CHAPTER I

INTRODUCTION

1.1 Introduction

A successful construction industry is essential to us all. We all benefit from housing, hospitals or infrastructure project that are constructed. Malaysia as one of the development countries in South East Asia was growing rapidly almost in all sectors, including construction sector. Large and complex project have been built due to the demands of both the public and private sectors. To meet the high demand of both sectors' need, it is expected that many error and defects will have occurred during the design and construction phase of the project, later resulting the high cost of maintenance.

Under normal condition all building begins to deteriorate the moment after they are constructed, and of course maintenance is needed. One research conducted in United Kingdom revealed about 20% of the average annual expenditure on repairs in building arises from defects (Sadi Assaf et al, 1996). As consequences if the number of defects could be reduce it would reduce the maintenance expenditures.

It is obvious that the need of maintenance is very important and needed for all sectors including properties sectors. Regard to the highly cost of maintenance it is important to study maintenance problem so that an effective maintenance can be carried out.

We know that is not easy to sustain radical improvement in an industry as diverse as maintenance and services. But, we must do so to secure our future. We have to commit to driving forward the modernization of the maintenance management and services industry.

1.2 Background of Study

Project construction life cycles are divided to few stages:

1. Conceptual and feasibility stage,
2. Engineering and design,
3. Procurement,
4. Construction,
5. Implementation,
6. Utilization,

But for building life cycles not only until the ulitilization stage but it continues to next stages they are:

7. Maintenance,
8. Demolition.

In the industry practice in Malaysia, in the construction stage the contractor are responsible to maintain the building until handling over stage from contractor to the project owner after finish the defect liability period. Once project handled over, the responsibility will be transferred from contractor to the owner, including the responsibility of maintaining the property after the defect liability period. Maintenance stage is the longest period among the other construction process until the property demolished. In the maintenance period there are included activities renovation, upgrading facilities, refurbishment and repair works. That is why maintenance is separately from construction phase the group of management team. Our practices in Malaysia not define those process or cycle as one, seem like fragmented and divided to construction stage and separated from maintenance stage. There no cross functional culture of work, no collaborative teamwork among development team and maintenance team. In PERKESO the maintenance team not

involved in the engineering and design stage, the maintenance team is not involved in feasibility study stage either in development project or in acquires project/facility. This type of management by sequent rigid movement some author called “separate over the wall syndrome”. After the construction stage is completed, and the “Defect Liability Period” has expired then the responsibility to maintain given to the maintenance team. There is having positive and negative impacts from the fragmented management cultural. The positive side with these separation management culture make the team more focus to their job and responsible. The negative sides create the flow of work become rigid and every team not shares a same goal.

The concept of the cross functional team by four principles:

i. Consideration of downstream requirement during the design development.
ii. The use of the cross functional teamwork.
iii. Consideration of the customer requirements in the product development.
iv. Use of lead time as source of competitive advantage.

Regarding to Reginald Lee (1986), to put the maintenance problem as mentioned above, it is important to view maintenance in the context of the overall building process. The role played by maintenance in the construction process can be started from design stage. The involvement of maintenance department in this stage is as an adviser for the designer to figure out the maintenance problem in the future.

Some of the advantages of the involvement of maintenance department in early stage are it would able to check the practicability of the design details, the suitability of patent joint, anticipate leaks, staining, expansion joints, and many other things that can prevent further defects in the future caused by miss-design (Armstrong R. W., 1984).

British standard (BS 3811: 1984) classified maintenance as three parts as follow,

i. Planned maintenance; described as organized maintenance and carried out with forethought, control, and the use of records to predetermined plan.
ii. Preventive maintenance, it is carried out at predetermined or to other prescribed criteria and intended to reduce the likelihood of an item not meeting an acceptable condition.
iii. Running maintenance, which can be carried out whilst an item is in service.

These research which focus on the maintenance management and services. Maintenance Management and Services is a combination of several actions in which to retain or restore an item to perform its required action. PERTUBUHAN KESELAMATAN SOSIAL (PERKESO) as one of the semi government sector in Malaysia that has many assets, needs maintenance to prevent the assets from deterioration. Maintenance in PERKESO was monitor and control by Property Unit and Local PERKESO Office.

