INVESTIGATING THE PROBLEMS THAT OCCURED IN TWO CONSTRUCTION PROJECT DUE TO IMPROPER PLANNING

By

Noor Nasuha Ab Rahman

FINAL PROJECT REPORT

A project dissertation submitted to the Civil Engineering Programme Universiti Teknologi PETRONAS in partial fulfilment of the requirements for the Bachelor of Engineering (Hons) (Civil Engineering)

Universiti Teknologi PETRONAS
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CERTIFICATION OF APPROVAL

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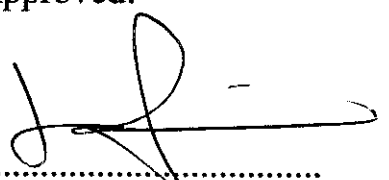
Approved:



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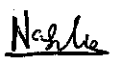
Ir Idris Othman
Project Supervisor

Universiti Teknologi PETRONAS
TRONOH, PERAK

CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.



NOOR NASUHA AB RAHMAN

ABSTRACT

In project management, planning is the tool that is used to analyzing each activity and its relationship to the one that come before and after it. Planning establish relationships, identify resources needed to complete each task, and highlight the activities that, if late, could jeopardize the overall completion date. The several parties engaged in a building project are exposed to different forms of risk and, as a result, their interest in work planning is likely to vary. The scope and detail of planning will also vary according to factors such as the type of project, its location, how the project is organised and the economic climate. The perception of risk by clients, project managers and design consultants may play a part in determining the amount of planning that they decide to do and how much money are prepared spend on it. This study will focus on the Construction of Hotel and Office Tower on Plot Z10, Precinct 1, Wilayah Persekutuan Putrajaya and Construction of 14 Blocks 230 Units Shop Offices and 28 Units Penthouse (Phase 5) on Lot PB1, City Centre 1, Kota Damansara, Mukim Sungai Buluh, Daerah Petaling, Selangor. The objective of this study is to identify and prioritizes the problems that occur due to improper planning during the construction of the two projects and identify and prioritize the factor that caused the problems. Pilot survey is conducted to develop and test adequacy of questionnaire and assess the feasibility of the survey. Progress reports for each project are analyzed and surveys and interviews are conducted to identify and prioritize problems that occurred during the construction and determine the factors that caused the problems. A few recommendations are made to overcome the problems.

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First and foremost, I would like to thank to Allah S.W.T, The Almighty for giving the strength and patience in completing the Final Year Project (FYP) prior to the completion of my studies in Universiti Teknologi PETRONAS(UTP) by this year.

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INTRODUCTION

1 INTRODUCTION

1.1 Background of the study

Major construction projects are often large, include many parties, difficult to organize and fragmented. Construction works need proper planning and scheduling to ensure the final product satisfied the client requirement on its quality, within the desired cost and complete within the desired time.

Throughout the report, this project emphasize on the problems causing by improper planning that occurred on two construction site. The Author conducted a study on the Construction of Hotel and Office Tower on Plot Z10, Precinct 1, Wilayah Persekutuan Putrajaya and Construction of 14 Blocks 230 Units Shop Offices and 28 Units Penthouse (Phase 5) on Lot PB1, City Centre 1, Kota Damansara, Mukim Sungai Buluh, Daerah Petaling, Selangor.

This project will identify and prioritize the problem that occur during the construction of the two project, identify and prioritize factors that cause the problems to occurred and recommend a few solutions to improve the effectiveness of the planning in the construction project.

1.2 Problem Statement

Projects planning are essential to the successful coordination of a project's day to day activities. Material deliveries, equipment, and people are all orchestrated through the planning. As a project progresses, delays inevitably occur. The project manager's job is to effectively deal with these delays and to anticipate them as much as possible. If problems never occurred on a project, the project manager's role would be less critical. It is the intelligent response to bad weather, equipment failures, strikes, design errors, and omissions that separates the good project planning from disaster.

It is great concern that the effects of inefficiency in project planning can be magnified during the construction phase and on, throughout the life of the building. Planning information that is not clear, co-ordinated, sufficiently complete and correctly timed can lead to confusion on the site, substantial unplanned expenditure, unhappy builders and dissatisfied client.

Whenever people, equipment, materials, and organizations are brought together and directed toward a common goal, they need a common tool that will identify how resources are going to be committed. Tradespeople, work space, equipment, and management personnel are not available in unlimited quantity, so they must be allocated properly for efficiency. The careful project planning will assist greatly to achieve this.

On the Construction of Hotel and Office Tower on Plot Z10, Precinct 1, Wilayah Persekutuan Putrajaya, there are lots of problems occur in the site such as tower crane installation problems, site office facilities and canteen preparation problems, pile cap concreting problems and so on. There are also delays in the project due to the problems. For the Construction of 14 Blocks 230 Units Shop Offices and 28 Units Penthouse (Phase 5) on Lot PB1, City Centre 1, Kota Damansara, there are also delay in the project progress due to the problems such as drawing discrepancies, supplier arrive late and so on.

1.3 Objectives and Scope of Study

1.3.1 Objective

The objectives of this research are:

- To identify the problems those are most affected by improper planning during the construction of the two projects.
- To prioritize the factors that causing the problems during the construction of the two projects.
- To compare the factors of the problems between the two projects.

1.3.2 Scope of Study

For this project, the author conducted a study on the Construction of Hotel and Office Tower on Plot Z10, Precinct 1, Wilayah Persekutuan Putrajaya and Construction of 14 Blocks 230 Units Shop Offices and 28 Units Penthouse (Phase 5) on Lot PB1, City Centre 1, Kota Damansara, Mukim Sungai Buluh, Daerah Petaling, Selangor. This project will focus on the problems that occur due to improper planning and factors that causing it at the two construction sites. From this case study, the author could determine and prioritize the factor that causes the problems and recommend few solutions to increase the project's efficiency.

CHAPTER 2
LITERATURE REVIEW

2. LITERATURE REVIEW

2.1 What Is Planning?

BusinessDictionary.com defined planning as:

1. A basic management function involving formulation of one or more detailed plans to achieve optimum balance of needs or demands with the available resources. The planning process (a) identifies the goals or objectives to be achieved, (b) formulates strategies to achieve them, (c) arranges or creates the means required, and (d)implements, directs, and monitors all steps in their proper sequence.
2. The control of development by a local authority through regulation and licensing for land use changes and building.

Idrus A. (2010) stated that planning is the most important step in project management. Planning concerns anticipating trends and formulating the best strategies to achieve a project's goal and objectives. There are three main types of planning: strategic, tactical, and operational and contingency:

- Strategic planning, done at top-level management, sets long-term goals and objectives for the project and appropriate policies for use of the resources.
- Tactical planning deals with short-term planning at project managerial level to satisfy top management objectives.
- Operational planning which is also done at project managerial level sets the schedule and standards for the works. Contingency planning, on the other hand, aims to prepare back-up plans should the primary plan fails to perform.

According to Idrus A. (2010) Planning of a project is certainly crucial as a poorly planned and scheduled project would lead to delays and cost overruns. These are the reasons for planning and scheduling:

- To increase project efficiency and performance (with respect to cost, time, quality)
- To identify, assess and reduce risks
- To define the sequence of activities to ensure optimum use of resources
- To provide a framework for decision making in the event of change
- To assess project costs and whether the project is within budget
- To know how long the project will take
- To disseminate information to people

With regard to the stages of development, the planning stage can have 50% to 80% influence on the total cost of the project as shown in Figure 2.1.

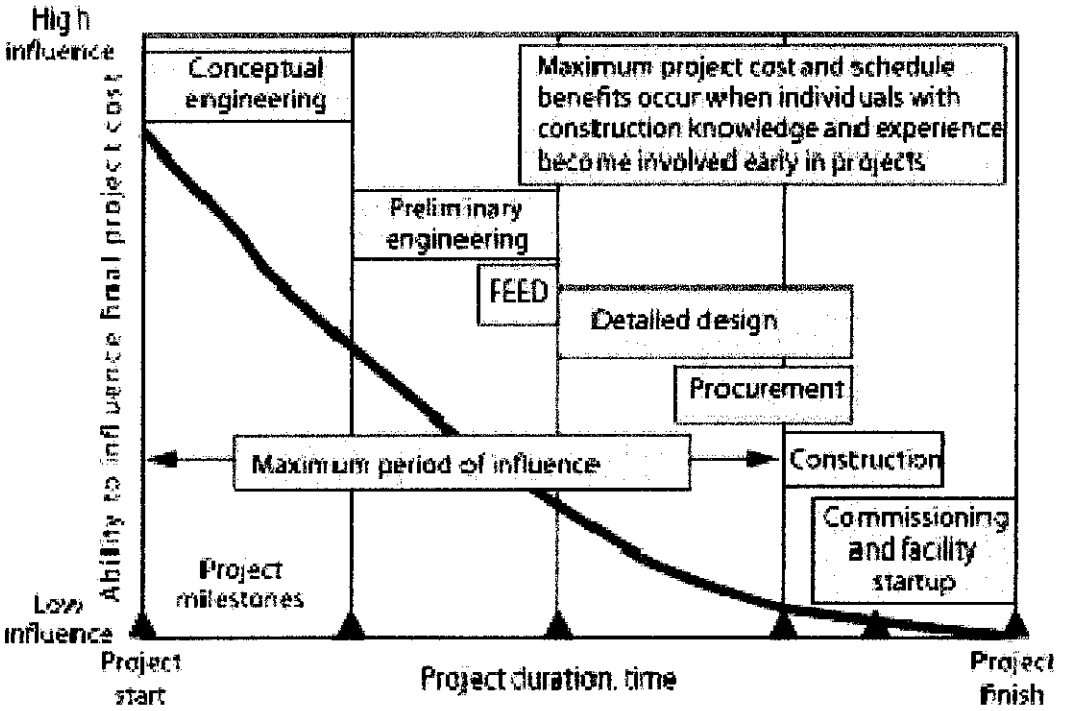

Figure 2.1: Planning influence on the construction project

(Source: www.hydrocarbonprocessing.com)

2.2 Stages in Planning

Idrus A. (2010) stated that project planning can be classified according to the stages of the project development. The stages of planning in the construction projects are as follows:

1. Pre-project planning

   Pre-project planning is performed by the owner or client, which may be part of the feasibility study of a project before detailed planning is carried out. The work includes definition of objectives, economic analysis, determining scope of work, finding the site for the project, budgeting and estimating the date of completion.

2. Pre-design planning

   Pre-design planning is also performed by the owner (or consultant on behalf of the owner) after a project has been committed. The purpose is to optimize the design of a project with regard to time, cost and quality and include activities such as preparing the project brief, preparing the design concepts and setting a quality standard or benchmarking.

3. Pre-tender planning

   This planning is performed by the contractor after the design work has been completed and before tender is being called. Among the activities involved are preparation of tender documents, estimating quantities for the works to be done, detailed pricing of works, preparing method statement for the works and risk analyses.

4. Post-tender or pre-construction planning

   Post-tender, also called pre-construction planning is performed by the contractor as soon as the project has been awarded but before any construction or physical work is executed. Compared to other stages, this is the most intensive planning activity requiring the most effort, time and expertise. It includes tasks such as reviewing the design, reviewing the quantities of works, scheduling the works, establishing site organization structure etc.

5. During-construction planning

   This planning is performed by the contractor after the project has started and may last throughout the duration of the construction. The purpose is to address those issues which can only be identified or discovered after construction has started, for example, in road construction, planning for traffic diversion or re-planning of works as a result of discovery of an unexpected rock mass during excavation.

2.3 The Importance of Planning

The risk factor is much higher in construction than it is in other industries because outside factors such as government funding, demographics, and market trends largely determine demand. Another reason for this high risk lies in the unpredictable nature of the work itself. Since construction takes place outside, it depends on weather conditions. Any extremes can affect productivity level, damage materials and work in place, create unsafe conditions, and even shut down the site entirely. Moreover, the industry is custom-oriented, meaning that it is difficult to use mass-production techniques in either materials or methods. Each project has its own learning curve for both management and labour. Because all these factors make it difficult to accurately predict how much money will be necessary to complete the project, the industry has a higher risk of losing money than do industries that rely on more predictable factors. (Gray & Hughes, 2001)

During the actual field construction process, the emphasis shifts from design/cost tradeoffs to executing a project within the constraints defined by the contracts documents, schedule, and budget. Risks in this phase involve time and external unknowns. One serious problem is that the early estimates are only that-estimates. They are not purchase prices. There are no guarantees when the estimates are prepared that the same conditions will prevail when materials are bought or labour hired. A sudden shift in lumber availability or a new union trade contract can alter prices. There are also many other risks. Community disapproval of a certain project can put pressure on local officials and cause delays. Labour actions, adverse weather

condition, and site accidents are all risks that are difficult to predict and hard to control. All can cause serious overruns in time and money during construction.

This phase is also the period of greatest expenditure on the project since the total operating costs for a building are significantly greater than the construction costs. Knowing these operating costs is important in the planning of future facilities. It may often be more economical to buy more efficient mechanical equipment, easier-to-maintain flooring systems, and a better curtain-wall system. More money will be invested up front, but the payback can be realized in the operating costs of the facility. This is an economic analysis that compares the life expectancy of the facility, the design/build costs, the operating costs, and the cost of capital. Facility owners and managers usually need advice about the best model to use in making decisions during the planning stages of the project.

The local availability of certain materials, equipment suppliers, or fabrication facilities can influence how a designer specifies materials. Planning can help by investigating the ready availability of desired materials. If the materials are available locally, the labour force is probably familiar with their installation. For materials that are not locally produced, the planning manager must ascertain if there is local expertise in handling them. Including locally available material and familiar installation methods in non-design-critical areas can make the job more economical. The designer may not want to give up using certain materials or critical detailing in highly visible areas but may be amenable to considering alternates in less significant spaces.

After the drawings and the design are complete, the need for planning, anticipation, and even design does not end. Rather, the need shifts into the field. Every day that work is installed, the conditions at the site changed, and the construction manager must remain constantly aware of these shifting circumstances. Staying ahead of the day, the week, and the month gives him or her time to plan, meet problems, and solve them before they affect the pace of the job. This is the manager's main job in the field. Even during the best planned design phase, there are plenty of opportunities to test the skill of the construction manager. Unforeseen conditions, changes in the scope, changing regulatory rules, and community sentiment may all affect the

schedule and costs on the job. The manager's real skill is to solve the problem before it is a problem. This can only be done through anticipation and contingency planning and by putting together a well-organized team of people.

Equipment selection is a factor of the equipment available, cost, and the constraints imposed by the accessibility of the site as well as the work plan and order of planned operations. For instance, a number of relatively inexpensive mobile cranes could be used on a job site that allows vehicular movement around the site whereas a single permanent and more expensive tower crane would be used on a job sited in a dense urban environment. The tower crane is more expensive but provides an extended reach over the entire site. With each equipment selection comes productivity and cost standards-meeting or exceeding these standards is a factor of the work plan, operator skill and job-site management. Selecting the wrong equipment, however, may lead to poor productivity throughout the project. (Gould & Joyce, 2009)

2.4 Issues at Construction Sites that Related to Planning

2.4.1 Communication at Construction Site

Every year defects in the UK construction industry cost at least £20 billion to repair or rebuild. Some of the defects will be the result of poor communication, for example, a poorly detailed drawing, operatives being given incorrect instructions or technical information not being available. Communication around a construction site can be improved. Improvements in communication should result in an increase in the quality of the build and a reduction in the level of defect occurrence. There are sets of the essential requirements for good site communication and is relevant to all trades and work activities on the site. The diverse nature of construction projects means that the recommendations are unlikely to be applicable to all projects and sites. However, the recommendations should offer some relevant information to any construction project or site. (Done, 2004)

2.4.2 Exposure to Risks

At the start of any project there is a large amount of risk resulting from the uncertainty surrounding the way in which the project will proceed. However, despite this large amount of risk, the exposure to these risks is minimal since little has actually been committed. Once the project moves from the feasible to the implementation phase, the parties are then exposed to these risks because decisions have been made and work has started on the project. This level of risk exposure then decrease as the project proceeds, since the amount of risk remaining in the project similarly decrease. The reasoning behind this is that the risks are either realised or do not occur. The level of risk is a combination of the probability of occurrence of the risks and their possible impact on the project, should they be realised. This assessment need only be qualitative and subjective, but the information that it provides serves as a guide to which risk require further investigation or analysis. (Smith, 1999)

2.4.3 Scheduling Resource

The whole process of ensuring that the correct resources will be on-site and on-time for each task is called procurement. It begins with the contractor identifying each resource, writing its specification, selecting a supplier, and ordering it. The supplier may have to prepare working drawings, make a prototype and have it inspected, manufacture the complete order, and then have it delivered. Several different groups are involved and the project manager has little direct control over many of these activities of procurement. The contractor depends on others for timely deliveries, but he does not ignore the procurement process after orders have been placed. The project manager designates someone to make continual contacts with all the suppliers. This person is called an expediter and his or her job is to monitor the suppliers at important milestones during the procurement process. (Naylor, 1995)

2.4.4 Resource Analysis

The analysis of resources, particularly time, materials, labour, and equipment, is a key to good project management. Project planning and scheduling allows the contractor to preview and lay out the project-activities, sequential relationships and dependencies, and activity and project duration. The contractor can determine the sequence of activities that are most critical for the successful completion of the project and allocate the appropriate resources for this sequence. Of great importance is the ability to determine and make adjustment for resource conflicts, especially for those activities that are most critical. The coordination of resources over the length of the project to meet deadlines and quality requirements, as defined by contract documents, helps the contractor complete the project within budget and on time. (Patrick, 2004)

2.3.5 Accidents

The construction work site is often a chaotic place with an incredibly high amount of action taking place. Some of the most common types of construction accidents include construction site falls, crane accidents, scaffolding accidents, workers being run-over by operating equipment, electrical accidents, trench collapses, fires and explosions, and welding accidents. Each of these mishaps can be equally tragic and equally deadly, and each of these accidents can be completely avoided through effective planning of safety measures. Statistics indicate that nearly 1,000 construction workers are killed each year while on the job. Of these, one-third or over 300 deaths will result from construction site falls. Many of the deaths or injuries that result from these falls can and should be prevented by having an effective planning. Common construction site falls include roof related falls, crane falls, scaffolding falls, elevator shaft falls, falls resulting from holes in flooring, and falling objects. Proper protection equipment and safety precautions are necessary to protect the lives of workers and preserve the well-being of their families. (Hoezen, 2010)

2.3.6 Dust

Nuisance dust emissions from construction, demolition and other civil engineering activities are a common problem. Fine particles which are less than 10 mm in diameter are now recognized as significant local sources of pollution. Owing to their small size, they can be carried long distances from sites even in light winds and may therefore have an adverse effect on the local environment and on the health of local residents, as well as on those working on the site. In the Environmental Quality Act 1978, Local Authorities are required to work towards achieving national air quality objectives. Construction site operators will therefore need to demonstrate that both nuisance dust and fine particle emissions from their sites are adequately controlled and are within acceptable limits. (Nehasil, 2002)

2.3.7 Noise

Controlling construction noise can pose special problems for contractors. Unlike general industry, construction activities are not always stationary and in one location. Construction activities often take place outside where they can be affected by weather, wind tunnels, topography, atmosphere and landscaping. Construction noise makers, for example heavy earth moving equipment, can move from location to location and is likely to vary considerably in its intensity throughout a work day. High noise levels on construction worksites can be lowered by using commonly accepted engineering and administrative controls. Normally, earplugs and other types of personal protective equipment (PPE) are used to control a worker's exposure to noisy equipment and work areas. However, an effective planning and administrative controls should always be the preferred method of reducing noise levels on worksites. (Richard, 2002)

2.3.8 Waste problem

The waste produced by the construction industry is not just a burden on the environment and the ecological system, but it is also a huge cost to the industry itself. For example

- Transport cost of "excess" material to site
- Cleaning and collection of "excess" material and waste
- Transport of waste from the building site
- Waste disposal costs

Solving the problems of waste disposal touches many vendors involved in the construction project namely the owner, designers, contractors, etc. It starts from making it a concern already at initial stages of the project planning and continuing it through the design phase. Contractors and sub-contractors can play their part by better project planning which will also reduce their material and waste disposal costs bringing them a direct financial benefit. Implementing any successful waste minimization strategy during project execution requires the assessment of waste. Waste minimization has to be embedded as one of the project objectives for that lead to sustainability. (Ekanayake, 2010)

2.4.9 Delays and Other Constraints

Many construction contractors include a time cushion at the end of the schedule to account for time slippage and other delays that creep into the project; it is called a "contingency" allowance. This is a realistic approach for dealing with unforeseen problems, but when weather conditions are expected to disrupt progress, it is prudent to identify sensitive tasks and allow for them in the schedule. Anticipating specific phenomena allows us to prepare alternate plans to offset their effects should they occur. To ignore conditions that are likely to occur is foolhardy, because surprise can lead to increased direct and overhead costs. For example, interest at 7% on $1,000,000 for two weeks is $2,700. Added to this is the increased cost of labour that results from the attempt to make up for lost time. Surprises cause confusion and reduce profit. Granted, preparing alternative plans costs extra money, but it should be evaluated as a trade-off against the chance of the problem actually occurring. (Naylor, 1995)

2.4.10 Labour Productivity in Construction Industry

Planning and scheduling are the earliest element which needs to be created and should be the main priority of the contractor's organization in maintaining a high level of labour productivity on the work sites. As the installation of prefabricated components encourages the use of high technology machinery, there is a need for these machines to be routinely maintained to ensure a smooth implementation of the installation works on site. Specific work plan and schedule can have a major impact on the level of labour productivity either for a conventional based construction project or one using the industrialized building system. Apart from these, other factors that are also important to ensure the installation work go on smoothly in achieving the expected productivity level is the availability of the prefabricated components on site. Failure in ensuring this availability will cause the progress of the installation process to be halted, which in turn will bring a negative impact on the construction workers. Their level of motivation will diminish and will be difficult to be raised in a short period of time. The availability of machinery on the construction sites gives a significant impact towards determining labour productivity in the construction sites. It is the main factor that needs attention in executing the installation works as the prefabricated components are heavy and need active participation of lifting machinery on site. Any lack of availability of the machines will have a big impact on the overall labour productivity. This situation is different in most construction projects employing the conventional building system. The main factor that needs to be emphasized by the management in the conventional systems is the availability of construction materials on site after the work planning and scheduling factor, both in developed and developing countries. Nevertheless, this factor is also included as one of the more important factors influencing labour productivity for the installation of prefabricated components in the construction work sites. The non-availability of machinery and building components on site will also have a negative impact towards the motivation of the workforce in carrying out these installation works. Besides these three very important factors of work planning and scheduling, availability of machinery and prefabricated components, the competency of the design team should also be focused on to reach its fullest potential. All design team members must be professional in handling their jobs as it is an asset towards sustaining a high level of productivity in the work sites. Site supervisors, who are the

management representatives who have a direct relationship with the workers, must be skilled and efficient as the components installation works is very technical in nature if compared to conventional building systems. A high level of labour productivity can be achieved with the active participation of adequate workers with the necessary high skills at the work sites. Workers must be equipped with the precise tools and information at the construction work sites. In addition to this, stringent implementation monitoring must be undertaken by the management in achieving high labour productivity in the installation works for the prefabricated components at the construction sites. (Hanizun, 2010).

