Management Division and Asset Management Committee at agencies level.
	Implement a management review	<ul style="list-style-type: none"> • To assess the effectiveness and improvement of asset management at least once a year.
System and Process	Asset Identification	<ul style="list-style-type: none"> • Each agency should identify the assets under its responsibilities and control according to the specified asset classification to ensure the asset management is implemented accordingly and effectively.
	Adopting the Total Asset Management (TAM) approach	<ul style="list-style-type: none"> • Each agency must give emphasis to the concepts, principles and practices of TAM based on the entire interest in the performance of the asset life cycle management of the government assets. • Asset management procedures in force covers planning, creation, acceptance, registration, usage, inspection, maintenance, disposals and write-off of assets should be fully met.
	Measure the performance of the asset services	<ul style="list-style-type: none"> • Using measuring indicators such as Agreed Service Levels (ASL) or Key Performance Indicator (KPI)
	Report on the status of the Asset Management	<ul style="list-style-type: none"> • Each agency shall provide a status report on the asset management and is presented at the Government Asset Management Committee at the agency level. • Quarterly report of Government Asset Management Committee at the agency level should be submitted to the Ministry of Finance.
Technology	Develop asset management monitoring system	<ul style="list-style-type: none"> • The government will develop the asset management monitoring system based on the latest information technology for uniformities and to get the best

		<p>returns.</p> <ul style="list-style-type: none"> • This system will be used by each agency in managing and monitoring their assets.
	Promote research and development	<ul style="list-style-type: none"> • Research and development programmes in asset management areas should be implemented using smart partnership between the government, universities and industry. • The government will make the field of asset management as one of the areas of priority.
Human Resource	To provide qualified officers	<ul style="list-style-type: none"> • Adequate numbers of officers for each agency.
	Develop competence in asset management	<ul style="list-style-type: none"> • Each agency must prepare a plan of human resource development to improve the competence of officers involve in TAM.
	Regulate the capacity of service provider in government's asset management	<ul style="list-style-type: none"> • Government should create guidelines for measuring the competence and capacity of the external service providers.
	Foster the culture of proper maintenance	<ul style="list-style-type: none"> • Each agency is responsible for fostering the awareness on asset maintenance and asset appreciation cultures. • For this purpose, agencies need to create awareness programmes and implement it continuously.

Source: TAMM (2009)

2.8.2 TAM Concepts and Principles

The TAMM has outlined the differentiation between types of assets covers by the manual and is structured as follows:

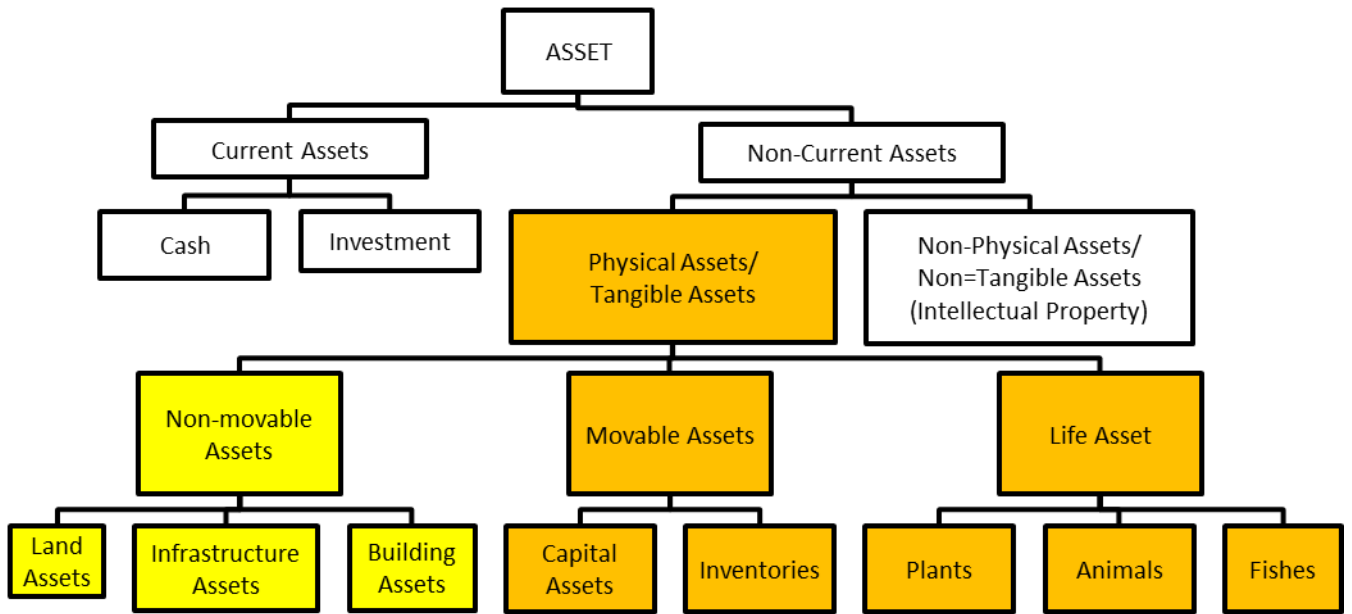


Figure 2.4: Classification and Type of Assets

Source: TAMM (2009)

The function of government assets is to support the delivery system in providing the government services to the public (community needs) (TAMM, 2009). The features of assets shall be grouped together with other resources (such as provision of finance and human resources) and legal environment to ensure effective delivery of the government. The need for an asset shall be in accordance with the demand and service requirements.

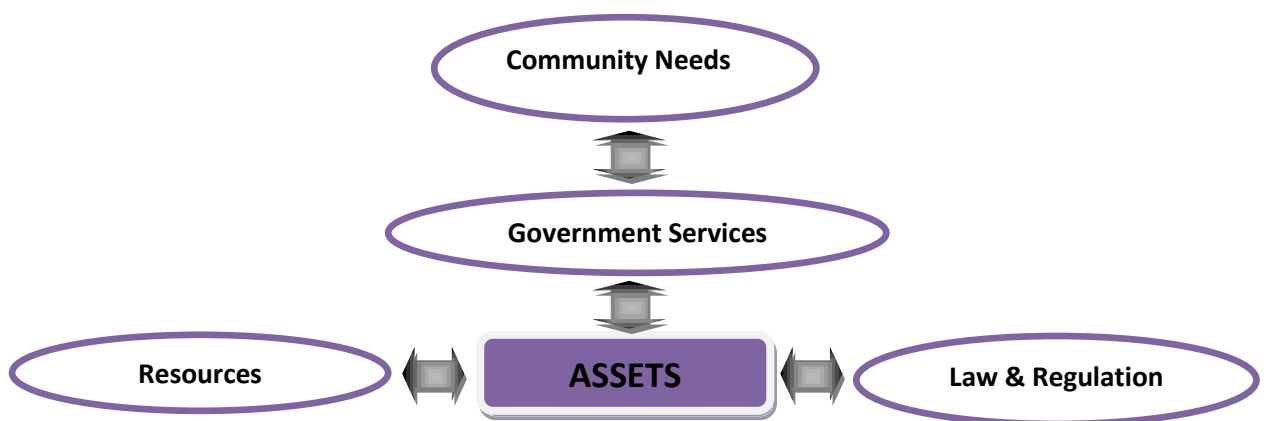


Figure 2.5: Assets and Service Delivery

Source: TAMM (2009)

One important element recognised in the TAMM is the asset life cycle. An asset has a life span; therefore it requires sources for the ownership and control over the term of lifetime. The process of decision making of the ownership of an asset is challenging and has a long term effects. The process should consider all the elements in the asset life span for a better use and effective asset management. In general, there are four major phases covered by an asset in the period of its life:

- a) Phase I: Asset planning. The need for new assets is known, identified, planned and prepared.
- b) Phase II: Asset establishment. The assets are created and owned through the creation of ownership procedures.
- c) Phase III: Asset usage. Assets is used, operated and maintained.
- d) Phase IV: Asset disposition. The asset ceased when the services is no longer required, or lost or not economically used.

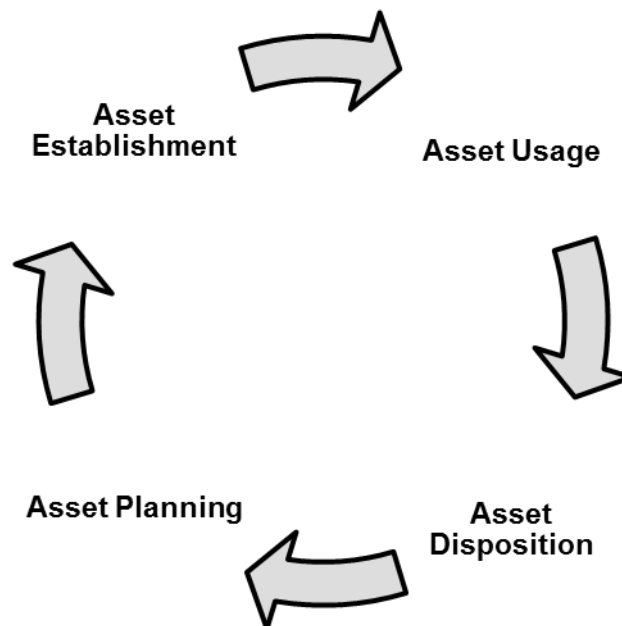


Figure 2.6: Main Phases in Asset Life Cycle

Source: TAMM (2009)

TAMM defines asset management as the combination of various disciplines and processes in maintaining the function of an asset compatible with the effectiveness of performance, cost and risk control in achieving the objectives and ensures the service delivery from an agency is met.

It involves a variety of disciplines, techniques, processes and activities including demand management, risk management, value management, life cycle cost and economic evaluation. It requires a comprehensive approach and strategically taking into account the factors such as asset life span and asset

management principles, the needs of market users, environmental policies and regulations, corporate management and planning framework of the agency, technical capacity, the potential of commercial and environmental implications and competition in the demand for service improvements or cost effectiveness (TAMM, 2009).

Among the characteristics of effective asset management as highlighted in TAMM (2009) are as follows:

- a. Optimizing the potential of the assets in service by ensuring that assets are used and maintained accordingly.
- b. Reduce the demand for new assets and financial savings through demand management techniques and delivery options for non-property services.
- c. Achieve the best economic returns through the evaluation of the life cycle costing.
- d. Minimise the creation of unnecessary assets by informing the agency about the impact of high operating costs of assets.
- e. Focus on the correct decision, explaining responsibility and accountability and provide performance report of the assets.

Main activities in Malaysian TAM are as follows:

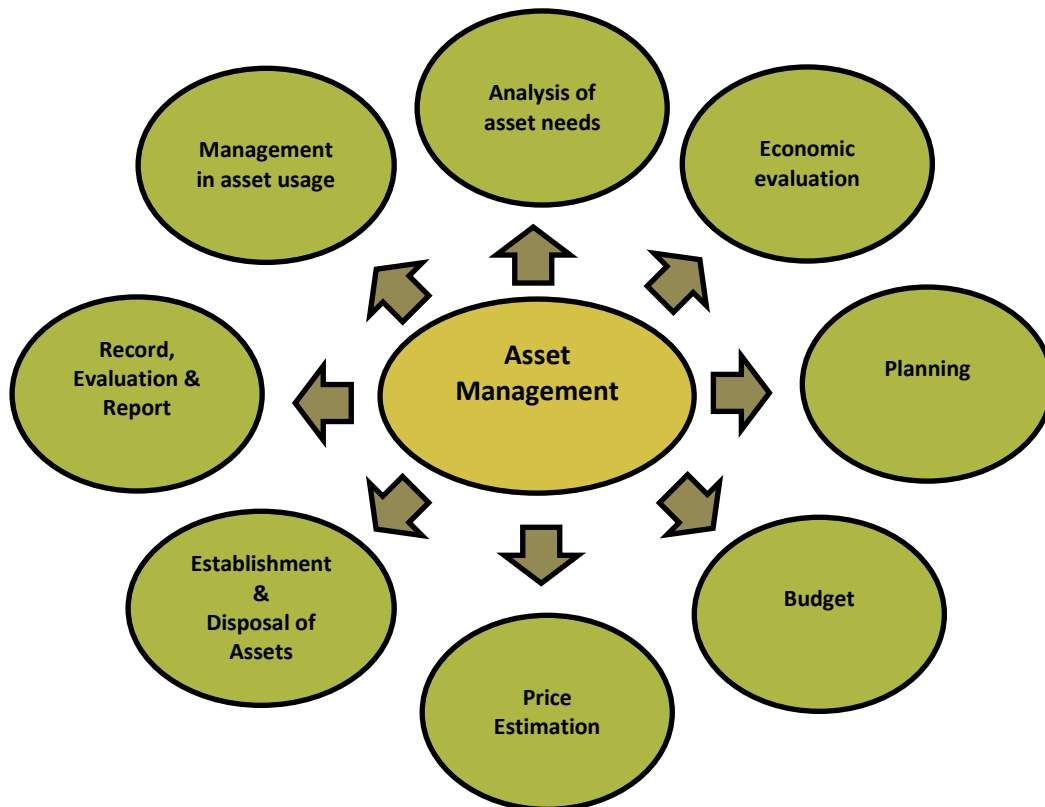


Figure 2.7: The Principle Activities of Asset Management

Source: TAMM (2009)

The general model of TAM is based on the asset management principle that is to manage assets in achieving the agencies objectives. It considers process management and supporting management in the main activities. The process management includes asset planning management, asset establishment management, asset usage management and asset disposition management. The supporting management considers demand management, human resource management, financial management, value and risk management, data management and performance management.

The purpose of process management and supporting management is to achieve the benefit of asset optimisation to enhance the delivery system of the agencies. In summary, the figure 8 explains the TAM model as the whole:

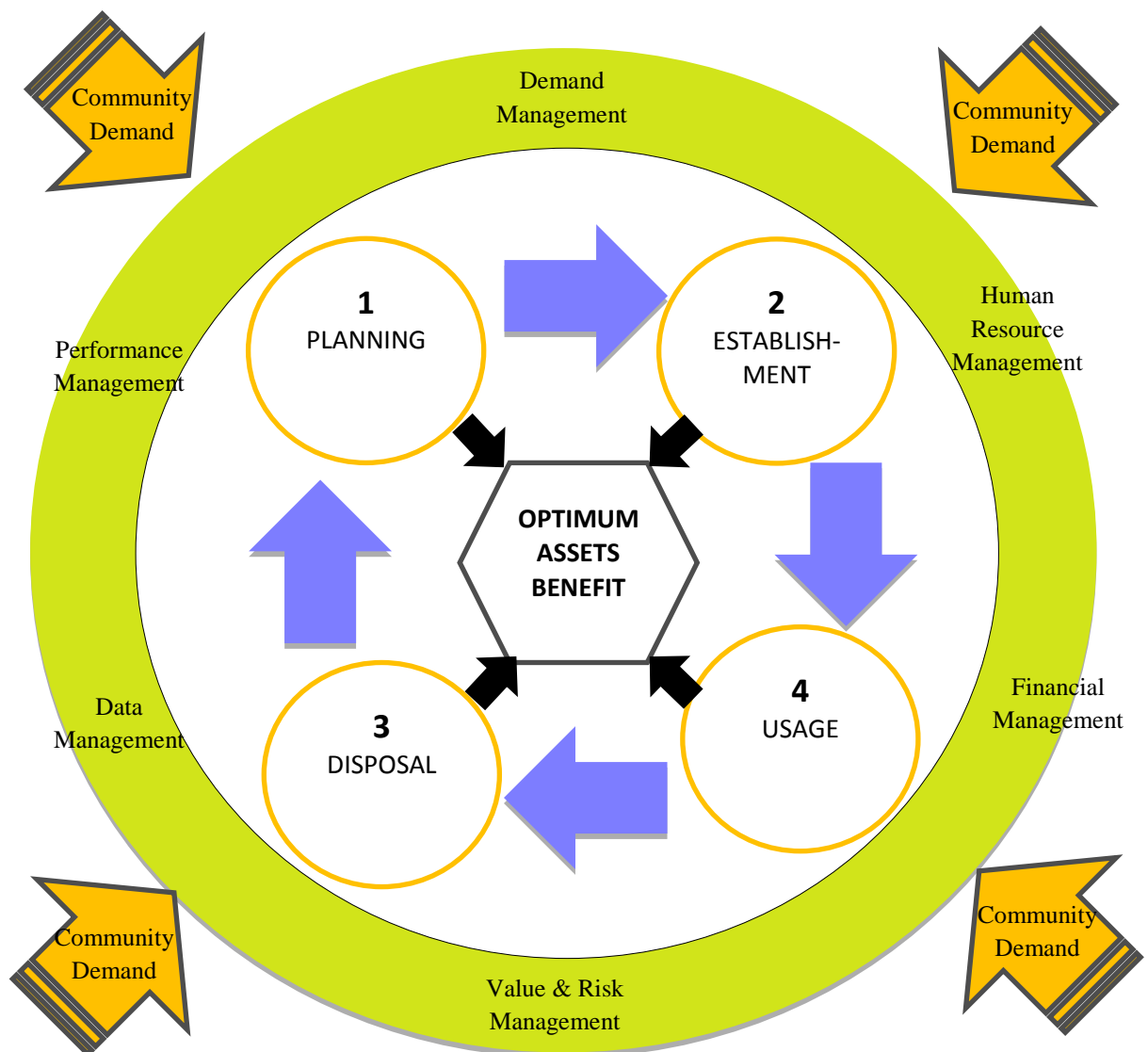


Figure 2.8: Total Asset Management General Model

Source: TAMM (2009)

The Malaysian government asset management policy (TAMM, 2009) has outlined five main principles, namely:

- a. The need for better service delivery is the main focus towards any decision making regarding the assets.
- b. Assets planning and management should be integrated with the agency's business and corporate planning, financial budgeting and reporting process.
- c. Decision on asset management should be based on the alternative evaluation taking into account asset life cycle costing, benefit and risk in owning an asset.
- d. Ownership, controlling, accountability and standards of reporting must be developed, implemented and clearly presented.
- e. Asset management activities should be based on the Malaysian Total Asset Management Policy.

The framework of Malaysian TAM can be described in the following Figure 2.9:

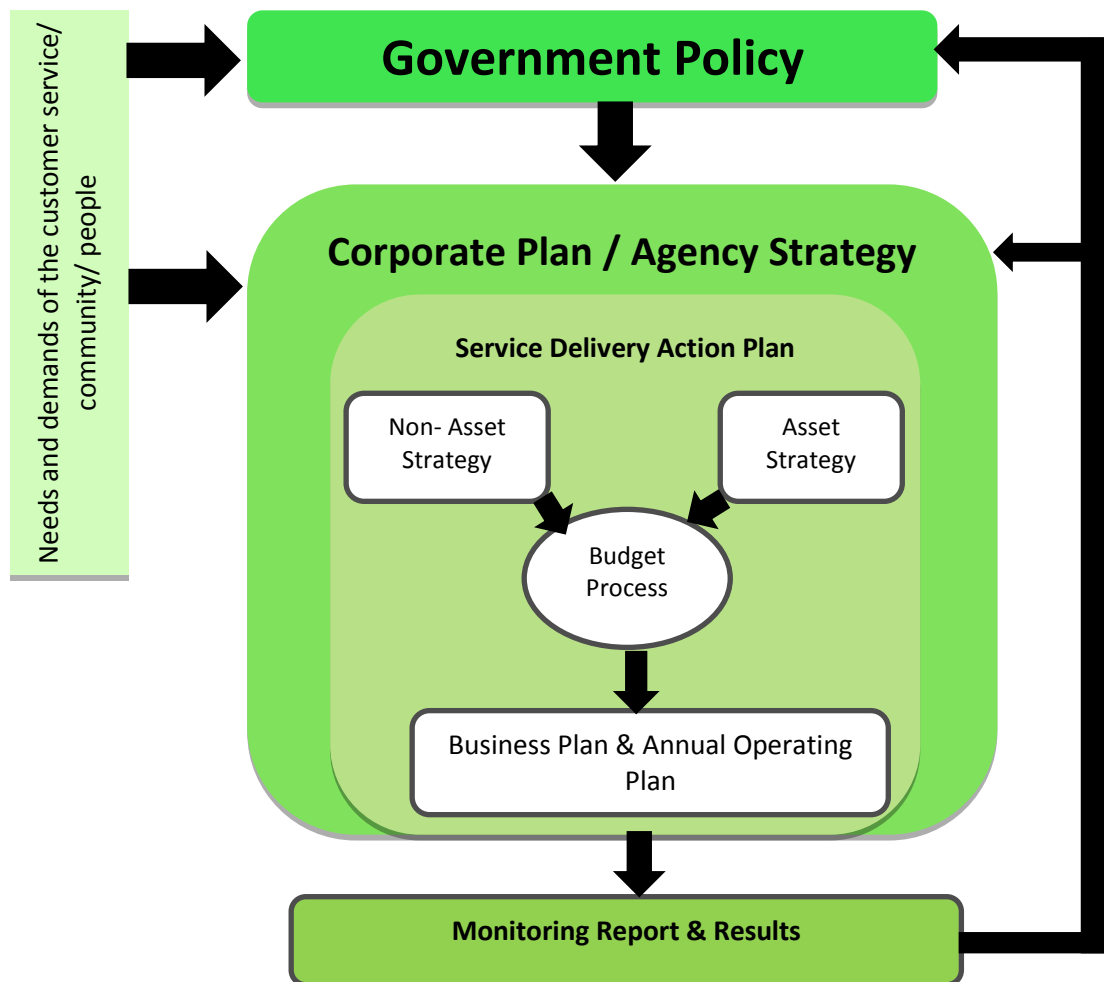


Figure 2.9: Integrated Management Approach

Source: TAMM (2009)

The TAMM (2009) has prescribed the responsibility structure and accountability of the agencies towards their asset management. It recognises that the ownership of the agencies assets and the responsibility of controlling and managing the assets. Each agency shall appoint an asset manager as owner’s representative in implementing TAM. The asset manager will appoint an asset operator to monitor and implementing the operation and maintenance activities using internal or external sources. The implementation of TAM is based on the coordination between asset owner, asset manager and asset operator as shown in figure 10 below:

Note: GAMP – Government Asset Management Policy

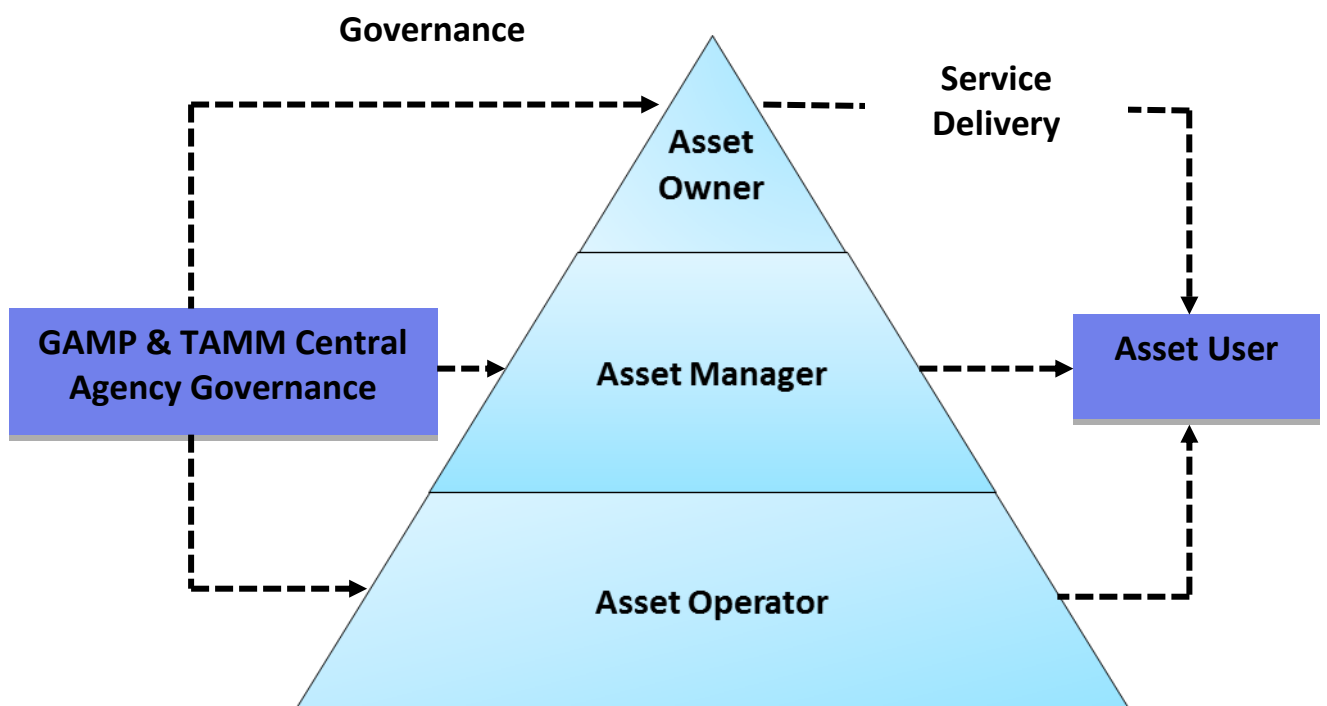


Figure 2.10: Structure of the Government’s Asset Management Responsibilities

Source: TAMM (2009)

The dissemination of TAM responsibilities for Malaysian government agencies are as in Table 7.

Table 2.3: Structure of TAM Responsibilities

Structure	Responsibility
Asset owner	<ul style="list-style-type: none"> • Determine the asset management policy at agency level. • Determine a way forward for strategic asset management. • Planning the needs and establishment of assets. • Responsible towards all asset management activities.
Asset manager	<ul style="list-style-type: none"> • Determine the level of service of an asset. • Prepare the implementation technique of asset management. • Act as owner representative. • Helping in planning and establishment of asset. • Managing asset registration, usage, maintenance and disposition. • Managing the data and reporting of asset. • Regulate asset operator.
Asset operator	<ul style="list-style-type: none"> • Handling the operation and maintenance of asset. • Ensuring the asset service level is achieved. • Evaluate current condition and performance of an asset. • Refurbishment and upgrading of asset. • Preparing and updating asset information.

Source: TAMM (2009)

Above all, the agency's headquarters are responsible in monitoring the asset owner, manager and operator's compliance to TAMM and Malaysian asset management policy. Effective governance structure should be implemented using TAM in arriving at the customer satisfaction, as well as enhancing government delivery services.

2.8.3 Management Procedures of Malaysian Total Asset Management

The management procedures of Malaysian Total Asset Management are the continuation document of the Total Asset Management Manual (TAMM). The purposes of the procedure documents are as follows:

- a. Detailed assets information for the purpose of development planning and controlling of immovable assets.

- b. Effective operation and maintenance management to increase the life span of assets and return on investments to the government.
- c. To prepare a strategic and precise immovable assets financial budget.
- d. Measure the performance to optimise the assets value and increase the government delivery services to the public systematically.

The procedure explains in details the immovable assets (lands and buildings assets) management procedures at the usage and disposition level. It consists of five chapters, namely:

- i. Chapter A: Assets receiving and registration.
- ii. Chapter B: Assets operation and maintenance.
- iii. Chapter C: Asset condition/performance evaluation.
- iv. Chapter D: Assets refurbishment/ renovation / upgrading.
- v. Chapter E: Assets Disposition.

2.8.4 The Development of Malaysian Government Immovable Asset Management System (mySPATA)

The Government Asset Management Committee (JPAK) meeting dated 19 February 2009 decided that the Malaysia Administrative Modernisation and Management Planning Unit (MAMPU) develops a system for all government immovable assets and be adopted by all ministries. The project was known as the development of Immovable Asset Management System (SPATA Project). The immovable assets were divided into three categories, namely Land Assets, Building Assets and Infrastructure Assets (road, sewerage and drainage).