There are two maintenance system presently implemented at PERKESO:

i. Preventive maintenance.
ii. Corrective maintenance.

The maintenance and services in PERKESO are divided to two building type:

i. Stand alone building
ii. Shop lot building.

Maintenance and services for “stand alone” PERKESO building is total preventive maintenance package. The total preventive maintenance scope included of:

i. Specification for Mechanical and Electrical.
ii. Specification of Civil and Structure.
iii. Specification of cleaning.
iv. Specification of pest control.
v. Specification of security services.

Maintenance and services for the “shop lot” PERKESO building scope maintenance and services only cover the scope cleaning work, M&E preventive maintenance and Pest Control.

In the PERKESO property management for PERKESO building are divided to (2) two main department or unit responsibility:

i. Rental buildings manage by the Administration PERKESO Department.
ii. PERKESO own buildings were managed by PERKESO Property Unit.

This project research are focused on PERKESO own buildings in Peninsular of Malaysia which not included those PERKESO rented buildings. To obtain the data the following knowledge acquisition methods were used by:

i. Interview,
ii. Questionnaire
iii. Archives.

Interviews done into (2) two times in separate section/stage in this research:

i. Pre-interview : Before finally produce the questionnaire.
ii. Interview : During stage analyze data gained from questionnaire

The important of the pre-interview are development process get to produce a good questionnaire, and the target is to get valuable data shall be analyzed.

The interview which are arrange after the analyze data process is to study and section finding the root of the problem by using the transition law from macro to micro. After recognize the root of the problem then define the corrective action to be taken. Continuingly the corrective actions propose also other meant is to set up the proposal of the maintenance management and services system. Corrective actions were categories into two namely:

i. Short – term corrective actions; and
ii. Permanent corrective actions.

The short – term corrective actions do not remove or improve the factors of maintenance management and services problem but is aimed at correcting the problem i.e. to recover or improve maintenance management and services system. Permanent corrective actions aim is to correct or improve the

maintenance management and services system critical factors and this type of corrective action is more economical and effective compared to the earlier type.
. Corrections are the action taken to improve the situation by first identifying the root – causes (factors), specifically factors of maintenance management and services system. The correction should also include improving the process itself and corrective actions taken to improve performance can be permanently embedded in the process.

The maintenance cost implemented in PERKESO by the yearly system budgeting. Those budget will estimated by every branch PERKESO office and every department office. The budget maintenance management and services were included:

i. Budget for repair works “corrective maintenance”.
ii. Budget for renovation works.
iii. Budget upgrading/refurbishment.
iv. Budget of “preventive maintenance”.

For unforeseen budget, emergency budget will propose by Property Unit for all PERKESO building which indicates as contingency budget. The entire yearly budgets to be spend with the open tender. In PERKESO practice and well implemented to appoint any contractor or any consultant for any job/work by the open tender system. Open completion tender culture is implemented in PERKESO. These cultural of open tendering system create the low profitable to the industry. The reflected in following:

i. Unreliable rates of profitability which are usually too low to sustain healthy development.
ii. Little investment in research and development which are damaging the industry’s ability to keep abreast with innovation in processes and technology,
iii. Declining levels of trained personnel, skills shortages and ill-defined career structure to develop supervisory and management grades,
iv. The continued practice, by clients, of selecting designers and contractors almost exclusively on the basis of tendered priced.

All the scopes of work and specification for maintenances management and services in PERKESO were prepared by Property Unit. The scope and specification must to be check and verify by a committee. For confirmation and validity the scope of work and the specification suitable for any maintenance tender will be by committee's specification of tender. The committee responsible to checks and go through all the scope of works and specification document, if the entire member agree to all the content of the document then the document can to be bind and it's valid as the tender document. These committees were appointed by Chief Executive Officer PERKESO. Usually which department or unit are given responsible to produce the scope of work and specification will be also appoint as one of the committee member in the specification tender committee.