CHAPTER 3
METHODOLOGY

3. METHODOLOGY

3.1 Research Methodology

The research methodology adopted for this projects are shown in Figure 2. The methodology was divided into three phase which are preliminary phase, data collection phase, and data analysis phase. In preliminary phase, the related problem will be identified by go through the literature review and research paper of previous study. Next, the primary and secondary data will be collected to be analyzed in the data collection phase. Finally, all the data collected will be analyzed to achieve the objective of the study.

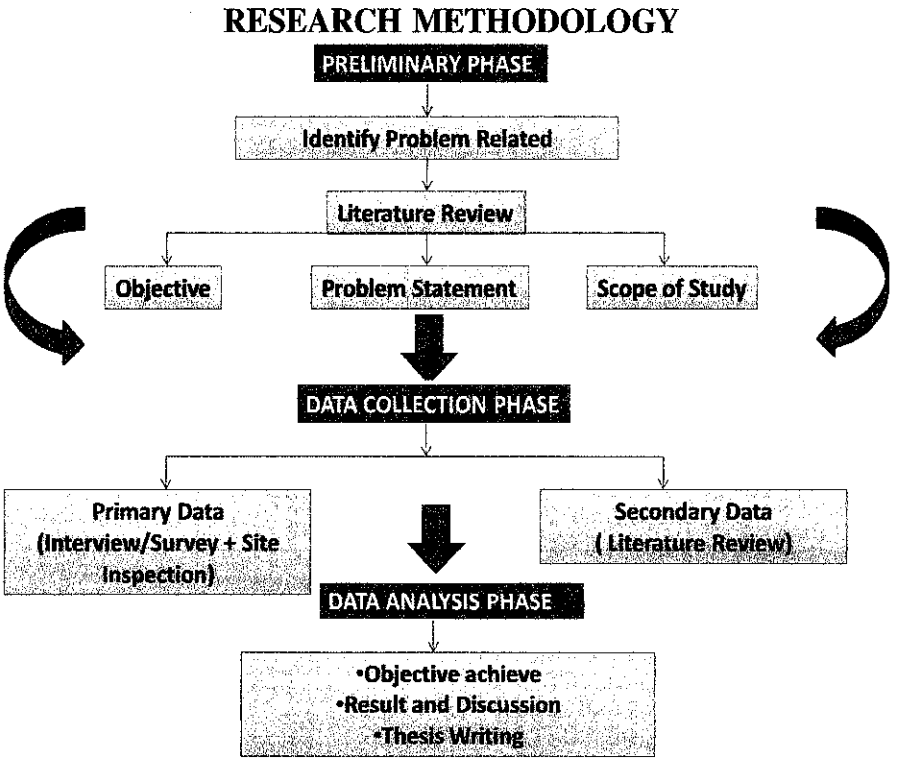

Figure 3.1: Research Methodology

3.2 Interview and Survey Questions

The primary data was obtained by distributing survey questions, interviews and analysis project's monthly progress reports.

The author will analyses the progress report and conduct a survey and interview to identify and prioritize the problems and the factors that causing it. A few recommendations will be made to overcome the problems.

On top of that, survey questions will be distributed to certain position

- Site Foreman
- Assistant Project Manager
- Project Engineer
- Resident Engineer
- Clerk of Work
- Architecture Coordinator
- Safety and Health Officer
- Client Representative
- Planner

Among the contractor, developer, architect firm, quantity surveyor and other firm that involved in the said project. From the survey and interview, the issues, problem faced and factor that related to planning may be analyzed and prioritize. The analysis will adopted qualitative measurement by the Average Index rating where respondent has been asked to answers the surveys according to the level of agreement which rating from:

1	Strongly disagree
2	Disagree
3	Moderately
4	Agree
5	Strongly agree

From the survey, the analysis of the problem that caused by improper planning will be completed by using the Average Index formula which is shown in Equation 1:

$$\text{Average Index (AI)} = \frac{\beta * n}{N}$$

Equation 1

Where :- β is the weighing given to each factor by respondent

n is the frequency of the respondents

N is the total number of respondents

With the rating scale as below (Majid & McCaffer, 1997)

1 = Never/Totally disagree ($1.00 \leq$ Average Index < 1.50)

2 = Rarely/Disagree ($1.50 \leq$ Average Index < 2.50)

3 = Sometimes/Neutral ($2.50 \leq$ Average Index < 3.50)

4 = Often/Agree ($3.50 \leq$ Average Index < 4.50)

5 = Very often/Strongly agree ($4.50 \leq$ Average Index < 5.00)

3.3 Pilot Survey

Pilot survey is the mini versions of a full-scale study which is also called feasibility studies, as well as the specific pre-testing of a questionnaire. Pilot studies are a crucial element of a good study design. Pilot studies will fulfil a range of important functions and can provide valuable insights for the author.

Pilot survey for this project has been conducted by distributing the questionnaire to three person namely Ir Idris, Dr Madzlan and Prof Kurian. The discussion has been made between the three lecturers and author to improve the survey questions.

The survey has been modified accordingly and will be distributed to 30 people. Interviews also will be conducted to several people who involves in this two project.

3.4 Survey and Interview

Before conducting a survey, a relevant survey population must be chose. It is usually impossible to survey the entire relevant population unless a survey population is very small. Therefore, author just survey a sample of a population from an actual list of the relevant population, which in turn is called a sampling frame. With a carefully selected sample, author can make estimations or generalizations regarding an entire population's opinions, attitudes or beliefs on a particular topic.

There are two different types of sampling procedures namely probability and non probability. Probability sampling methods ensure that there is a possibility for each person in a sample population to be selected, whereas non probability methods target specific individuals. For this project, author used one of the non probability sampling procedures which is called Purposive sample. Purposive sample is a sampling method to purposely select individuals to survey.

3.4.1 Construction of Hotel and Office Tower on Plot Z10

Respondent for Interview

1) Zamri Jeni-Senior Coordinator (Sunway Construction)
2) Ismail Shah Putra-Resident Engineer (Petareka Perunding Sdn Bhd)
3) Jaafar b. Yusoff-Resident Engineer (Perunding Bakti Sdn Bhd)
4) Tan Vi Lex-Project Engineer (Sunway Construction)
5) Anas B Hassan-HSE Executive (PJH/KLCCP)

Respondent for Survey

1) Nurul Hudah Bt Jamali-Architecture Coordinator (Sunway Construction)
2) Suhaimi Bin Mohamddin-Senior Clerk of Work (Perunding Bakti Sdn Bhd)
3) Azman-Senior Surveyor (Sunway Construction)
4) Phoon Wai Leng-Quantity Surveyor (Sunway Construction)
5) Anas B Hassan-HSE Executive (PJH/KLCCP)
6) Zamri Jeni-Senior Coordinator (Sunway Construction)
7) Ismail Shah Putra-Resident Engineer (Petareka Perunding Sdn Bhd)
8) Jaafar b. Yusoff-Resident Engineer (Perunding Bakti Sdn Bhd)
9) Tan Vi Lex-Project Engineer (Sunway Construction)
10) Boh Mung Kit-Assistant Manager (Sunway Construction)
11) Wan-Revit Modeller (Sunway Construction)
12) Roshidi Abd Latif-Senior C&S Draughtman (Sunway Construction)
13) Norsanariah Bt Md Rasad-Assistant Document Controller (Sunway Construction)
14) Ong Heng Long-Site Foreman (Sunway Construction)
15) Azman Shah Hj Yaacob-M&E Checker Consultant (Li-Zainal Consultant)

3.4.2 Encorp

Respondent for Interview

1) Md Arifin Naim-Assistant General Manager (Encorp Construct Sdn Bhd)
2) Suhada Binti Rahim-Assistant Project Planner (Encorp Construct Sdn Bhd)
3) Nazuha Hamsah-Planner (Encorp Construct Sdn Bhd)
4) Norhayati Binti Yacob-Quantitiy Surveyor (Encorp Construct Sdn Bhd)
5) W. Vincent Rajkumar-Assistant Manager (Encorp Construct Sdn Bhd)

Respondent for Survey

1) Ahmad Faid Jamalun Ariffin-C&S Site Supervisor (Encorp Construct Sdn Bhd)
2) Leong Onn Weng-Senior M&E Coordinator (Encorp Construct Sdn Bhd)
3) Fauzan Bin Yahya-Site Coordinator (Encorp Construct Sdn Bhd)
4) Chong Kim Loy-C&S Site Supervisor (Encorp Construct Sdn Bhd)
5) Amir Khairun Bin Ismail-Site Coordinator (Encorp Construct Sdn Bhd)
6) Nazuha Hamsah-Planner (Encorp Construct Sdn Bhd)
7) Norhayati Binti Yacob-Quantitiy Surveyor (Encorp Construct Sdn Bhd)
8) W. Vincent Rajkumar-Assistant Manager (Encorp Construct Sdn Bhd)
9) Suhada Binti Rahim-Assistant Project Planner (Encorp Construct Sdn Bhd)
10) Mohd Kamil Hafidz-Quantity Surveyor (Encorp Construct Sdn Bhd)
11) Adrian Syah B. Mohammad Sani-Land Surveyor (Encorp Construct Sdn Bhd)
12) Nurul Wahida-Project Administrator (Encorp Construct Sdn bhd)
13) Azhar Darus-Architecture Site Coordinator (Encorp Construct Sdn Bhd)
14) Md Arifin Naim-Assistant General Manager (Encorp Construct Sdn Bhd)
15) Abdul Rahman Bin Mohamad-Assistant Project Manager (Encorp Construct Sdn bhd)

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SURVEY QUESTIONS

INVESTIGATING THE PROBLEMS THAT OCCURED IN TWO CONSTRUCTION PROJECT DUE TO IMPROPER PLANNING

Objectives

- To identify the problem that exist at the site during the construction of the project
- To determine the factor causing the problems to occur
- To determine the best practices in managing and solving the problems

Instruction

1. Answer ALL questions.
2. Fill √ in the box available based on the legend stated.
3. All information will be treated as confidential. It will be used ONLY for academic purpose.
4. All information will be on aggregated basis and no individual data will be published.
5. For more information, please contact Noor Nasuha Ab Rahman at:
   Phone no: 017-568 7107
   Email address: nurulnasuha.89@gmail.com

SECTION A: GENERAL INFORMATION

1. **Name** : .....

2. **Position** : .....

3. **Company**: .....

4. **What is the most common problem exist at the site?**

   .....

   .....

5. **What factors caused the problem to occur?**

   .....

   .....

6. **What are the relevant actions taken to overcome this problem?**

   .....

   .....

7. **Who is the most responsible person contributes to the problem?**

   .....

   .....

8. **Is the planning department play an important function in the project?**

   .....

   .....

9. **What can be done to increase the effectiveness of planning in the project?**

   .....

   .....

For each statement below, please tick (√) in the appropriate box to indicate whether it is:

1	Strongly disagree
2	Disagree
3	Moderately
4	Agree
5	Strongly agree

SECTION B: PROBLEM AND ISSUES RELATED TO PLANNING

Problems/Issues	1	2	3	4	5
a)Tower crane installation					
b)Site office facilities and canteen preparation					
c)Piling works					
d)Pile caps					
e) Lift pit foundation and lift pit wall					
f)Exothermic welding for earthing and lightning protection					
g)Sanitary plumbing					
h)Report and permits					
i)Drawing submission					
j)Health, safety and security					
k)Environmental					

SECTION C: FACTORS OF PROBLEMS

a) Tower crane installation

Factors	1	2	3	4	5
Miscommunication between the parties involved					
No proper framework for the project's activities					
No identifying and accessing risk					
No optimum used of resource					
Information does not spread effectively					

b) Site office facilities and canteen preparation

Factors	1	2	3	4	5
Miscommunication between the parties involved					
No proper framework for the project's activities					
No identifying and accessing risk					
No optimum used of resource					
Information does not spread effectively					

c) Piling works

Factors	1	2	3	4	5
Miscommunication between the parties involved					
No proper framework for the project's activities					
No identifying and accessing risk					
No optimum used of resource					
Information does not spread effectively					

d) Pile caps

Factors	1	2	3	4	5
Miscommunication between the parties involved					
No proper framework for the project's activities					
No identifying and accessing risk					
No optimum used of resource					
Information does not spread effectively					

e) Lift pit foundation and lift pit wall

Factors	1	2	3	4	5
Miscommunication between the parties involved					
No proper framework for the project's activities					
No identifying and accessing risk					
No optimum used of resource					
Information does not spread effectively					

f) Exothermic welding for earthing and lightning protection

Factors	1	2	3	4	5
Miscommunication between the parties involved					
No proper framework for the project's activities					
No identifying and accessing risk					
No optimum used of resource					
Information does not spread effectively					

g) Sanitary plumbing

Factors	1	2	3	4	5
Miscommunication between the parties involved					
No proper framework for the project's activities					
No identifying and accessing risk					
No optimum used of resource					
Information does not spread effectively					

h) Report and permits

Factors	1	2	3	4	5
Miscommunication between the parties involved					
No proper framework for the project's activities					
No identifying and accessing risk					
No optimum used of resource					
Information does not spread effectively					

i) Drawing submission

Factors	1	2	3	4	5
Miscommunication between the parties involved					
No proper framework for the project's activities					
No identifying and accessing risk					
No optimum used of resource					
Information does not spread effectively					

j) Health, safety and security

Factors	1	2	3	4	5
Miscommunication between the parties involved					
No proper framework for the project's activities					
No identifying and accessing risk					
No optimum used of resource					
Information does not spread effectively					

k) Environmental

Factors	1	2	3	4	5
Miscommunication between the parties involved					
No proper framework for the project's activities					
No identifying and accessing risk					
No optimum used of resource					
Information does not spread effectively					

SECTION D: RECOMMENDATIONS FOR THE PROBLEMS

a) Tower crane installation

Recommendations	1	2	3	4	5
Early identify and assess risks					
Define the sequence of activities					
Committed the resource properly for efficiency					
Call all parties involved and conduct a meeting to achieve the goal					
Spread the information properly					

b) Site office facilities and canteen preparation

Recommendations	1	2	3	4	5
Early identify and assess risks					
Define the sequence of activities					
Committed the resource properly for efficiency					
Call all parties involved and conduct a meeting to achieve the goal					
Spread the information properly					

c) Piling works

Recommendations	1	2	3	4	5
Early identify and assess risks					
Define the sequence of activities					
Committed the resource properly for efficiency					
Call all parties involved and conduct a meeting to achieve the goal					
Spread the information properly					

d) Pile caps

Recommendations	1	2	3	4	5
Early identify and assess risks					
Define the sequence of activities					
Committed the resource properly for efficiency					
Call all parties involved and conduct a meeting to achieve the goal					
Spread the information properly					

e) Lift pit foundation and lift pit wall

Recommendations	1	2	3	4	5
Early identify and assess risks					
Define the sequence of activities					
Committed the resource properly for efficiency					
Call all parties involved and conduct a meeting to achieve the goal					
Spread the information properly					

f) Exothermic welding for earthing and lightning protection

Recommendations	1	2	3	4	5
Early identify and assess risks					
Define the sequence of activities					
Committed the resource properly for efficiency					
Call all parties involved and conduct a meeting to achieve the goal					
Spread the information properly					

g) Sanitary plumbing

Recommendations	1	2	3	4	5
Early identify and assess risks					
Define the sequence of activities					
Committed the resource properly for efficiency					
Call all parties involved and conduct a meeting to achieve the goal					
Spread the information properly					

h) Report and permits

Recommendations	1	2	3	4	5
Early identify and assess risks					
Define the sequence of activities					
Committed the resource properly for efficiency					
Call all parties involved and conduct a meeting to achieve the goal					
Spread the information properly					

i) Drawing submission

Recommendations	1	2	3	4	5
Early identify and assess risks					
Define the sequence of activities					
Committed the resource properly for efficiency					
Call all parties involved and conduct a meeting to achieve the goal					
Spread the information properly					

j) Health, safety and security

Recommendations	1	2	3	4	5
Early identify and assess risks					
Define the sequence of activities					
Committed the resource properly for efficiency					
Call all parties involved and conduct a meeting to achieve the goal					
Spread the information properly					

k) Environmental

Recommendations	1	2	3	4	5
Early identify and assess risks					
Define the sequence of activities					
Committed the resource properly for efficiency					
Call all parties involved and conduct a meeting to achieve the goal					
Spread the information properly					

CHAPTER 4

RESULT AND DISCUSSION

4.1 Construction of Hotel and Office Tower on Plot Z10 (PZ10)

4.1.1 Survey

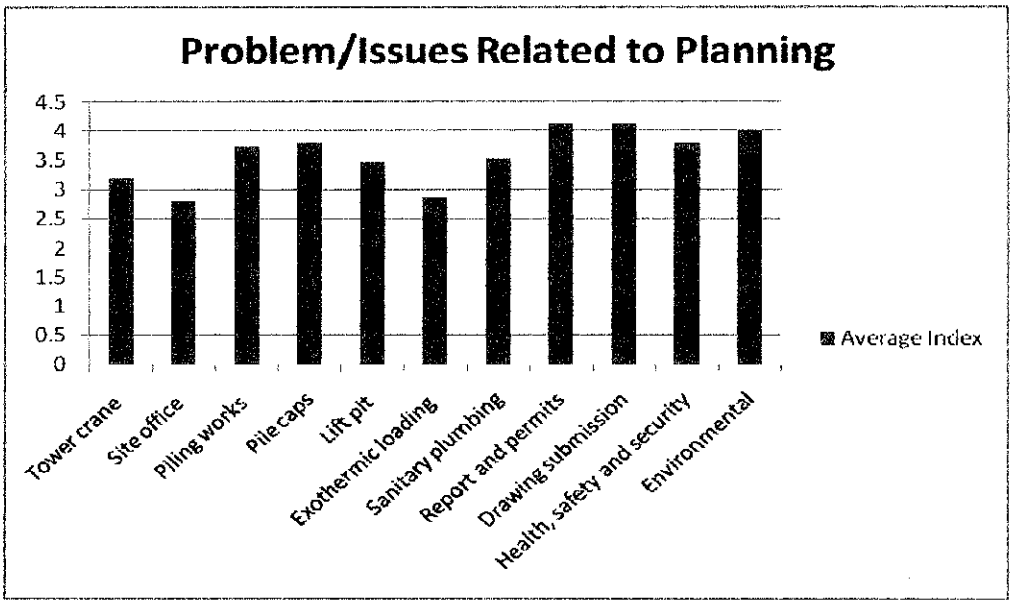


Figure 4.1.1.1: Activities in PZ10 project that are affected by planning

Refer to Figure 4.1.1.1, it is recorded that Report and Permits and Drawing Submission are the activities that are most affected by improper planning with average index achieved are 4.13. During design stage, the architectural and engineering aspects of the building are developed. The architect or engineer will develop drawings of and specifications for the facility. Drawings are used to communicate ideas to the builder regarding the facility layout, structural elements, electrical/mechanical installations, and some detail on construction techniques. Drawings are helpful to the project manager to develop plans and schedules for the building process. Without a proper planning of the drawing and submission, the construction of the building will be delayed. Site office facilities and canteen preparation are the least activities that are affected by planning which have the average index of 2.8. This might be due to the fact that the site office facilities and canteen is not a permanent building and does not require by client. Site office facilities and canteen are constructed to make the site office more accessible and for the ease of all worker.