MAMPU Project Team is responsible for the development of the system application (known as mySPATA), while the Department of Public Works (PWD) acts as the owner and subject matter expert. The PWD is responsible for the implementation, expansion and maintenance of mySPATA application. In addition, the Department of Irrigation and Drainage (DID) and the Department of Sewerage (SRC) also act as a subject matter experts for drainage and sewerage assets.

The SPATA Project objectives are to develop mySPATA system application and to create a complete and accurate database with information on the immovable assets for management and monitoring purposes in a systematic way and with integrity. MySPATA application development is based on the official asset management documents issued by the PWD known as Total Asset Management Manual (TAMM), procedures and guidelines, such as Guidelines on Standard User Identification and Encoding of the Government Immovable Assets (PIPATA).

MySPATA is a web-technology based application and is developed based on the workflow using open source technologies and the application of email. Asset code structure in mySPATA application is unique and consists of two components, namely Asset Premise Registration (DPA) and Specific Asset Registration (DAK).

The project was initiated on 1 April, 2009 for a period of one year and nine months, until the end of 2010. As at July 2012, the registration module has been completed on 31 January, 2010. MySPATA Registration Module applications by all ministries started in 24 February, 2010. It is still an on-going process and the next module is the Operation and Maintenance of Immovable Assets module and is implemented in February 2011.

In term of financial aspects, a sum of RM262,800 was spent for the execution of mySPATA registration module. This cost includes the procurement cost of ICT hardware and software, such as servers, software application development, notebooks and printers. The SPATA Project is expected to provide a huge benefit in the management of immovable assets through a more systematic, holistic and sustainable considerations to achieve optimal use of assets.

This research will study the performance of mySPATA in regards to the implementation of TAMM by measuring the level of awareness and understanding among the managers and operators of TAMM.

2.9 Summary of Literature Review

Internationally, a good practice of asset management in the public sector leads to a better transparency and cost effective government in respect to all real property ownership and leased space requirements.

It is well accepted that the public sector asset management includes managing the public property assets strategically and holistically in order to optimise the property assets benefits for the public.

Many advanced countries review their asset management system and revamp, if necessary. Various earlier studies by either formal institutions or scholars indicate the needs for effective asset management not only for private practices but also to the public governments.

Although the Malaysian Government has produced a blue print for public sector asset management, namely Total Asset Management Manual (TAMM), however, this document is at its early stage of implementation. The question of awareness and understanding of TAMM among the civil servants in Malaysia is vital to be answered.

This study is essential in exploring the suitability, implementation and awareness of the TMM blue print and its successful implementation and future operation.

CHAPTER 3: DESIGN OF THE PROPOSED RESEARCH

3.0 Introduction

The researcher has decided on the explanatory approach in finding solutions to the research problem or research questions addressed. A study should have a detailed research design which can be used as a framework in data collections and observations (Fellows and Liu, 2008). Yin (2003a) stated that, to gain adequate evidence for both qualitative and quantitative research, explanatory theories would facilitate theory testing with a rich and extensive data collection effort.

Research design provides the logical link between each topic in a research. Trochim (2008) outlined that 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 section describes the methodologies applied for research design/ framework, research data collection, research data analysis and the summation of the research design to achieve research objectives:

- a. To examine the international practices of public sector asset management
- b. To examine the Malaysian public sector asset management namely the Total Asset Management Manual (TAMM)
- c. To assess the awareness and understanding of Total Asset Management Manual (TAMM)

3.1 Research Framework and Plan

Research design provides a framework for undertaking the research (Bryman and Bell, 2003). In order to answer the research question, the research must address suitable methodologies for data collection and data analysis. Fundamental elements of research strategies do consider the conceptual nature of the research and contribution of the research. In other words, the research plan is a plan on how to answer the research questions (Saunders et al., 2009) and the descriptions on how to arrive at the most feasible and suitable methods.

The methodology used in the commencement of this study is exploratory based on the idea to explore the current international practices of public sector asset management and to compare with the current application of Malaysian public sector asset management. The exploration through the literature review determined the key elements in developing the questionnaire to assess the awareness and understanding of public sector asset management practices in Malaysia.

The main purpose of the questionnaire was to identify the level of awareness and understanding of the key players on TAMM. The key players were the managers and operators involved in applying TAMM.

Each stage of the research links to the research questions as follows:

Stage 1 – Primary Literature Review and Desktop Study

Links to Research Question 1:

What are the elements that contribute to the best practice of public sector asset management?

Investigation question:

- What are the best practices of asset management internationally?
- What is the centralisation and decentralisation basis of asset management?
- How applicable is international best practice to the Malaysian Public Property Sector?

(Responding to the Research Objective 1)

The purpose of primary literature review and desktop study was to investigate the key issues, and identified the current definition and practices of public sector asset management including corporate real estate asset management, emergence of public sector asset management, and best practice of asset management internationally. This section in the literature reviewed the current implementation and determined the elements to be compared with Malaysian public sector asset management discussed in Research Question 2.

Stage 2 – Ongoing Literature Review

Links to Research Question 2:

What is the Malaysian public sector asset management namely the Total Asset Management Manual (TAMM)?

Investigation question:

- What is TAMM?
- What are the policy and procedures of the implementation?
- Who is the target of TAMM?

(Responding to the Research Objective 2)

The ongoing literature review covered the opportunity to describe and evaluate the TAMM concept, and linked the argument to the previous literature review done in Stage 1 of this research. The detail concept of TAMM was discussed, as well as the current progress of TAMM implementation in Malaysia. This section determined the elements for the questionnaire survey framework.

Stage 3 – Data Analysis & Interrogation

Links to Research Question 3:

What is the level of awareness and understanding among the various federal departments on TAMM?

Investigation question:

- What is the current stage of implementation?
- What is the level of awareness and understanding among the various federal departments on TAMM?

(Responding to the Research Objective 3)

This stage involved a pilot study based on the elements identified in the Stage 1 and 2. The element adopted from the previous stages was developed into a research questionnaire and distributed among the preliminary samples from various federal government organisations in Malaysia. The response from the initial questionnaire survey has strengthened the main questionnaire survey that has followed suit.

The concept of the pilot survey and the main survey was based on the benchmarking concept developed by University of Leeds (2006) in measuring the level of awareness, unawareness, knowledge, competence and excellence in UK’s public sector asset management. This research has adopted the same strategies with some modification on the terms used as follows:

<u>University of Leeds Measurement Term</u>	<u>Proposed Malaysian TAMM Measurement Term</u>
Awareness, unawareness and knowledge	Awareness and Understanding
Competence	Acceptance
Excellence	Compliance

Area of measurements in the University of Leeds (2006) study includes strategic asset management (PAM) policy, roles & responsibilities, communication, PAM planning, acquisition & disposal, operation and maintenance, performance review & accounting, and audit & review. However, this research was limited to adopting only the awareness, unawareness and knowledge to set the similar standards of measurement as the UK’s study.

Stage 4 – Final Report

[Links to all research questions.](#)

This stage demonstrated the findings and explanation in every stage stated above. This report highlighted ways to improve the implementation of Malaysian TAMM, as well as providing a structure of public sector asset management in Malaysia compared to the international practices. Therefore, the aims and objective for this research were fulfilled through 1) the determination of international practices of public sector asset management, 2) the explanation and elaboration of Malaysian TAMM policy and practices, 3) findings of the level of awareness and understanding of Malaysia TAMM.

In addition, the flow chart of the research is as follow:

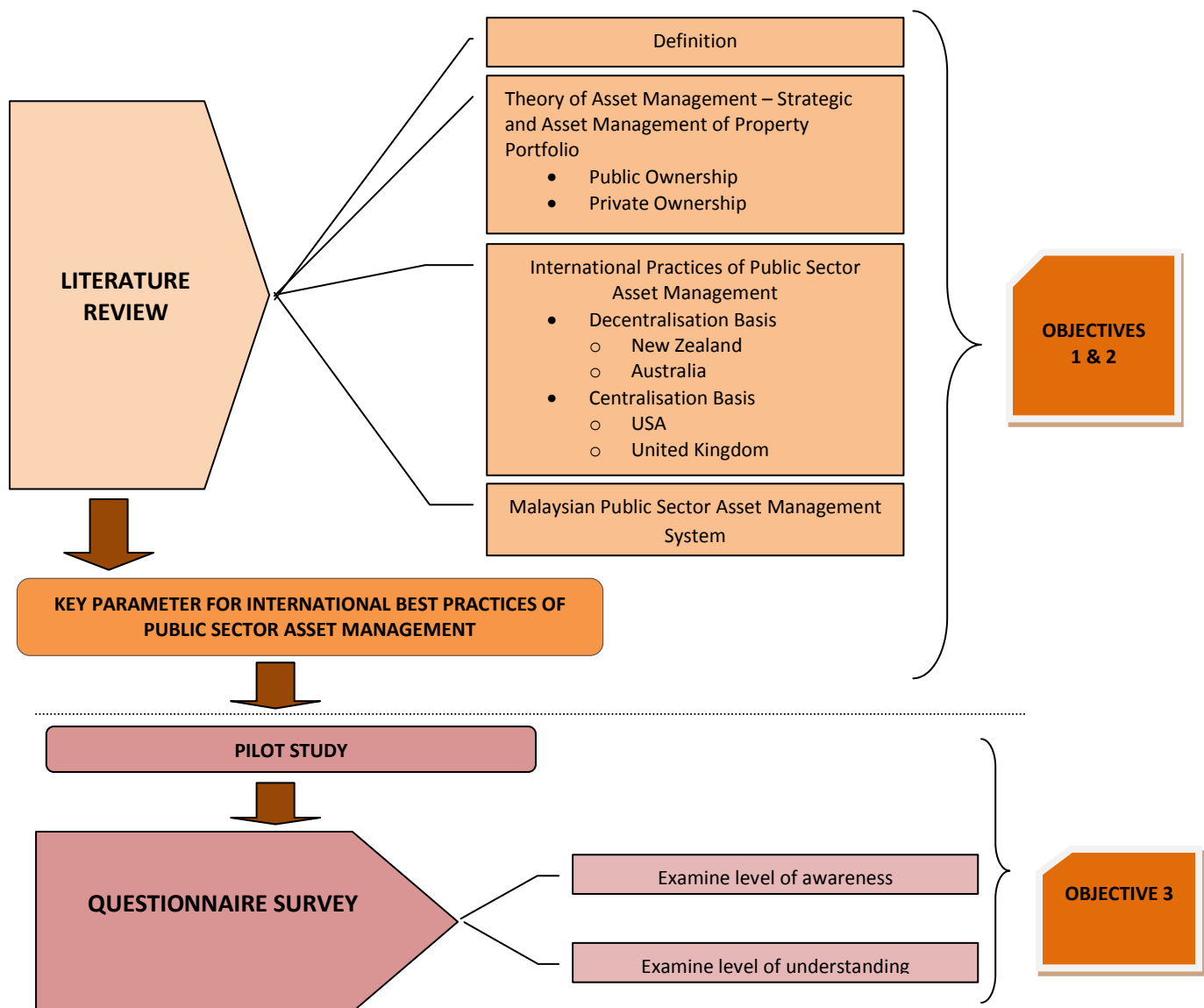


Figure 3.1: Flow chart of the research

3.1.1 Research Design

This exploratory research employed a mixed approach, both qualitative and quantitative approach to answer the research questions. The approaches chosen have answered all the research questions and executed according to the given time frame. The methods applied in this research are as follows:

i. Literature Review

The main element in social science research is a literature review. It is a continuous process, not just when determining the research gap, but has started earlier and continuously towards the research conclusion. McCurray (2004) illustrates that literature review is a process whereby the researcher familiarise themselves with the body of knowledge of the subject matter, meanwhile at the same time try to determine and prove the gap within the area of study. This statement was earlier emphasised by Cavana (2001) which claims that literature review is important in determining variables for the study. The value of the current literature reviews is important to ensure that this research explore a new area or add-in new extensions to the existing body of knowledge. In the research, apart from enriching Malaysia as a case study, it explores the international practices of public sector management.

From the previous chapter, the first two stages of this research were mainly involved with extensive literature reviews. The purpose of the literature review conducted was to determine the key elements/parameters to be used in developing the main tools for the data collection, namely questionnaire survey. It also identified the international practices of public sector asset management being applied as the element to be compared with the Malaysian TAMM.

The literature review provided a framework and was analysed qualitatively via content analysis. The literature review covered:

- Definition of asset.
- Definition of asset management.
- Corporate real estate asset management.
- Public sector asset management.
- Emergence of public sector asset management.
- Best practice of asset management.
- Malaysian public sector asset management.
- Malaysian Total Asset Management Manual (TAMM)

An intensive reviewed through various sources which includes books, journals, conference proceeding papers, theses, government regulations, newspaper articles and magazine articles has been conducted to achieve Milestone Stages 1 and 2 of this research covering and discussing on the international practices

of public sector asset management and Malaysian public sector asset management namely Total Asset Management Manual (TAMM). The literature demonstrated the key element that was used for the next stage, namely stage 3.

ii. Questionnaire Survey

The survey is the main tool used to collect the data relating to the measurement of the TAMM implementation in Malaysia. The questionnaire was used to determine the level of awareness, understanding, acceptance and compliance of the TAMM to the users in Malaysian federal government agencies. The questionnaire development was based on the elements identified in the literature reviews, as well as adopting the methods of measurement of UK's public sector asset management study by University of Leeds (2006).

In providing a precise survey format that is usable and illustrate the expected data needed, a pilot study was conducted. According to Rea and Parker (2005), this early stage is essential to consider relevant issues possibly related to the research. It should be noted that all questionnaires should be piloted to the selected numbers of respondents (Fellows and Liu, 2008). In this research, the pilot study was conducted on 5 respondents from different federal government agencies who were the managers and operators of the TAMM. The managers and the operators were chosen due to their responsibilities in applying TAMM and their knowledge capacity on TAMM. This figure was sufficient to validate the question suitability and respondents understanding of the measurement applied in the research.

The questionnaire is the correct tool for this study to cater for the large data and the different level of TAMM user in Malaysia. This is in line with statement by Naoum (2008) which agrees that questionnaire survey is the best tool in collecting large numbers of respondents' views and experiences for common phenomenon. Based on this, the researcher has adopted this method.

The findings from the pilot study were used to enhance the main survey before it was distributed to the main survey respondents. The survey questionnaire has assisted in achieving the third research objective.

3.1.2 Research Data

The research has applied two methods, namely qualitative and quantitative method. Therefore, the descriptions of the data that were used are as follows:

i. Literature review

This qualitative approach was based on the various sources available to identify and consider elements in public sector asset management. Most of the data for this method was from books, journals, conference

proceedings and newspaper articles. This type of secondary data was to cover the definitions of asset, the definitions of asset management, corporate real estate asset management, public sector asset management, emergence of public sector asset management, best practice of asset management, Malaysian public sector asset management and Malaysian Total Asset Management Manual (TAMM).

ii. The questionnaire survey

The pilot study has used 5 respondents for the validity of the research questions. However, the distribution of respondents was the three people in charge of TAMM programme in selective ministries and the two people applying TAMM programme in the different ministries. These 5 respondents were chosen for the pilot study because they represented the two groups that were directly involved with the TAMM implementation, either as TAMM manager or operator. The reason was to ensure that various opinions were gathered, as well as testing the relevancy of the questions asked. The respondents involved in the pilot study were as follows:

Table 3.1: Type of Respondent for Pilot Study

No.	Ministry or Department	Level	Reason For Chosen
1	Property Management Unit, Prime Minister Department	Manager of TAMM	<ul style="list-style-type: none"> This unit has experienced in managing Malaysian Government asset since independent. They managed assets mostly owned by Public Services Department.
2	Public Work Department, Ministry of Work	Manager of TAMM	<ul style="list-style-type: none"> This department acted as owner and subject matter expert of the Malaysian Total Asset Management Manual (TAMM). Their opinions are crucial for the development of the questionnaire since they have contributed in developing TAMM.
3	Valuation and Property Services Department (JPPH)	Manager of TAMM	<ul style="list-style-type: none"> This department has vast experience in dealing with property matters in Malaysia. They have experienced in managing their own assets such as buildings and training institution.

4	Property Management Unit, Prime Minister Department	Operator of TAMM	<ul style="list-style-type: none"> • This unit has experienced in managing Malaysian Government asset since independence. • They managed assets mostly owned by Public Services Department. • The operator is involved in daily operation of the asset in terms of general asset management, maintenance and expenditure.
5	Public Work Department, Ministry of Work	Operator of TAMM	<ul style="list-style-type: none"> • This department acted as owner and subject matter expert of the Malaysian Total Asset Management Manual (TAMM). • Their opinion is crucial for the development of the questionnaire since they have contributed in developing TAMM and the department have conducted trial run before TAMM was launched to other ministries and department.

Source: Author

The pilot study was conducted in November 2011 through the email contacts with the respondents. The comments and suggestions from the pilot study were added to the questionnaire to improve its understanding, reliability and validity of the questions being asked to the respondents on the main survey.

The main survey was conducted for a 3 months period starting 1 December 2012 to 28 February 2012. The questions and the reason of the questions for the main survey are as follows:

Table 3.2: Survey Questions and their reasons

Part A: Respondent Background		
No.	Content	Reason
1	Type of respondent	To differentiate type of respondent either asset manager or asset operator.
2	Name of organisation	This question was to identify the department or ministry involved as respondent to this research.
3	Name and location of building	This question was important to determine the location of the

		respondent asset.
4	Education background	The reason for this question was to study the level of education among the respondents. Furthermore, this is to determine whether the respondent is from property management education background or other profession.
5	Qualification area	The question was to gather information on the respondent qualification either from property or asset management background or other areas. This question act as conformity to the previous question.
6	Experience managing or operating asset	To study the respondent opinion on the years of experience dealing with asset management.
7	Appointment	This question was to differentiate the respondent with official appointment as asset manager/operator and informal appointment such as verbal instruction from their superior. This relates to the accountability of the respondent towards their jobs.
8	Prior experience managing asset	Act as conformity to question 6 above.
9	Formal property asset management structure as outlined by TAMM	This question was to study the respondent opinion regarding the development structure of asset management in their organisations. The answers were divided into initial development, nearing completion, established and additional improvement required.
10	Type of asset being managed/operated currently	This question was to diversify respondent into different type of asset managed such as commercial – shopping complex, commercial – office building, commercial shop or others (training institute, stadium).

Part B: The Effectiveness of Total Asset Management Manual (TAMM) in Malaysia

Part B1: Level of Awareness

1	Knowledge on TAMM launched in 2009 to manage immovable assets	This question was to study of respondents' awareness on the launching of TAMM in 2009. The answer were either yes, no or not sure.
2	If the answer from question 1 is yes, the question involved: a. The respondent was well equipped with TAMM information	To study the level of awareness on TAMM information.

	<p>b. TAMM should have procedures that should be understood by managers/operators</p> <p>c. TAMM helps in respondent daily work.</p> <p>d. Availability of TAMM in respondent office</p> <p>e. Respondent understanding of TAMM documents such as policy, procedures and supporting documents</p> <p>f. Understanding of MySpata Application</p> <p>g. Level of MySpata management</p> <p>h. Awareness of respondent on TAMM main objective</p> <p>i. TAMM provide overall guidelines on how to manage immovable government's assets</p> <p>j. Respondent awareness of their function and purposes as TAMM user</p>	<p>To determine the respondent's level of TAMM awareness.</p> <p>To get information whether TAMM have assisted the respondents in their daily work.</p> <p>To identify information from respondent whether TAMM has been made available to each staff in respondent office.</p> <p>This question is to identify awareness on TAMM documentations.</p> <p>This was to study the level of awareness and minimum understanding of MySpata application, a computer software as part of TAMM asset management procedures.</p> <p>This question was to gather information on the level of MySpata responsibility among the respondent.</p> <p>The respondent was tested on his level of awareness on the TAMM main objective that was to provide quality delivery services.</p> <p>The level of awareness of TAMM overall function was tested on the respondent.</p> <p>This question was to study the respondent's level of awareness on their function and purposes as TAMM user.</p>
3	<p>If the answer from question 1 is no or not sure, the question involved:</p> <p>a. The respondent was not informed on TAMM</p> <p>b. The TAMM training was not provided to the respondent</p> <p>c. The respondent was only following superior orders</p>	<p>This was to capture the respondent opinion on their awareness of TAMM information whether they have been informed or not.</p> <p>This answer was to determine the respondent reason for not being aware of TAMM application.</p> <p>This was another reason to be questioned since there were possibilities that the respondent was only following superior order and did not bother about TAMM.</p>

	d. The respondent was not exposed with the function and responsibility as TAMM's user e. The respondent was not instructed to use TAMM as working guidelines.	To determine whether this reason has limited the respondent awareness on the TAMM application. This reason was to determine the respondent awareness on the TAMM implementation, and direct the reason for not being aware of TAMM to their superiors.
Part B2: Level of Understanding		
1a	Respondent understanding of TAMM documents	To study the level of understanding on TAMM document among respondents.
b	Respondent understanding their function and responsibilities according to TAMM	To determine the respondent opinion on their understanding of the function and responsibilities according to TAMM.
c	Respondent realised that TAMM implementation is similar to their previous work specification	This question was to determine the similarities between TAMM and the previous asset management plan in respondent organisation.
d	Respondent workload increased after implementing TAMM	The TAMM understanding and effectiveness was tested to foresee whether TAMM has increased the current respondent workload.
e	TAMM understanding make the task of asset management more systematic and orderly	To identify whether TAMM application make the respondent work more systematic and orderly.
f	The function of asset management was fully understood by the respondent	The reason for this question was to capture the respondent understanding on asset management without referring on TAMM
g	TAMM training is sufficient for respondent current work in asset management	To study whether TAMM training has increased respondent understanding of asset management,
h	TAMM will assist to facilitate respondent work in the long term	To study the effectiveness of TAMM knowledge on the respondent.
i	Respondent understanding TAMM process of asset management such as planning, acquiring, utilisation and disposal of asset.	To determine the level of understanding of TAMM process among the respondent.
j	Respondent understand that they have to perform all procedures with trust	This question was to determine respondent knowledge and willingness to apply TAMM with trust and sincerity.

Part B3: Level of Acceptance		
1a	Acceptance of TAMM implementation for Malaysian government's asset	The respondents were questioned to study their level of acceptance on TAMM implementation.
b	Statement that TAMM is the best system for asset management of government assets in Malaysia	This question was to determine whether the respondent has agreed that TAMM was the best solution for asset management of government property in Malaysia.
c	Statement that TAMM has complete procedures and guidelines in managing assets.	The reason for this question was to confirm the acceptance level of the respondent on TAMM effectiveness.
d	Statement that TAMM will provide greater assistance in planning, acquisition, utilisation and disposal of assets.	The question was asked to gather the respondent acceptance of TAMM implementation using elements within TAMM procedures.
e	TAMM facilitates the maintenance and management of immovable assets in my department	The TAMM functions in facilitating the maintenance and management of asset was tested based on their responds.
f	Familiarity with TAMM implementation on the respondent peers.	The acceptance of respondent colleague was determined using this question.
g	TAMM was similar to previous asset management implementation except that Public Work Department was appointed as owner and subject matter expert	The level of acceptance from the respondent was important to determine their perception on the Public Work Department role and the improvements in TAMM.
h	The implementation of TAMM and MySpata is slow and unsatisfactory	The acceptance of the respondent was determined when asked on this question. If they were against the question, it remarked that they accepted TAMM implementation.
i	MySpata helps me in managing the department's asset listing	This question acted as conformity to make sure that respondent answered in line with the previous question.
j	Statement that TAMM managed to facilitate the coordination of asset management collectively.	The reason was to identify respondent opinion on the effectiveness of TAMM on users' perception, which led to TAMM acceptance.
k	TAMM was used effectively by the respondent	This was to confirm the acceptance of TAMM in the previous question.

l	I changed to TAMM in a short period of time	The answer could easily determine the perception of respondent on the TAMM application. The more easily they change, the more acceptance of TAMM would be seen.
m	Open and transparency at department level on TAMM implementation	The acceptance of TAMM was tested on respondent at organisational level.
n	TAMM manual tasks are in accordance with my workload and annual target workload	This question was to study the similarity between TAMM and the respondent monthly and annual workloads. Positive answer would lead to the acceptance of TAMM.
o	The implementation of TAMM is straightforward and within a reasonable time frame	Even though TAMM was presumed to be accepted by most respondents, the degree of acceptance was being tested using this question.
p	TAMM manages in achieving its objective through reduction in management cost, time saving and provide quality services	TAMM objectives represent positive attitude towards the asset management policy. Therefore, the purpose to post this question was to achieve respondent opinion on the current achievement of TAMM.
q	TAMM users received positive responds from the client	This question would determine the acceptance and positive response towards TAMM.
r	TAMM documents are complete and comprehensive	This straightforward question would determine the perception of TAMM documents among respondents.
s	Human capital has been trained to implement TAMM	The question was to determine the level of readiness towards TAMM acceptance among respondent.
t	Should there be any improvement on TAMM implementation	To gather respondent opinion on any improvement on TAMM implementation.

Source: Author

Some improvements and additions on the main survey based on the comments and suggestions from the pilot study were as follows:

- a) The question 5 on Part A regarding qualification area was based from the comments from the respondent during pilot study. To emphasis for the need of proper area of expertise to manage and facilitate the asset, the qualification area was important to determine the right profession is appointed, supposedly property management. If they came from other qualifications, the respondent should have at least been trained in dealing with asset management.
- b) Question 6 on Part B regarding experience in managing asset. This question was significantly introduced to determine that the year of experience in managing asset would reflect the respondent

acceptance of TAMM even though they may not be from the property management discipline. This question also acted as conformity for the previous question.

- c) Question 1g on Part B3: Level of Acceptance was based from the opinion of one of the respondents from the pilot study. The addition to add Public Work Department (PWD) acted as subject matter expert was to see whether PWD was really accepted by many departments as they have no capability in managing and facilitate government's asset. Their scope of work was mainly handling the maintenance of assets. The question was relevant to study the respondent opinion on Public Work Department purposes.
- d) Question 1n on Part B3: Level of Acceptance regarding TAMM manual task was in accordance to the respondent monthly and annual workload. This suggestion was made to foresee how many respondents have TAMM being stated as part of their workload or the asset management job was based on their superior's instruction.

The primary survey data was gathered from the Malaysian federal government agencies under the 24 ministries and the Prime Minister Department. The lists of ministries were as follows:

- Ministry of Finance
- Ministry of Education
- Ministry of Transport
- Ministry of Plantation Industries and Commodities
- Ministry of Home Affairs
- Ministry of Information, Communication and Culture
- Ministry of Energy, Green Technology and Water
- Ministry of Rural and Regional Development
- Ministry of Higher Education
- Ministry of Internal Trade and Industry
- Ministry of Science, Technology and Innovation
- Ministry of Natural Resources and Environment
- Ministry of Tourism
- Ministry of Agriculture and Agro-Based Industry
- Ministry of Defence
- Ministry of Works
- Ministry of Health
- Ministry of Youth and Sports
- Ministry of Natural Resources

- Ministry of Domestic Trade, Cooperative and Consumerism
- Ministry of Housing and Local Government
- Ministry of Women, Family and Community Development
- Ministry of Foreign Affairs
- Ministry of Federal Territories and Wellbeing

The respondents for the main survey were the person working or appointed to implement the TAMM in the respective agency. Simple random sampling was used to determine the size of the survey sample. According to the Public Work Department, Ministry of Works, the numbers of ministries involved in the TAMM implementation was 24 ministries and the Prime Minister Department. For the purpose of this research, the sample size with a 95% confidence level and $P = 0.05$ was determined by formula suggested by Yamene (1967):

$$n = \frac{N}{1+N(\epsilon)^2} = \frac{25}{1+25(0.05)^2} = 23.5 = 24 \text{ group.}$$

Two members from each ministry were selected randomly and the total would be at least 48 respondents for the questionnaire survey.