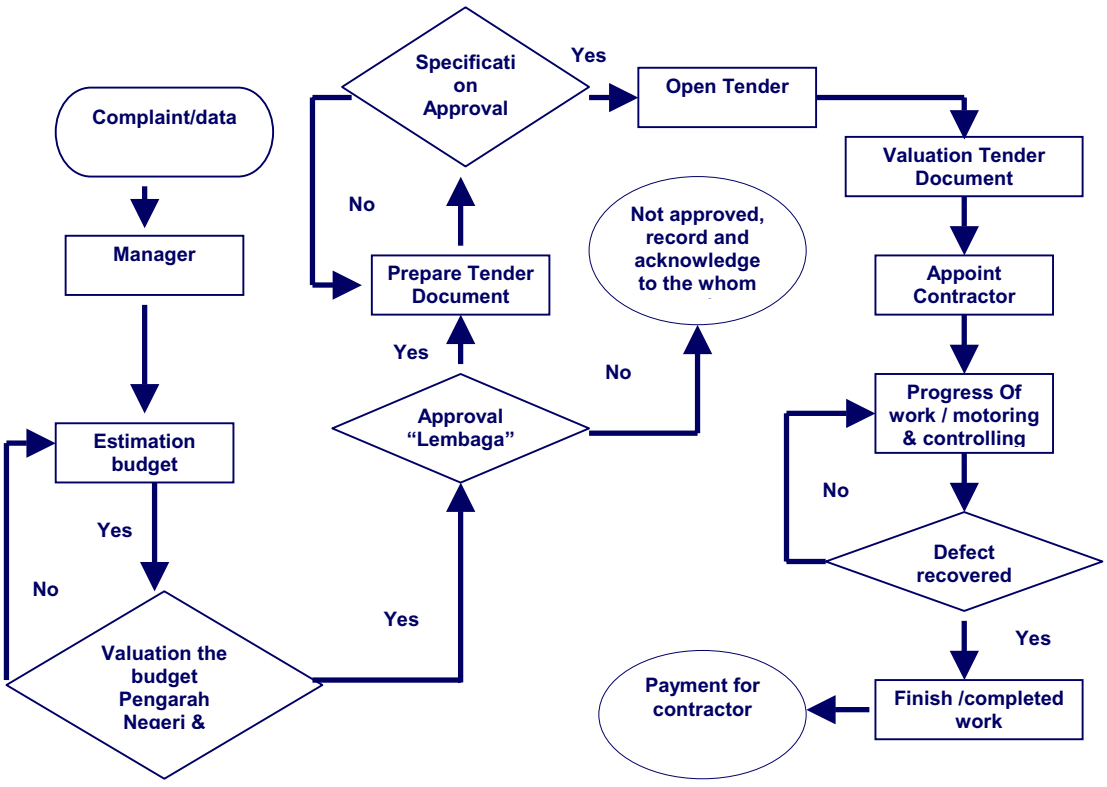

Figure 1.1 Procedure of tender flow process (produce from gain information by interview with Manager Property Unit PERKESO)

When the contractor or the consultant appoint, the progress of work will be monitor and control to which department or state office involve to the project. The progress of work will be monitor and control by the Manager Office PERKESO. Usually the Manager of the State office is non technical personnel.

Role of Property Unit in maintenance management and services in PERKESO:

i. Property unit responsible to produces the scope of work and specification document tender for maintenance and services for all PERKESO buildings.
ii. Property Unit totally fully control and monitoring the Maintenance Management and Services for stand alone buildings.
iii. PERKESO Branch / PERKESO State fully control and monitoring the Maintenance Management and Services for branch/ state PERKESO building.
iv. By appointed by Chief Executive Officer as committee for:
    a. Specification of tender
    b. Open tender
    c. Valuation of tender.
v. Recommendation payment of contractor for all maintenance and services claims.

Organizing is the process by which managers establish the structure of working relationship among employees to allow them to achieve organizational goals efficiently and effectively. Organizational structure is the formal system of task and reporting relationship that determines how employees use resource to achieve organizational goals. Organizational design is the process by which managers make specific organizing choice that result in the construction of a particular organizational structure.