4.1.1.2 Tower Crane Installation

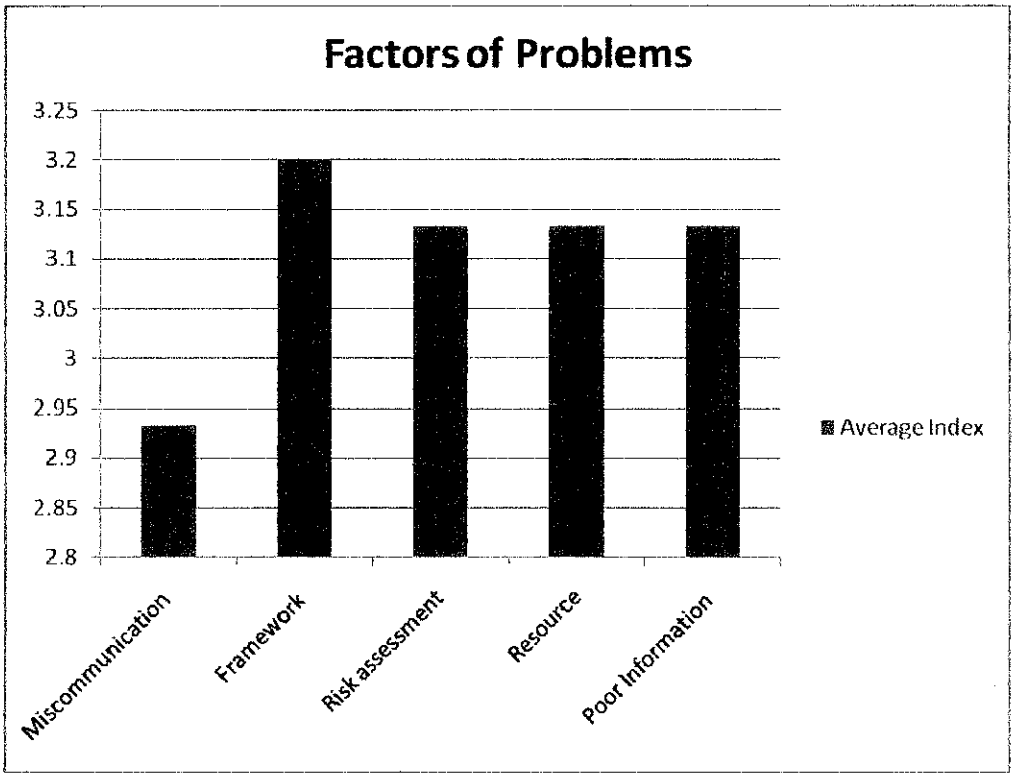


Figure 4.1.1.2a: Factors of tower crane installation problems

Based on Figure 4.1.1.2a, no proper framework for the projects activities has been the major contribution to the tower crane installation problems with average index equal to 3.2. Meanwhile miscommunication between the parties involved has been the least factor that contributes to tower crane installation problems. No indentifying and accessing risk, no optimum used of resource and information does not spread properly has been the second highest contributor to tower crane installation problem. There are three tower cranes installed for this project. The contractor commences the project with a building design consist of technical drawings and specification, which provides a very detailed picture of the end product or completed structure. The problem exists because the product or structure is represented as finished or complete and few details are provided to the contractor about how he or she must perform the construction activities to complete the work. Without a proper framework provided by planning manager, engineers and labours will have problems in installing the tower crane because they are working without any proper instruction or guideline.

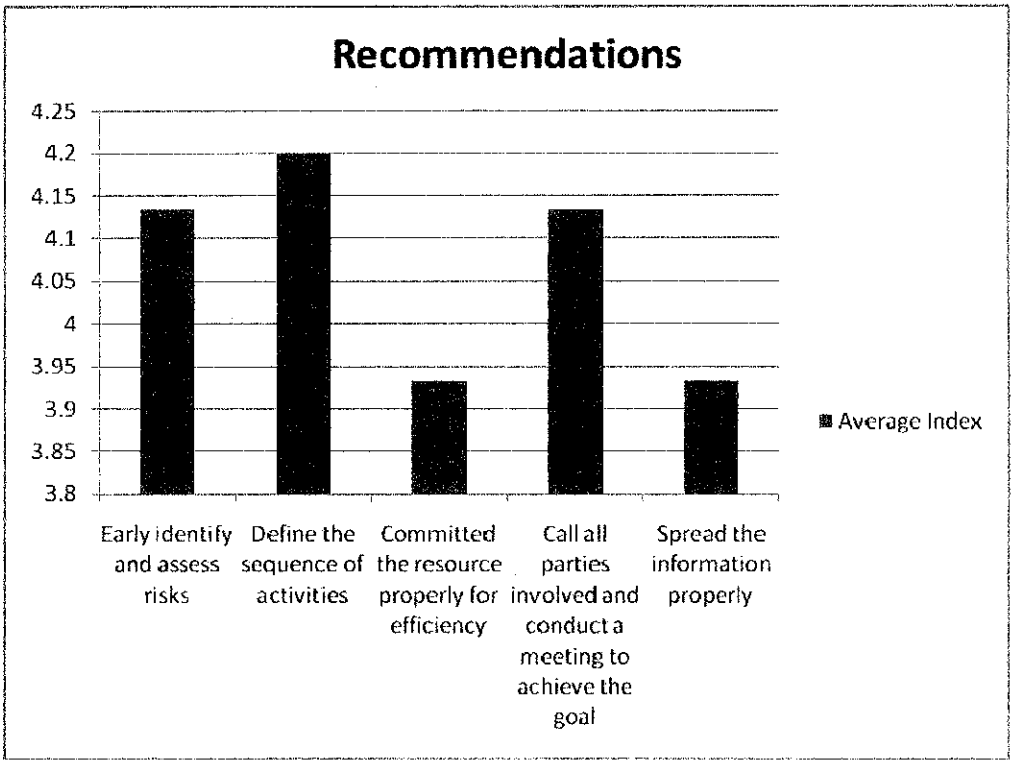


Figure 4.1.1.2b: Recommendations for tower crane installation problems

Based on Figure 4.1.1.2b, most of the respondent agreed that by defining the sequence of activities, tower crane installation problems can be solved. However, committed the resource properly for efficiency and spread the information properly are the solutions that are least suggest by the respondents. This solution is aligned with the factors of the tower crane installation problem which is no proper framework for the project's activities. Construction activities have to defined and ordered, and resources have to be allocated to complete the work. The contractor must use the technical descriptions of the complete structure to form a plan that executes all aspects of the work to physically construct the building. The plan must contain all required resources such as time, materials, equipment, and labour and must be such that the building is completed on time and within the estimated budget.

4.1.1.3 Site Office Facilities and Canteen Preparation

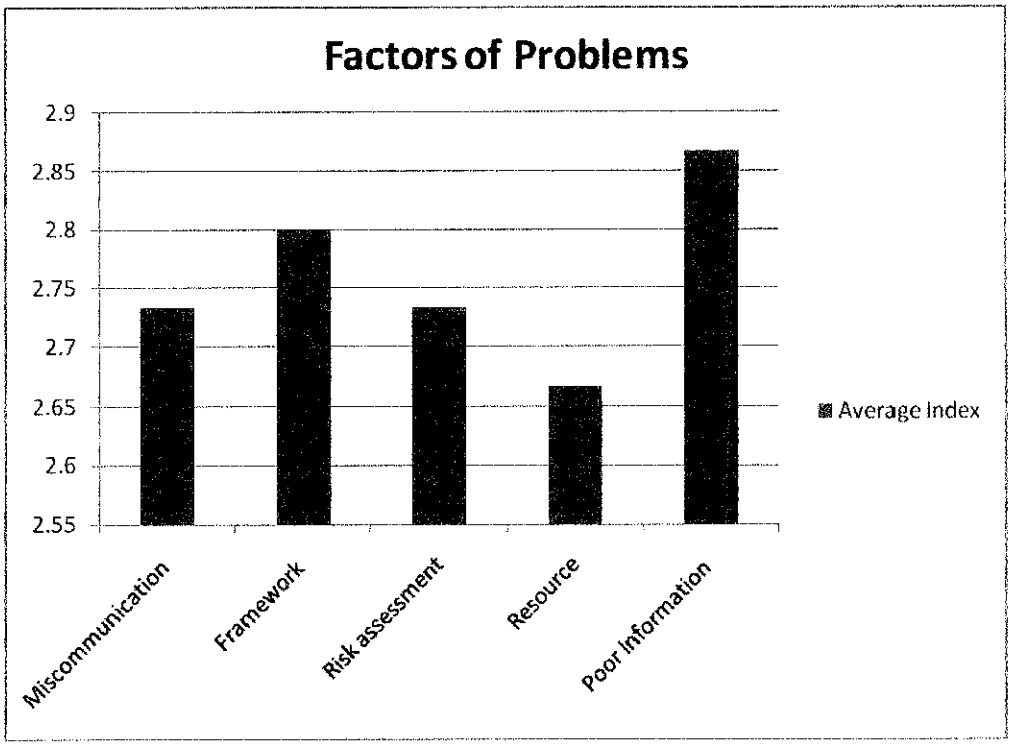


Figure 4.1.1.3a: Factors of site office facilities and canteen preparation problems

Based on the Figure 4.1.1.3a, the main contributor for Site Office Facilities and Canteen Preparation problems is poor information or information does not spread effectively. Meanwhile, no optimum used of resource is agreed as the least factor for Site Office Facilities and Canteen Preparation problems with the value of average index achieve is 2.67. According to the interviewees, the main problem of communication in the construction project lies in the lack of client's ability to empathize with the other parties involved. This is especially the case between demand side and supply side parties. Since consultant and constractors do not experience how their choices affect the use and maintenance of the product, it is difficult to communicate about these topics. This results in constructors who do not think along with the principal; principals who are not open minded to the constructors' input; and designers who design objects that do not always match the wishes and needs of their principals.

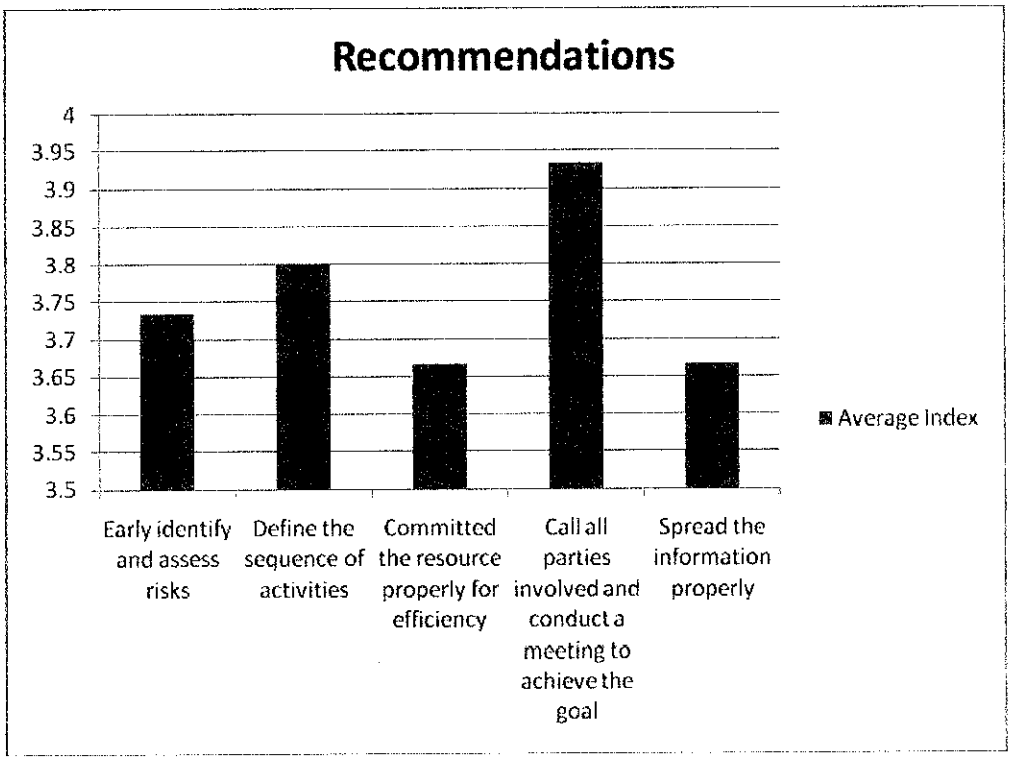


Figure 4.1.1.3b: Recommendations for site office facilities and canteen preparation problems

Based on Figure 4.1.1.3b, most of the respondents have agreed that by calling all parties involved and conduct a meeting to achieve the goal, site office facilities and canteen preparation problems can be solved. Meanwhile, committed the resource properly for efficiency and spread the information properly has been the least solutions suggested by the respondent to solve the site office facilities and canteen preparation problems. The best base for clear communication is when principals actually see themselves as chiefs and also act like this by being straight about the requirements and making clear the do's and don'ts. Some of the respondents talk about an imbalance in stakeholders' power and about poor mainly financial agreements in this project. Openness about the budget available and mutual responsibility could positively affect communication.

4.1.1.4 Piling works

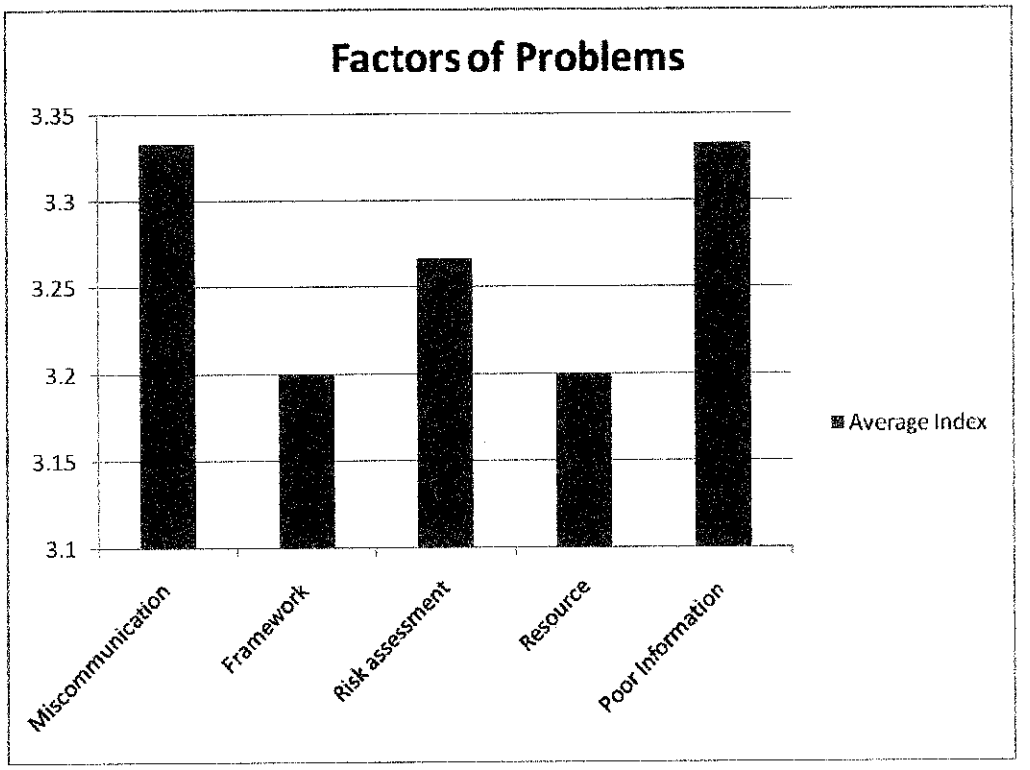


Figure 4.1.1.4a: Factors of piling works problems

Based on Figure 4.1.1.4a, miscommunication between the parties involved and information does not spread properly had been the major contributor for piling works problems. Meanwhile, the respondents have agreed that no proper framework for the project's activities and no optimum used of resource give only small contribution to the piling works problems. These piling works problems might occur on intra-supplier communication within the construction sector; demand-supply communication during the design phase; and communication between and within single demand and supply side parties, during whole the construction process.

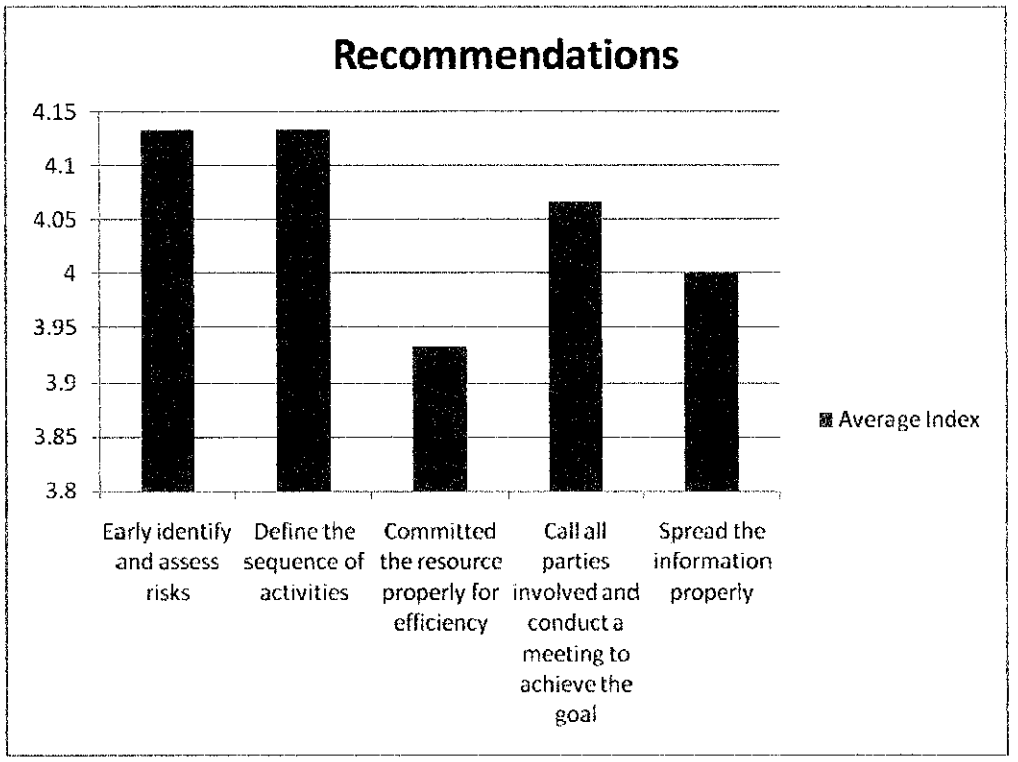


Figure 4.1.1.4b: Recommendations for piling works problems

Based on the Figure 4.1.1.4b, respondents have agreed that the piling works problems can be solved by early identify and assess risks and define the sequence of activities. Meanwhile, committed the resource properly for efficiency has been agreed as the least effective solution for piling works problems. Change is inherent in construction work. For years the industry has had a very poor reputation for coping with the adverse effects of change, with many projects failing to meet deadlines and cost and quality targets. This is not too surprising considering that there are no known perfect construction practitioners, anymore then there are perfect designs or that the forces of nature behave in a perfectly predictable way. Change cannot be eliminated but, by early identify and assess risks and define the sequence of activities, contractors are able to improve the effective management of this change.