3.2 Data Analysis

According to Fellow and Liu (2008), it is important to analyse the raw data first in order to look for a pattern. The aim of data analysis is to extract useful information and develop a conclusion. Therefore, the data will be analysed after it has been collected.

In analysing the data, a combination of qualitative and quantitative methods was used. Both methods were applied either in parallel or sequential. However, both procedures were not combined in regards that qualitative data and quantitative data were analysed qualitatively and quantitatively respectively (Saunders et al, 2009). Multiple methodologies were essential to provide a best answer to the research questions and to have a better evaluation of dependable findings and implication made from them.

This research has employed qualitative method in analysing the data from the documental reviews. It has acknowledged that the best method to analyse qualitative data was by using content analysis (Patton, 2002). Content analysis were conducted using various sources such as open ended answers from the questionnaire, and references such as books, journal papers, conference papers and others.

The main idea behind the content analysis method is by creating common categories in analysing the numerous numbers of data (Tesch, 1990). The nature of language, the different understanding of meaning or action, determining the consistency and reflections are several criteria in creating common categories for data analysed using content analysis. In the end, the main purpose of content analysis is to achieve the research objectives and to create or support the theory or idea based on the data analysis (Blaikie, 2000).

According to Saunders et al (2009), qualitative data refers to all non-numeric data or unquantified data which could be a product of all research strategies. This method produces a combination of non-standardised data that requires classification and analysis through the use of conceptualisation. Microsoft Excel for Ms Windows was used to analyse qualitative data since it was suitable for qualitative research analysis.

Descriptive analysis was adopted in analysing the Quantitative data. Analyses of the descriptive data were carried out by establishing frequency distribution to know the achieved score of each variable. The characteristic of the examined variables was determined through the achieved score by using Likert's scale categorisation such as 1) strongly disagree, 2) disagree, 3) neutral 4) agree, and 5) strongly agree.

3.3 Summary of Research Design

In summation, the methodology for this project combines:

- A review of the literature on the international practices of public sector asset management;
- Analysis of the current Malaysian federal government implementation of asset management via secondary data provided by the Public Work Department, Malaysia;
- Assessment on the feedback from the questionnaires survey from various government departments in Malaysia.

Table 3.3 sets of the main research methods, data sources and analytic techniques to address each of the four research questions.

Table 3.3: Research Questions, Methods, Data Sources and Analysis

Research Question	Research Methods, Data Sources and Analysis
1. What are the elements that contribute to the best practice of public asset management?	<ul style="list-style-type: none"> • Review of international and domestic scholarly literature on best practices of asset management.
2. What is the Malaysian public sector asset management	<ul style="list-style-type: none"> • Review the Malaysian TAMM to identify the policy and procedures

Research Question	Research Methods, Data Sources and Analysis
namely the Total Asset Management Manual (TAMM)?	<ul style="list-style-type: none"> • Review the Malaysian TAMM to identify the people involve
3. What is the level of awareness and understanding among the various federal departments on TAMM?	<ul style="list-style-type: none"> • Questionnaires survey to various federal departments in Malaysia • Analysis on the feedback from the questionnaires survey • Identify the level of awareness and understanding among the various federal departments on TAMM

Source: Author

CHAPTER 4: RESEARCH ANALYSIS AND FINDINGS

4.0 Introduction

This chapter encompasses the discussion regarding the analysis and findings of this research based on the data collection gathered. The main focus of this chapter is to analyse and discuss the findings to achieve the third research objectives of this research which is “To assess the awareness and understanding of Total Asset Management Manual” in Malaysia. The first two objectives of this research have been discussed and achieved in the Chapter 2 which elaborate in detail the followings; (i) The international practices of public sector asset management, and (ii) Malaysian public sector asset management namely Total Asset Management Manual (TAMM).

Based on the findings from the first two objectives, this research has found parameters to be tested through the research survey via questionnaire. The elements within the TAMM have been discussed and the target group for the survey study was finalised. Therefore, the questions are to test the current awareness and understanding of the respondents based on the parameters from the previous two (2) objectives.

4.1 Research Respondents and Research Technique

Total Asset Management Manual (TAMM) in Malaysia mainly focussed on two core group of people that is the managers and the operators of the Malaysian Government’s assets. As described in previous chapter, there are 25 ministries involved with the implementation of TAMM and the minimum respondents accepted for this research are 48 respondents on the calculation of 2 respondents from each ministry.

Pilot study was conducted on 5 respondents mainly based in Putrajaya from 15 November 2011 to 30 November 2011. The respondents were 3 managers who are in charge of the TAMM programme and 2 operators who are applying the TAMM programme from the Prime Minister Department, Ministry of Work and the Ministry of Finance. These are the ministries that have the experience in managing and dealing with property matters of the government assets as well as the owner and subject matter expert on the TAMM Manual. The purpose of this pilot study is to test the validity, acceptance and reliability of the questions and research area of the survey. This is a preliminary step before the main survey conducted based on the feedback and amendment from the pilot study.

All 5 respondents have replied and agreed that the questions being posted are valid, reliable and achieved the objective of the research areas and questions. The chosen of these 5 respondents for the pilot study was because they represented the two groups that directly involved with the TAMM implementation, either as TAMM manager or operator. Their importance in providing initial comments and suggestions before the execution of the main survey were needed since they were selected from the departments that were involved with TAMM implementation from the initial stage. Based on their suggestions as discussed in the previous chapter, some additions and minor modifications were made to the questionnaire to improve the reliability and validity before the main survey execution.

The purpose of the main survey is to collect the mass opinion of the research samples that should reflect the major population opinions regarding certain issues. In this study, the population are the asset managers and asset operators.

The survey was conducted from 1 December 2011 to 29 February 2012 (3 months). 200 emails were distributed to managers and operators from various ministry and government's agencies to participate in this survey. The list of these managers and operators were partly obtained from the Public and Work Department (PWD) who is the subject matter expert and partly from the directories of offices from the departments and ministries. The survey response is considered to cover a representative range of Government departments and staffs involved in asset management for these departments. However, as at 1 March 2012, there are 52 respondents who answered the questionnaire.

The main tool used for the questionnaire distribution is the online questionnaire software 'Kwiksurveys' which is free of charge and can be gathered from <http://www.kwiksurveys.com>. The internet link used for the questionnaire distribution through the kwiksurveys.com is http://www.kwiksurveys.com?s=ONHOIO_4ab1ed50. The questionnaire used for the distribution was approved by the QUT Human Research Ethics Committee with the approval number 1100001488. The questionnaire survey distributed was segmented into four (4) parts as follows:

Table 4.1: Part and Purpose of the Research Questionnaire

Part	Item	Purposes
A	Respondent background	To obtain the respondents' information relating to the public sector management, in terms of educational background, years of experience and experience with public asset management practices in Malaysia.
B1	Level of awareness	To study the level of effectiveness of the current Total Asset Management Manual (TAMM) in the respondents departments in the areas of awareness, understanding and acceptance.
B2	Level of understanding	
B3	Level of acceptance	

Source: Author (2012)

A quantitative analysis was employed in this research through descriptive statistic using Microsoft Excel 2010 software. The mode elements among the answers were studied with focus on the highest and lowest ranks among the answers. The analysis and explanation of trends were also conducted through Likert scaling with strongly disagree as the lowest rank and the strongly agree is the highest rank. However, a neutral option is also provided in the form of 'do not know' basis. All trends were analysed with explanations and descriptions on the phenomena involved.

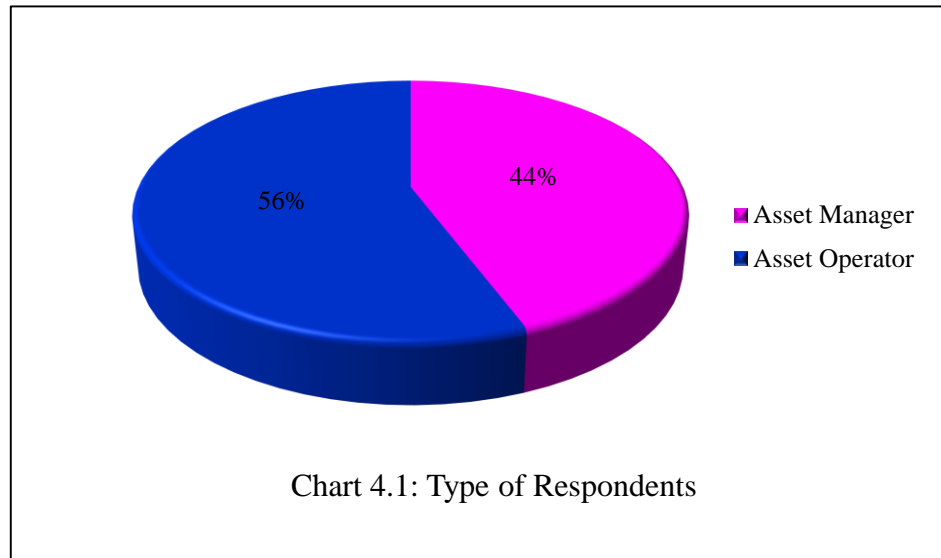
This chapter is significant for this research as it will determine the current level of awareness, understanding and acceptance of Total Asset Management Manual (TAMM) in Malaysia. The output will identify the managers and operators opinions on the TAMM being applied currently. The output will enable the stakeholders to decide on any improvements for a better implementation of TAMM's manual in Malaysia as highlighted in the research aims and objectives of this research.

4.2 Part A: Respondent Background

4.2.1 Type of Respondent

The Chart 4.1 below describes the distributions between asset managers and asset operators involved with this research survey. As expected, the number of asset operator exceeds the number of asset manager at 12% difference (6 peoples). The asset operator who is doing the

daily basis of the asset management programme through TAMM is more likely to answer the survey compared to the asset manager. However, with the numbers are almost equal, the samples are sufficient and representative for both classes of respondents.



Source: Author (2012)

4.2.2 Type of Organisation

The type of respondent organisation can be segmented into two, which are the ministry or the department. Ministry is the entity that controls the departments under its wings and making sure that the departments follow the policies outlined by the Government and is headed by a Minister who is normally a politician. Department is more focussed on specific functions and the head is appointed by the Ministry with the relevant subject areas. It is important to gauge respondents from both the ministry and department.

20 respondents were from the ministry level and the remaining 32 respondents were from the departmental level. The survey also found that most of the respondents from the ministry were the asset managers and on contrary the respondents from departmental level were mostly asset operators. This is significantly related to the type of respondents with the fact that assets operators are more likely to engage with daily asset operations at departmental level compared to asset managers who monitored the asset management process at ministry and departmental level.

4.2.3 Location of Respondents

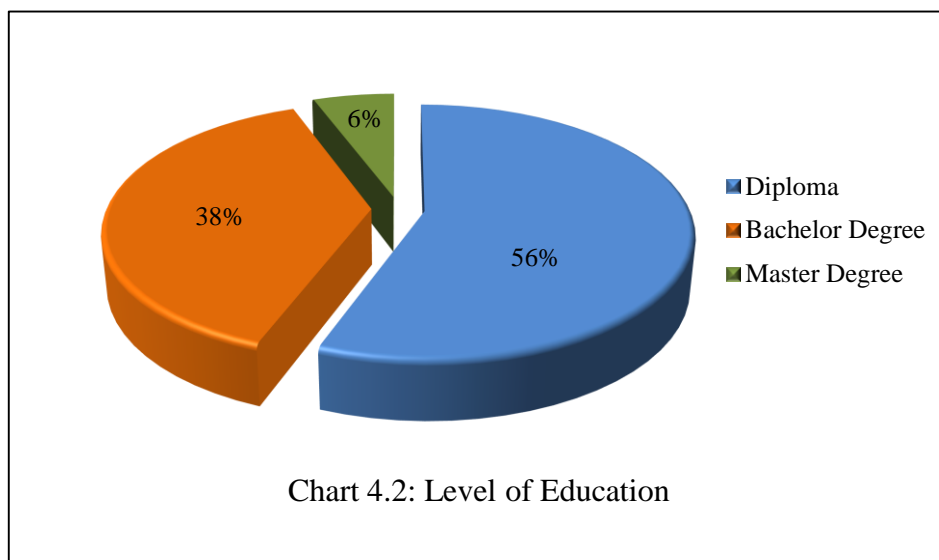
The Table 4.2 below shows the distribution of respondents based on location. It was found that most respondents were from Federal Territory of Putrajaya with 28 respondents, followed by Federal Territory Kuala Lumpur (14 respondents) and the State of Selangor with 10 respondents. It should be noted that these three (3) states are within the Klang Valley area, with Putrajaya as the Malaysian Government administration area, Kuala Lumpur as the capital city of Malaysia and Selangor; the state located surrounding Putrajaya and Kuala Lumpur which enjoys one of the highest economic growth factors in the country. Putrajaya occupied 90% of the federal government ministries and agencies and therefore represent the highest respondents compared to the other two states. Kuala Lumpur was previously the government administration centre before shifting to Putrajaya. These three states have the highest number of government departments, agencies and training institutes that can represent Malaysia as a whole.

Table 4.2: Respondent's Location

State	Numbers of Respondent	Percentage (%)
Federal Territory Putrajaya	28	54%
Federal Territory Kuala Lumpur	14	27%
Selangor	10	19%

Source: Author (2012)

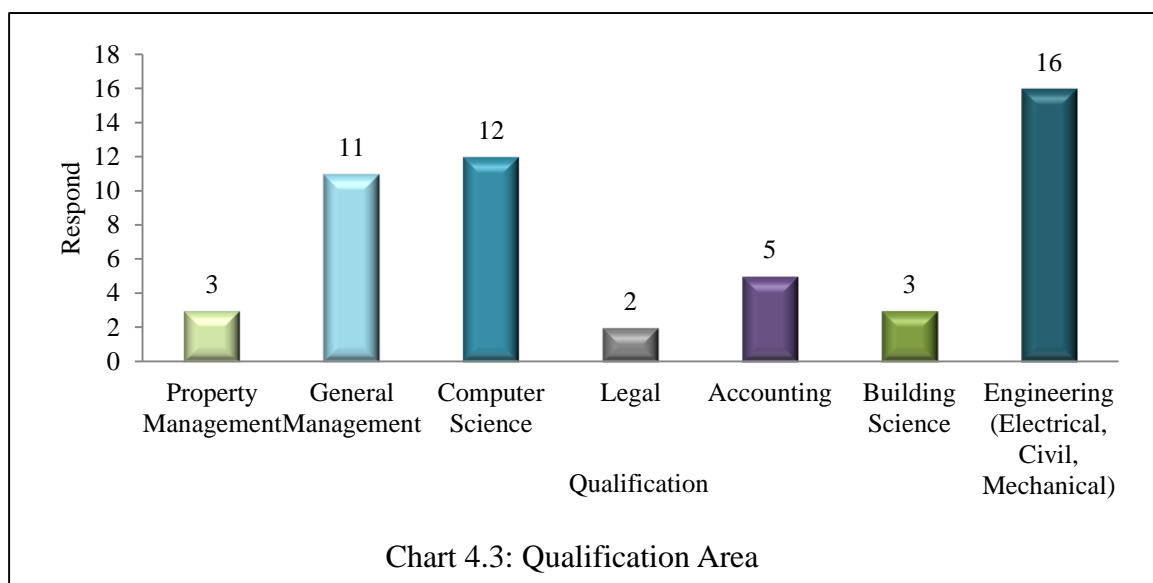
4.2.4 Level of Education



Source: Author (2012)

Based on the survey it is found that most respondents hold at least a diploma degree as tabulated in Chart 4.2 above (56% of respondents). 38% of the respondents have a bachelor degree and only 3 respondents have post graduate degrees at master level (6%). Those with a diploma degree are the asset operators and the holders of the bachelor and master degree are generally the asset managers group. This is in line with Malaysian Government ranking system whereby asset managers should only hold an officer level if their lowest qualification is a bachelor degree.

4.2.5 Qualification Area



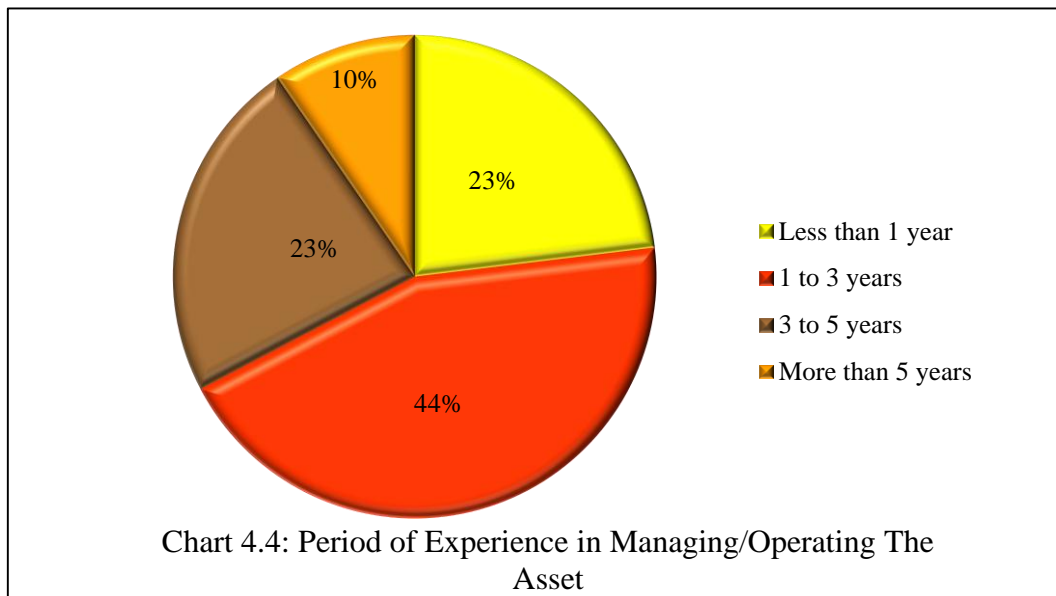
Source: Author (2012)

The respondents were questioned on their qualification areas. From Chart 4.3, it should be highlighted that most respondents are from engineering (electrical, civil or mechanical) background with 16 respondents (31 %) and this represents most of the asset operators group. Interestingly, 12 respondents (23%) are from computer science background and 11 respondents (21%) are from a general management qualification. Further investigation revealed that some computer science respondents are managing or operating the government's asset for TAMM purposes, in which they supervise the asset listings and managing information. However, only 6 respondents (12%) have a property management background (3 respondents) and building science background (3 respondents), in which is traditionally the correct profession either in managing or as operators of the government's assets. Appointments for the post of asset

manager or asset operator are based on the work specification of the respondent's agency, and TAMM does not highlighted the need for asset managers or asset operators to be from property management qualification.

4.2.6 Period of Experience in Managing or Operating Government Asset

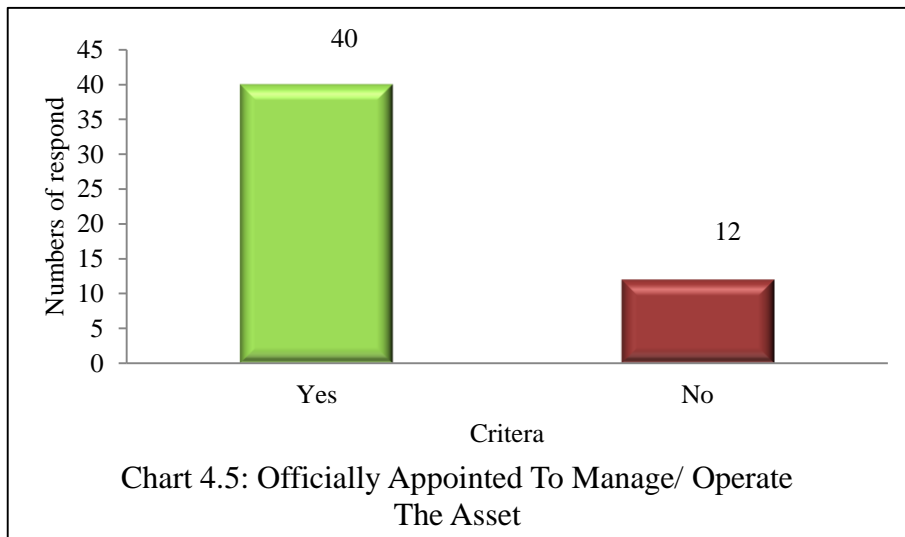
The highest response rate based on their experience managing or operating government's assets was from the 1 to 3 years group with 23 respondents (44%). The group with less than 1 year experience and group 3 to 5 years of experience shared same number at 12 respondents (23%) . Only 10% of the respondents (5 people) have more than 5 years' experience (Refer Chart 4.4). As TAMM was launched in 2009, the same people were maintained by the government agency to manage or operate government asset.



Source: Author (2012)

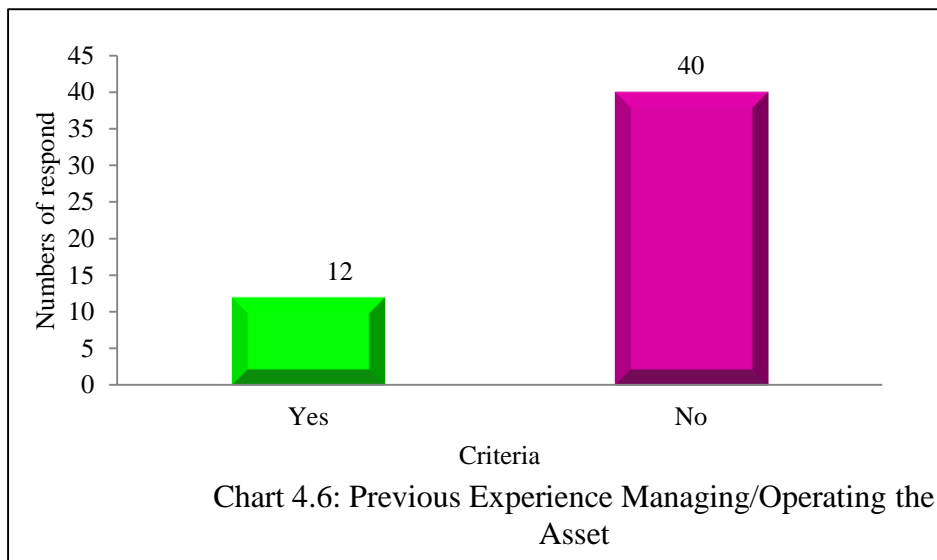
4.2.7 Officially Appointed to Manage or Operate the Asset

Most of the respondents have been officially appointed to either manage or operate the government's asset under their control. Chart 4.5 below shows that 40 respondents (77%) agreed that they have been officially appointment by their departments to manage or operate the assets. However, 12 respondents (23%) claimed that they were not officially appointed. They were expected to continue with their previous position either as asset manager or asset operator. The researcher believes that even though there were no appointment letters, the respondents have agreed to proceed with their previous workloads.



Source: Author (2012)

4.2.8 Previous Experience Managing or Operating the Asset

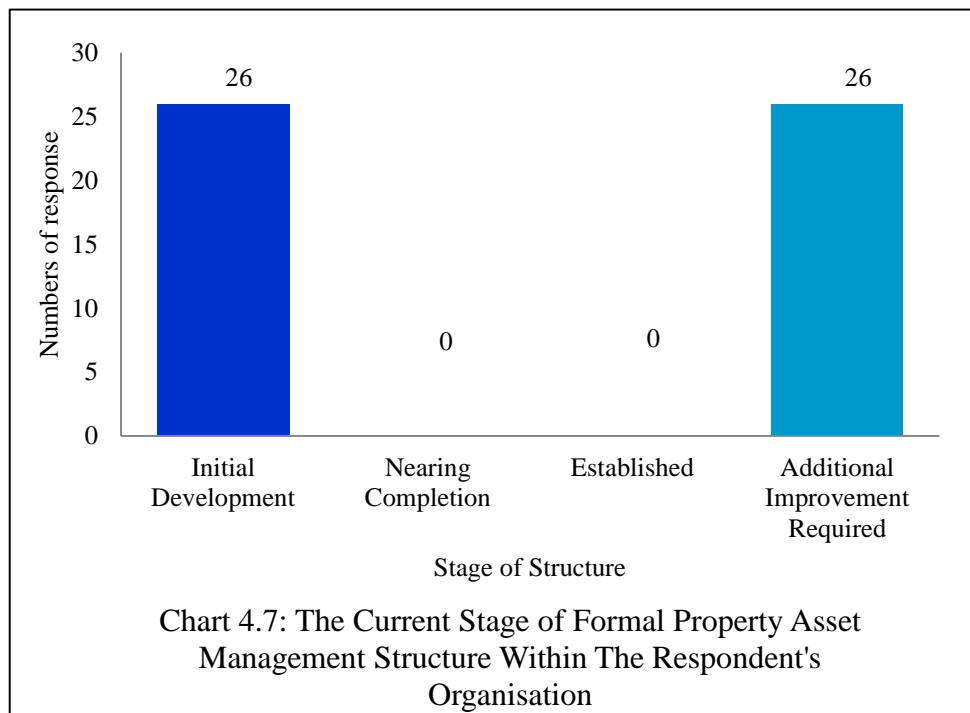


Source: Author (2012)

The research survey has revealed that 40 respondents (77%) did not have any previous experience in managing or operating the government's asset. Only 23% of the respondents have significant previous experience in managing or operating the assets. TAMM was developed in helping government agency in Malaysia to manage their assets. However, this question is significant to determine whether the criteria of previous experience of managing asset have been considered before the asset manager or operator was appointed.

4.2.9 The Current Stage of Formal Property Asset Management Structure within the Respondent's Organisation

The respondents were provided with four (4) options regarding the current stage of formal property asset management structure within their departments. 50% of the respondents (26 people) mentioned that they are at the initial development of the formal structure as similar to TAMM progress. However, another 50% of the respondents (26) concluded that their department have their own version of property asset management structure, which only need additional improvement (Refer Chart 4.7). The introduction of TAMM is in line with both decisions since TAMM purposes are to help the government agencies with the common practices of asset management and structurally managed. Either at the initial development or additional improvement, TAMM is expected to provide sufficient information and modules for the asset managers and asset operators in Malaysia.