The differential of group and team in an organization.

i. Group: two or more people who interact with each other to accomplish a goal.

ii. Team: group who work intensively with each other to achieve a specific common goal.

All teams are groups, BUT, not all groups are teams. Teams often are difficult to form. Takes time for members to work together. Teams can improve organizational performance.

Property unit is a small unit if to compare to the burden of work and responsibility given by PERKESO. To fulfill all the requirement and demand needs, Property Unit with (11) eleven number of people with different specialization or discipline background were organize and structure divide to two main groups:

i. Maintenance team.

Main responsibilities and role to manage maintenance management and services of PERKESO buildings in Malaysia. There are (33) thirty three numbers of PERKESO buildings in Peninsular of Malaysia, Sabah and Sarawak. The maintenance team will cooperate and work together with Branch PERKESO office closely to realize the objective of maintenance of PERKESO building can be achieved.

ii. Development team.

Main responsibilities and role to manage and control development PERKESO project in Malaysia, currently there are 8 projects is in construction stage out of from 10 total numbers planned. The other balance 2 numbers of the construction project are in feasibility stage.

The development team are responsible from process from feasibility stage, engineering and design stage, procurement stage, construction stage, implementation stage, utilization stage meant it a continue from the inception of the project until handling over of the building to user. Included the project closes activities is monitor and control by development team. After the D.L.P “defect liability period” finished the building will be handing over to the maintenance team.

During the D.L.P “Defect Liability Period” the maintenance is taken under responsibility of the contractor, unless for the defect that caused by vandalism or miss-used by the user. It is critical to identify the defective works under construction done by contractor or the malfunction, faults, or broken items done by user.

In these processes and responsibilities briefly mentioned above, Property Unit is involved and deal with big quantities of reports and records. The keeping record is a very important in PERKESO, and the system to keeping those records must be an efficient and easy to access.

1.3 Problem Statement

Derek Miles et al (1986) described three main problems in maintenance; inadequate financial, bad management, and poor building design.

Financial is the main measurement for the action will take for maintenance activities and for some householders' maintenance budget is the easiest part to cut if they faced financial problem.

The second problem is bad management, which could be interpreted as idleness and waste among the maintenance personnel. The maintenance manager and the staff's dexterity and responsive to the maintenance problem is one of the tool of effective maintenance management.

The building design also part of the problem in maintenance. It is important to give more attention to decide which materials and elements will be use, and unfortunately it is uncommon at the design state both designer and owner take maintenance as one of the design consideration. Poor building design also include the poor quality materials used.

- The PERKESO buildings have different capacity and facility. The differences will trigger a different approach in maintenance management.

- It is important to identify whether the present maintenance management and services system is suitable for the all buildings.

Regarding to PERKESO's maintenance management & services, it is important to identify whether the present maintenance management & services implemented still appropriate with all buildings. The development of buildings in PERKESO since 1998 has dramatically changes the capacity and facilities provided. Obviously, the Menara PERKESO 21 floor building with the bigger capacity up about to 30 to 40 staff per floor and new facilities such as lift that is totally different with the previous buildings. The differences in capacity and facility would triggered a different maintenance treatment requires the study to identify whether the present maintenance system is can be implemented to the all buildings. The fact that some of the new multi storey buildings are still under Defect Liability Period (D.L.P) will make this study appropriate and important to be conducted.

1.4 Aim and Objective

Aim of this study is to improve the maintenance management and services system for PERKESO building. To achieve the above aim, the following objectives have been identified:

1. To study the maintenance management & services system presently implemented at PERKESO buildings.
2. To identify the defect normally occur in PERKESO Building.
3. To find out the satisfactory factors of tenants/students at PERKESO Buildings.
4. To improve the maintenance management & services system for buildings at PERKESO.

1.5 Scope of Study

The scope of this study is focus on the buildings in PERKESO at Peninsular Malaysia. The study covers only the PERKESO own buildings.