4.1.1.5 Pile Caps

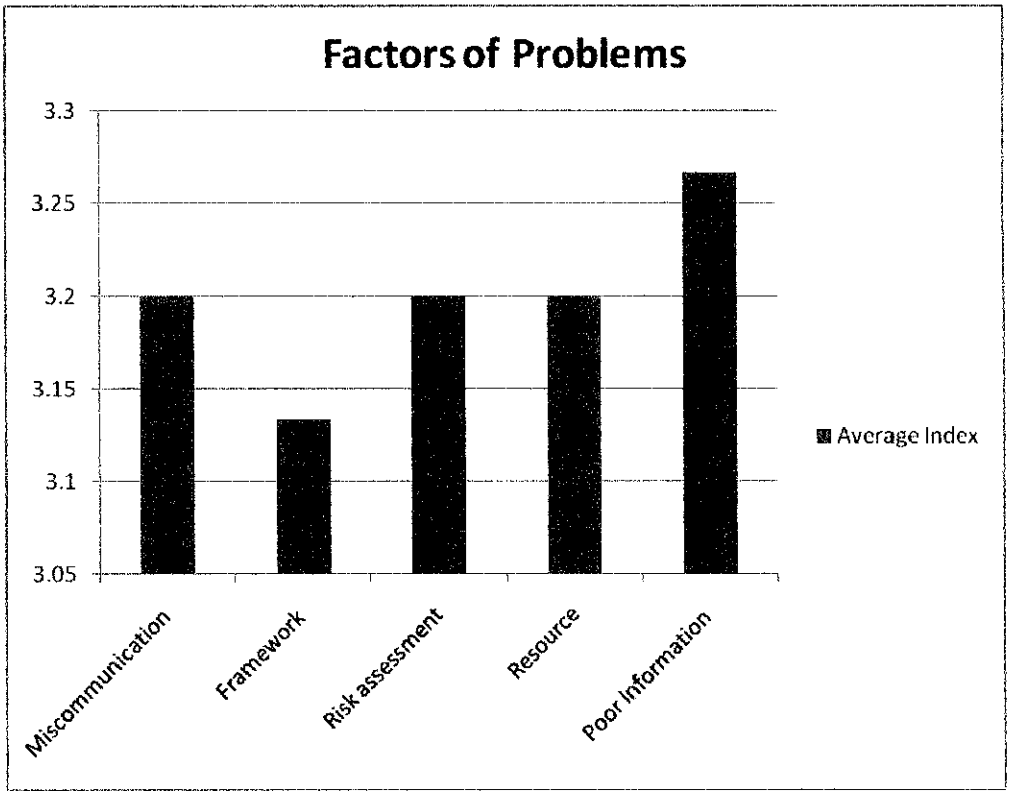
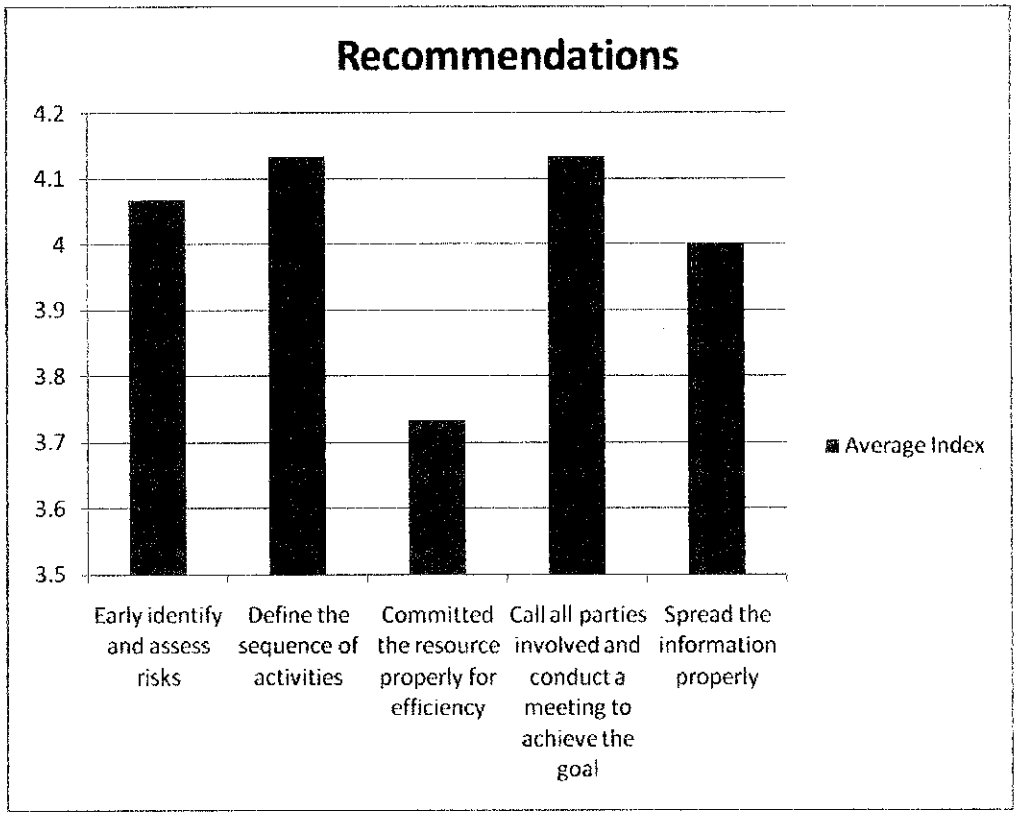


Figure 4.1.1.5a: Factors of pile caps problems

Based on Figure 4.1.1.5a, poor information or information does not spread effectively gives the major contribution for pile caps problems with average index achieved is 3.27. Meanwhile, respondents have agreed that no proper framework for the project's activities is the least contributor for pile caps problems with average index achieved is 3.17. The efficiency and effectiveness of the construction process strongly depend on the quality of communication. Improvement in the communication within the building team, in project teams and between project manager and contractors could reduce failure. While, more open communication at all levels could lead to innovations and better technical solutions. Furthermore, communication improvements in early phases of projects would positively influence the quality as perceived by all stakeholders involved. In addition, improved communication during the briefing might lead to better decision making, for example less haste in moving to solutions and better ways of looking at the requirements first.



4.1.1.5b: Recommendations for pile caps problems

Based on Table 4.1.1.5b, respondent has agreed that the best solution to solve the pile caps problems are by defining the sequence of activities and calling all parties involved and conduct a meeting to achieve the goal. Meanwhile, committed the resource properly for efficiency has been chosen as the least effective solution to overcome the pile caps problems. The development of the sequence of activities is the most important step in using a network as a scheduling tool. An ill-prepared sequence of activities serves no useful purpose and may compromise construction progress. The model must bear a reasonably accurate portrayal of the actual steps to be followed in construction a project. The fundamental concept of a network-based planning and scheduling tool is that the network represents a time-oriented model of a system.

4.1.1.6 Lift pit foundation and lift pit wall

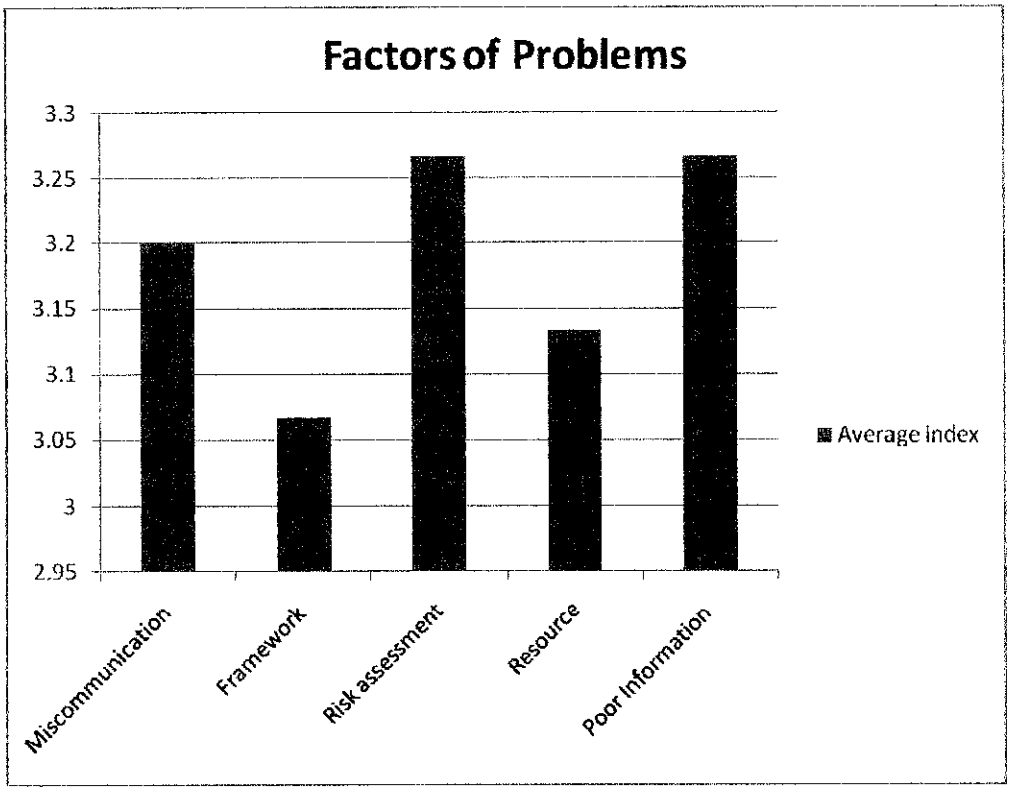


Figure 4.1.1.6a: Factors of lift pit foundation and lift pit wall problems

Based on Figure 4.1.1.6a, respondents had agreed that no identifying and accessing risk and information does not spread effectively are the main contributor to lift pit foundation and lift pit wall problems. Meanwhile, respondent agreed that no proper framework for the project's activities only give small contribution to lift pit foundation and lift pit wall problems. An essential aspect of construction project is the reduction of risk to a level which is acceptable to the investor. This process starts with a realistic assessment of all uncertainties associated with the data and predictions generated during construction. Many of the uncertainties will involve a possible range of outcomes that could be better or worse that predicted. Risks arise from uncertainty and are generally interpreted as factors which have an adverse effect on the achievement of the project objectives.

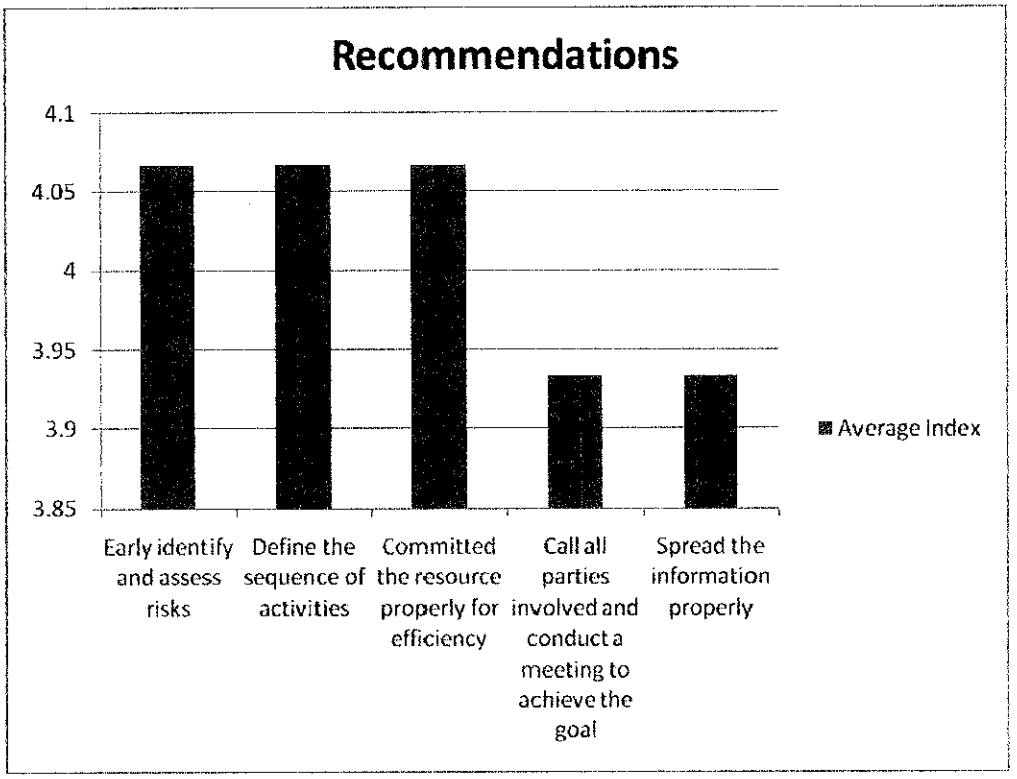


Figure 4.1.1.6b: Recommendations for lift pit foundation and lift pit wall problems

Based on Figure 4.1.1.6b, early identity and assess risks, define the sequence of activities and committed the resource properly for efficiency have been agreed as effective solution for lift pit foundation and lift pit wall problems. Planning engineers are suggested to do resource allocation by using the precedence diagram as the basis for the solution. The assumption of limited resources may extend the project duration beyond the completion time that would be predicted if no resource constraint were imposed. If the duration is extended excessively, management decisions may be required to resolve the conflict between the limitation of resources and the project duration. Once all resource constraints are known, the series method resource allocation solution can be developed. Under this method an activity is scheduled to start as soon as its predecessors have been completed, provided that the utilization of available resource is not exceeded.

4.1.1.7 Exothermic welding for earthing and lightning protection

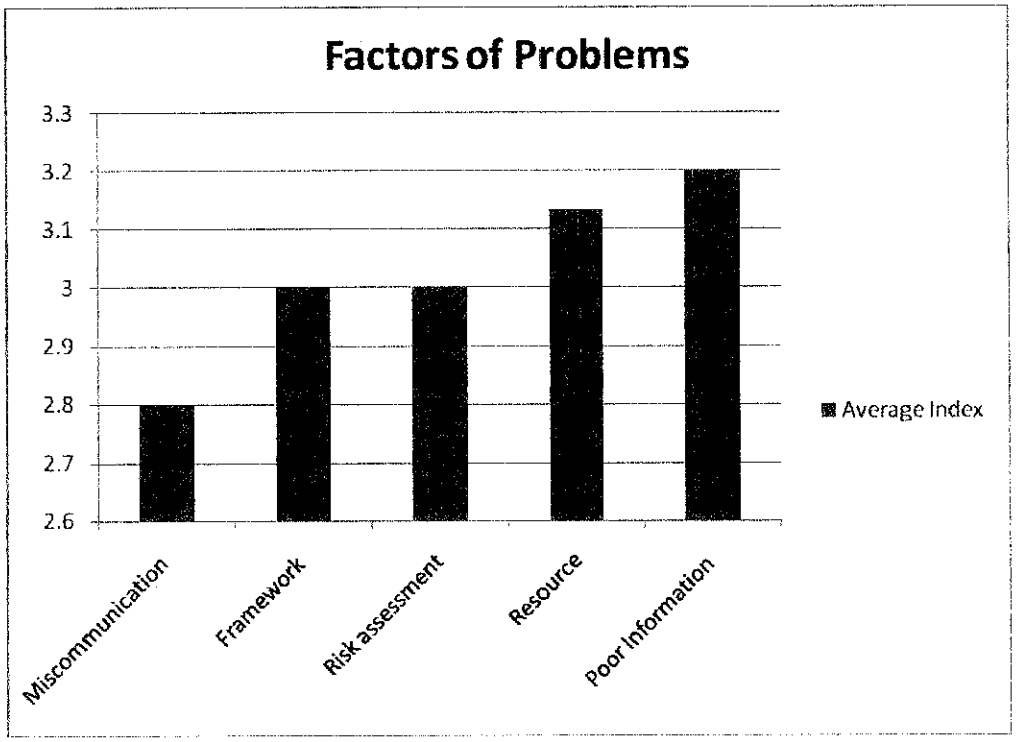


Figure 4.1.1.7a: Factors of exothermic welding for earthing and lightning protection problems

Based on Figure 4.1.1.7a, information does not spread effectively is the biggest contributor to exothermic welding for earthing and lightning protection problems with average index achieved is 3.2. Meanwhile miscommunication between the parties involved only give a small contribution to the exothermic welding for earthing and lightning protection problems with average index achieved is 2.8. Human factors will determine whether construction projects develop in a good way or not: there needs to be some kind of "chemistry" between the individuals involved to make the process go well. Because of the small margins, the hierarchy within the supply-side is rigid and stakeholders behave in both strategic and calculating ways. This behaviour results in a mutual lack of trust, reversely discouraging stakeholders to improve their communication. Some respondent point out that when something goes wrong, it results in pointing fingers on both sides, the claiming of extra efforts and thus costs, coupled with a decreasing level of trust. According to the respondent, trust is the main cause for principals' wishing to be involved in the entire process.

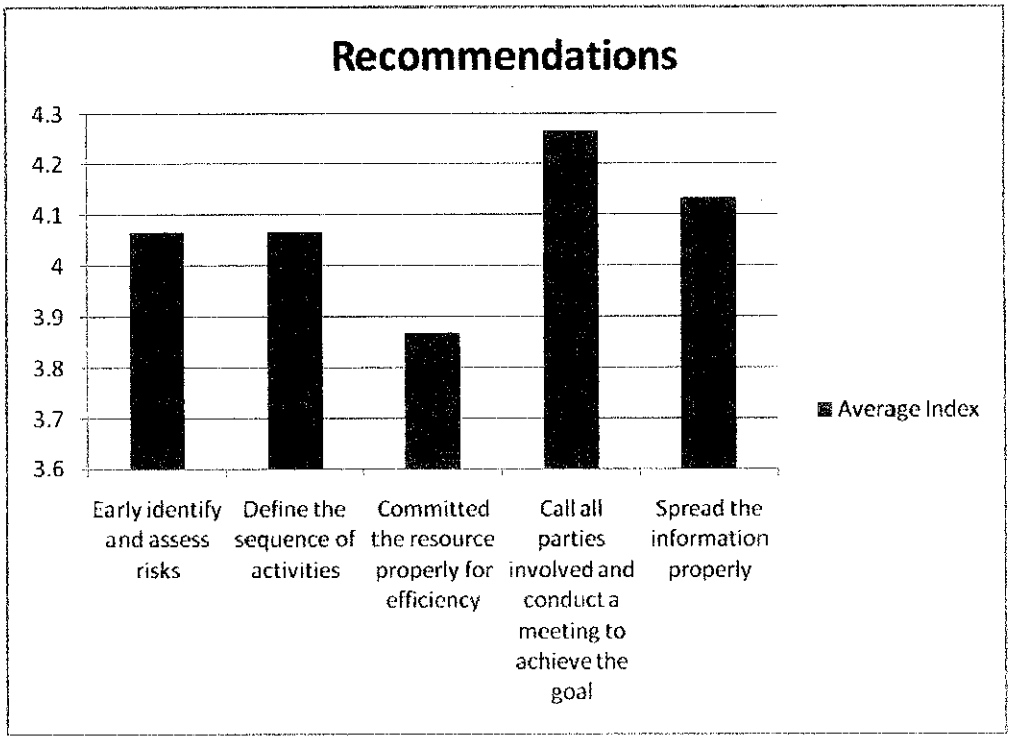


Figure 4.1.1.7b: Recommendations for exothermic welding for earthing and lightning protection problems

Based on Figure 4.1.1.7b, most of respondents have agreed that by calling all parties involved and conduct a meeting to achieve the goal; exothermic welding for earthing and lightning protection problems can be solved. Meanwhile, committed the resource properly for efficiency has been agreed as the least effective solution for exothermic welding for earthing and lightning protection problems with average index achieved is 3.87. In general, the respondents do not perceive construction communication as problematic; however, they admit that communication processes are far from optimal. As a main consequence of poor communication, a waste of time was mentioned. For example, errors from early stages have to be solved later. Moreover, making adjustments in latter stages of the building process usually costs extra money. Interviewees think that improved communication would probably lead to less delays and lower expenses. In addition, all stakeholders' satisfaction about both the process and the quality of the product could rise when they would communicate in a better way.