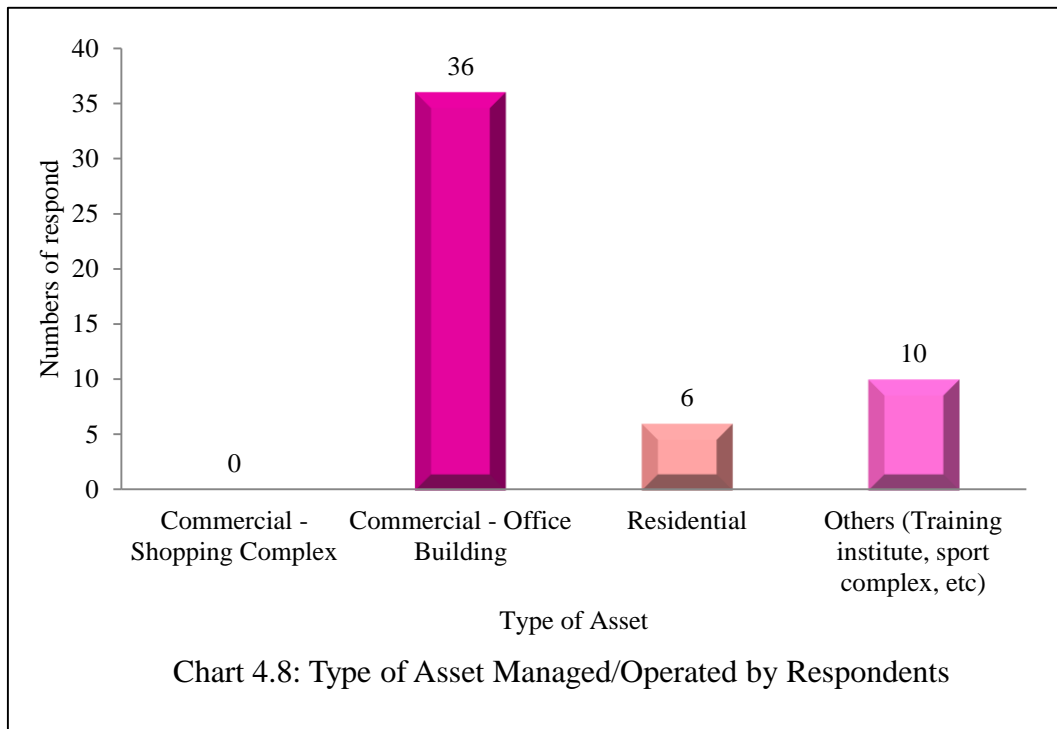


Source: Author (2012)

4.2.10 Type of Asset Managed or Operated

From Chart 4.8 above, it can be seen that most respondents are managing or operating the Commercial-Office Building with 36 respondents (69%). 10 respondents (19%) are managing other type of assets such as training institute, sport complexes and others whilst 6 respondents (12%) are managing residential properties. This is common since most of the respondents are

from Klang Valley area that includes Putrajaya, Kuala Lumpur and Selangor states. All states have a number of commercial offices that are fully owned and occupied by the government agencies. The residential and other type of assets is essential in providing supporting assets to the government agencies.



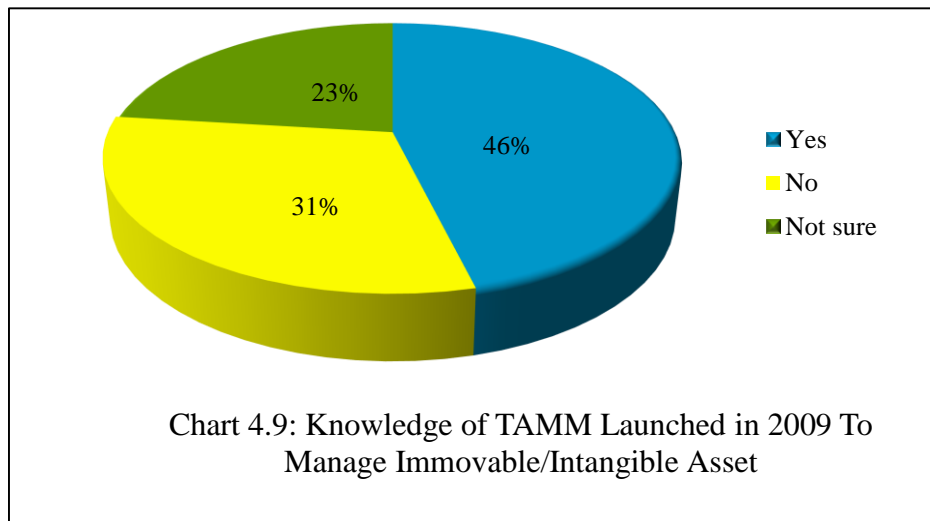
Source: Author (2012)

4.3 Part B1: The Effectiveness of Total Asset Management Manual (TAMM) in Malaysia – Level of Awareness

4.3.1 Knowledge of TAMM Launched in 2009 to Manage Immovable/Intangible Asset

This question is significant to determine whether the respondents have any knowledge on TAMM that was launched in 2009. The first 10 questions are for the respondents who have knowledge on TAMM and followed by 5 questions to respondents who either do not know or not sure of the TAMM launched in 2009. This is to study the level of awareness among the respondents on TAMM implementations. Chart 4.9 below demonstrates the demography of respondents on their knowledge of TAMM. 24 or 46% respondents said that they have knowledge of TAMM, whilst 54% of the other respondents mentioned that they either do not know (31%) or not sure (23%) of TAMM implementations. This illustrated the early findings of

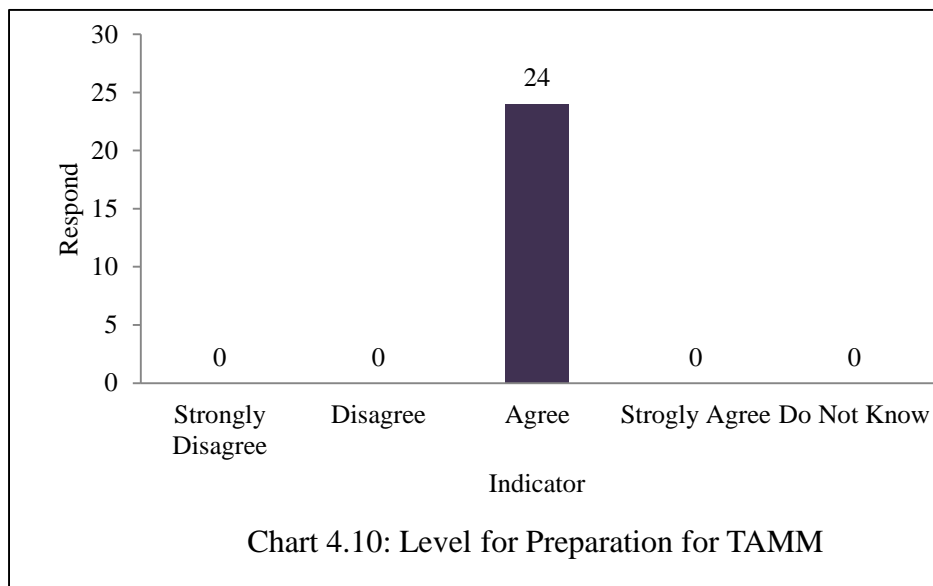
this research that on overall basis, not every respondent were aware of the implementation of TAMM.



Source: Author (2012)

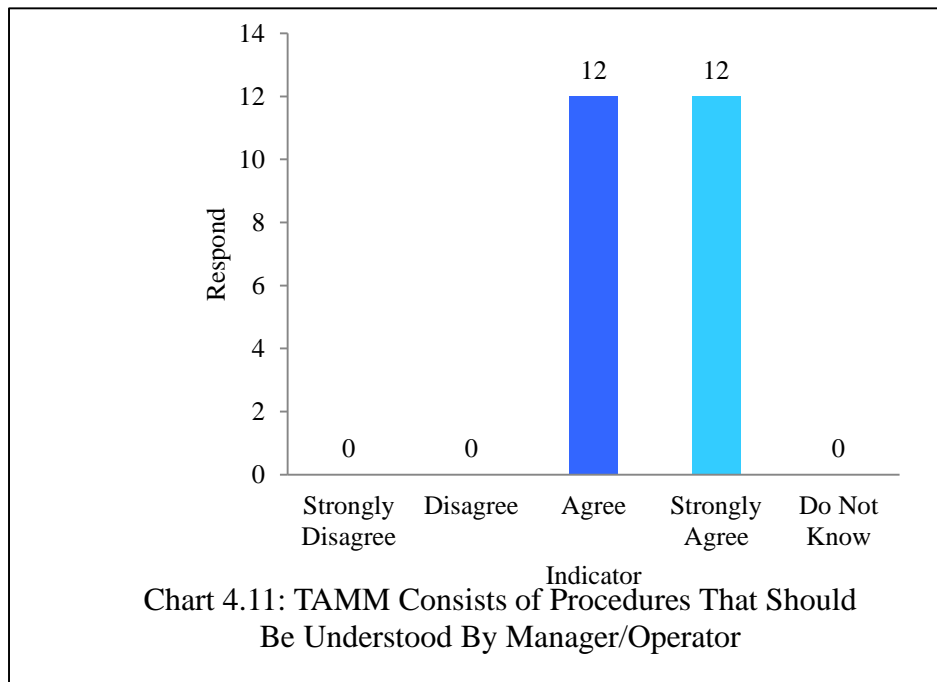
4.3.2 Level of Preparation for TAMM (24 respondents)

This question was answered by 24 respondents who have indicated in the previous question that they have knowledge of TAMM. From Chart 4.10 it can be concluded that all respondents have agreed that TAMM documentation was correct, considered various aspect of asset management and supposedly distributed to every asset managers and asset operators of Malaysian Government assets.



Source: Author (2012)

4.3.3 TAMM Consists of Procedures That Should Be Understood by Manager/Operator (24 respondents)

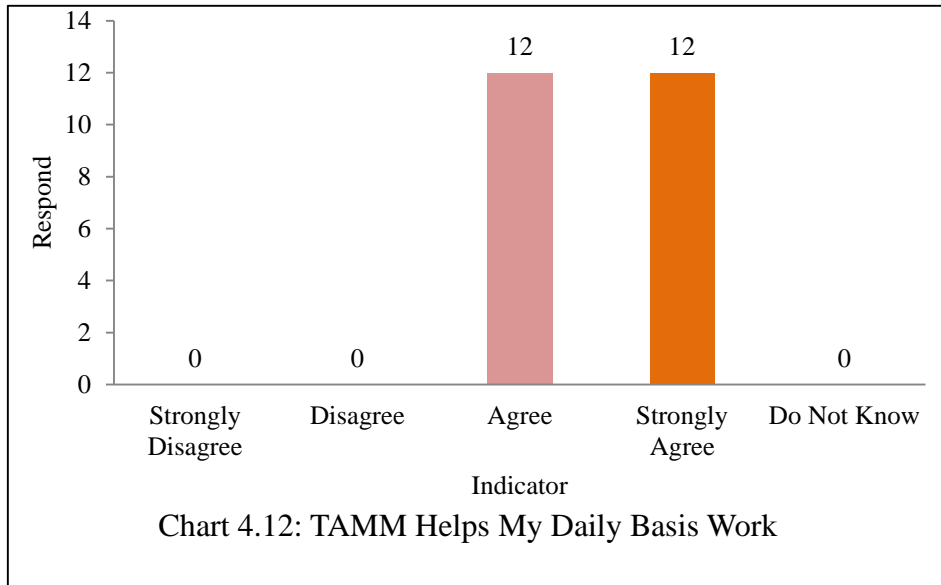


Source: Author (2012)

All the respondents either strongly agreed or agreed (as shown on Chart 4.11 below) that TAMM consists of procedures that should be understood by manager/operator. TAMM is detailed with working procedure and provides guidance to the manager/operator on the daily operation of asset management.

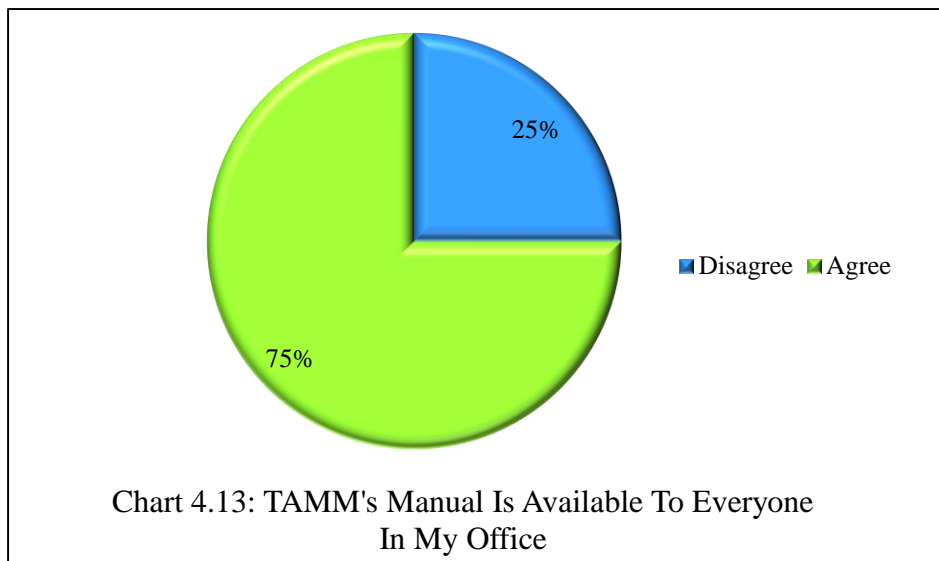
4.3.4 TAMM Helps My Daily Basis Work (24 respondents)

The respondents either strongly agree (12 respondents, 50%) or agree (12 respondents, 50%) that TAMM helps their daily basis of work in relation to the management of the assets (Refer Chart 4.12 below). In general, TAMM provides significant information on the working procedure to create common practices of asset management and helps agencies with efficient property asset management as mentioned in the manual objectives.



Source: Author (2012)

4.3.5 TAMM’s Manual is Available to Everyone in My Office (24 respondents)

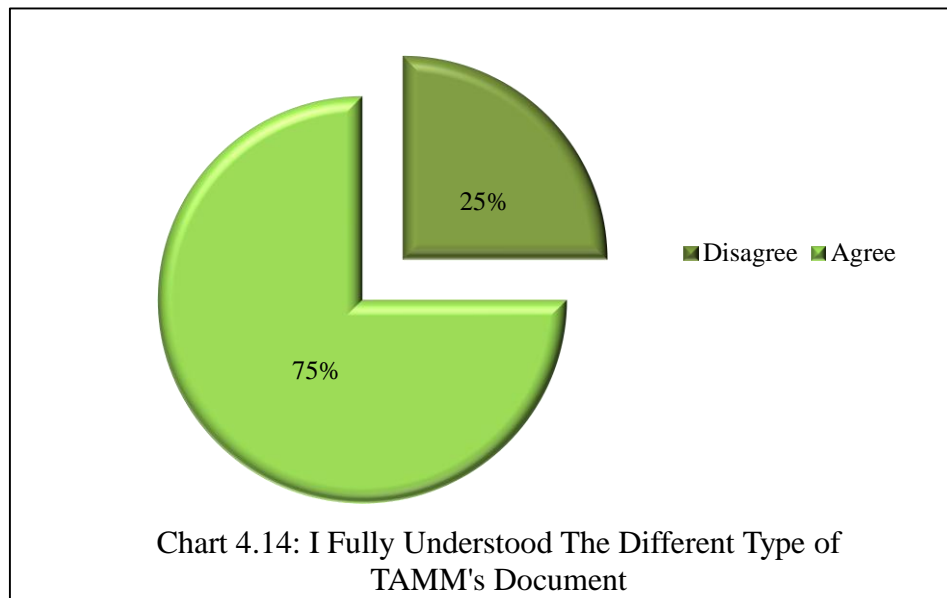


Source: Author (2012)

One of the significant findings through this question is that there were respondents who disagreed that the TAMM’s manual is available to everyone in their office. Chart 4.13 indicated that six respondents disagreed with this statement (25%). Further investigation revealed that TAMM was not distributed entirely by the departments especially to the asset operators and in some agencies, only the managers have access to TAMM’s manual. However, 75% of respondents (18) agreed that the TAMM’s manual was made available to every staff member in their departments through internal circulation and emails.

4.3.6 I Fully Understood the Different Types of TAMM’s Document such as the Policy, the Procedure and the Supporting Document (24 respondents)

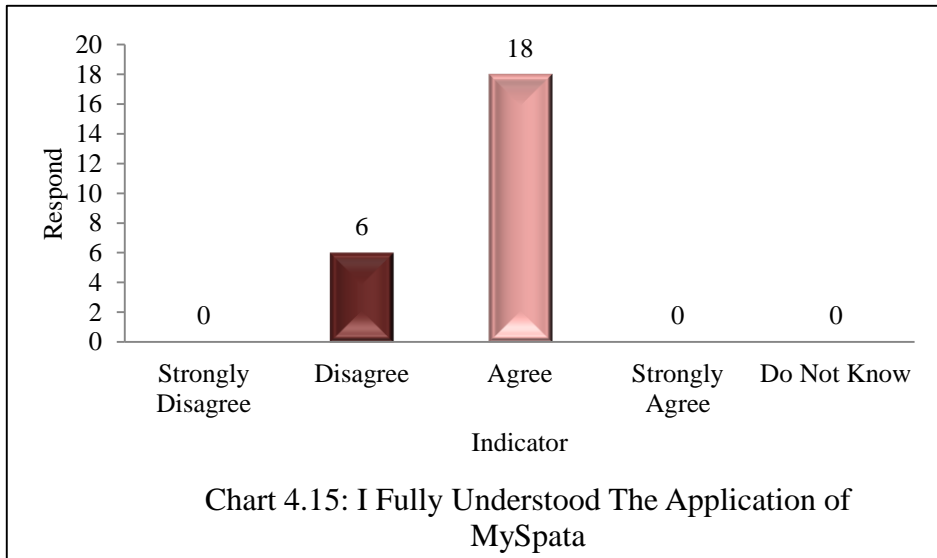
Chart 4.14 illustrates the respondent’s opinion on whether TAMM’s document was understood by the respondents. 75% of the respondents (18) agreed that they understood the different type of TAMM’s documents compared to 25% respondents (6) who disagree with this opinion. Those who agree might be the managers or operators who have the ability to understand any tasks/documents given to them easily or those who have the experience in managing assets and can fully understand the different documents issued to them. It is also noted that some agencies lack provisions in terms of training for their asset managers and operators even though TAMM’s documents are concise. Training is essential to enable the users to familiarise with the TAMM’s documents and implementations.



Source: Author (2012)

4.3.7 I Fully Understood the Application of MySpata (24 respondents)

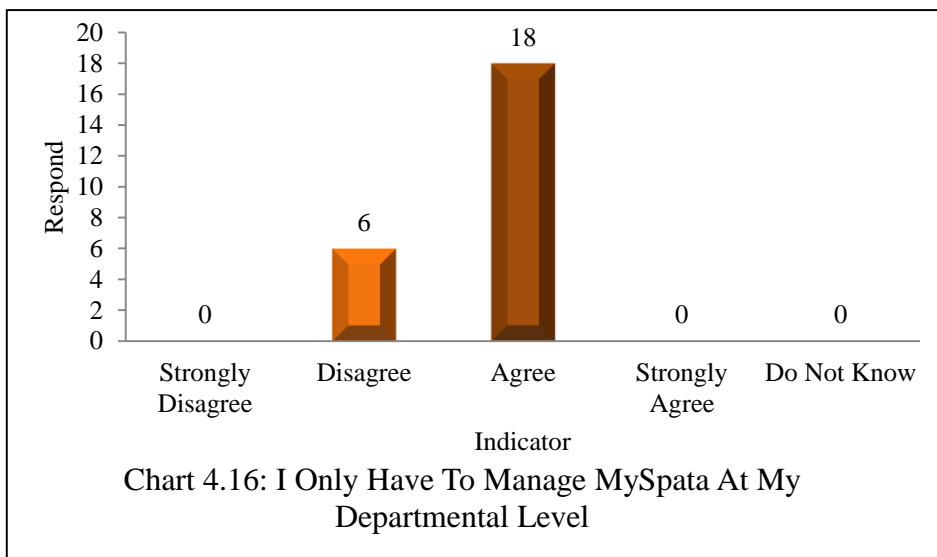
The respondents were asked about their understanding of MySpata software. MySpata was developed in conjunction with the TAMM manual in which the software is used for registration, monitoring and disposal of government assets. Chart 4.15 below describes the respondents’ opinions whereby 18 respondents (75%) agreed that they understood MySpata software whilst 6 respondents (25%) did not agree. 18 respondents have undertaken MySpata software trainings provided by the Public Work Department and the remaining are still yet to go through the training process.



Source: Author (2012)

4.3.8 I Only Have to Manage MySpata at my Departmental Level (24 respondents)

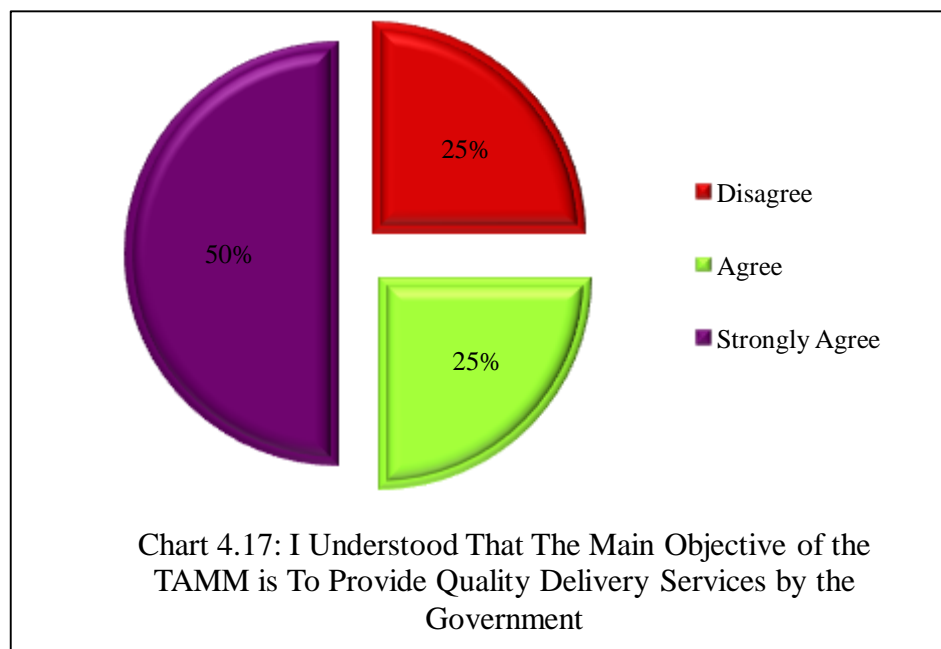
The same number of respondents (18 or 75%) has commented that they have only to manage their own department compared to only 6 respondents (25%) who disagreed. Further investigation revealed that majority of respondents were responsible at their designated post at a certain department and they were most likely the asset operators. However, 6 respondents who were the asset managers at the ministry level have access to the MySpata of departments under their ministry’s controls as shown in Chart 4.16.



Source: Author (2012)

4.3.9 I Understood That the Main Objective of the TAMM is To Provide Quality Delivery Services by the Government (24 Respondents)

Chart 4.17 below indicates that 75% of the respondents (12 strongly agreed and 6 agreed) have positive opinions regarding the main objective of TAMM. This significantly shows that TAMM implementation and structure were well accepted by most respondents who were the front line of the government's asset management in Malaysia. This also indicates that even though there were limitations in terms of late training or information not shared, most respondents understood the TAMM's objective. There were only 6 respondents who were not familiar with the TAMM's objective. Their reluctance may cause problems with the government's service delivery in the future if this is not rectified at the department level.

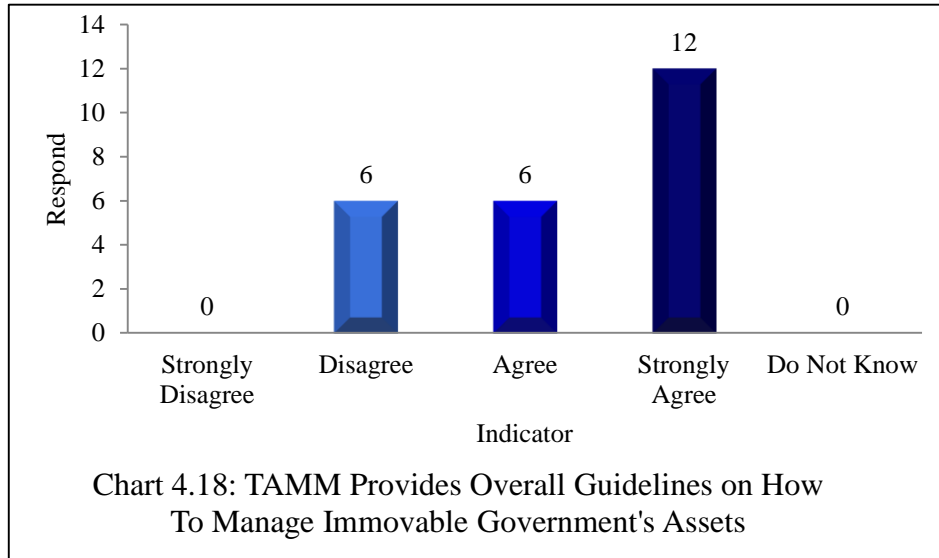


Source: Author (2012)

4.3.10 TAMM Provides Overall Guidelines on How to Manage Immovable Government's Asset (24 Respondents)

Even though 75% respondents (18) either agreed or strongly agreed on the TAMM implementation to help government servants with asset management ethics and implementation procedures, there were 6 respondents who were against this idea. This indicates that some respondents were not accepting TAMM implementation and considered it as a burden to their daily asset management operations. In general, most of the respondents agreed that TAMM has provided overall guidelines in managing immovable assets as stated in Chart 4.18. For example

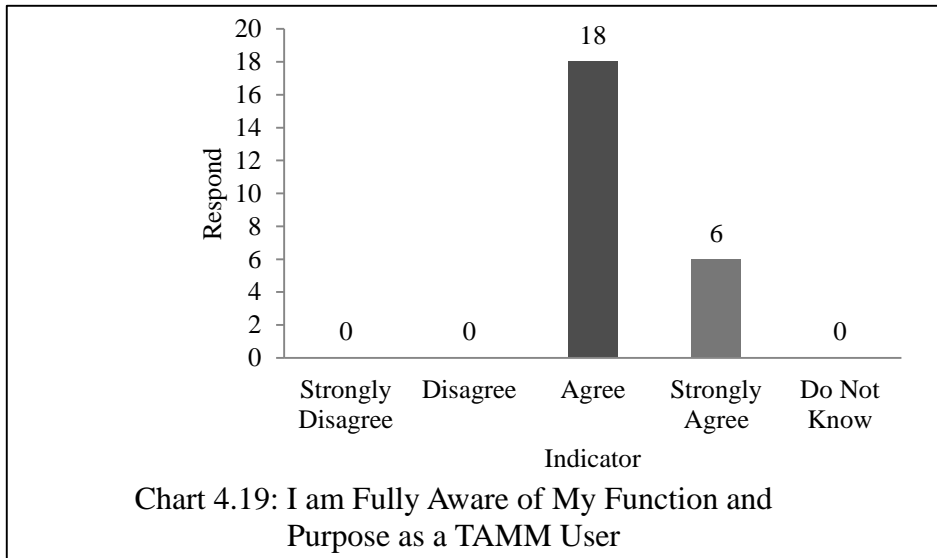
in terms of an acquisition of an asset, TAMM has outlined every process of acquiring of an asset, from the planning of receiving the asset, implementation and monitoring the receipt, registering, data update and reviewing the whole process.