Table 1.1 List of PERKESO buildings in the scope of research

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Bil.	Building Name	Location	Building type	Area i) Lot ii) Floor net (KPS)
1	Menara PERKESO,	281 Jln.Ampang, 50538 Kuala Lumpur.	Stand alone 20 storey	i) 38,000.00 ii) 224,000.00
2	Pejabat PERKESO Seberang jaya	Lot PT 3969, Mukim 1 Seberang Perai Tengah Pulau Pinang.	Stand alone 7 storey	i) 56,713.00 ii) 59,863.00
3	Pejabat PERKESO Langkawi	No.8, Lebuh Bunga Raya 5, Langkawi Mall 07000 Kuah, Langkawi.	Shop lot 2 storeys. (1intermidiate lot)	i) 1,119.00 ii) 2,238.00
4	Pejabat PERKESO Kangar	Lot 30, Komplek Kedai 3 Tingkat Fasa III, Jalan Hospital, Kangar.	Shop lot 3 storey (1intermidiate lot)	i) 1,200.00 ii) 3,420.00
5	Pejabat PERKESO Seremban	Lot 37, Betaria Business Centre, Seremban. Negeri Sembilan.	Shop lot 4 storey. (1 intermediate lot)	i) 2,243.00 ii) 7,786.00
6	Pejabat PERKESO Batu Pahat	Lot PTD 25084 & 25085 Tmn.Setia Jaya, Jln.T.S. Hoe, Batu Pahat, Johor.	Shop lot 3 storey. (2 intermediate lot)	i) 1,540.00 ii) 7,720.00
7	Pejabat PERKESO Kulim	Plot 4 & 5 di atas lot 926, Mukim Keladi, Kulim, Kedah.	Shop lot 3 storey. (2 intermediate lot)	i) 2,800.00 ii) 6,628.00
8	Pejabat PERKESO Klang	No.2, Jalan Tiara 2, Bandar Baru Klang, Selangor.	Shop lot 5 storey. (Conner lot)	i) 4,125.00 ii) 17,175.00
9	Pejabat PERKESO Sungai Petani	No.30 & 31, Lengkok Cempaka, Amanjaya, Sg.Petani, Kedah.	Shop lot 3 storey. (2 intermediate lot)	i) 2,800.00 ii) 7,130.00
10	Pejabat PERKESO Muar	PTB 10956 & 10957, Tmn.Tun Dr.Ismail (1) Bandar Maharani, Muar.	Shop lot 3 storey. (2 intermediate lot)	i) 3,080.00 ii) 7,784.00
11	Pejabat PERKESO Kluang	Lot 8927, No.28 Jln.Duku, Kampung Haji Manan, Kluang, Johor.	Shop lot 3 storey. (Conner Lot)	i) 4,373.00 ii) 8,559.00
12	Pejabat PERKESO Rawang	No.29, Jalan Setia Rawang 1, 48000 Rawang, Selangor.	Shop lot 3 storey (Conner lot)	i) 2,100.00 ii) 5,785.00
13	Pejabat PERKESO Segamat	No.13, Jalan Emas, Taman Bukit Hampar, 85000 Segamat, Johor.	Shop lot 4 storey. (intermediate lot)	i) 1,540.00 ii) 4,786.00
14	Pejabat PERKESO Ipoh	Lot No.9587N, Jalan Hospital, Ipoh, Perak Darul Ridzwan.	Stand alone 5 storey	i) 26,237.00 ii) 2,941.55
15	Pejabat PERKESO Taiping	Lot PT No. 1233 & 1234, Bandar Taiping Daerah Larut Matang Perak Darul Ridzwan	Shop lot 3 storey (2 Lot) (Conner lot)	i) 3,338.00 ii) 7,183.00
16	Pejabat PERKESO Teluk Intan	No. 8, 9 & 10 Medan Sri Intan Jalan Sekolah Teluk Intan, Perak	Shop lot 3 storey. (3 lot) (intermediate lot)	i) 3,600.00 ii) 8,806.00

1.6 Research Methodology

To carry out the study, several research methodologies were used, which includes literature review, knowledge acquisition, and data analysis techniques. Figure 1.1 showed the activity flow used to achieve the objectives that have been set.