4.1.1.8 Sanitary Plumbing

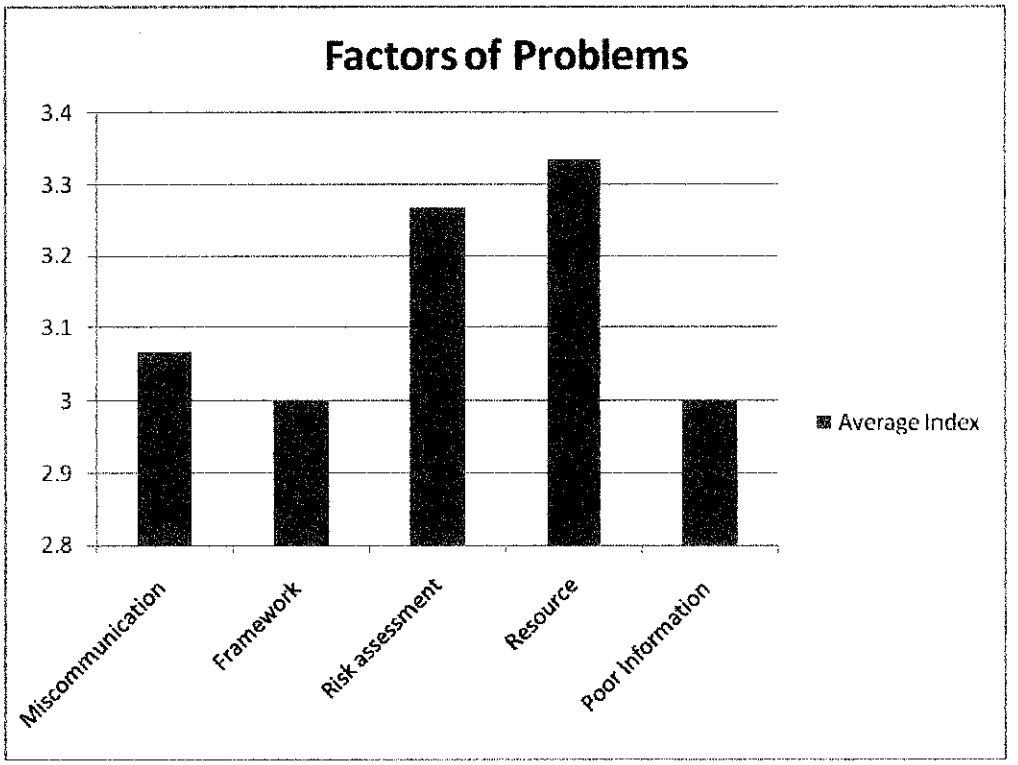


Figure 4.1.1.8a: Factors of sanitary plumbing problems

Based on Figure 4.1.1.8a, no optimum used of resource had been the major contributor for sanitary plumbing problems. Meanwhile, the respondents have agreed that no proper framework for the project's activities and information does not spread effectively only gave small contribution to the sanitary plumbing problems. If an activity does not utilize a limited resource, the activity is scheduled to start as soon as its predecessors have been completed. Once an activity has been started it is not interrupted. If two different activities requiring the use of the same limited resource can be scheduled assuming the resources needed would exceed the available resources if both activities are scheduled concurrently, the activity with the earliest late start date is given priority. If the two activities are tied for the earliest late start date, priority is given to the activity with the least total float.

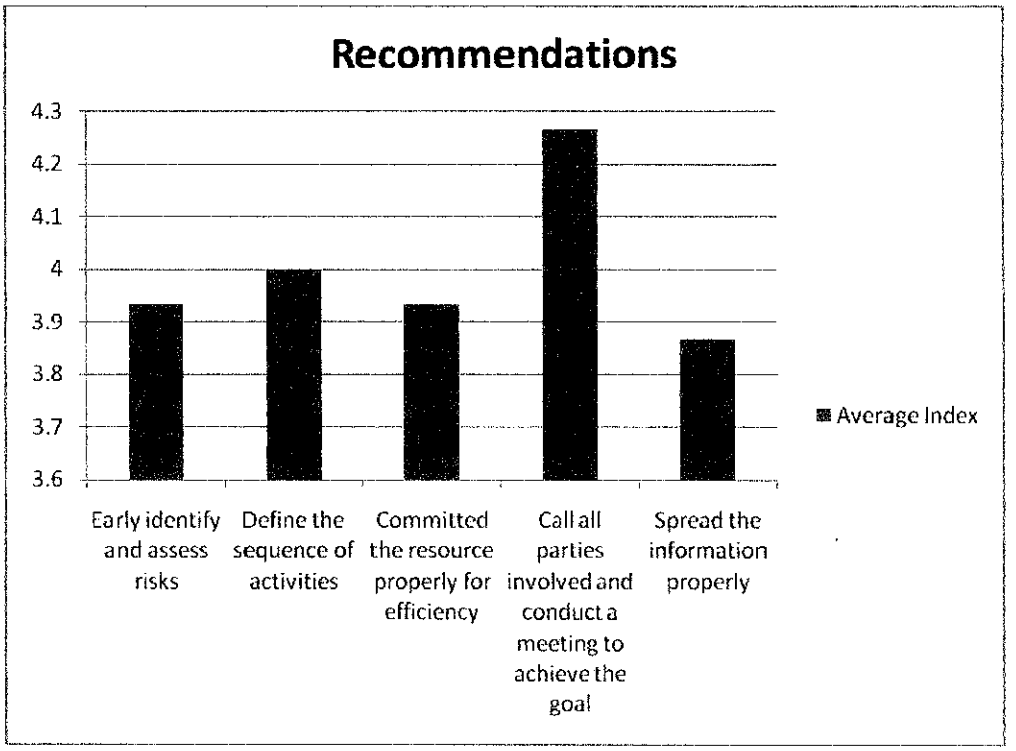


Figure 4.1.1.8b: Recommendations for sanitary plumbing problems

Based on Figure 4.1.1.8b, most of the respondents have agreed that by calling all parties involved and conduct a meeting to achieve the goal; sanitary plumbing problems can be solved. Meanwhile, spread the information properly has been the least solutions suggested by the respondent to solve the sanitary plumbing problems. According to respondents, most problems were reported in the communication between demand side and supply side stakeholders. The strong interaction in construction projects between stakeholders on the demand side and on the supply side seems to make construction projects very vulnerable to communication problems.

4.1.1.9 Reports and Permits

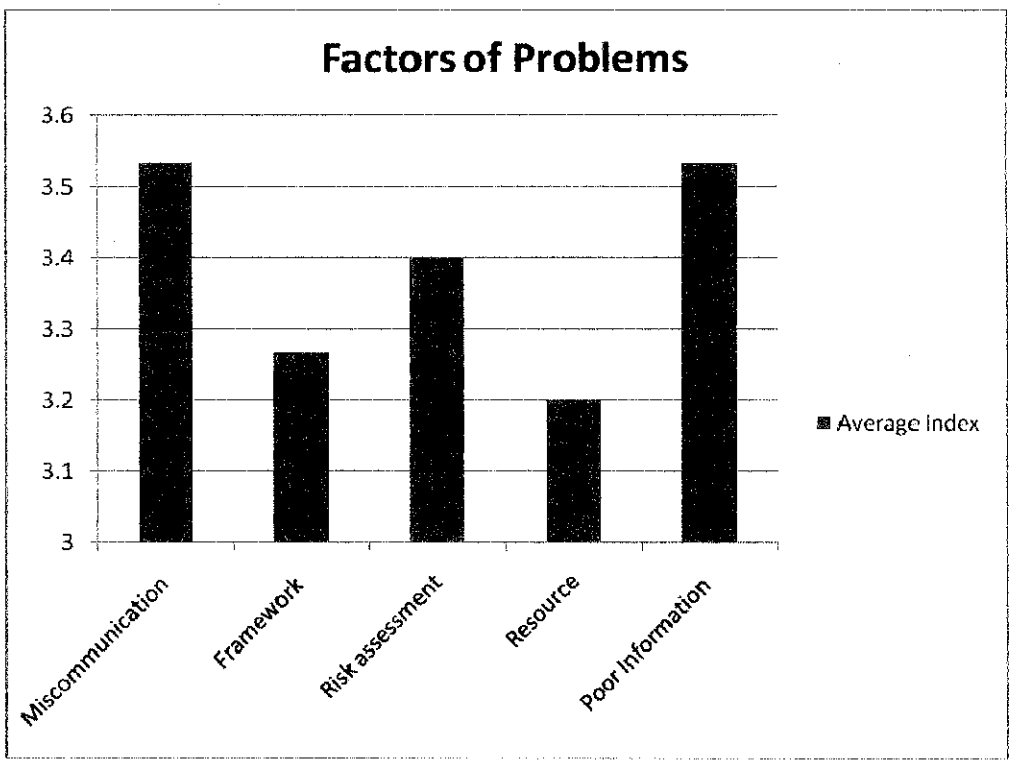


Figure 4.1.1.9a: Factors of reports and permits problems

Based on Figure 4.1.1.9a, poor information or information does not spread effectively and miscommunication between the parties involved gave the major contribution for reports and permits problems with average index achieved is 3.53. Meanwhile, respondents have agreed that no optimum use of resource is the least contributor for reports and permits problems with average index achieved is 3.2. Because of their will to control every little detail, lots of consultants are involved. In infrastructure projects executive parties just seem to get involved in the latter stages of the building process only, whereas in public utility building or housing projects their input is being asked more and more in earlier stages of the process. Nevertheless, they still have little experience with it. As a result, executive parties only think about the product to build, and not about the problem it should tackle. Conversations therefore tend to be about product specifications and project plans rather than about functional requirements, wishes and needs.

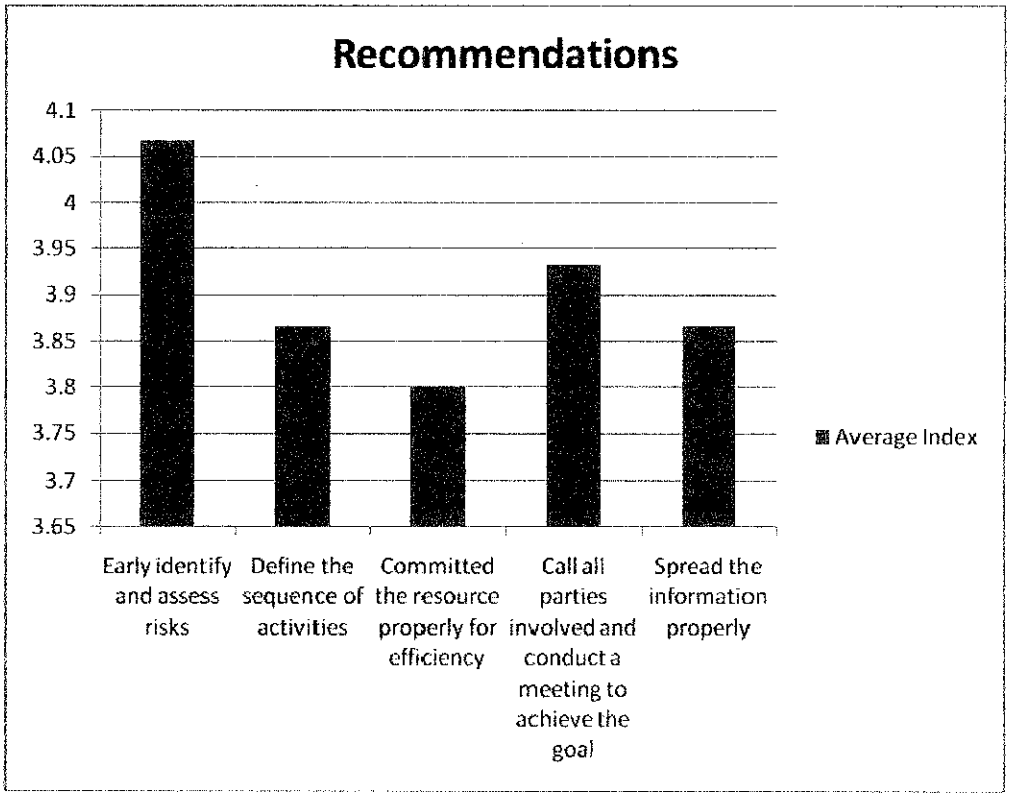


Figure 4.1.1.9b: Recommendations for reports and permits problems

Based on Figure 4.1.1.9b, most of respondents have agreed that by doing early identify and assess risks, reports and permits problems can be solved. Meanwhile, committed the resource properly for efficiency has been agreed as the least effective solution for reports and permits problems with average index achieved is 3.8. The project manager and planning engineer must help create the environment for the analysis, such as underlining the importance of performing the analysis, express goals and expectation, actively be part of the risk process, and be responsible for the actions or responses resulting from the risk analysis. The project manager should make sure that all key personnel are available and have included the risk analysis in their schedules. One of the main obstacles when introducing risk management to an organization is the lack of openness and communication within the organization. Performing risk management can be very painful at the start of the process, but the risk process has proved to be catalyst in breaking down communication barriers and to provide an environment for openness and discussions.

4.1.1.10 Drawing submission

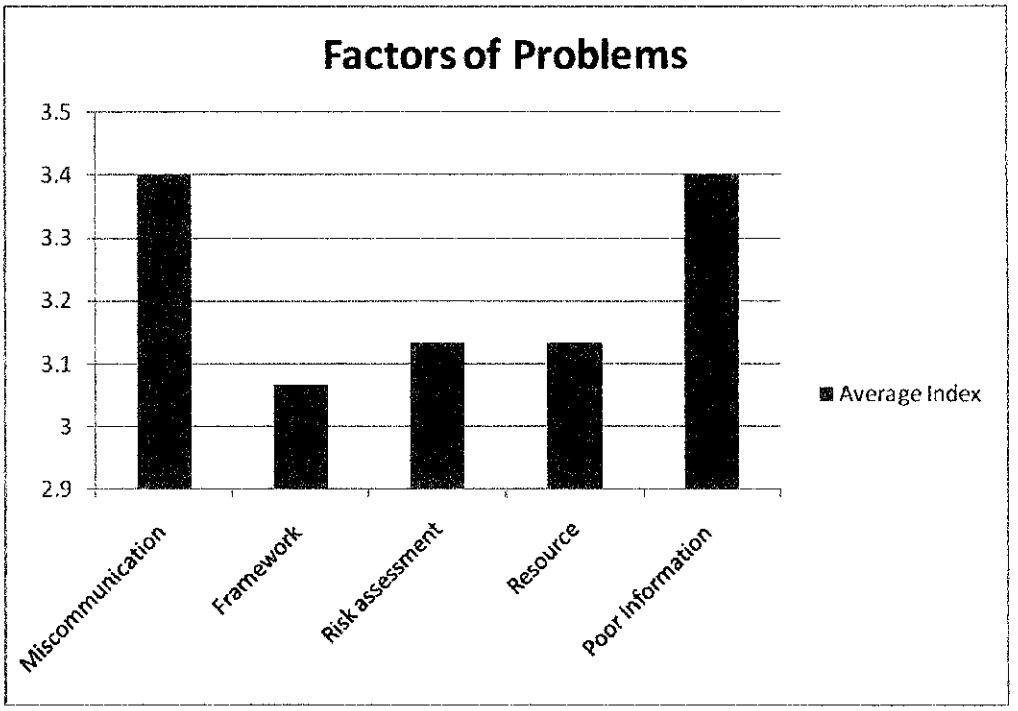


Figure 4.1.1.10a: Factors of drawing submission problems

Based on Figure 4.1.1.10a, miscommunication between the parties involved and information does not spread effectively had been the major contributor for drawing submission problems. Meanwhile, the respondents have agreed that no proper framework for the project's activities only gave small contribution to the drawing submission problems. The project manager should ensure that a pre-start or "kick off" meeting is held as there are several benefits to site communication which may arise from such a meeting, including the following:

- It allows people to get to know each other; this is likely to lead to better communication and less confrontational attitudes as the work progresses.
- It provides the opportunity to decide on how communication will operate.
- It provides the opportunity to define points of contact at each organisation.
- It can be used to ensure that all people have the contact details for others working on the project.

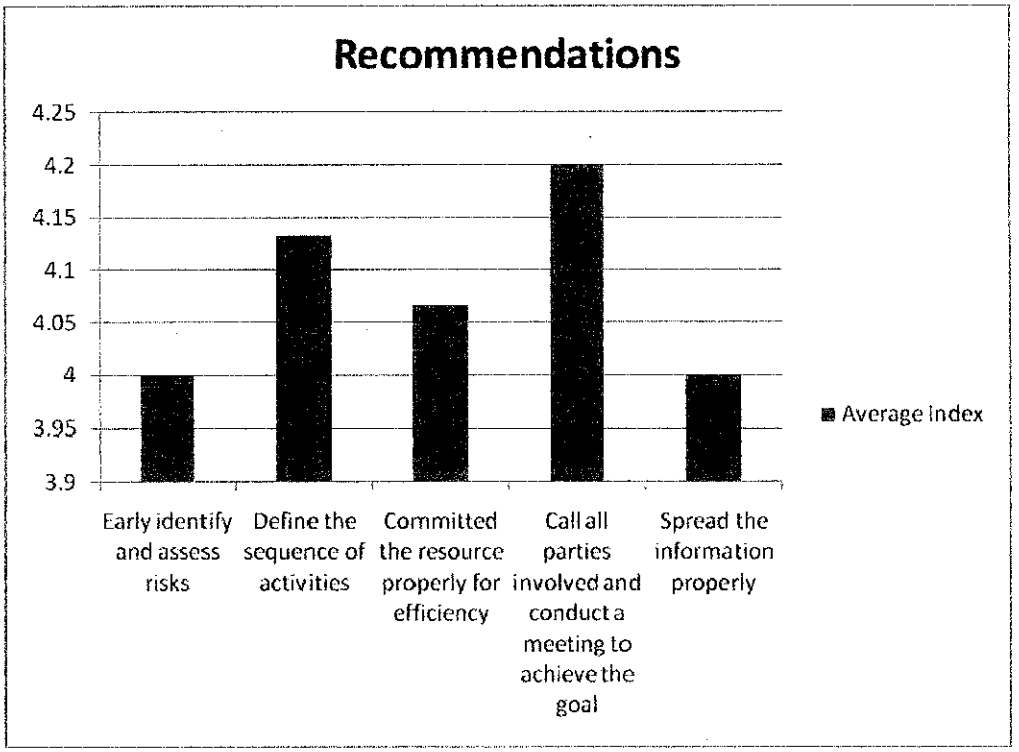


Figure 4.1.1.10b: Recommendations for drawing submission problems

Based on Figure 4.1.1.10b, most of the respondents have agreed that by calling all parties involved and conduct a meeting to achieve the goal; drawing submission problems can be solved. The role of drawings in producing good quality work is crucial. Therefore, careful attention must be paid as to how drawings are going to be produced, checked and distributed. The following points must be considered:

- Provide drawings as early and as complete as possible at all relevant stages.
- Ensure drawings are adequately detailed and checked before site work starts.
- The different means by which drawings could be produced to help building work progress smoothly (e.g. colour coded, by trade or element, laminated, small or large sized).
- How much information is needed on any drawing for it to be successfully built from?
- Where are the drawings to be used/kept, e.g. site office, supervisor, operatives?
- How to prepare and return amended drawings back to site as quickly as possible?
- Is there a role for the manufacturers to help prepare drawings?