Source: Author (2012)

4.3.11 I am Fully Aware of My Function and Purpose as a TAMM User (24 Respondents)

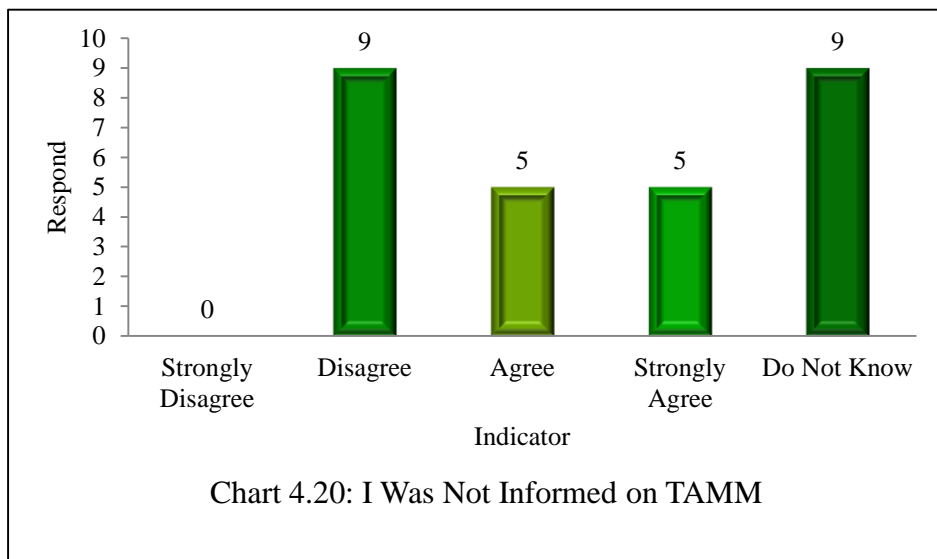
The last two questions indicate that there were respondents who do not understand the TAMM main objective and overall guidelines for asset management. However Chart 4.19 indicates that all respondents (24 respondents) were aware of their functions and purposes as TAMM users (either agreed, 18 respondents or strongly agreed, 6 respondents). This relates to their present workloads, in which they did not have to argue on the TAMM objectives and TAMM guidelines. This concludes that the respondents were more on the job basis orientated, and did not have to understand the TAMM objectives or TAMM guidelines on a bigger picture. They set to complete their jobs on a daily basis without seeing the overall functions and purposes.



Source: Author (2012)

4.3.12 I Was Not Informed on Tamm (28 Respondents)

The next 6 questions are based on the respondents who answered no or not sure on item 4.3.1 above (Respondent’s Knowledge on Tamm).



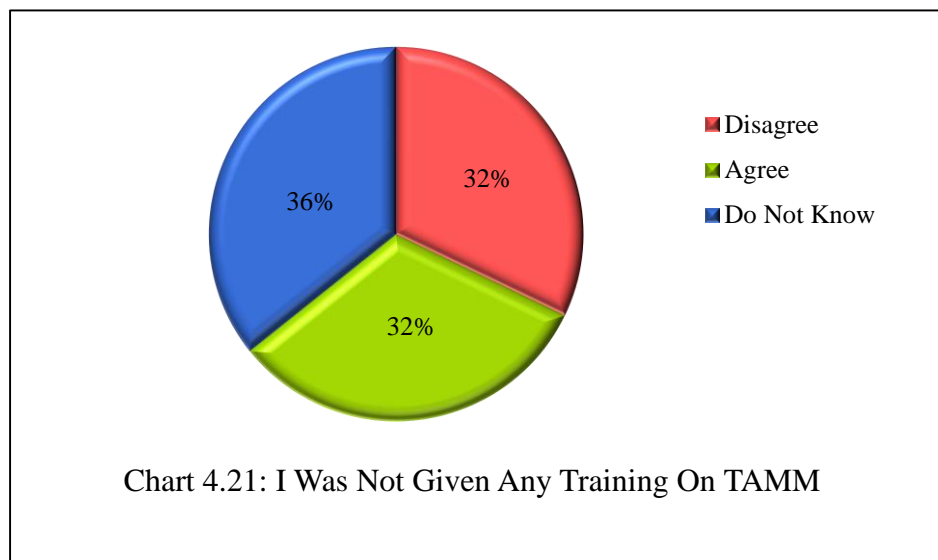
Source: Author (2012)

Based on Chart 4.20 above, it is shown that 10 respondents have either agreed or strongly agreed that they were not informed on Tamm. However, it should be highlighted that 9 respondents disagree that they were not informed, even though they do not have knowledge on Tamm. The level of training was not sufficient or effective in providing the respondent’s with

TAMM knowledge. 9 respondents were not sure on what to respond, either they were informed or not on TAMM. This will lead to inconsistency in providing good services to the public as the government has outlined a policy which need to be followed by the respective managers and operators.

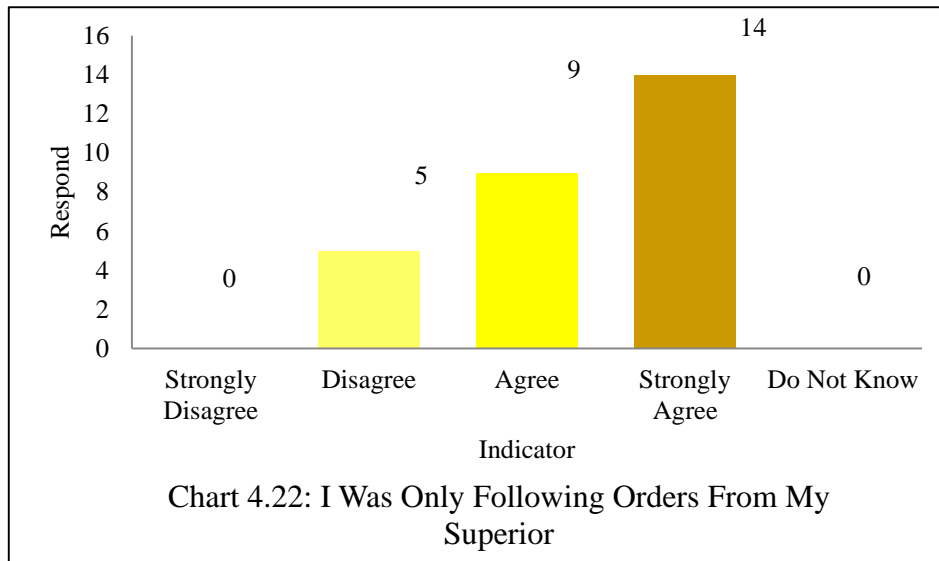
4.3.13 I Was Not Given Any Training on TAMM (28 Respondents)

32% of the respondents indicate that they were not trained on TAMM whilst another 33% mentioned that they have been trained on TAMM. The issue raised from the response is whether the respondents have received sufficient knowledge on TAMM to perform their duties effectively. Another question is how effective the training was for the asset managers and operators. If they were not given any training on TAMM initially, there is a possibility that they can perform after the training is actually provided. Chart 4.21 below also indicates that 10 respondents were not sure whether they have been trained or not. Maybe they have been provided with TAMM's training indirectly by their superiors and did not realise it. It has been an informal training, with the basis of day to day on the job training. It could also be part of their daily work and any discrepancy on the new system will be referred to their superiors for confirmation.



Source: Author (2012)

4.3.14 I Was Only Following Orders from My Superior (28 Respondents)

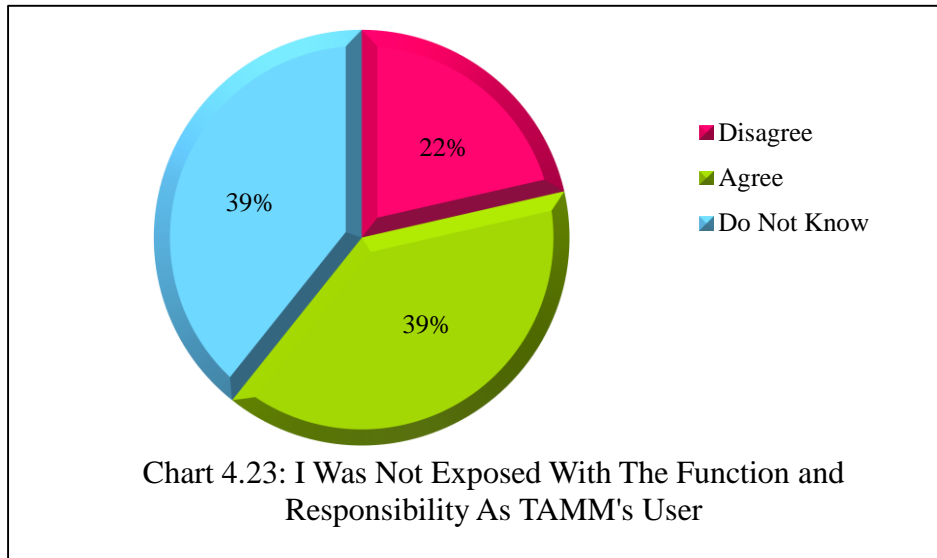


Source: Author (2012)

The survey reveals that out of 28 respondents who did not have knowledge on TAMM, 83% of the respondents (14 respondents (50%) strongly agreed and 9 respondents (33%) agreed) were only following orders from their superiors (Refer Chart 4.22 above). This may happen if the training is yet to be provided. However, 5 respondents disagreed that they were only following orders from their superiors and also referred to TAMM as a guideline in conducting their works. It will be a disadvantage to the nation if the Government has set a policy which will benefit the whole management of public assets and those who are supposed to manage it did not know the correct or best way in doing so.

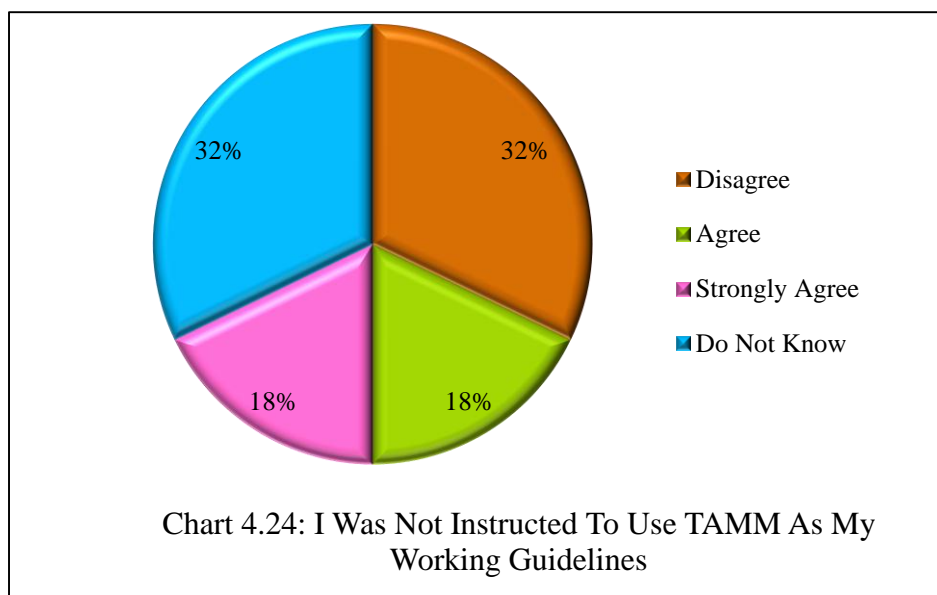
4.3.15 I Was Not Exposed with the Function and Responsibility as TAMM's User (28 Respondents)

It reveals that only 11 respondents (39%) were not exposed on the responsibility as TAMM users (Refer to Chart 4.23 below). Another 11 respondents (39%) indicated that they were unsure and 6 respondents have been exposed on the TAMM's user responsibility and function. However, this 6 respondents (22%) have no knowledge on TAMM (refer item 4.3.1). It is strange when the respondents still did not possess sufficient knowledge on TAMM even though they have been trained before. It could be either the training is not effective or the way the training is implemented did not meet with the respondents' job specification.



Source: Author (2012)

4.3.16 I Was Not Instructed to Use Tamm as My Working Guidelines (28 Respondents)



Source: Author (2012)

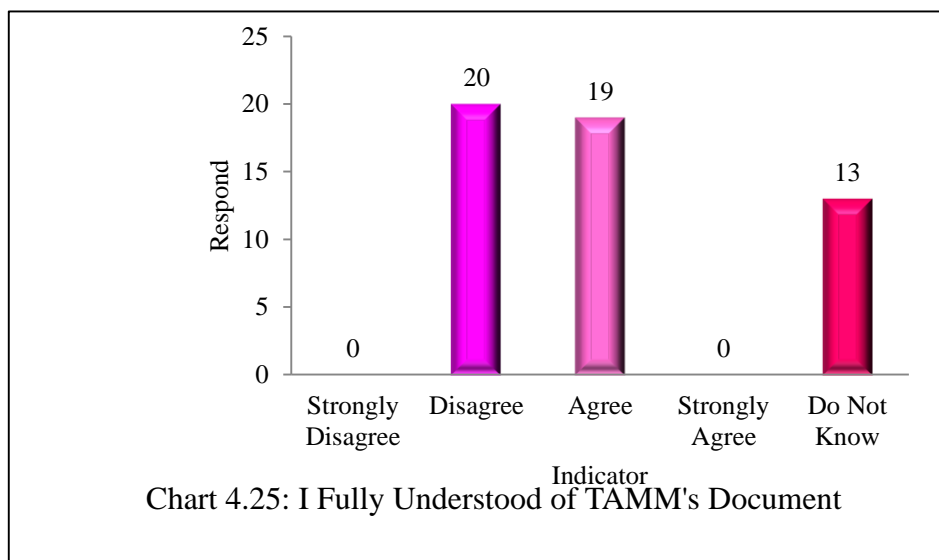
Based on the Chart 4.24 above, 36% (10) of the respondents have either agreed or strongly agreed that they were not instructed to use Tamm as their working guidelines. 9 respondents were not sure whether they have ever been instructed and another 9 respondents (32%) mentioned that they have been instructed, but still did not possess sufficient knowledge on Tamm. This means that there were communication problems between the superior and the staff

(respondents). The cause may be either there were no written instructions or verbal instructions to use TAMM as working guidelines. The problems rose for the group of respondents who have been trained and instructed to use TAMM as working guidelines, but did not have the capability or enough understanding to implement TAMM. This could lead to confusion among the staff (respondents) in implementing the correct asset management within the organisation. Knowledge on TAMM should also be passed on, not only to the head of department, managers or operators, but also to those working in relation to asset management, for example, the technician.

4.4 Part B2: The Effectiveness of Total Asset Management Manual (TAMM) in Malaysia – Level of Understanding

The purpose of this Part B2 is to determine the level of understanding on TAMM implementation among the respondents. It is important to look at this area as this is the beginning stage of implementing TAMM as without understanding the procedures, the whole process of implementing this policy will be a waste.

4.4.1 I Fully Understood the TAMM’s Documents

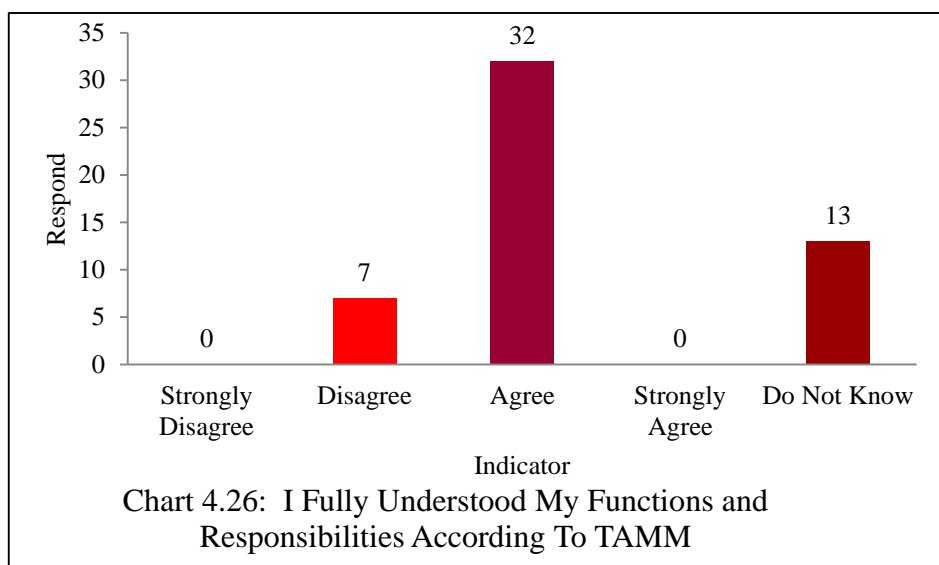


Source: Author (2012)

The survey on 52 respondents’ level of understanding reveals that 20 respondents have not fully understood the TAMM documents and 13 respondents were unsure (Refer Chart 4.25 above). This reflects the respondent’s level of understanding whereby there were respondents who were

not familiar or unsure with TAMM documents implementation compared to only 19 respondents who have understood the TAMM documents. It is believed that lack of training, poor understanding of instructions and limited exposure to TAMM’s practicality contributed to high number of respondents who did not fully understand or were unsure in relation to TAMM documents. This will lead to the slow implementation of asset management in which in the long term will incur more cost in further training of human resources and the objectives of cost effectiveness of having a good asset management is deferred.

4.4.2 I Fully Understood My Functions and Responsibilities According To TAMM



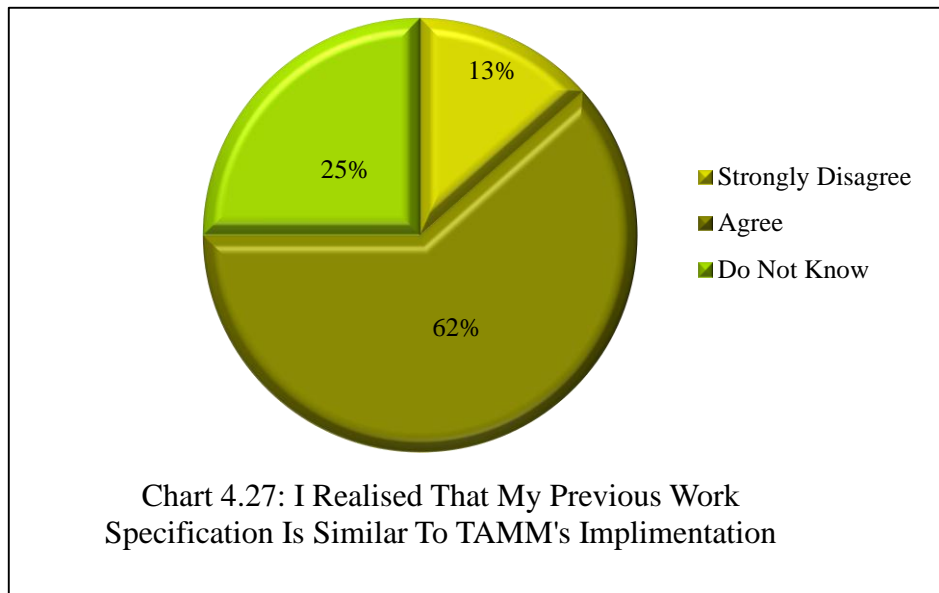
Source: Author (2012)

Based on Chart 4.26 above, 32 respondents (62%) stated that they understood their functions and responsibilities according to TAMM even though there were a high number of respondents who did not understand the TAMM’s document (Item 4.4.1). There were 13 respondents who did not know their position in relation to TAMM and 7 respondents mentioned that they disagreed on this issue. Positively, most respondents accepted their duties and functions to implement TAMM.

4.4.3 I Realised That My Previous Work Specification is Similar to TAMM’s Implementation

It is acknowledged through Chart 4.27 below that most respondents agreed or strongly agreed that TAMM’s implementation have similarities with their previous work specification (75% or

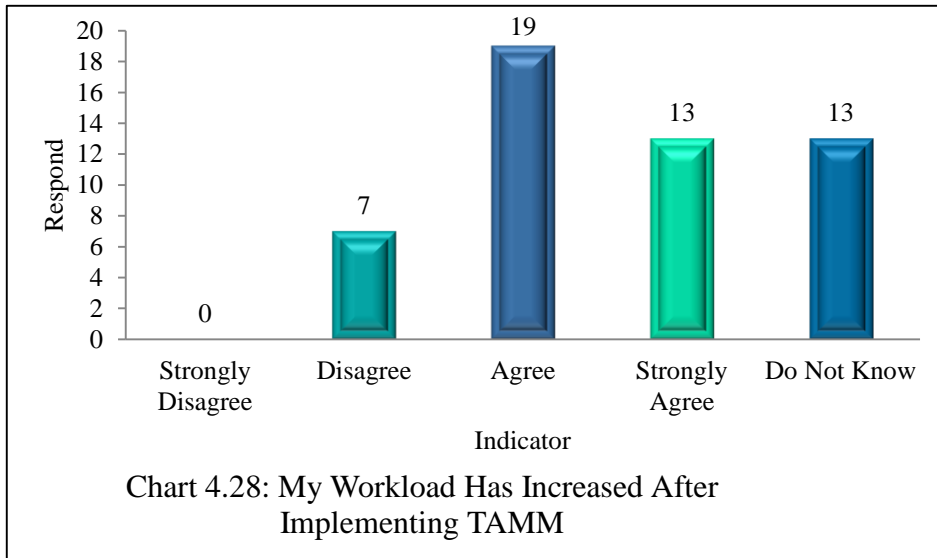
39 respondents). TAMM is a compliment to the previous implementation of asset management in Malaysian government sector. 7 respondents (13%) disagreed since they have come from different work specifications before instructed to implement TAMM as an asset manager or asset operator.



Source: Author (2012)

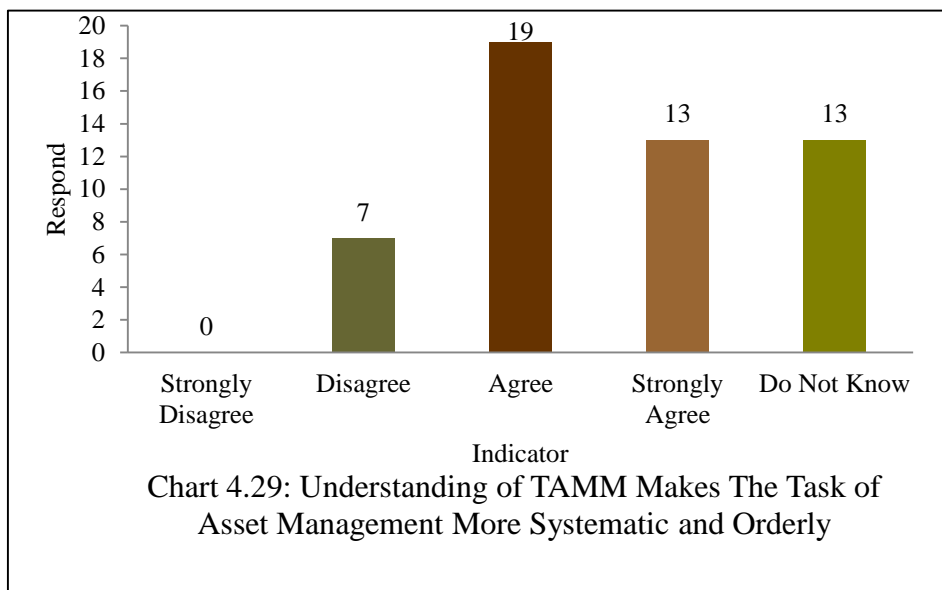
4.4.4 My Workload Has Increased After Implementing TAMM

The respondents were questioned on their opinions whether TAMM implementation has increased their workload. High numbers were recorded for respondents who agreed or strongly agreed with 32 respondents (62%) that their workload had increased compared to only 7 respondents (13%) who stated that their workload had not increased. However, 13 respondents (25%) were not sure whether TAMM's implementation will increase their workload or not (Refer Chart 4.28 below). TAMM implementation requires detailing of asset listings, management procedures, maintenance and disposal procedures. This creates difficulties for the people who were still in the process of familiarisation with the TAMM system. People with previous knowledge on asset management may find that TAMM is not difficult to implement. Unlike people who have not received any training on TAMM or implementing TAMM were not sure whether TAMM implementation would increase their workload. Further investigation revealed that those that stated that their workload had not increased were from the property and building background where they have the advantage of similar knowledge of the procedures in TAMM previously.



Source: Author (2012)

4.4.5 Understanding of TAMM Makes the Task of Asset Management More Systematic and Orderly



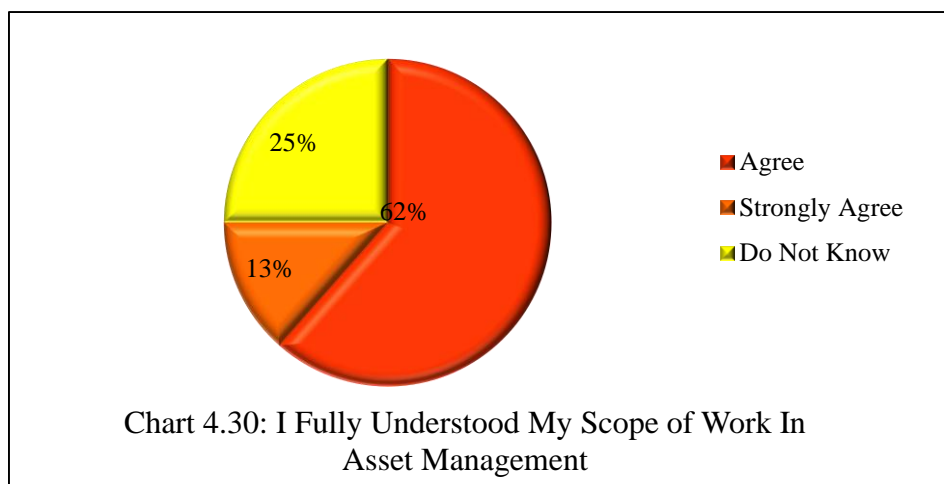
Source: Author (2012)

Even though in previous questions 32 respondents agreed or strongly agreed that TAMM implementation would increase their workload, however, they believed that TAMM will make the task of asset management more systematic and orderly as in Chart 4.29 above. 13 respondents (25%) were unsure and only 7 respondents (13%) disagreed. Majority of them

supported the TAMM implementations which mean that the introduction of TAMM is very timely. TAMM has explained the process of managing the assets in detail and with every steps that needed to be followed, the respondents have found that even though these processes had increased their workload, but the way the processes were detailed out, they were very systematic and in order.

4.4.6 I Fully Understood My Scope of Work in Asset Management

The survey reveals that 39 respondents (75%) have understood their scope of work in asset management, without stating TAMM implementation (Refer Chart 4.30 below) whilst 13 respondents (25%) were unsure. Most respondents were aware of their scope of work with or without TAMM implementation. The TAMM is a compliment to their current work scope. This shows that the respondents were carrying out their work without any manual or guidelines. Most of them were following the routine of previous structure or implementation.