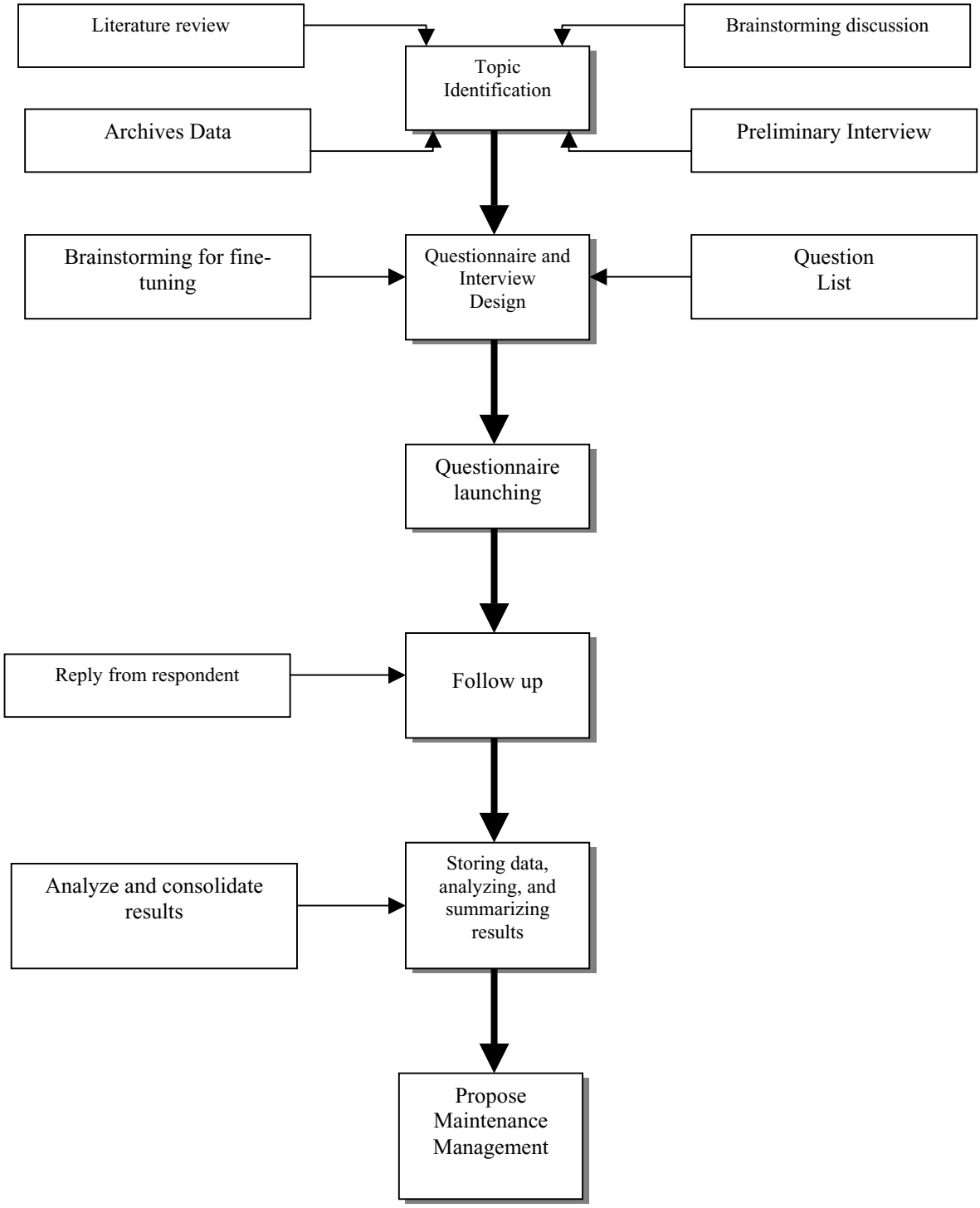

Figure 1.2 Research methodology flow chart