4.1.1.11 Health, safety and security

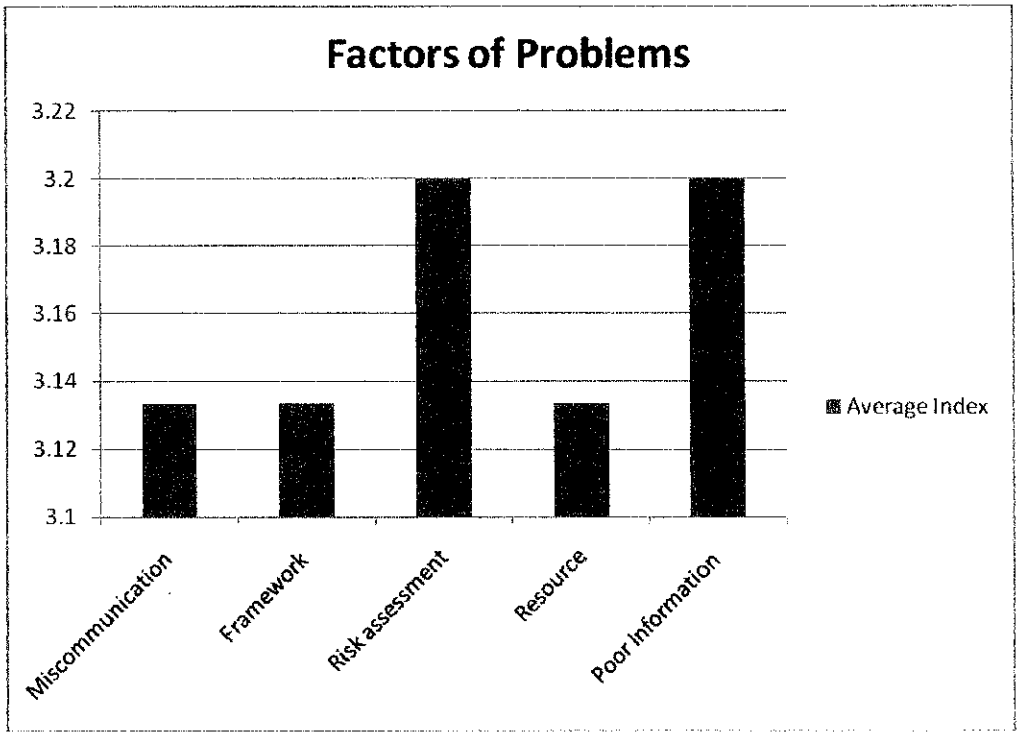


Figure 4.1.1.11a: Factors of health, safety and security problems

Based on Figure 4.1.1.11a, respondents had agreed that no identifying and accessing risk and information does not spread effectively are the main contributor to health, safety and security problems. Risk to health and safety is normally considered as a hazard during design, and embraces issues such as reliability and efficiency, in addition to safety. The logical process of risk management may be defined as:

- Identification of risks/uncertainties;
- Analysis of the implications (individual and collective);
- Response to minimize risk;
- Allocation of appropriate contingencies

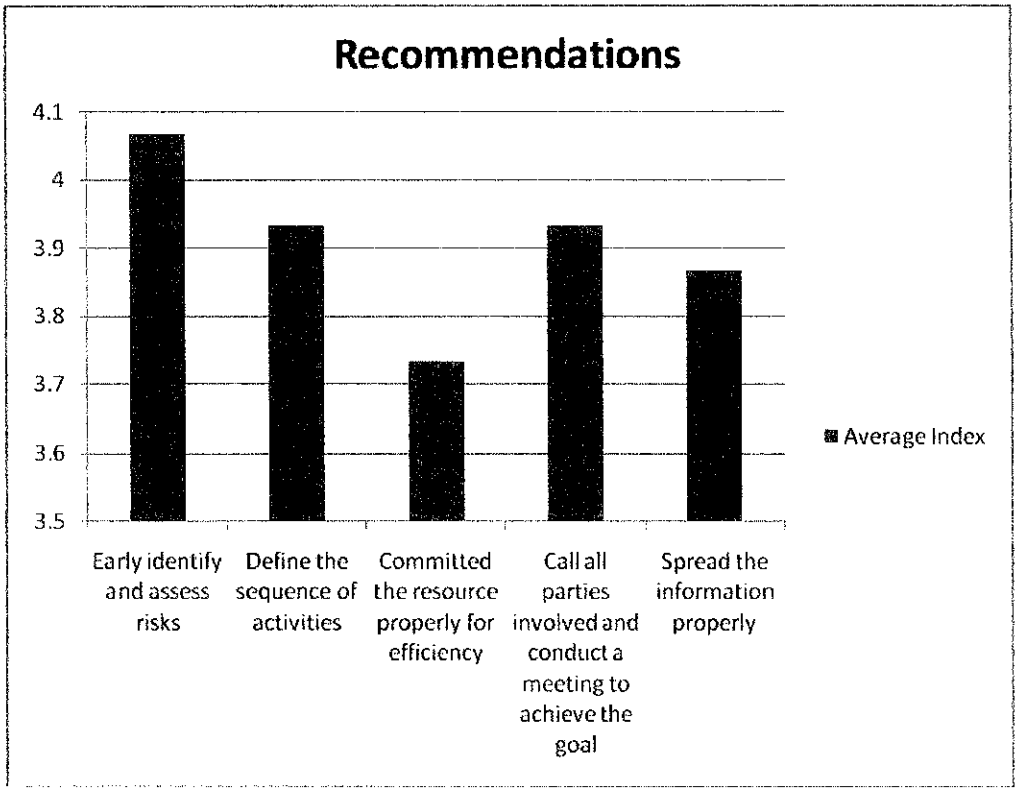


Figure 4.1.1.11b: Recommendations for health, safety and security problems

Based on Figure 4.1.1.11b, most of the respondent agreed that by early indentify and access risks; health, safety and security problems can be solved. However, committed the resource properly for efficiency is the solutions that are least suggest by the respondents. This solution is aligned with the major factor of the health, safety and security problems which is no identifying and accessing risk. Risk management can be considered as an essential part of the continuous and structured project planning cycle. Risk management:

- requires an acceptance that uncertainty exists;
- generates a structured response to risk in terms of alternative plans, solutions and contingencies;
- is a thinking process requiring imagination and ingenuity;
- generate a realistic (and sometimes different) attitude in project staff by preparing them for risk events, rather than being taken by surprise when they arise.

4.1.1.12 Environmental

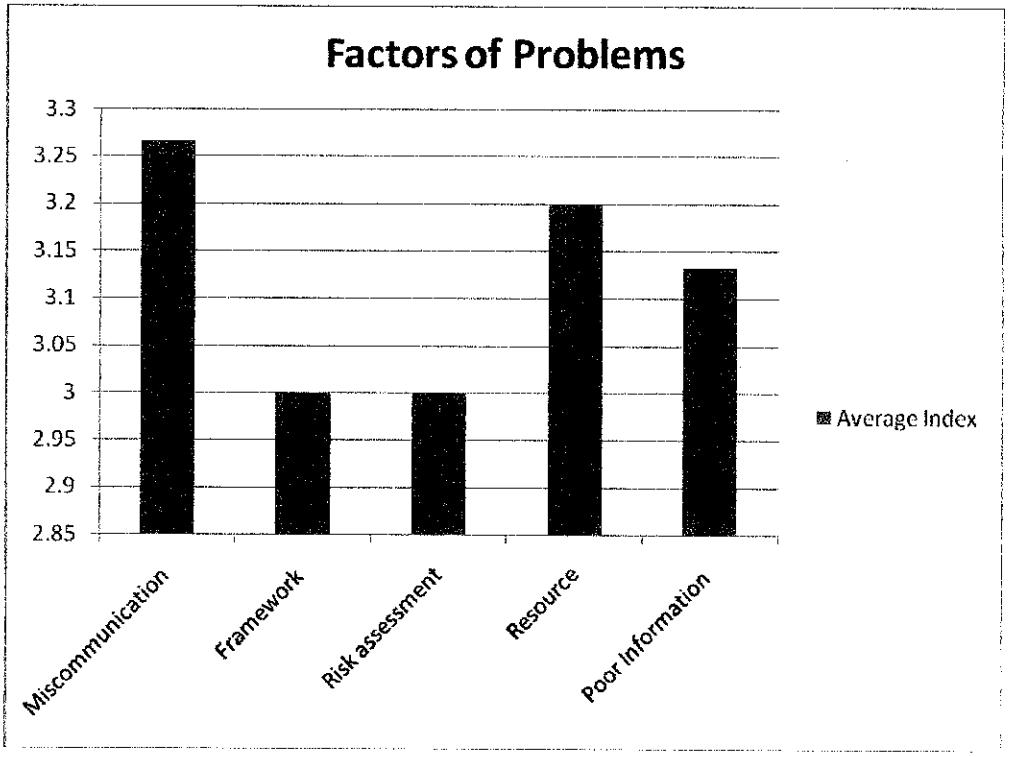


Figure 4.1.1.12a: Factors of environmental problems

Based on Figure 4.1.1.12a, miscommunication between the parties involved had gives a major contribution for environmental problems. Meanwhile, the respondents have agreed that no proper framework for the project's activities and no identifying and accessing risk only gave small contribution to the environmental problems. Communication is critical to the success of construction project teams. Project teams with better, frequent, detailed communication experienced more positive outcomes such as completed within budget, limited amount of rework. If this relationship can be generalized to construction communication, then better construction communication will result in more positive outcomes such as safety and satisfaction for each parties involved.

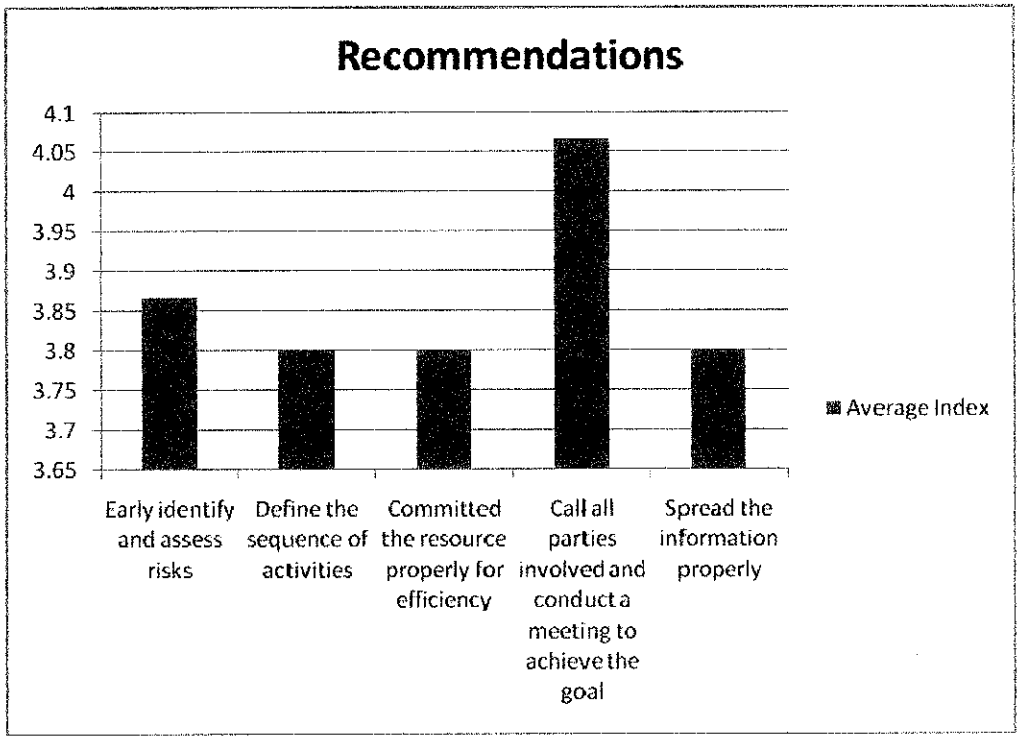


Figure 4.1.1.12b: Recommendations for environmental problems

Based on Figure 4.1.1.12b, most of respondents have agreed that by calling all parties involved and conduct a meeting to achieve the goal, environmental problems can be solved. This is aligned with the factors of environmental problems which are miscommunication between the parties involved. Communication serves various functions, but its primary function is to convey information. Because communication includes the transmission and understanding of meaning, there must be both a source and a receiver of the message. Between the source and receiver are a number of factors that affect the transmission and understanding of meaning, including the message, encoding, the channel, decoding, and feedback. Communication begins when the source initiates the communication process. In construction, contractors can also be intermediaries in the communication process. The source provides the ideas, needs, intentions, information, and purpose of the communication. In some cases, the source has multiple purposes for the information being communicated.

4.1.2 Interview

1) Name : **Zamri Jeni**
2) Position : **Senior Coordinator**
3) Company: **Sunway Coordination**
4) What is the common problem exist at the site?

   Delay of activities.
5) What factors caused the problem to occur?

   Improper planning and nature (rains).
6) What are the relevant actions taken to overcome this problem?

   To conduct discussion and meeting with all relevant parties.
7) Who is the most responsible person contributes to the problem?

   Project Manager for contractor's side
8) Is the planning department play an important function in the project?

   Planning department from contractor's side is not too effective.
9) What can be done to increase the effectiveness of planning in the project?

   Need an experience people to guide at the early stage of the works.

1) Name : **Ismail Shah Putra**
2) Position : **Resident Engineer**
3) Company: **Petareka Perunding Sdn Bhd (Contractor's Consultant)**
4) What is the common problem exist at the site?

   Design issue is the main problem for this project. It is very hard to get drawing approval from the client.
5) What factors caused the problem to occur?

   Client approval, more time spends on waiting for the drawing to be approved. Construction works cannot proceed.
6) What are the relevant actions taken to overcome this problem?

   Ensure the drawing can be finished at the planned time.
7) Who is the most responsible person contributes to the problem?

   Engineering Department.
8) Is the planning department play an important function in the project?

   In this project, not really.
9) What can be done to increase the effectiveness of planning in the project?

   Separate site discussion on technical meeting, solve the problem one by one.

1) Name : **Jaafar B. Yusoff**
2) Position : **Resident Engineer**
3) Company: **Perunding Bakti Sdn. Bhd. (Client's Consultant-C&S)**
4) What is the common problem exist at the site?

   Common problem exist at this site is poor design coordination. The contractor needs to coordinate the activities such as casting the slab, machinery etc so that the mistakes can be avoided. For example, our third tower crane installation is misplaced but it's already too late to do anything. The Liquidated Ascertain Damages (LAD) for this project is RM 25,000 per day which is a lot; however, it is very fortunate that contractor can issues for Extension of Time (EOT).
5) What factors caused the problem to occur?

   Poor design coordination at the contractor's side.
6) What are the relevant actions taken to overcome this problem?

   Consultant, client and contractor need to sit together so that everybody can have a say on each matter and problem solving will be more efficient.
7) Who is the most responsible person contributes to the problem?

   Project Manager for contractor's side
8) Is the planning department play an important function in the project?

   Planning department from contractor's side is not too effective.
9) What can be done to increase the effectiveness of planning in the project?

   Planner for contractor's side need to understand the problem at the site and site condition before come out with any scheduling. They need to be more involved instead of staying at the office and doing the Primavera or Progress Report and whatnot. They need to go to site more often.

1) Name : **Tan Vi Lex**
2) Position : **Project Engineer**
3) Company: **Sunway Construction**
4) What is the common problem exist at the site?

   Drawing discrepancies.
5) What factors caused the problem to occur?

   Lack of drawing check by consultants and drawing changes.
6) What are the relevant actions taken to overcome this problem?

   Design should go through a few phases.
7) Who is the most responsible person contributes to the problem?

   Architect.
8) Is the planning department play an important function in the project?

   Not too effective.
9) What can be done to increase the effectiveness of planning in the project?

   Everybody must involved directly in the project-should go to the site more often and understand the problems.

1) Name : **Anas B. Hassan**
2) Position : **HSE Excecutive**
3) Company: **PJH/KLCCP**
4) What is the common problem exist at the site?

   Mindset and behaviour of the people about the safety at the site.
5) What factors caused the problem to occur?

   Workers do not understand why they need to follow certain safety procedure. They take things easily.
6) What are the relevant actions taken to overcome this problem?

   We conduct toolbox meeting every morning, we also did BBS (Behavioral Based Safety). BBS is to make workers understand why he/she needs to follow certain procedure instead of just doing it because the supervisor asked them to.
7) Who is the most responsible person contributes to the problem?

   Site supervisor because they are more educated then the worker.
8) Is the planning department play an important function in the project?

   Not really, planning should emphasized more about safety.
9) What can be done to increase the effectiveness of planning in the project?

   Planning Engineer and Safety Officer should work together. Planning engineer should take safety measures into account while planning for the construction project.

4.2 Construction of 14 Block 230 Units Shop Offices and 28 Units Penthouse (Phase 5) on Lot PB1 (Encorp Strand)

4.2.1 Survey

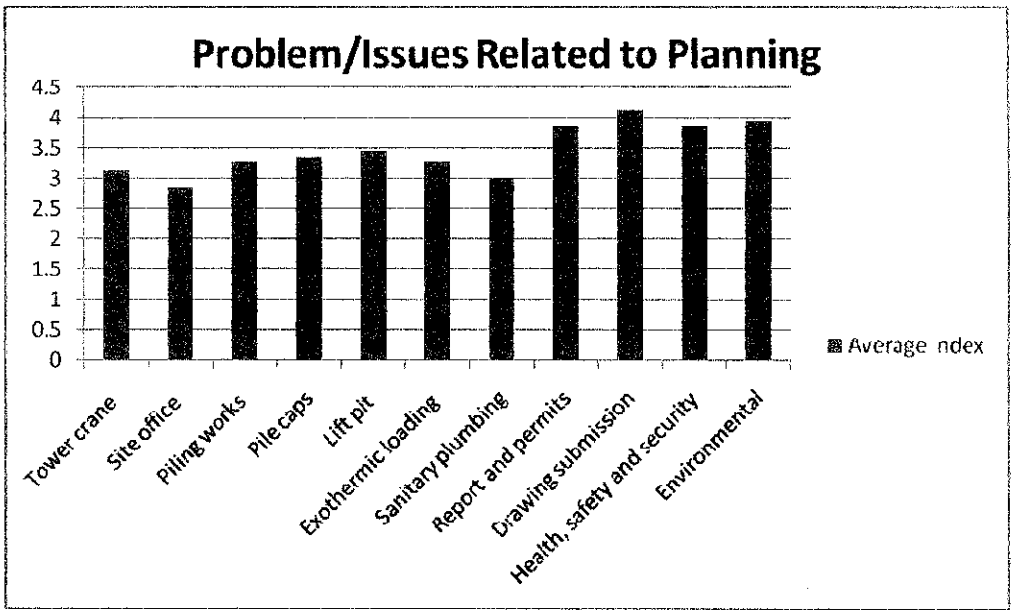


Figure 4.2.1.1: Activities in Encorp Strand Project that are affected by planning

Refer to Figure 4.2.1.1, it is recorded that Drawing Submission is the activity that is most affected by improper planning with average index achieved are 4.13. Site office facilities and canteen preparation are the least activities that are affected by planning which average index achieved equal to of 2.9. This result is similar to PZ10 project which are Drawing Submission as the most affected activities and site office facilities and canteen preparation are least affected activities. Design activity is complex. To be able to manage the process effectively it is necessary to be sympathetic to the consultant's ambitions and method of work. This can be difficult because of the following.

- The search for the perfect solution can be endless without constraints.
- There is, as yet, no perfectly correct process or solution.
- The process involves identifying the real problem as well as solving it.
- Design inevitably involves personal value judgments.
- There is no simple scientific approach to solving design problem.

4.2.1.2 Tower Crane Installation

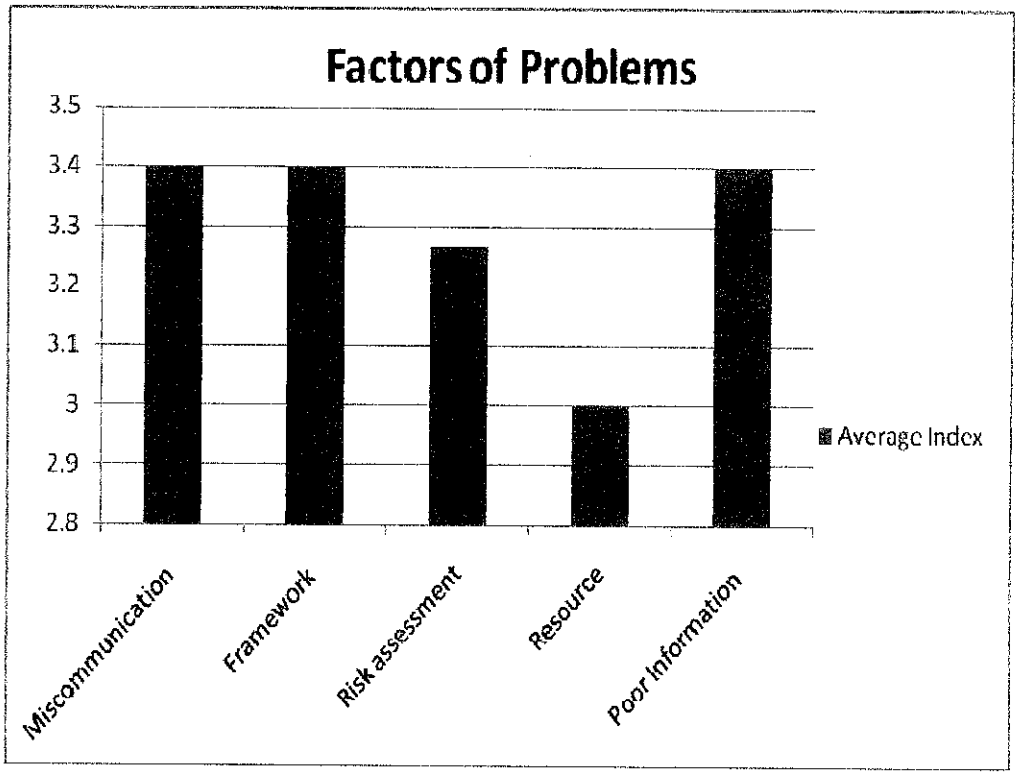


Figure 4.2.1.2a: Factors of tower crane installation problems

Based on Figure 4.2.1.2a, no proper framework for the projects activities, miscommunication between the parties involved and information does not spread effectively have been the major contribution to the tower crane installation problems with average index equal to 3.4. Meanwhile no optimum used of recourse has been the least factor that contributes to tower crane installation problems with average index achieved equal to 3.0. Project should be well versed in matters pertaining to the movement of plant, equipment, people and materials up, into and through buildings under construction. To ensure the site to be smooth running, site manager and planner must get involved in coordinating plant, equipment and material deliveries.