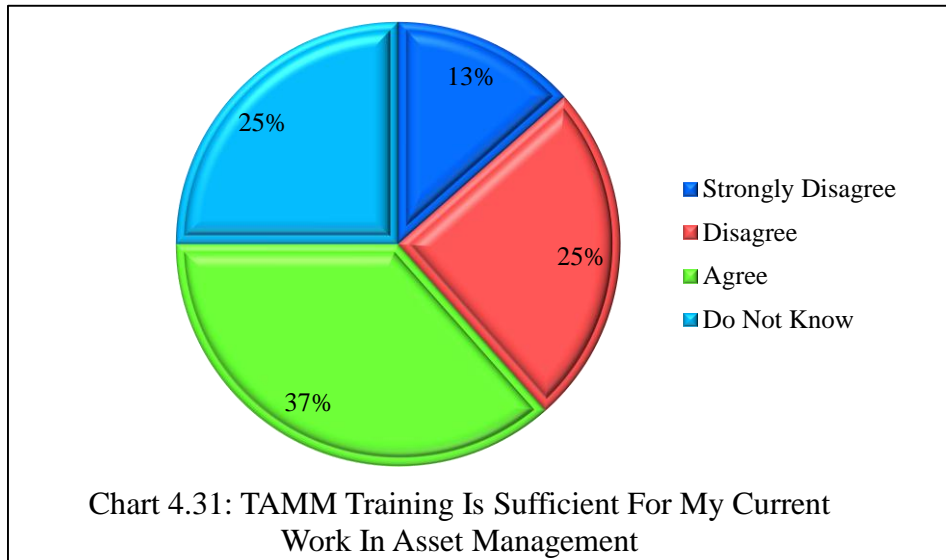


Source: Author (2012)

4.4.7 TAMM Training is Sufficient for My Current Work in Asset Management

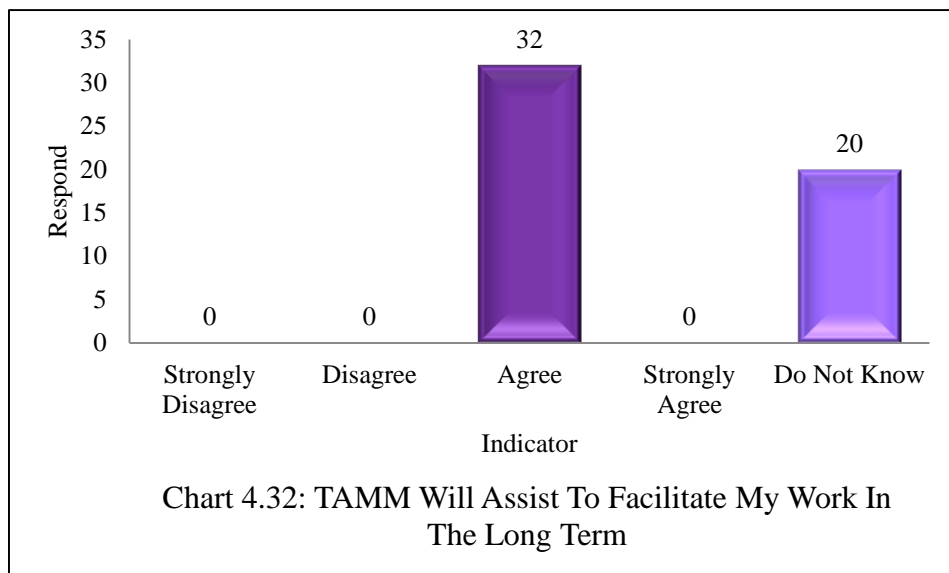
Chart 4.31 above indicates that most respondents have disagreed or strongly disagreed (20 respondents, 38%) that TAMM training was sufficient for asset management work. Further investigations revealed that on the job training is needed to familiarise asset managers and operators on TAMM implementation. 13 respondents (25%) were unsure if current training was sufficient for TAMM implementation. However, 19 respondents or 37% agreed that TAMM training was sufficient. These 19 respondents may have come from property background or have the previous experience whilst the 20 respondents who disagreed may still be new or

novice in the area and still needed further training. These 20 respondents, who were not from the property background, should be given extra training on TAMM with additional knowledge on property. Or in order to avoid extra cost on providing extra training, it is best that the managers and operators appointed must have at least property background.



Source: Author (2012)

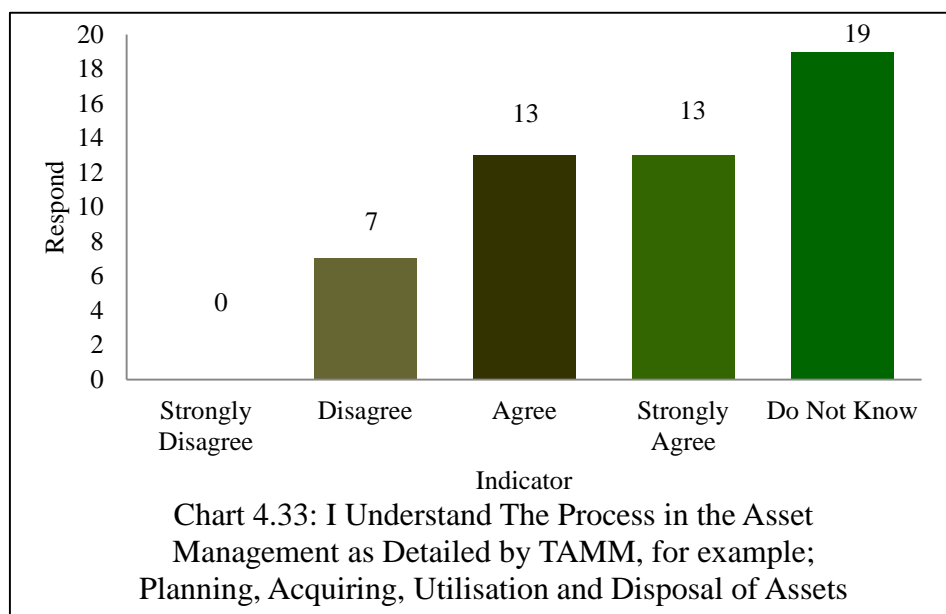
4.4.8 TAMM Will Assist to Facilitate Work in Long Term



Source: Author (2012)

Almost 63% of respondents (32 peoples) agreed that TAMM will assist to facilitate work in long term. However, 20 respondents (27%) were unsure since TAMM is still in the implementation stage (Refer Chart 4.32 above). This shows that the respondents who agreed understood their scope of work and the knowledge on TAMM whilst those who disagreed maybe those who were new in the area and still have not attended any training nor have any knowledge on TAMM.

4.4.9 I Understand the Process in the Asset Management as Detailed by TAMM, for example; Planning, Acquiring, Utilisation and Disposal of Assets

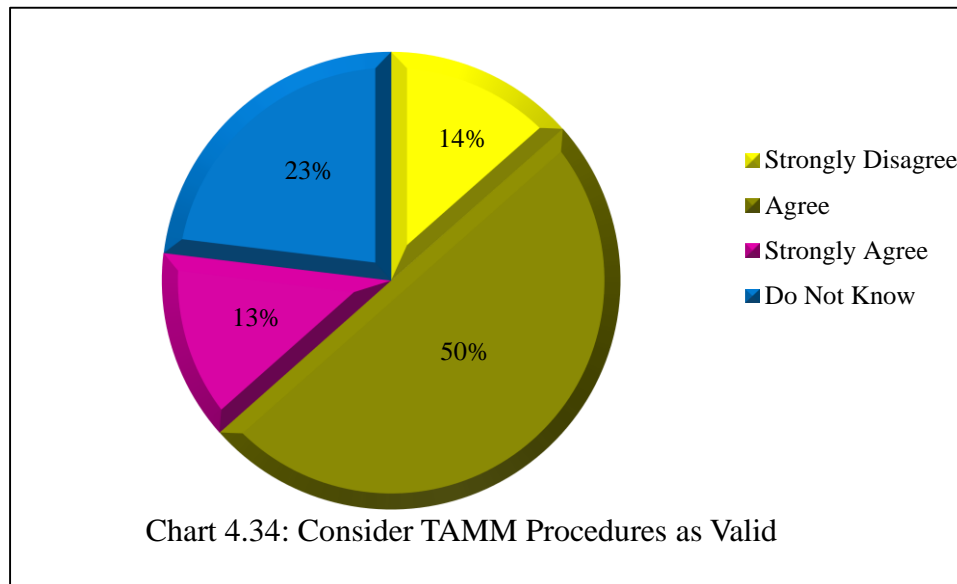


Source: Author (2012)

The investigation reveals that most respondents agreed and strongly agreed (26 respondents or 50%) that they understood the process of asset management as detailed by TAMM. 19 respondents were unsure and 7 respondent did not understand at all the process in TAMM (Refer Chart 4.33 below). If the respondents have gone through the training, it is likely that they have at least minimum understanding of the TAMM implementation. The response for do not know is considered high (19 respondents or 37%), probably due to the fact that these respondents' are yet to undergo TAMM training at the time of data collection. The managers or operators in charge could have been transferred to other departments and replaced by new staffs or the training has not reached these respondents' departments. Implementation of TAMM is still at the early stage could influence the understanding of the effectiveness of TAMM itself.

Even after attending the training, but with no implementation of these areas immediately, may lead to them not understanding TAMM and its purpose and operation.

4.4.10 Consider TAMM Procedures as Valid



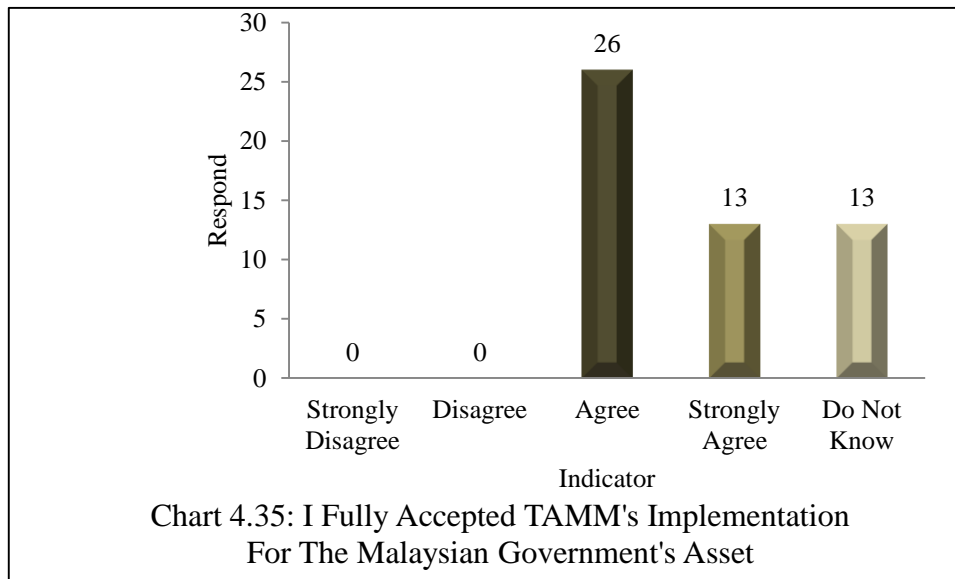
Source: Author (2012)

In the last section of B2- Level of Understanding, the respondents were questioned on the validity of TAMM procedure. 33 respondents (63%) replied with either agreed or strongly agreed. However, there were respondents who were against this obligation at 13% (7). It is imminent for the government to explain the importance of TAMM implementation to the asset managers and operators since the number of responds of unsure is high at 23% (12 peoples). The implementation should have full supports of government servants to be fully effective.

4.5 Part B3: The Effectiveness of Total Asset Management Manual (TAMM) in Malaysia – Level of Acceptance

The purpose of this Part B3 is to determine the level of acceptance on TAMM implementation among the respondents. It is important to foresee this because it will determine whether the implementation the Government policy has been achieved and carry out accordingly.

4.5.1 I Fully Accepted TAMM's Implementation for the Malaysian Government's Asset.

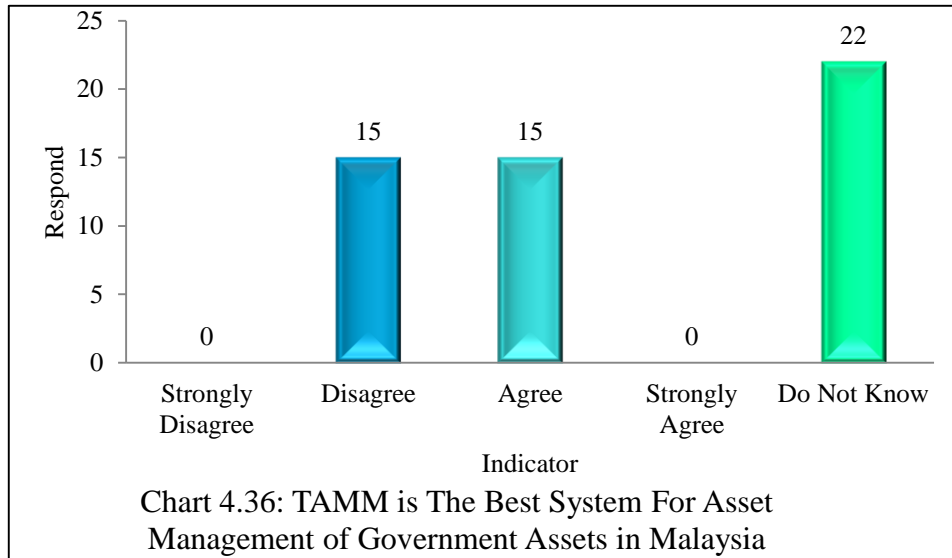


Source: Author (2012)

The survey reveals that almost 75% of the respondents (39) either agreed or strongly agreed that they accepted TAMM's implementation for Malaysian Government's asset. There were only 13 respondents who were not sure about the answer and no respondent disagreed on this matter (Refer Chart 4.35 above). As a government servant, it is a responsibility to exercise the government instructions and systems in one's daily work. How TAMM should be implemented is another issue, but the system itself has been provided by the government and should be implemented accordingly.

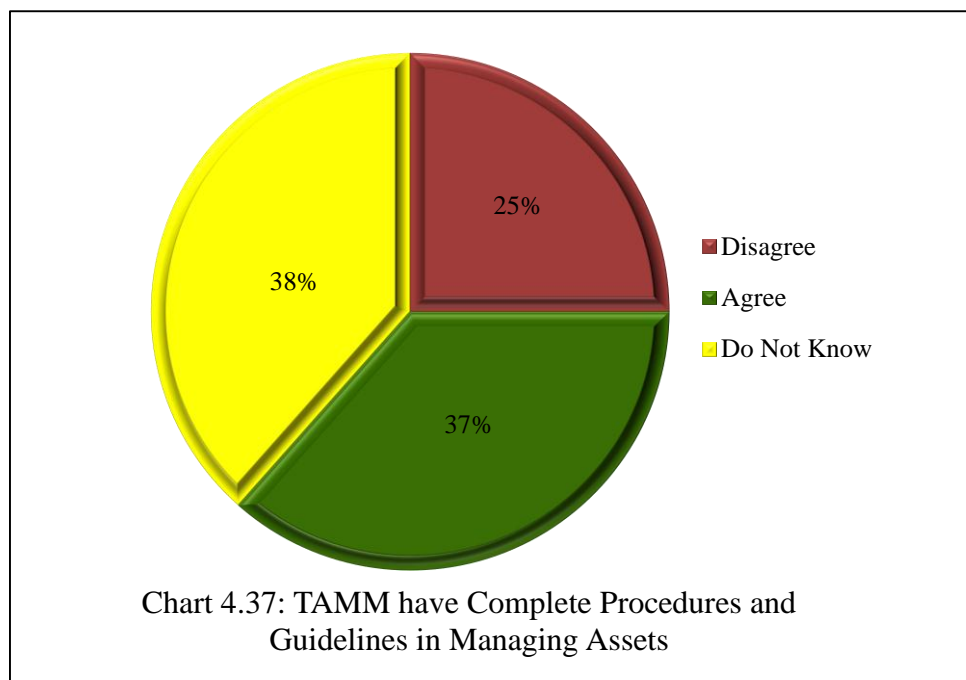
4.5.2 TAMM is the Best System for Asset Management of Government Assets in Malaysia.

The respondents' acceptance of TAMM implementation is different with the acceptance of TAMM capability as the best tool for government's asset management programme. 71% of the respondents (37) have either disagreed or unsure whether TAMM was the best tool for asset management implementation for Malaysian Government's assets. Factors such as TAMM slow progress, lack of training and current implementation may have influenced the result of the analysis for this question on TAMM implementation. However, Chart 4.36 also shows that 15 respondents (29%) agreed that TAMM was the best model in managing Malaysian Government's asset. Those who agreed with this statement mainly came from the property background and who had previous experience in managing assets.



Source: Author (2012)

4.5.3 Tamm have Complete Procedures and Guidelines in Managing Asset

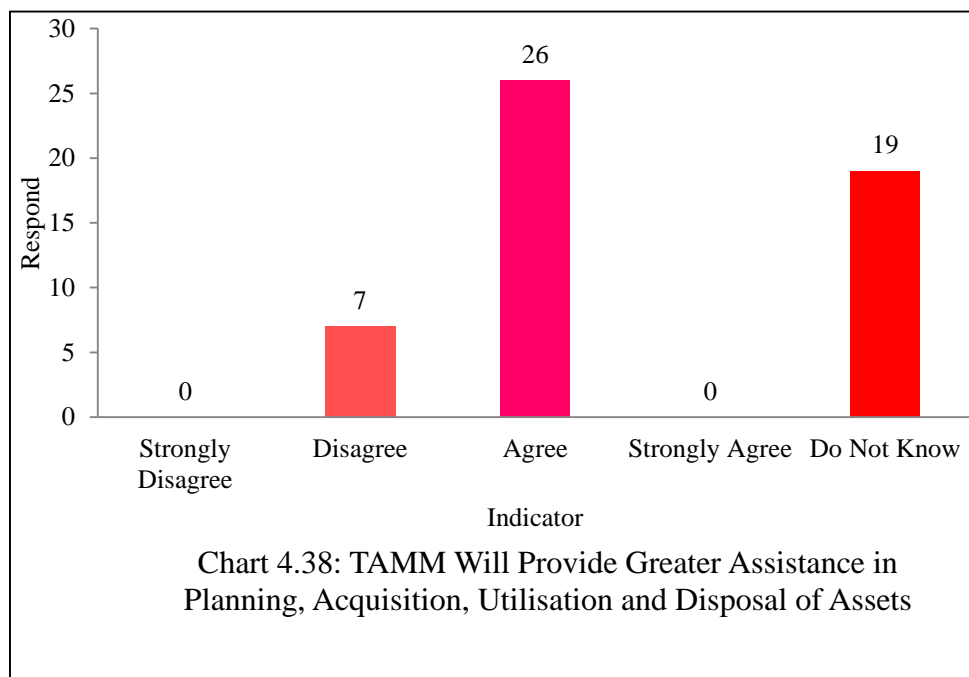


Source: Author (2012)

The majority of the respondents (63%) have indicated that they either disagreed (13) or did not know (20), that Tamm has complete procedures and guidelines in managing government asset (Refer to Chart 4.37 above). Further investigation on these disagreed respondents reveals that the introduction of Tamm has decreased the services delivery performance due to various

procedures that need to be followed. These procedures from asset planning to asset establishment, asset usage and asset disposal have detailed processes that need to be implemented step by step accordingly and involved various related agencies which would take greater amount of time. The ‘do not know’ respondents have little knowledge on TAMM due to lack of training and most of their job responsibilities were specific and there was no requirement to understand the whole TAMM. 37% respondents agreed that TAMM has complete procedures and guidelines in managing government asset in Malaysia where these respondents were from the property background and have experience in managing the assets and mainly were managers.

4.5.4 TAMM Will Provide Greater Assistance in Planning, Acquisition, Utilisation and Disposal of Assets

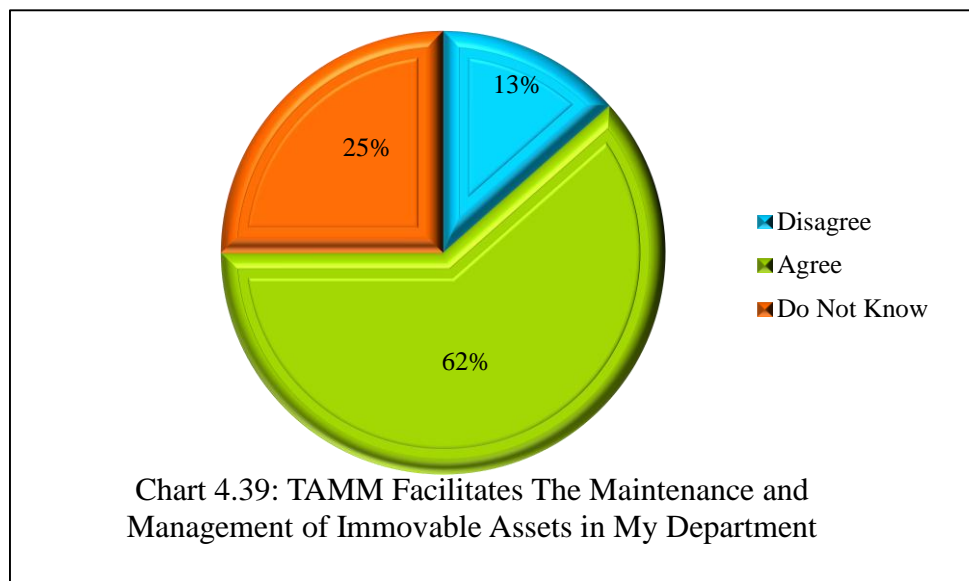


Source: Author (2012)

26 respondents have agreed that TAMM will provide greater assistance in asset planning, acquisition, utilisation and disposal. This result is consistent with the response on the understanding of TAMM on the same areas as per 4.4.9. Those who understood the process of planning, acquisition, utilisation and disposal have agreed that it could provide great assistance in managing the assets. 19 respondents did not know if TAMM will assist them and only 7

respondents mentioned that they disagreed on the matter (Refer Chart 4.38 above). Tamm has been considered reliable in providing assistance in managing assets based on the trend shown. The responds of 'do not know' may have very little knowledge on Tamm and those who disagreed were those who did not understand all the processes involved in Tamm.

4.5.5 Tamm Facilitates the Maintenance and Management of Immovable Assets in My Department

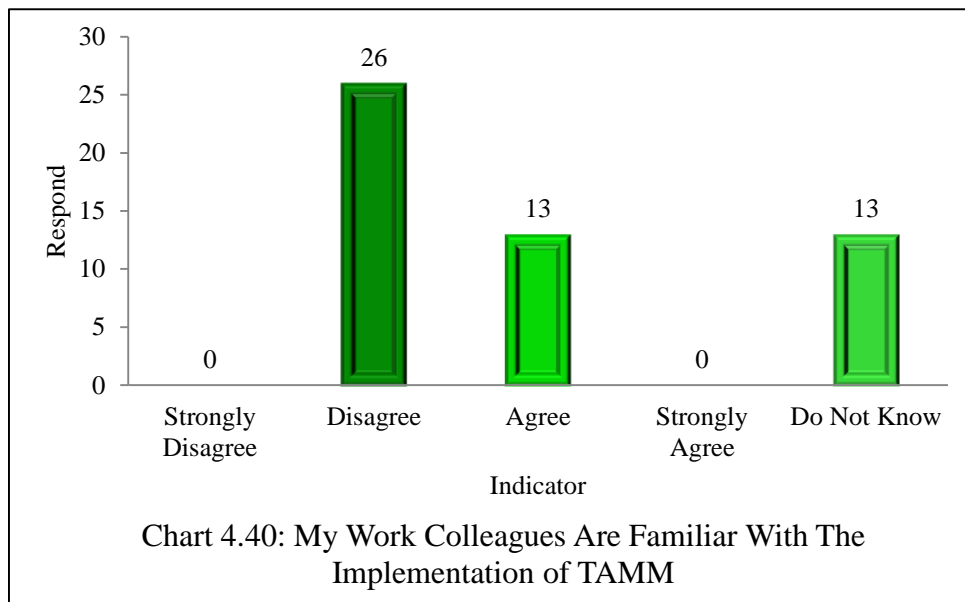


Source: Author (2012)

The survey reveals that 62% of the respondents agreed that Tamm has facilitated their departments with maintenance and management procedures of immovable assets. Tamm exposed the needs for proper asset procedures of planning, acquisition, utilisation and disposal which are the process of an asset lifecycle. The maintenance and management element were adopted in these 4 areas and accepted by most respondents. However, there are 7 respondents who were against the majority opinions. The remaining 13 respondents did not know whether Tamm has provided facilitation on the maintenance and management of assets during questioned as tabulated in Chart 4.39 above. This could slow down the process of implementing effective asset management and further decreases the life span of an asset.

4.5.6 My Work Colleague Are Familiar with the Implementation of TAMM

26 respondents (50%) disagreed that their work colleagues were familiar with the implementation of TAMM. Another 25% of respondents (13) did not know their colleague perceptions, while another 13 respondents (25%) agreed that their colleagues were familiar with TAMM. Further query revealed that high response rate recorded for disagree was most probably due to the fact that they have yet to receive any training on TAMM or if they have been trained, the training was not sufficient. Some respondents were unsure or could not be bothered with their colleague perceptions on TAMM as can be seen in Chart 4.40 above.

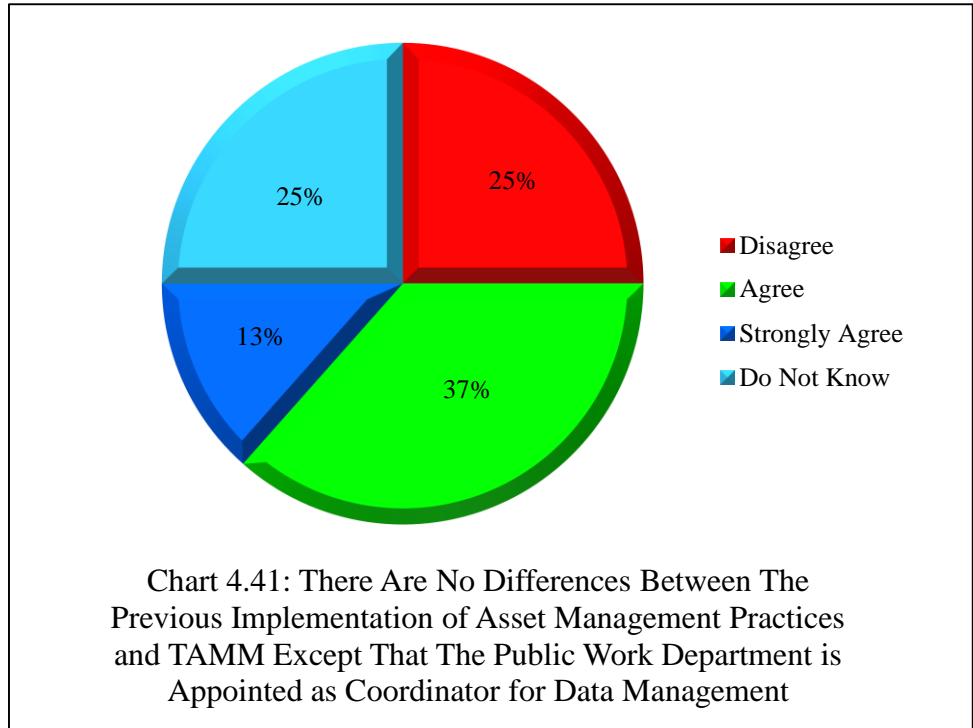


Source: Author (2012)

4.5.7 There Are No Differences between the Previous Implementation of Asset Management Practices and TAMM except that the Public Work Department is Appointed as Coordinator for Data Management

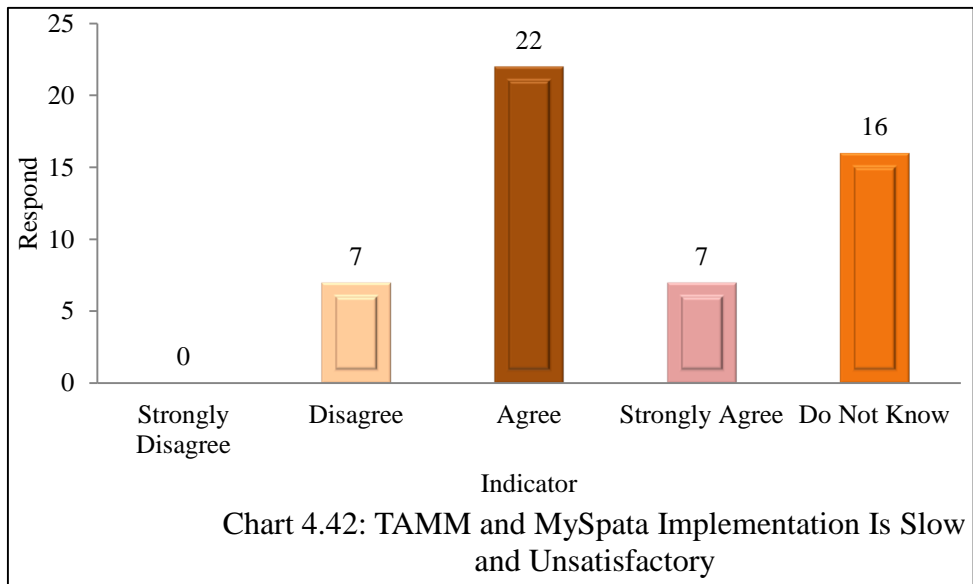
19 of the asset managers or asset officers surveyed either agreed or strongly agreed (7 responds) on the question of current TAMM implementation and previous asset management practices are likely to be the same. Most of the respondents who were in the asset management units in various departments have employed their own asset management practices and found that most of their previous practices were similar to the current implementation of TAMM. From Chart 4.41 below, it was also found that 13 respondents (25%) did not know of this and 13 respondents (25%) also disagreed on the question. Significantly, most of them believed that

TAMM is a mode of centralisation of asset management practice to create common practices among the departments but still the autonomy to manage the asset belongs to the departments.



Source: Author (2012)

4.5.8 TAMM and MySpata Implementation is Slow and Unsatisfactory

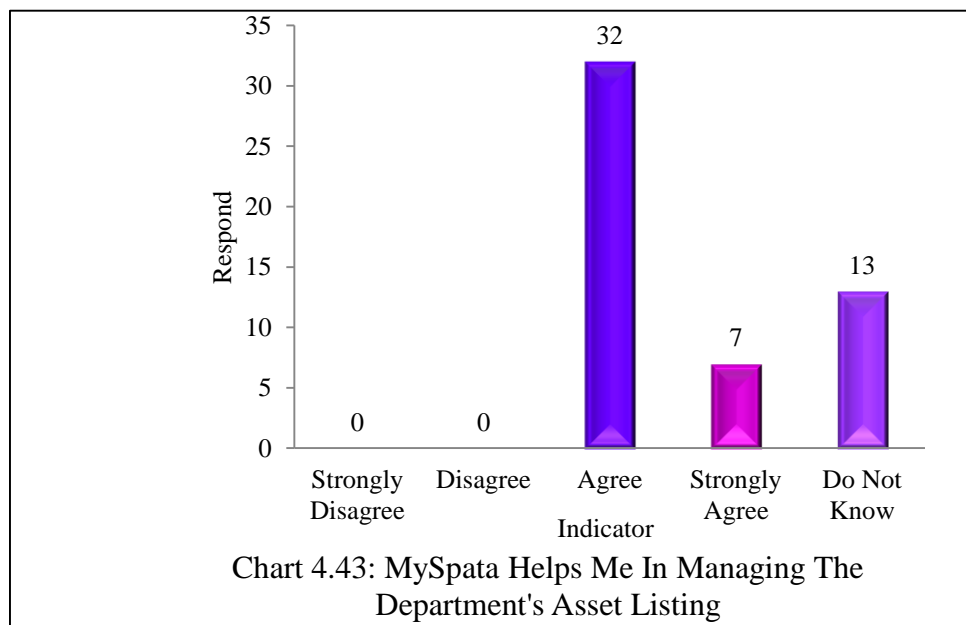


Source: Author (2012)

The respondents were asked for their opinions of TAMM and MySpata implementation being slow and unsatisfactory. Majority of them either agreed or strongly agreed (29 respondents or

56%) and 16 respondents (31%) did not know or were unsure as shown on Chart 4.42 above. There are only 7 respondents who disagreed with the question. It is a fact that since TAMM was launched in 2009, introduction was slow due to lack of training, limited number of subject matter experts and poor asset listings among the departments. Factors mentioned are the external weakness since TAMM itself is comprehensive and covers every aspect of asset management principles. Since the progress was slow, the number of operators who received training was also low. Respondents who answered 'do not know' did not know the current progress of TAMM.

4.5.9 MySpata Helps Me in Managing the Department's Asset Listing

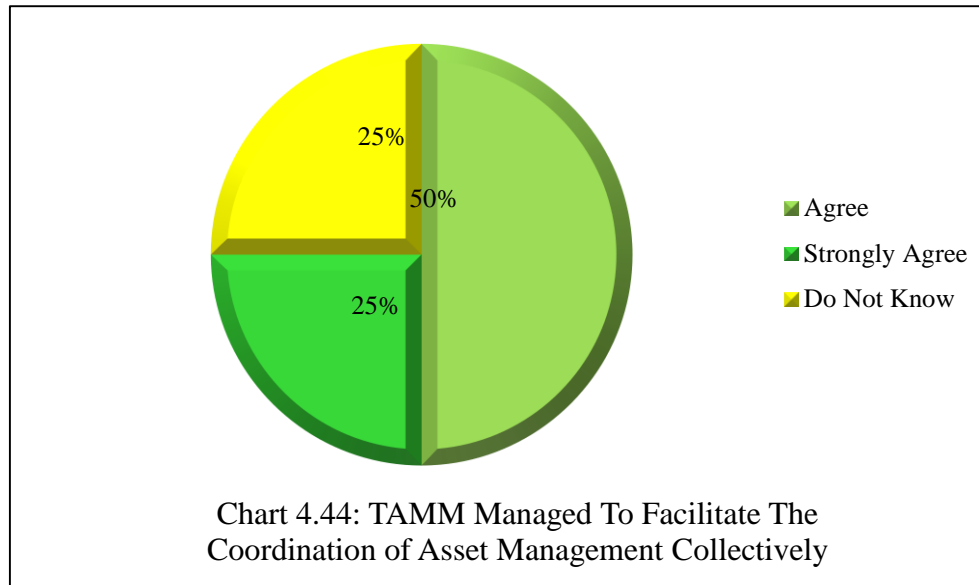


Source: Author (2012)

MySpata is the software developed by the Public Work Department to manage the asset listing of Malaysian Government assets under the TAMM implementation. Based on Chart 4.43 above, most respondents agreed or strongly agreed that MySpata helps their asset listing work (39 respondents or 87%). 13 respondents (13%) did not know whether MySpata will assist their assets listing since they have not been exposed or trained to use MySpata in their departments. MySpata was designed to capture and monitor the progress of the assets lifecycle from the process of acquiring, utilisation and disposal. Those who have been using MySpata recognised the assistance this system has in helping them in their daily work.

4.5.10 TAMM Managed to Facilitate the Coordination of Asset Management Collectively

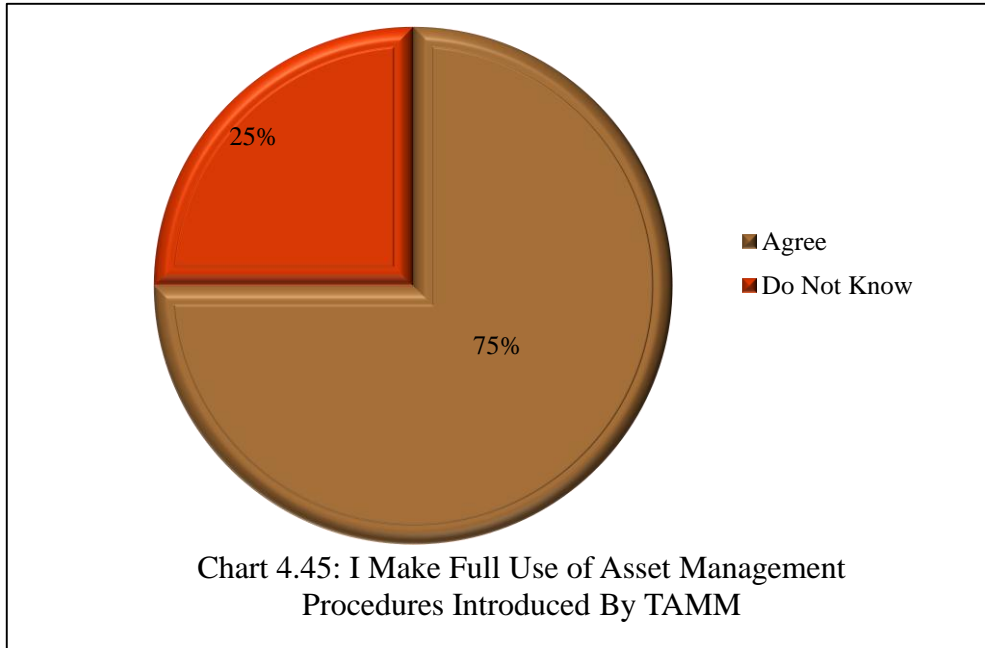
The response by the asset managers and asset officers for this question is similar to the previous question. Most of respondents agreed or strongly agreed that TAMM has managed to facilitate the coordination of asset management collectively (75% or 39 respondents as shown in Chart 4.44 below). 13 respondents who answered do not know as because they have not yet received any training on MySpata or TAMM.



Source: Author (2012)

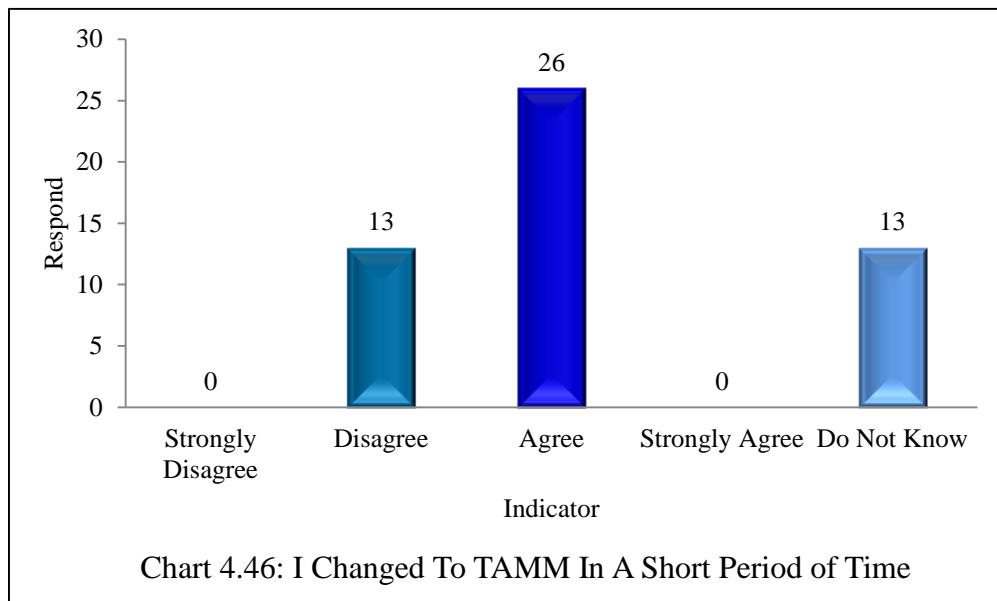
4.5.11 I Make Full Use of Asset Management Procedures Introduced by TAMM

In terms of TAMM's acceptance, 75% of respondents (39) agreed that they make full use of asset management procedures introduced by TAMM (Refer Chart 4.45 below). This may be in the form of implementation of MySpata or TAMM, both of which consider the asset life cycle process from the asset planning, asset acquisition, asset utilisation and asset disposal. This also includes asset registration, asset maintenance, asset monitoring and others. Again the 13 respondents (25%) who did not know the TAMM procedures were those who have not been exposed to the proper TAMM and MySpata implementation or training yet. The number of acceptance among the respondents may increase if they are trained and have full knowledge of TAMM.



Source: Author (2012)

4.5.12 I Changed to TMM in a Short Period of Time



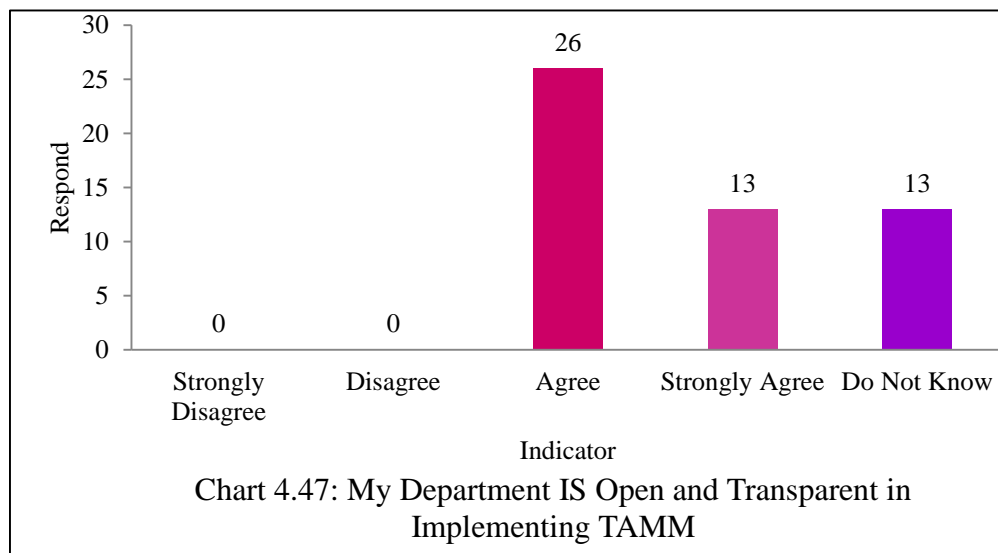
Source: Author (2012)

Chart 4.46 above indicates that 50% of respondents (26) face no problem in changing from the previous implementation of asset management to TMM implementation. 13 respondents (25%) had problems shifting from the old system whilst there are only 13 respondents (25%) did not know since they have not being trained on TMM procedures. Some of the problems

encountered include gathering previous data to be keyed into the system whereby not all data were available and greater amount of time taken to familiarise with the new system.

4.5.13 My Department is Open and Transparent in Implementing TAMM

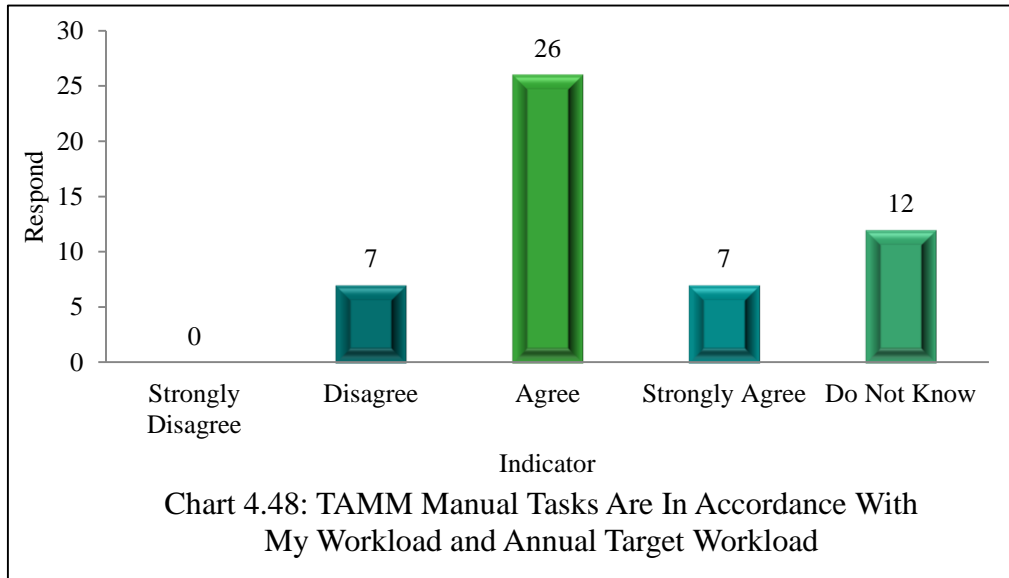
The reasoning behind this question was to gain knowledge of respondent’s opinion of their departments’ perception of TAMM implementation. From Chart 4.47, it is found that 75% of the respondents agreed or strongly agreed that their departments are accepting TAMM implementation. This could be due to the instruction to implement TAMM coming from the highest authority and all departments and ministries would have no question asked but to follow. The 13 respondents (25%) who did not know were probably in the position of an asset operator who did not know their departments’ acceptance as a whole.



Source: Author (2012)

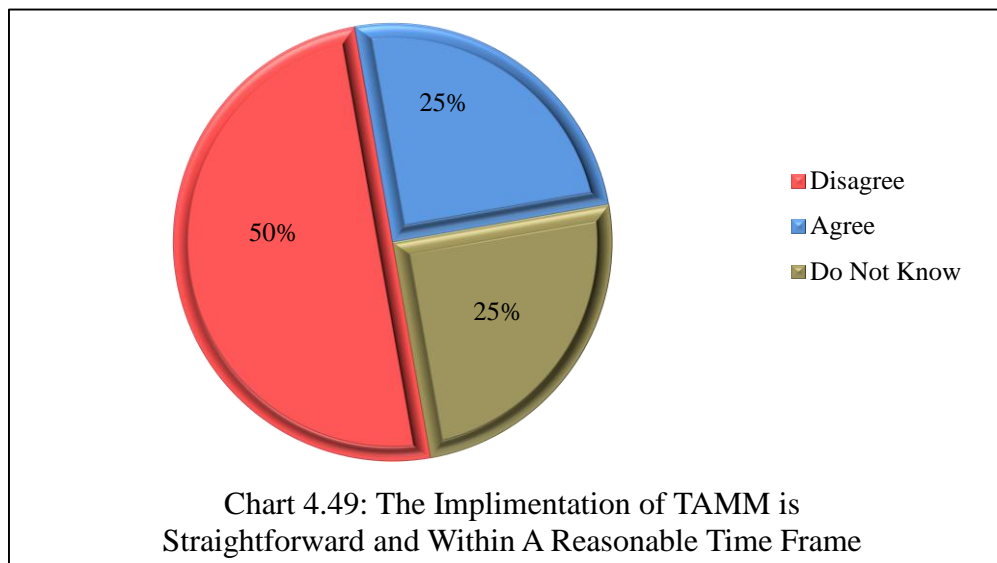
4.5.14 TAMM Manual Tasks Are in Accordance With My Workload and Annual Target Workload

This question was intended to differentiate between respondents who did not have any workload or annual target workload from the respondents who have previously had a workload. Chart 4.48 clearly shows that 33 respondents (63%) did have workload as prescribed in TAMM manual previously, 7 respondents (13%) did not have previous workload in asset management and 24% of respondents (12 people) did not know. This indicates that most respondents were continuing their previous workload in asset management before TAMM was introduced to create common implementation of asset management in their departments.



Source: Author (2012)

4.5.15 Implementation of Tamm is Straightforward and Within a Reasonable Time Frame



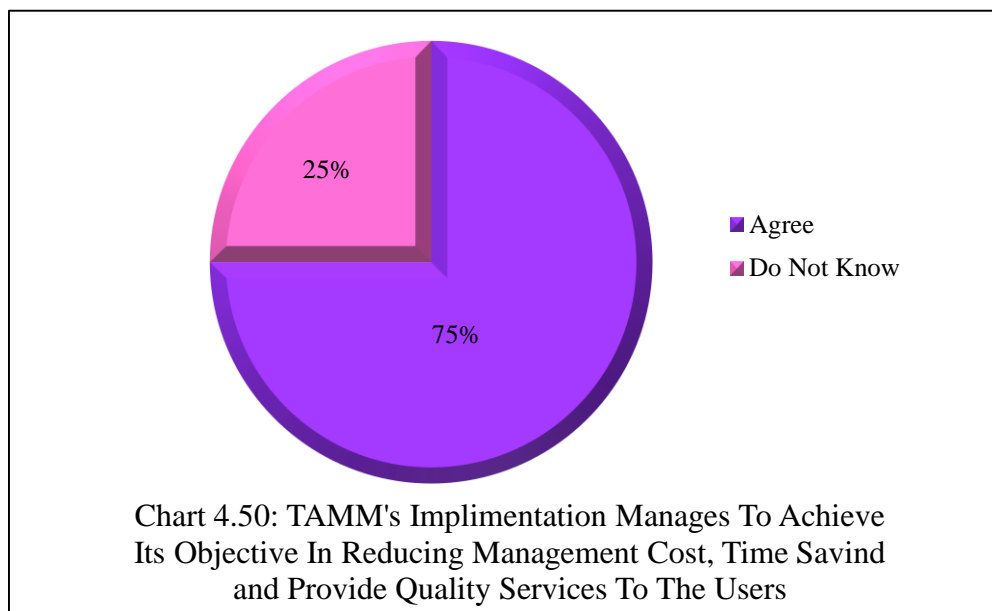
Source: Author (2012)

Most respondents disagreed that Tamm implementation is straightforward and within a reasonable time frame. As indicated in Chart 4.49, 50% or 26 respondents considered the implementation of Tamm not to be straight forward or within a reasonable time period. They commented that Tamm is comprehensive and it will take a lot of hands-on experience, training and explanation before it can be implemented successfully. It was not a straightforward manual

and a person should be trained first before implementing it. There were 13 respondents (25%) who agreed that TAMM is straightforward and 13 respondents (25%) who did not know. Those 13 respondents, who agreed were those who have had good experience in asset management.

4.5.16 TAMM’s Implementation Manage To Achieve Its Objectives in Reducing Management Cost, Time Saving and Provide Quality Services to the Users

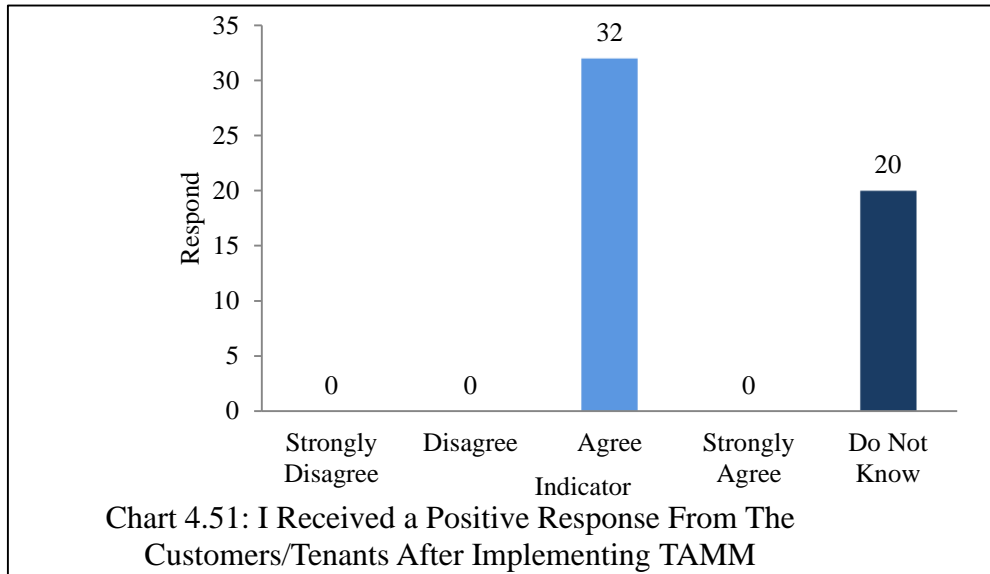
The survey reveals that most respondents agreed that TAMM implementation achieved its objectives with 39 respondents (75%) agreeing compared to only 25% or 13 respondents who did not know (Refer chart 4.50 below). In general, TAMM is accepted by the respondents and the reason for some respondents who did not know was because they cannot visualise the outcome of TAMM implementation in the long term.



Source: Author (2012)

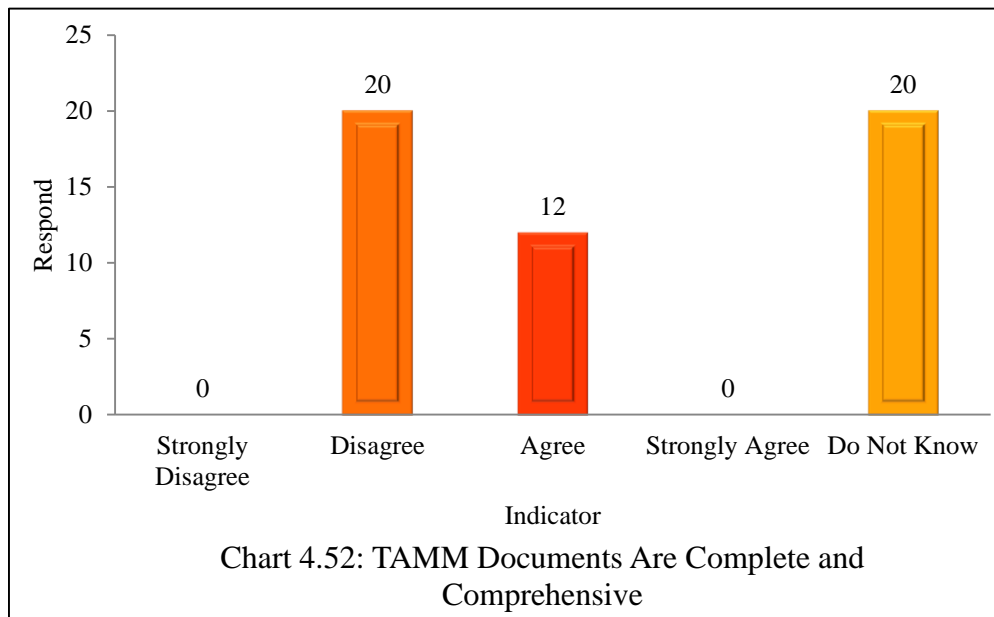
4.5.17 I Received Positive Response from the Customers/Tenants after Implementing TAMM

Based on the Chart 4.51, the survey reveals that 32 respondents (62%) agreed that they received positive response from their clients following the implementation of TAMM. The reason is because TAMM has created uniformity in implementing asset management in different departments and the mode of maintenance can be documented. However, 20 respondents (38%) did not know whether TAMM created positive responses since their current positions were as asset operators who did not deal with clients directly.



Source: Author (2012)

4.5.18 TAMM Documents are Complete and Comprehensive



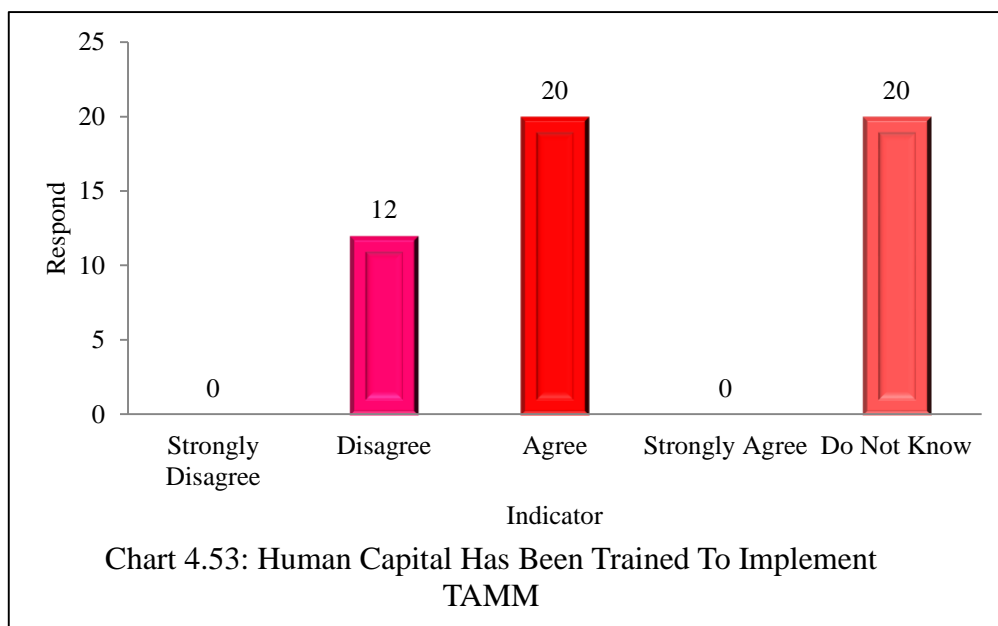
Source: Author (2012)

Even though in previous questions most respondents agreed that TAMM implementation helped them with their asset management work and they received positive responses on TAMM from their clients, however, most respondents disagreed that TAMM documents are complete and comprehensive with 38% of them (20) disagreeing (refer Chart 4.52 above). Further investigations revealed that there was still room for TAMM document improvements on issues

such as assets with income generation, specialised assets and maintenance procedures. In addition, 38% or 20 respondents did not know because they were not fully exposed to TAMM or had not been trained yet and only 12 respondents agreed that TAMM documents are complete and comprehensive where these respondents were from the property background and have experience in managing the assets and mainly were managers.