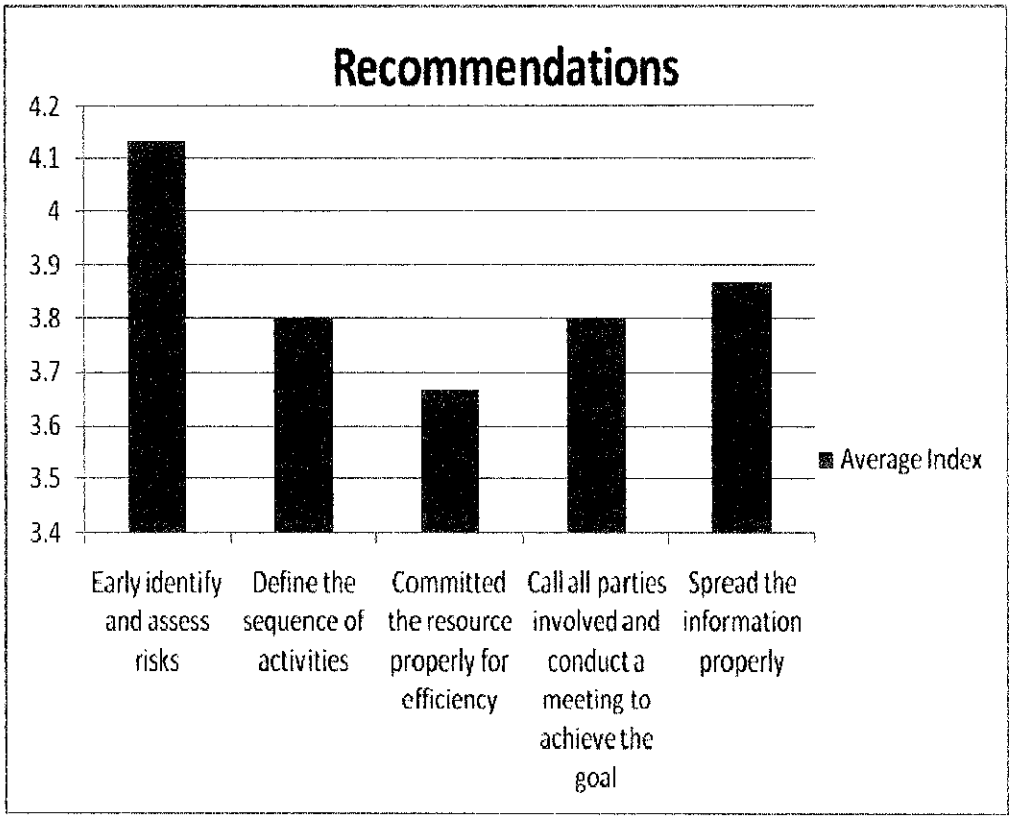


Figure 4.2.1.2b: Recommendations for tower crane installation problems

Based on Figure 4.2.1.2b, most of the respondent agreed that by early identify and assess risks; tower crane installation problems can be solved. However, committed the resource properly for efficiency is the solutions that are least suggest by the respondents. At the start of any project there is a large amount of risk resulting from the uncertainty surrounding the way in which the project will proceed. The level of risk is a combination of the probability of occurrence of the risks and their possible impact on the project, should they be realised. A certain amount of information regarding the impact and probability of occurrence of risks could be gathered by the use of two simple matrices. Those in charge of the project have to decide which risks can be ignored and which need further investigation.

4.2.1.3 Site Office Facilities and Canteen Preparation

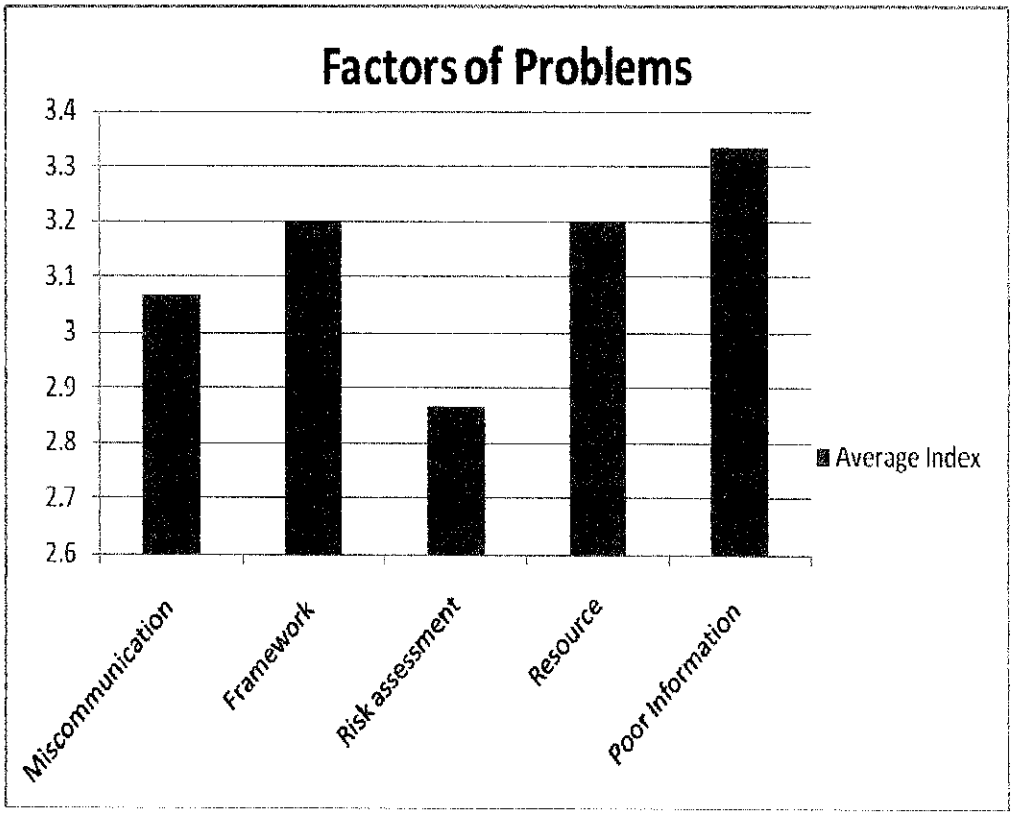


Figure 4.2.1.3a: Factors of site office facilities and canteen preparation problems

Based on the Figure 4.2.1.3a, the main contributor for Site Office Facilities and Canteen Preparation problems is poor information or information does not spread effectively. Meanwhile, no identifying and accessing risk is agreed as the least factor for Site Office Facilities and Canteen Preparation problems with the value of average index achieve is 2.90. Site Office Facilities and Canteen Preparation are the least activity that is affected by improper planning. Site Office and Canteen is not permanent and only build as a requirement for the ease of the worker. Once the project is finished, they will be demolished. Thus, respondents decided that Site Office Facilities and Canteen Preparation as the activities that is not crucial compare to other activities in the construction. Poor information might be resulted due to the facts that only contractor involved in the project and there is no proper documentation involved during the construction of Site Office and Canteen.

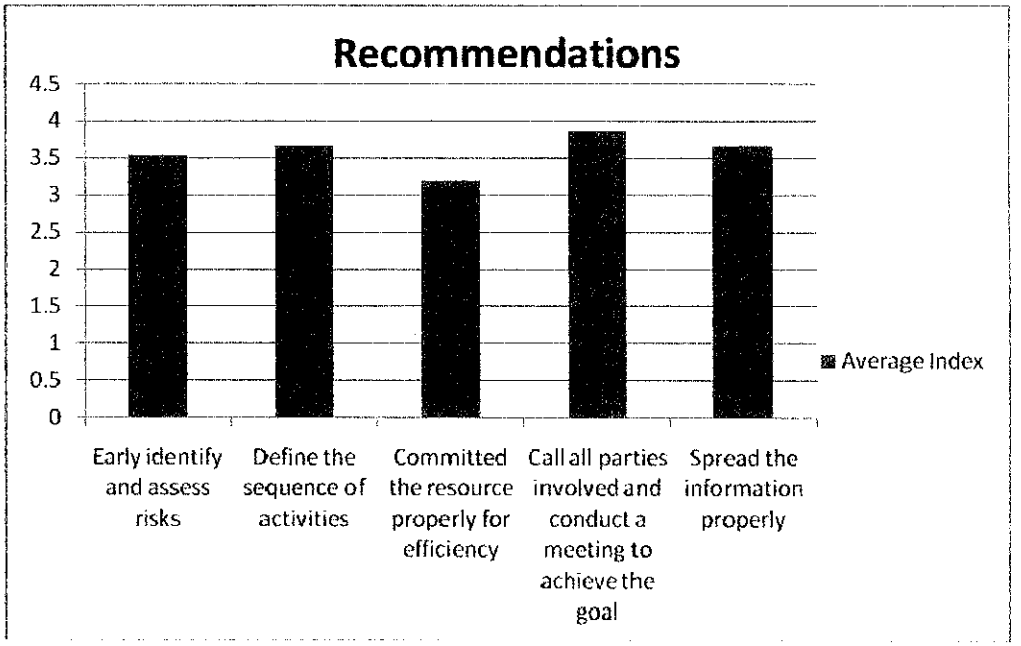


Figure 4.2.1.3b: Recommendations of site office facilities and canteen preparation problems

Based on Figure 4.2.1.3b, most of the respondents have agreed that by calling all parties involved and conduct a meeting to achieve the goal, site office facilities and canteen preparation problems can be solved. Meanwhile, committed the resource properly for efficiency and spread the information properly has been the least solutions suggested by the respondent to solve the site office facilities and canteen preparation problems. According to interviewees, only contractor involved during the construction of Site Office and Canteen. Client, consultant and other parties did not really involve during the construction of Site Office and Canteen. However, there is no problem regarding the resource since the construction of the Canteen only use material such plywood and few nails and cabin is used as site office.

4.2.1.4 Piling Works

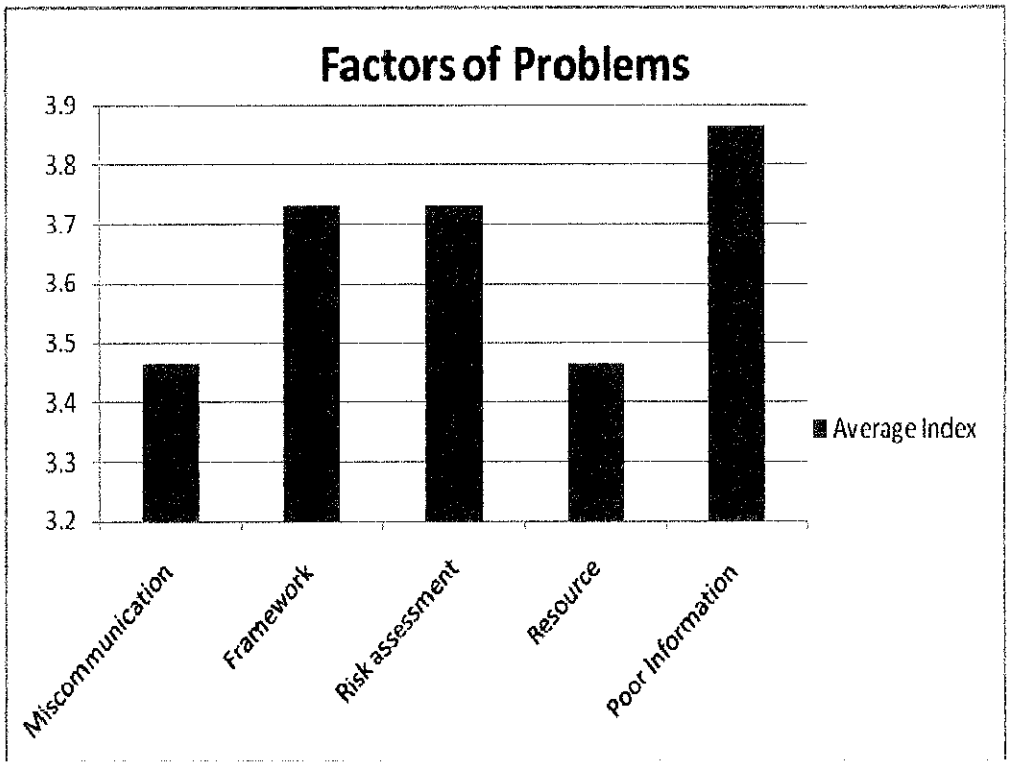


Figure 4.2.1.4a: Factors of piling works problems

Based on Figure 4.2.1.4a, information does not spread effectively had been the major contributor for piling works problems. Meanwhile, the respondents have agreed that miscommunication between the parties involved and no optimum used of resource give only small contribution to the piling works problems. Information should only be issued for construction when it is complete, which presumes that it is possible to determine completion. The consultant's view of completion is often different from that of the contractor and it is necessary to establish an agreed status for the information, to avoid disputes. It is important to ensure that the person to whom information is to be given has prepared an adequate description of their requirement so that the consultant knows what information is expected. There must also be an understanding by the consultant of the level of discretion at the point of use for the interpretation of the information.

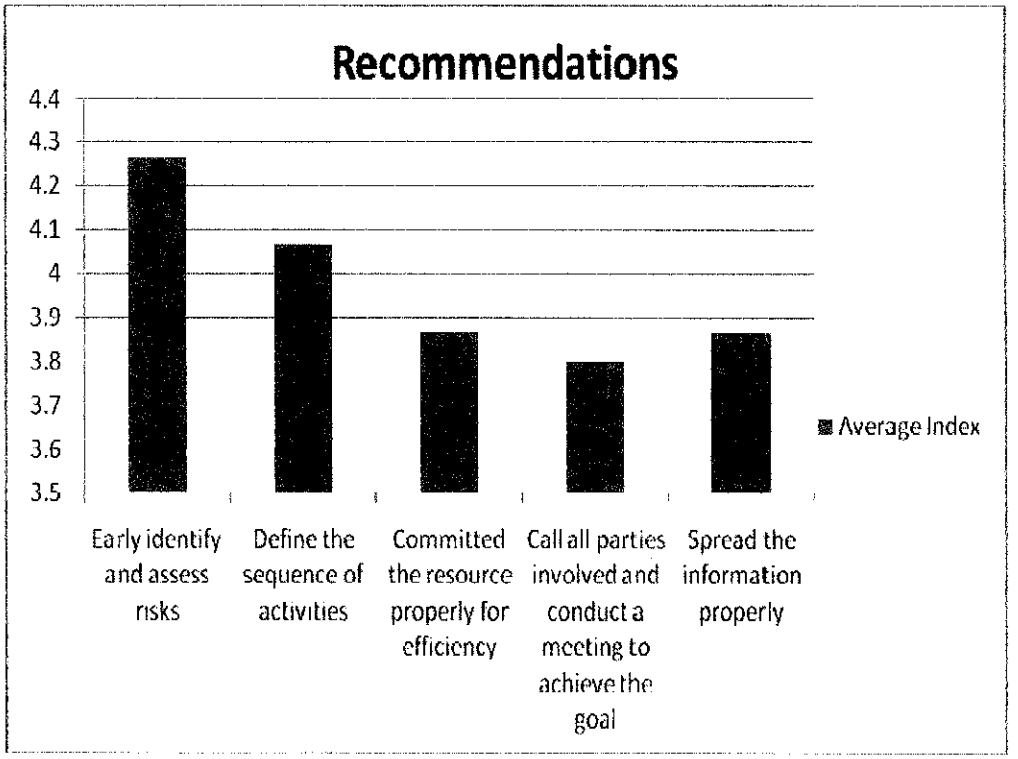
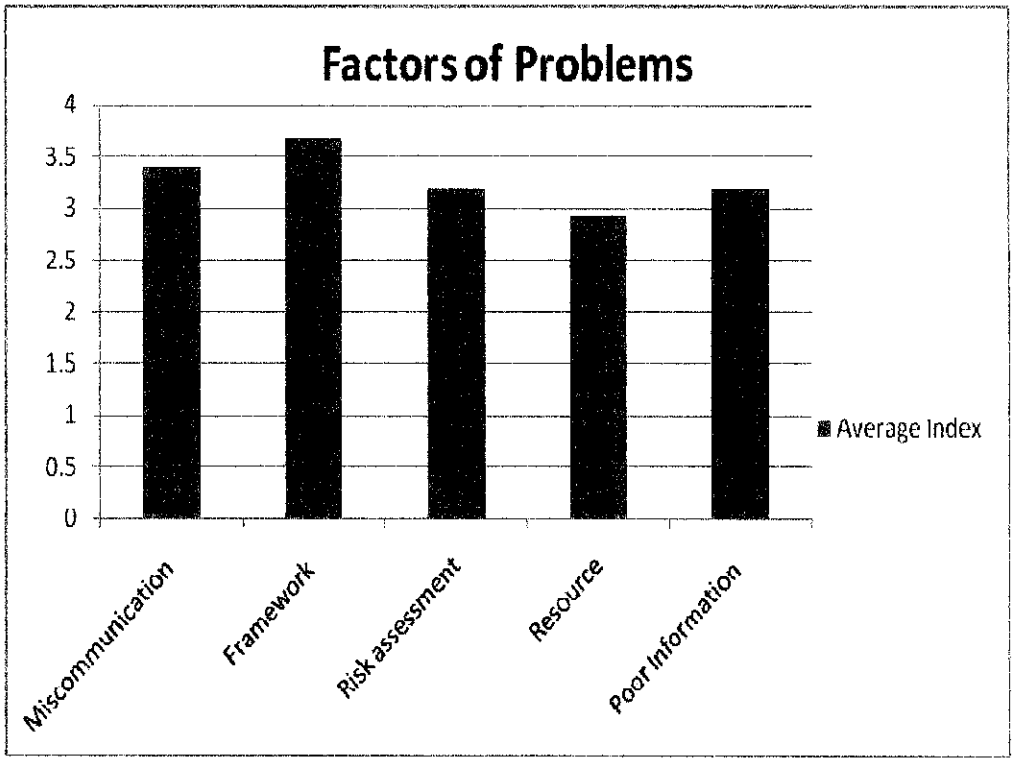


Figure 4.2.1.4b: Recommendations for piling works problems

Based on the Figure 4.2.1.4b, respondents have agreed that the piling works problems can be solved by early identify and assess risks. Meanwhile, call all parties involved and conduct a meeting to achieve the goal has been agreed as the least effective solution for piling works problems. All activities are subject to risk. Unfortunately, many project managers have not yet realised that there is a need to include project risk as a management issue. The risk avoidance strategy helps to secure the project objectives. The difference between project success and disaster is of course more than managing or not managing risk, but it appears that the track record of successful projects would have been greatly improved if more companies had included risk as an integrated part of the project control and quality system.

4.2.1.5 Pile Caps



4.2.1.5a: Factors of pile caps problems

Based on Figure 4.2.1.5a, no proper framework for the project's activities gave the major contribution for pile caps problems with average index achieved is 3.67. Meanwhile, respondents have agreed that no optimum used of resource is the least contributor for pile caps problems with average index achieved is 2.93. Sequence of activities should be defined and linked on a time-scale to ensure that priorities are identified and that efficient use is made of expensive and/or scarce resources. However, it should be reminded that uncertainty will be expected and the plan will change. It must therefore be updated quickly and regularly if it is to remain a guide to the most efficient way of completing the project. The framework should be simple so that updating is straightforward and flexible so that all alternative courses of action are obvious.

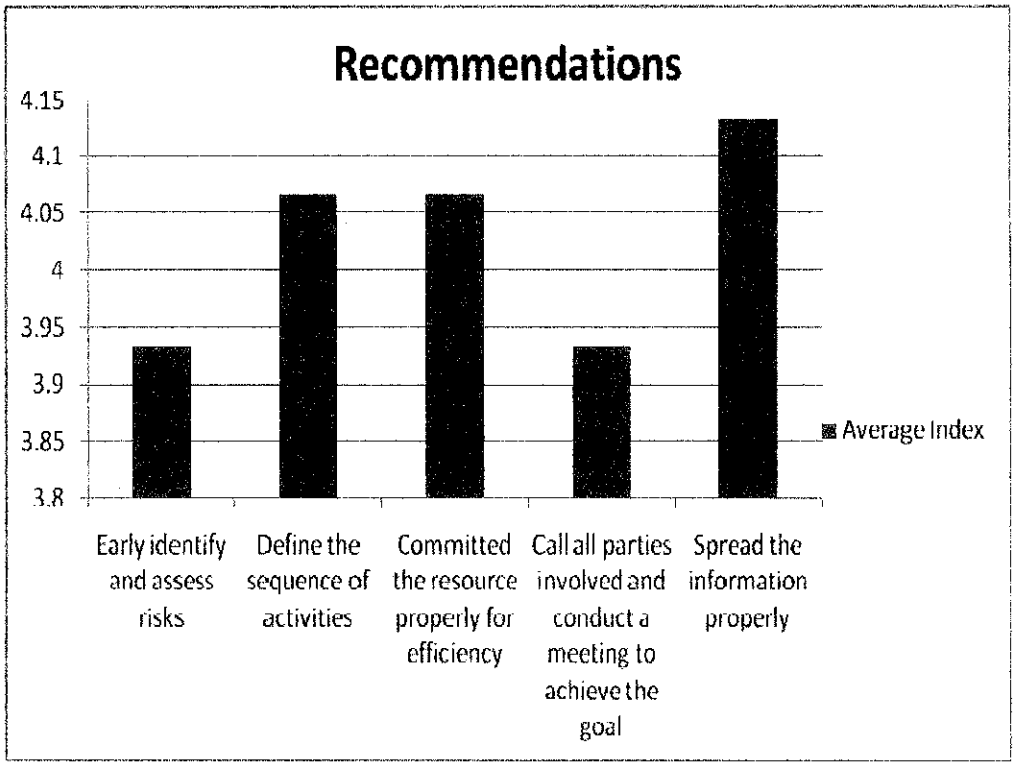


Figure 4.2.1.5b: Recommendations for pile caps problems

Based on Table 4.2.1.5b, most of the respondents had agreed that the best solution to solve the pile caps problems is by spreading the information properly. Meanwhile, call all parties involved and conduct a meeting to achieve the goal and early identify and assess risks had been chosen as the least effective solution to overcome the pile caps problems. No work should commence without knowing what has to be done, where, in what way and by whom. Site manager and planner should call for an information production planning meeting between 4 and 12 weeks before start on site. By spreading the information properly, worker will have more understanding on what they are doing and thus, project's efficiency will be improved.