4.5.19 Human Capital Has Been Trained to Implement TAMM

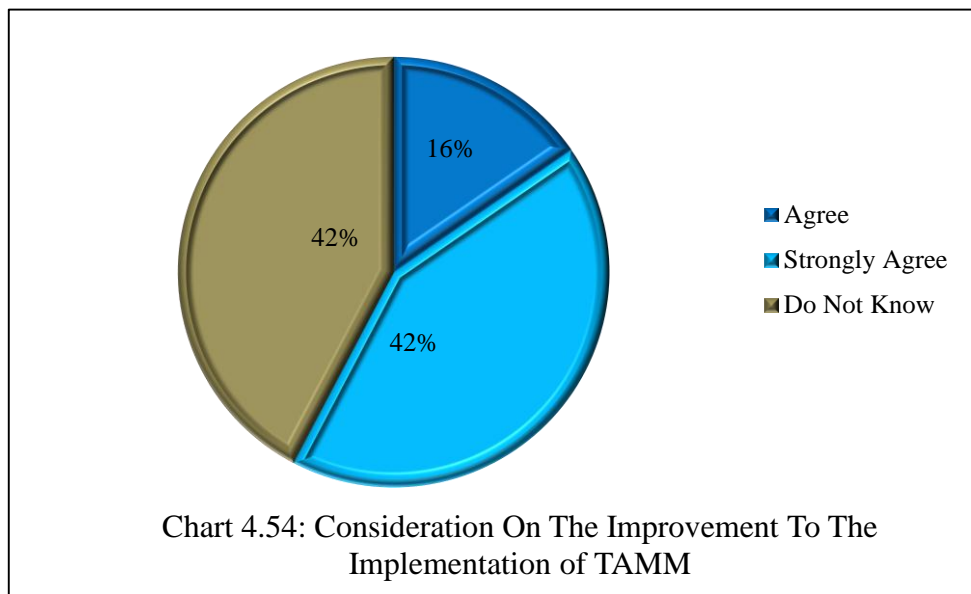
Chart 4.53 shows that 20 respondents (38%) agreed that human capital had been trained to implement TAMM in their departments. However, there were 12 respondents (24%) who were in the opinion that human capital were not or not fully trained to comply with TAMM implementation. Further query also found that the higher number of respondents who did not know (20 respondents or 38%) is because it was not their duty to train another staff or they were not being trained as well. With the fact that there are high number of government departments and staff that are going to implement TAMM, the training process can be lengthy and some consider inadequate.



Source: Author (2012)

4.5.20 Consideration That There Should Be Improvement to the Implementation of TAMM

This last question, respondents were asked on their opinion on the consideration of TAMM implementation improvement. From Chart 4.54 below, 32 respondents or 58% agreed or strongly agreed that further improvement on TAMM implementation should be considered. The improvement is imminent in term of the level of readiness of staff to adopt TAMM implementation through training, continuous training modules and familiarisation period for staff to undertake TAMM. These were some suggestions for improvement suggested by respondents. At the time of the data collection, the training was at the registration module while other module such as maintenance and disposal are yet to be introduced. With the detailed processes that have to be implemented, adequate time are needed to be given to all staff to achieve the expected objectives. However, 42% of respondents (20) did not know whether there should be improvements on TAMM. This has resulted from the lack of training and the lateness in providing training among the respondents.



Source: Author (2012)

4.6 Conclusion

This chapter has discussed in detail the analysis and findings from the research survey. The main purpose was to explore the level of awareness, understanding and acceptance of TAMM implementation in Malaysian Government's assets.

The general outcome on the level of awareness of the respondents is that not every respondent was aware of the implementation of TAMM and the issue pertaining to the awareness is the training of staff. Lack of training has been identified as the major factor reducing the level of awareness among respondents.

In studying the level of understanding of TAMM implementation in Malaysia, it was agreed from the survey that TAMM has provided excellent and detailed descriptions of the government's property asset management. However, the same issue rose as in the level of awareness, TAMM was easy to understand if the staff were exposed to the policy and trained. TAMM is specific, and the level of understanding will significantly increase with the increase of the level of training of staff.

Finally, TAMM was accepted by respondents in their daily work either as asset manager or asset operator. It is indeed a system that was being recognised by respondents in helping them manage government assets. Again, it is only being recognised if the staff have been trained and familiarised with the TAMM procedures. At the time of data collection, it was found that the level of familiarisation among the respondents as TAMM users was low. Lack of training and understaffing for training was the main reason for the slow progress of TAMM implementation. It should be noted that since TAMM was launched in 2009, it is slowly progressing in departments which are still in the process of providing asset listings to Public Works Department, who act as the federal coordinator.

The next chapter will conclude on the overall findings of this research.

CHAPTER 5: CONCLUSION AND SUGGESTIONS

5.0 Introduction

This chapter will present the overall conclusion of this research, with a focus on the correlation between the outcome of this research and the research objectives that have been outlined in Chapter 1. The conclusions will show that the research aim of this research, which was ‘to provide a guidance framework for the area of improvement of asset management that can be applied’, has been achieved.

The research objectives of this research were as follows:

- (i) To examine the international practices of public sector asset management;
- (ii) To examine the Malaysian public sector asset management namely Total Asset Management Manual; and
- (iii) To assess the awareness, understanding and acceptance of Total Asset Management Manual.

The final part of this chapter will provide suggestions to improve the current implementation of the Total Asset Management Manual in Malaysia. Some further studies that can be pursued based on this research outcome will be provided to enrich the studies in public sector asset management in Malaysia.

5.1 Research Findings and Conclusion

5.1.1 Research Objectives 1 & 2

The objective 1 of this study was to examine the international practices of public sector asset management. The method applied by the researcher to achieve this research objective was through qualitative analysis via content analysis. The similarities and dissimilarities among the international implementation of public sector asset management have been discussed and elaborated. Based on the documents review conducted, the area of discussion in Chapter 2 of this thesis include various definitions of asset management, discussion of corporate real estate asset management, public sector asset management, emergence of public sector asset management, best practices of asset management and Malaysian public sector asset management.

To achieve research objective 2 of this research, the same approach has been conducted. The researcher used content analysis to analyse and discuss the Malaysian implementation of public sector asset management, namely Malaysian Total Asset Management Manual (TAMM). The discussion of TAMM was detailed in Chapter 2 of this thesis which included Malaysian TAMM policy, TAMM strategy of

implementation, TAMM concepts and principles, TAMM general model, structure of government's asset management responsibilities, structure of TAMM responsibilities, management procedures of Malaysian TAM and the development of Malaysian Government Immovable Asset Management System (MySpata).

Critical analysis and discussion were provided for each heading as stated above and the parameters were used in the development of research questionnaire to achieve research objective 3 of this research.

The analysis and discussion to achieve research objectives 1 and 2 have identified rooms for improvement with the researcher comparing international practices of public sector asset management with Malaysian Total Asset Management Manual (TAMM) are as follows:

a) Income generation

Malaysian TAMM emphasizes on the asset management, maintenance procedures and implementation, whilst international practices have included new area of public sector asset management such as income generation, continuous revenue flow, marketing, creating branding and others. Internationally, the public sector asset management was regarded as a tool to produce incomes and manages the government property assets as income producing resources. The competition for income generation between government and private agencies is high due to the demand for spaces have increased. In the case of Malaysia, TAMM has not utilised its capacity in centralising the asset management of government's property with the income producing capacity inputs. To compete with the private sector which have limited spaces but with better property management services, income generation is the element that cannot be neglected.

b) Cost Efficiency

Cost efficiency, either by monetary terms or human capital resources was highly highlighted in the international practices. Malaysian TAMM does not discuss further in detail regarding this issue even though it has been mentioned in one of the Malaysian TAMM objectives. The TAMM procedures fail to include the cost reduction element. This factor was related to the above income generation factor that differentiated Malaysian TAMM with the international practices. As the funding for asset management in Malaysia is solely relied on government's funding, the cost efficiency is somehow neglected. The ability to reduce asset management cost can be conducted through measures such as performance measurement and better management, which can prolong the economic life of an asset. Cost efficiency can save Malaysian government spending, as proven by the international practices.

c) **Coordination between departments**

There is a need for a better coordination between property departments within the Malaysian government agencies. Currently, MySpata acts as a property registration database for Malaysian government's immovable asset, but there is no plan for utilisation of the asset information registered under MySpata program. Asset utilisation can come in various way, such as swapping asset between departments, asset sharing or joint occupation of government assets to improve the asset occupancy and management. In the long run, it will improve the government maintenance management cost, and can increase the Malaysian government revenue.

5.1.2 Research Objective 3

Research objective 3 was to study the level of awareness, understanding and acceptance of Malaysian TAMM implementation. Based on the findings on research objectives 1 & 2, the researcher developed a research questionnaire as a tool to achieve research objective 3. The respondents for the research survey were the asset managers and asset operators of Malaysian government immovable assets who are currently implementing Malaysian TAMM in their daily work.

The level of awareness, understanding and acceptance of the respondents regarding Malaysian TAMM were studied and the major findings on the analysis are as follows:

a) Level of Awareness of Malaysian TAMM

The level of awareness among the respondents on TAMM was low at the beginning stage of TAMM implementation. This was presented through the survey as 56% respondents either did not know or were unsure of the knowledge on TAMM (Chart 4.9 of Chapter 4). This indicates that the level of their awareness was low as they were not well informed on the TAMM implementation. This finding is important which shows that if the information on government policy was not well executed and distributed, the policies appliers will not have adequate information and knowledge.

However, after training and information were provided to the respondents, they agreed that they were well equipped with TAMM (Chart 4.10) and understood their responsibilities to practice and understand TAMM (Chart 4.11). This was also supported by the fact that TAMM has helped respondents in their daily work (Chart 4.12) if they were properly trained and informed.

Surprisingly, it is found that 25% of respondents mentioned that TAMM document was not available at their offices (Chart 4.13). This has supported and conformed the earlier finding that the level of awareness was low due to the lack of TAMM's information and it was not made available to the respondents. Through the training and road show on the launched of TAMM, it was found that majority

of the respondents understood the different type of TAMM documentation (Chart 4.14) and application of MySpata (Chart 4.15). The continuous training and information provided will ensure that TAMM managers and operators will be well informed on the TAMM implementation as most of respondents were managing MySpata only at the departmental level (Chart 4.16). Their understanding should increase as the TAMM and MySpata was launched to standardise property asset management within the government agencies in which currently are the responsibility of the respondents. It is also found that majority of respondents understood the objectives of TAMM (Chart 4.17) if they were properly trained.

On the level of awareness, most respondents agreed that TAMM has provided overall guidelines of immovable asset management (Chart 4.18). It helps the TAMM users as the respondents were aware of their function (Chart 4.19). This information is important to study that the TAMM implementation was well aware by the government staff implementing it and if they have been adequately provided with the relevant knowledge.

Some drawbacks from the findings on the level of awareness of the TAMM implementations were as follows:

- It should be noted that most respondents were not informed of TAMM (Chart 4.20) at the beginning stage. This is in term of training, courses, on the job training and familiarisation. Late information received by the TAMM managers and operators led to poor performance of the asset registration through MySpata. It should be noted that since 2009, MySpata is still at the asset registration level.
- Majority agreed that they were only following their superiors' order in managing asset (Chart 4.22). This has happened because the respondents were not aware of TAMM implementation and were not informed on the TAMM procedure of implementation. Better understanding of TAMM will reduce operators' dependency on their superiors' guidance.
- Majority of respondents said they were not exposed with the function and responsibility as TAMM users at the initial stage (Chart 4.23). This was due to the delay in receiving training on TAMM. The launched of TAMM was not fully made known to every level of TAMM implementers.

b) Level of Understanding of Malaysian TAMM

The study on the level of understanding of Malaysian TAMM has indicated some surprising findings. It was found that the level of understanding has not been successful. 50% of the respondents did not understand and 25% were unsure what TAMM is. This finding is alarming since TAMM was expected to be understood and well-versed by the implementers. The limitation in understanding of TAMM will

increase the burden of providing more training to the staff and time consuming before TAMM can be fully operated. However, most respondents have agreed that TAMM have underlined their function and responsibility (Chart 4.26). Even though most of them were not fully understood of TAMM documents because of the delayed in training, they understood their roles.

Another finding from the level of understanding is that majority of respondents realised that TAMM was quite similar to their previous asset management practices (Chart 4.27). This comment mostly came from the TAMM implementers that have experience in property management or have property education background. Even though most of them said that TAMM was similar to their previous practices, it is found that majority of them said that their workloads have increased after implementing TAMM (Chart 4.28). The increasing of workloads was due to the increase in asset registration, asset procedures and asset documentations that have to be followed.

Majority of the respondents had agreed that the understanding of TAMM has made the task of asset management more systematic and in orderly (Chart 4.29). In general, most of them agreed that they understood their scope of works in asset management (Chart 4.30). This was also due to the fact that the comment came from persons who have practiced property management as property managers or property operators previously. Their experience had helped them assimilate themselves with the new TAMM implementation.

It is also found that most respondents either disagreed, strongly disagreed or were unsure whether TAMM training was sufficient to them (Chart 4.31). The combine percentage was at 73%. Further investigation revealed that at the beginning level, the level of understanding was low. Majority of the respondents had agreed that TAMM will assist them in the long run (Chart 4.32) even though there were 25% of respondent that were unsure because they were in the early stage of TAMM implementation.

Another prominent finding on the level of understanding is that majority of respondents were unsure and disagreed when asked about their understanding of TAMM processes (Chart 4.33). The reason for it was due to that they have not fully understood on TAMM processes. The information was delivered to them through training practices, which was not realised in reality yet in practices. Therefore, the trial by experience was much needed for the respondents. In general, most respondents had agreed that they have to apply TAMM procedures with trust (Chart 4.34) to ensure that the objectives of TAMM were delivered.

c) Level of Acceptance of Malaysian TAMM

The study on the level of acceptance among the respondents found that majority of the respondents had accepted TAMM implementation (Chart 4.35). However, most of the respondents mentioned that they were unsure whether TAMM was the best approach in managing Malaysian government's asset (Chart 4.36). The reason was that TAMM performance and effectiveness were still early to be measured since it was only launched in 2009.

Another finding was that mix responses were recorded when the respondents were assessed on the statement that TAMM has complete procedures and guidelines in managing asset (Chart 4.37). Most of the respondents were unsure. This was mostly because the respondents had not yet applied the TAMM implementations in their daily work. However, majority of the respondents had agreed that TAMM will provide greater assistance in planning, acquisition, utilisation and disposal of assets (Chart 4.38) as stated in the TAMM processes. This respond was supported by the finding that most of the respondents agreed that TAMM facilitate the maintenance and management of immovable asset in their respective departments (Chart 4.39).

Surprisingly, it was also found that most respondents said that their colleagues were not familiar or unsure with TAMM understanding and implementation (Chart 4.40). This was because they have not been provided with training in TAMM implementation or they have not yet experienced the TAMM implementations.

Majority have agreed that their previous asset management implementations were similar to TAMM procedures except that TAMM implementation has appointed the Public Work Department as the main coordinator for data management (Chart 4.41). The Public Work Department should play their role efficiently in providing adequate training for the TAMM property managers and operators since a high number of respondents commented that TAMM and MySpata implementation were slow and unsatisfactory (Chart 4.42). Lack and slow in providing training were the main factors for this issue. However, if training was provided adequately, majority agreed that MySpata helps them in managing their departments' asset listing (Chart 4.43).

In general, majority had mentioned that TAMM managed to facilitate the coordination of asset management collectively (Chart 4.44) and they had made full use of TAMM procedure in their daily operations (Chart 4.45). There were also mixed opinions when the respondents were questioned on the change to TAMM in a short period of time. Mostly agreed (50%), 25% disagreed and the remaining 25% was unsure (Chart 4.46). This shows that the ability of the respondents to change to TAMM was slow even though majority of the respondents said that their departments were open and transparent in

implementing TAMM (Chart 4.47) and that TAMM manual tasks were in accordance with their workload and annual target workload (Chart 4.48).

Another important finding from this survey was that 50% respondents did not agree that the implementation of TAMM was straight forward with a reasonably time frame. 25% were unsure and there were only 25% who agreed (Chart 4.49). If training and latest update information were provided, majority of the respondents agreed that TAMM implementation managed to achieve its objectives in reducing management cost, time saving and provide quality services to users (Chart 4.50). Positive respond was also indicated by most respondents after implementing TAMM (Chart 4.51).

In contradict, majority of respondents disagreed or were unsure on the statement that TAMM documentation are complete and comprehensive. This was because of TAMM implementation was at the early stage and the training provided was not sufficient (Chart 4.52). There were mixed opinions regarding question on human capital has been trained to implement TAMM. Most respondents were unsure since they were new to TAMM system and yet to be trained or tested on the field (Chart 4.53).

In general, majority of the respondents have agreed that there should be improvement to TAMM implementation (Chart 4.54) which should consider continuous training, adequate timing and sufficient on-the-job training to achieve TAMM objectives.

5.1.3 Major Findings

Some major findings of this research are outlined below:

- a. By comparing the international practices of government asset management practices and Malaysian Total Asset Management Manual (TAMM), it should be highlighted that TAMM should consider income generation strategy in managing Malaysian government immovable assets. This will create added value to the TAMM current implementation, and will develop government asset managers and operators to become as competitive as their counterparts in the private sector.
- b. On the level of awareness, it is clear that at an earlier stage, most respondents were unaware of TAMM implementation even though TAMM was launched in 2009. However, after being exposed to TAMM and MySpata application, as well as training courses conducted, awareness on TAMM implementation increased and received positive responds from asset managers and asset operators.
- c. The major finding on the level of TAMM understanding is that most respondents understood the fundamental of TAMM, on the ground that proper training was provided and time was sufficient.

For those who have been trained, the problem was the level of understanding on implementing the knowledge gained during the courses. Some of the respondents were not familiar enough with the system and required more on the job training to familiarise themselves with TAMM documentation.

- d. In discussing the level of TAMM acceptance, in general TAMM was accepted by majority of public servants. TAMM will only be beneficial if proper training is provided, access to TAMM documentation is made available to every staff in asset management program. Time constraint and late in receiving proper training reduce the overall acceptance among the respondents.
- e. If it is implemented effectively in the federal level, it will be more accepted at the state and local levels. The assets held at these levels are significant.

5.1.4 Conclusion

Malaysian Total Asset Management Manual (TAMM) is important to organise and structure the Malaysian Government asset management. The implementation of TAMM requires major support from people on the ground, namely asset managers and operators dealing with day to day operation of the government assets. International practices of government asset management have proved that managing the daily operation and the maintenance of property asset is not the only variable in effective asset management. There is room for improvement to include variables such as income generation, marketing, branding and corporate real estate management that can improve the reliability and economic values of government asset supporting the lifecycle system adopted in TAMM. The study on the respondents involved directly with TAMM implementations is important to indicate their opinions on TAMM implementations. It is found that the level of awareness, understanding and acceptance of TAMM implementation will increase if proper training courses for TAMM implementation are provided and being educated. The effectiveness of TAMM is yet too early to be measured as it was only commenced in 2009.

Overall, it was found that the implementation of TAMM is not satisfactorily advanced overall. It has not been effectively taken up by some asset managers or operators. This research has identified the need for additional effort, policy guidance, continuous training, adequate time frame and sufficient on-the-job training to be introduced for all people responsible for asset operation in order to achieve TAMM objectives.

5.2 Proposals

The suggestion based on this research findings are as follows:

- a. The introduction of income generation strategy or principles in Malaysian Government property asset management practices. This will reduce the government cost of managing the asset, increase the economic value of an asset and made the government property assets as competitive as private market.
- b. The implementation of TAMM will only be beneficial to the Malaysian Government if the staff involve in TAMM implementation are provided with the sufficient training courses and on the job training. The level of awareness, understanding and acceptance of TAMM implementation will positively escalate.
- c. Having identified all the issues to be addressed at the federal level will result in a more successful asset management policy at the state and local government.

5.3 Future Research

Based on this research findings and conclusion, the proposed future researches are as follow:

- a. Parameters for the introduction of income generation and continuous income management policy in governing property asset across all government.
- b. Developing an appropriate asset management framework and guideline to ensure that asset management policy and practice are consistent and successful across all level of government in Malaysia.
- c. System for on-going, structural monitoring and reporting.

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THE EXAMPLE OF THE QUESTIONNAIRE THAT WAS SENT TO THE RESPONDENT

RESEARCH TITLE: THE EFFECTIVENESS OF PUBLIC SECTOR ASSET MANAGEMENT IN MALAYSIA	
PART A: RESPONDENT BACKGROUND	
The purpose of this section is to obtain the respondents information relating to the public sector asset management, in terms of educational background, years of experience and experience with public sector asset management practices in Malaysia.	
Type Of Respondent	<input type="checkbox"/> Asset Manager <input type="checkbox"/> Asset Operator <input type="checkbox"/> Other (Please Specify)_____
Type of Organisation:	
Location of Respondent:	
Level of Education	<input type="checkbox"/> Medium Certificate Of Education (Mce/Spm) <input type="checkbox"/> Diploma <input type="checkbox"/> Bachelor Degree <input type="checkbox"/> Master <input type="checkbox"/> Doctorate <input type="checkbox"/> Others (Please Specify, I.E. Professional Diploma, Certificate Etc) _____
Qualification Area (I.E. Property Management, Electrical, Civil Engineering And Others).	
Experience in managing/operating the asset?	<input type="checkbox"/> Less Than 1 Year <input type="checkbox"/> 1 To 3 Years <input type="checkbox"/> 3 To 5 Years <input type="checkbox"/> More Than 5 Years
Are you officially appointed through a letter of appointment to manage/operate the asset?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Do you have any prior experience/ background of managing/ operating the asset?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Could you indicate the level of proper management structure in your department?	<input type="checkbox"/> Basic Structure

	<input type="checkbox"/> Adequate Structure <input type="checkbox"/> Excellent Structure <input type="checkbox"/> Additional Improvement Required
What type of assets are you managing/ operating at the moment? (you can answer more than one)	<input type="checkbox"/> commercial (Shopping Complex) <input type="checkbox"/> Commercial (Office Building) <input type="checkbox"/> Commercial (Shophouses) <input type="checkbox"/> Residential <input type="checkbox"/> Other (please specify) _____ _____

PART B: THE EFFECTIVENESS OF TOTAL ASSET MANAGEMENT MANUAL (TAMM) IN MALAYSIA

The purpose of this section is to study the level of effectiveness of the current total asset management manual (tamm) in the respondent's department on the following areas:

Part B1 : Level Of Awareness

Part B2 : Level Of Understanding

Part B3 : Level Of Acceptance

Part B1: Level Of Awareness

Do you know that TAMM was launched in 2009 to manage immovable/ intangible assets?

- Yes
 No (Please Go To Question 3)
 Not sure (please go to question 3)

1. If your answer is <u>YES</u> , please answer according to your opinion (Please provide answer based on a scale of 1 to 5):	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE	DO NOT KNOW
	1	2	3	4	5
a. I was well equipped with the information on TAMM.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. TAMM consists of procedures that should be understood by manager/ operator.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. TAMM helps my daily basis work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. TAMM's manual is available to everyone in my office.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. I fully understood the different types of TAMM's document such as the policy, the procedure and the supporting document.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

f. I fully understood the application of MySpata.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. I only have to manage MySpata at my departmental level.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. I understood that the main objective of the TAMM is to provide quality delivery services by the government.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. TAMM provides overall guidelines on how to manage immovable government's assets.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. I am fully aware of my function and purpose as a TAMM user.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. If your answer is <u>NO</u> or <u>NOT SURE</u> , please answer according to your opinion (Please provide answer based on a scale of 1 to 5):	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE	DO NOT KNOW
	1	2	3	4	5
a. I was not informed on TAMM.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. I was not given any training on TAMM.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. I was only following orders from my superior.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. I was not exposed with the function and responsibility as TAMM's user.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. I was not instructed to use TAMM as my working guidelines.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PART B1: LEVEL OF UNDERSTANDING					
1. Please provide answer based on a scale of 1 to 5:	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE	DO NOT KNOW
	1	2	3	4	5
a. I fully understood the TAMM's documents.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. I fully understood my functions and responsibilities according to TAMM.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. I realised that my previous work specification is similar to TAMM's implementation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. My workload has increased after implementing TAMM.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Understanding of TAMM makes the task of asset management more systematic and orderly.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. I fully understood my scope of work in asset management.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

g. TAMM training is sufficient for my current work in asset management.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. TAMM will assist to facilitate my work in the long term.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. I understand the process in the asset management as detailed by TAMM, for example planning, acquiring, utilisation and disposal of assets.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. I understand that I have to perform all TAMM's procedure with trust.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PART B3: LEVEL OF ACCEPTANCE					
1. Please provide answer based on a scale of 1 to 5:	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE	DO NOT KNOW
	1	2	3	4	5
a. I fully accepted TAMM's implementation for the Malaysian government's asset.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. TAMM is the best system for asset management of government assets in Malaysia.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. TAMM has complete procedures and guidelines in managing assets.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. TAMM will provide greater assistance in planning, acquisition, utilisation and disposal of assets.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. TAMM facilitates the maintenance and management of immovable assets in my department.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. My work colleagues are familiar with the implementation of TAMM.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. There are no differences between the previous implementation of asset management practices and TAMM except that the Public Work Department is appointed as coordinator for data management.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. TAMM and MySpata implementation is slow and unsatisfactory.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. MySpata helps me in managing the department's asset listing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. TAMM managed to facilitate the coordination of asset management collectively.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. I make full use of asset management procedures introduced by TAMM.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. I changed to TAMM in a short period of time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m. My department is open and transparent in implementing TAMM.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n. TAMM manual tasks are in accordance with my workload and annual target workload.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

o. The implementation of TAMM is straight forward and within a reasonable time frame.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
p. TAMM's implementation manages to achieve its objectives in reducing management cost, time saving and provide quality services to the users.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
q. I received a positive response from the customers/tenants after implementing TAMM.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
r. TAMM documents are complete and comprehensive.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
s. Human capital has been trained to implement TAMM.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
t. Do you consider that there would be improvement to the implementation of TAMM? If yes, please state: 1. _____ _____ 2. _____ _____ 3. _____ _____ 4. _____ _____ 5. _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

THANK YOU FOR YOUR TIME AND COOPERATION