4.2.1.6 Lift Pit Foundation and Lift Pit Wall

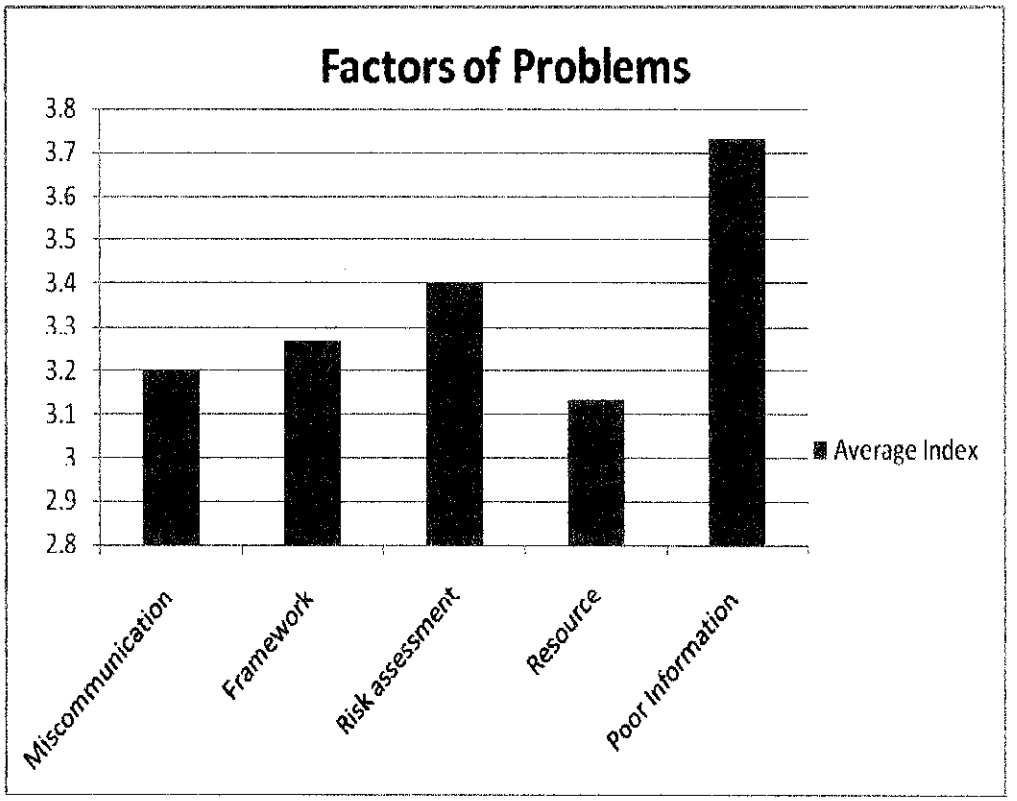


Figure 4.2.1.6a: Factors of lift pit foundation and lift pit wall problems

Based on Figure 4.2.1.6a, respondents had agreed that information does not spread effectively is the main contributor to lift pit foundation and lift pit wall problems. Meanwhile, respondent agreed that no optimum used of resource only give small contribution to lift pit foundation and lift pit wall problems. Meanwhile, define the sequence of activities has been agreed as the least effective solution for lift pit foundation and lift pit wall problems. When considering links between people in a team, it is useful to compare the mechanistic, hierarchical view with the human relations view of teams in action. Additional team member adds a much larger burden to the communication network. This is why coordination and integration of large teams is so much more difficult than they would be for small teams.

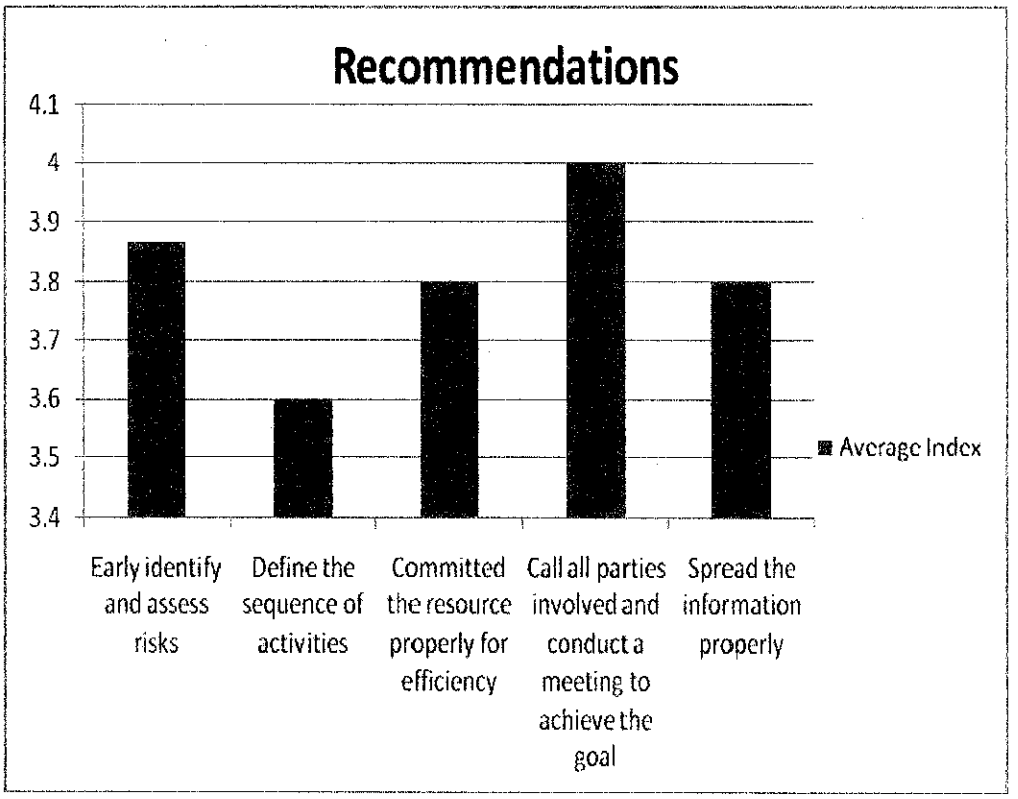


Figure 4.2.1.6b: Recommendations for lift pit foundation and lift pit wall

Based on Figure 4.2.1.6b, call all parties involved and conduct a meeting to achieve the goal has been agreed as the most effective solution for lift pit foundation and lift pit wall problems with average index achieved equal to 4. Each additional member of a team increases the demand for integration. To ensure that the diverse contributions of the team members are mutually sympathetic, information needs to flow between all members of the team. Integration is concerned with unifying the diverse contributions into a cohesive team effort. Coordination is concerned with ensuring that the output from each team member is directed towards the client's objectives. In order to achieve these, information must flow from one team member to another. Furthermore, conflicts between the various functions need to be resolved.

4.2.1.7 Exothermic Welding for Earthing and Lightning Protection

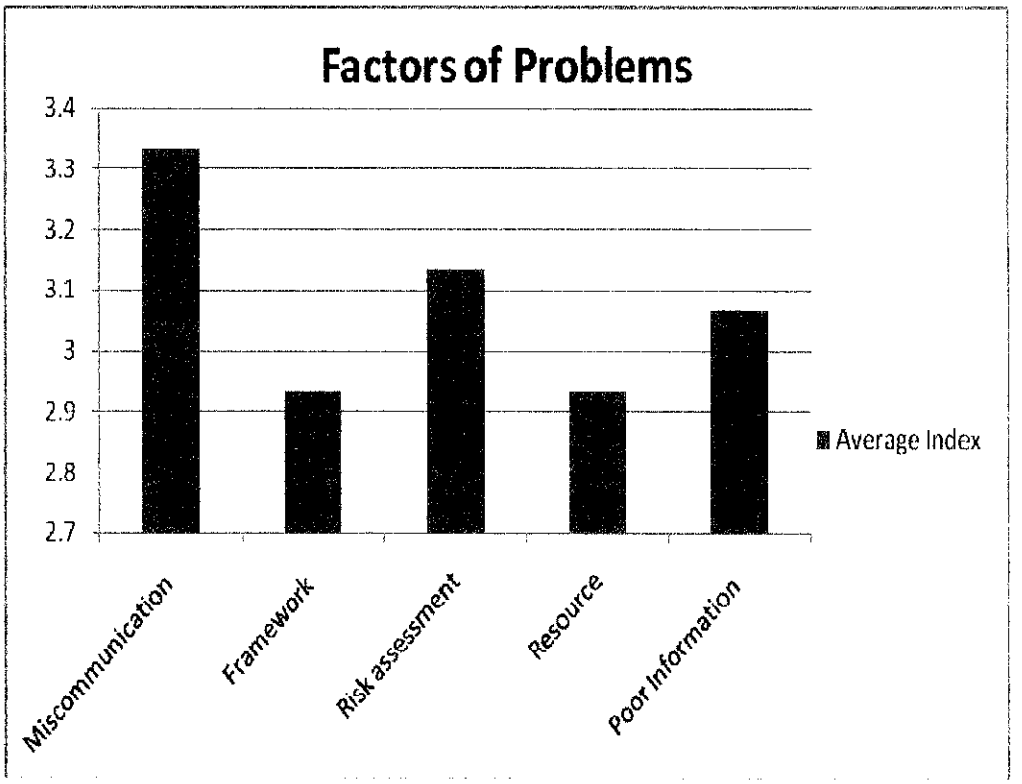


Figure 4.2.1.7a: Factors of exothermic welding for earthing and lightning protection problems

Based on Figure 4.2.1.7a, miscommunication between the parties involved is the biggest contributor to exothermic welding for earthing and lightning protection problems with average index achieved is 3.33. Meanwhile no proper framework for the project's activities and no optimum used of resource only give small contribution to the exothermic welding for earthing and lightning protection problems with average index achieved is 2.93. Clients cannot always state their requirements clearly or fully at the outset because of the many different interests that have to be satisfied. In many cases each problem is 'owned' by a group of people, each with varying requirements and ambitions for its solution. Each party will have a different role to play in the initial decision-making processes that will inevitably lead to overlaps and gaps in the statement of requirements given to the consultant.

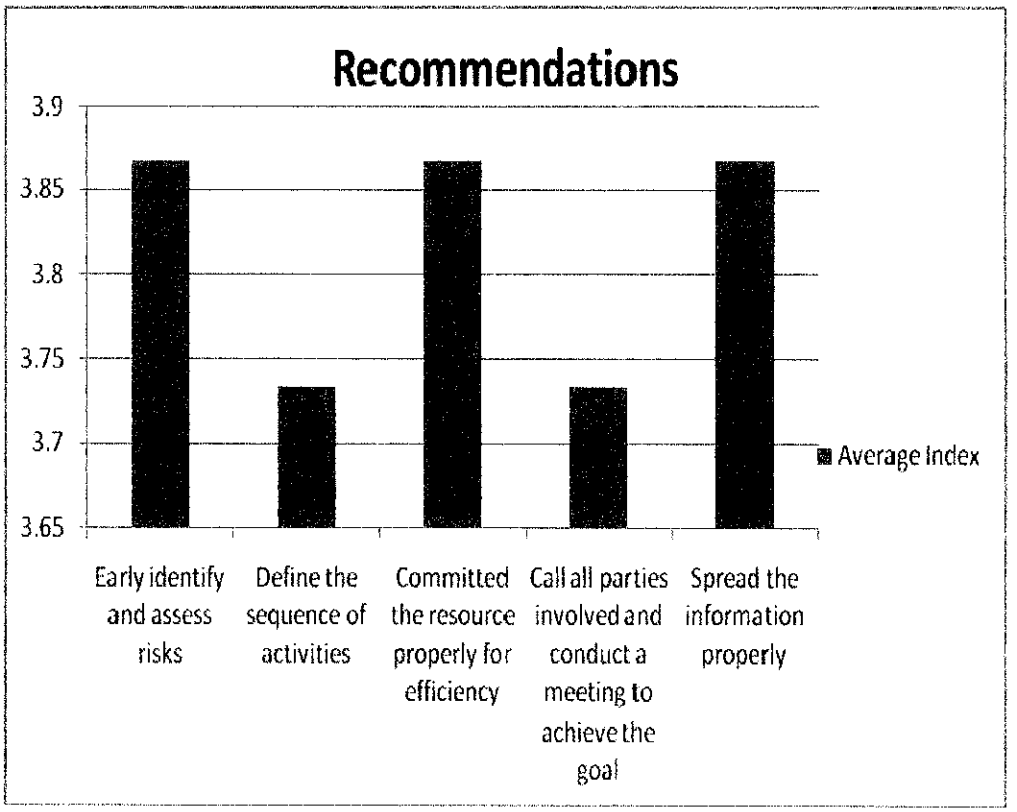


Figure 4.2.1.7b: Recommendations for exothermic welding for earthing and lightning protection problems

Based on Figure 4.2.1.7b, most of respondents have agreed that by calling all parties involved and conduct a meeting to achieve the goal, committed the resource properly for efficiency and spread the information properly; exothermic welding for earthing and lightning protection problems can be solved with average index achieved is 3.87. Controlled resourcing is important in that it must be matched by adequate plant, equipment, toolboxes etc. The discussion between the parties involved is necessary to determine what systems need to be developed and the resources that are to be deployed over the life of the project, recognizing that they cannot be aware of the full resource requirement, or how the conditions will change with time.

4.2.1.8 Sanitary Plumbing

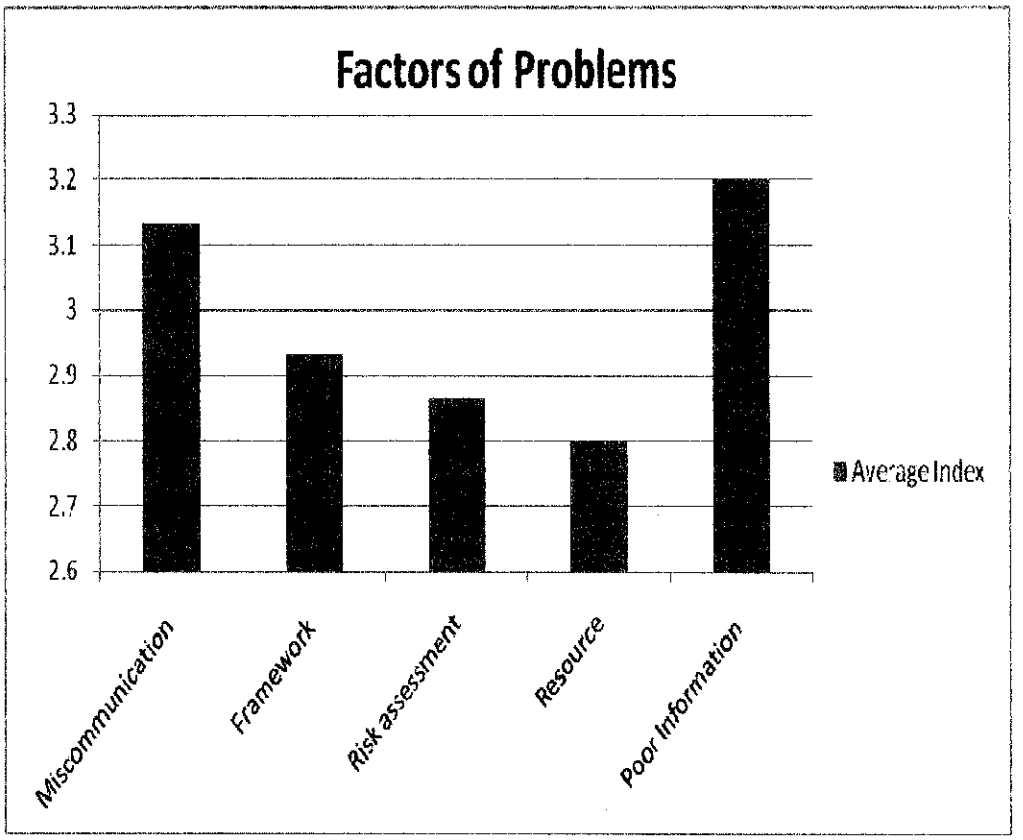


Figure 4.2.1.8a: Factors of sanitary plumbing problems

Based on Figure 4.2.1.8a, information does not spread effectively had been the major contributor for sanitary plumbing problems with average index achieved is 3.2. Meanwhile, the respondents have agreed that no optimum used of resource only gave small contribution to the sanitary plumbing problems with average index achieve is 2.8. Contingency theories of organization show that the best way to organize a complex task is to ensure that the skill diversity (differentiation of technology) is appropriate to the complexity of the task, and then to match the level of integration and coordination (management functions) to the level of differentiation. Organizational researchers have also shown that conflict and controversy are necessary elements in the web of interactions between people. Conflict has to be managed, not simply avoided.

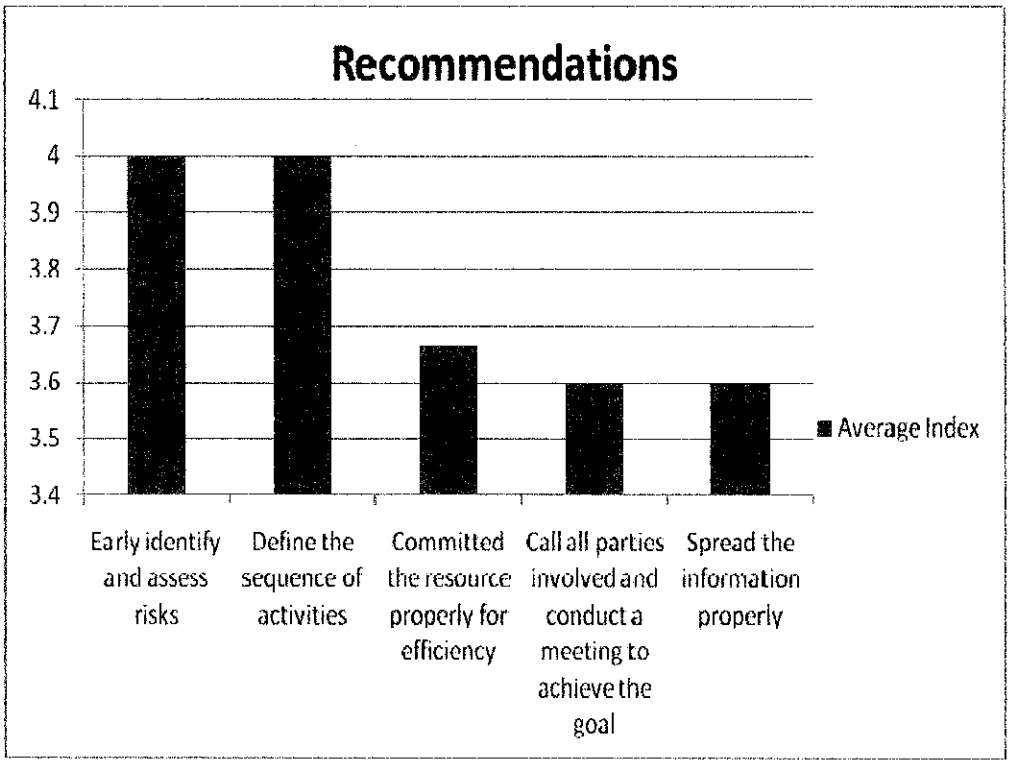


Figure 4.2.1.8b: Recommendations for sanitary plumbing problems

Based on Figure 4.2.1.8b, most of the respondents have agreed that by early identify and assess risks and define the sequence the activities; sanitary plumbing problems can be solved. Meanwhile, spread the information properly and call all parties involved and conduct a meeting to achieve the goal had been the least solutions suggested by the respondent to solve the sanitary plumbing problems. Risk allocation strategies should be determined at the inception of the project by the client. Further risk management exercises may be undertaken during the course of a project but the reallocation of risk at this time is rare and will require negotiations with the contractor, which may or may not be successful. Thus, it is important to early identify and assess risks so that the problems can be reduced.

4.2.1.9 Reports and Permits

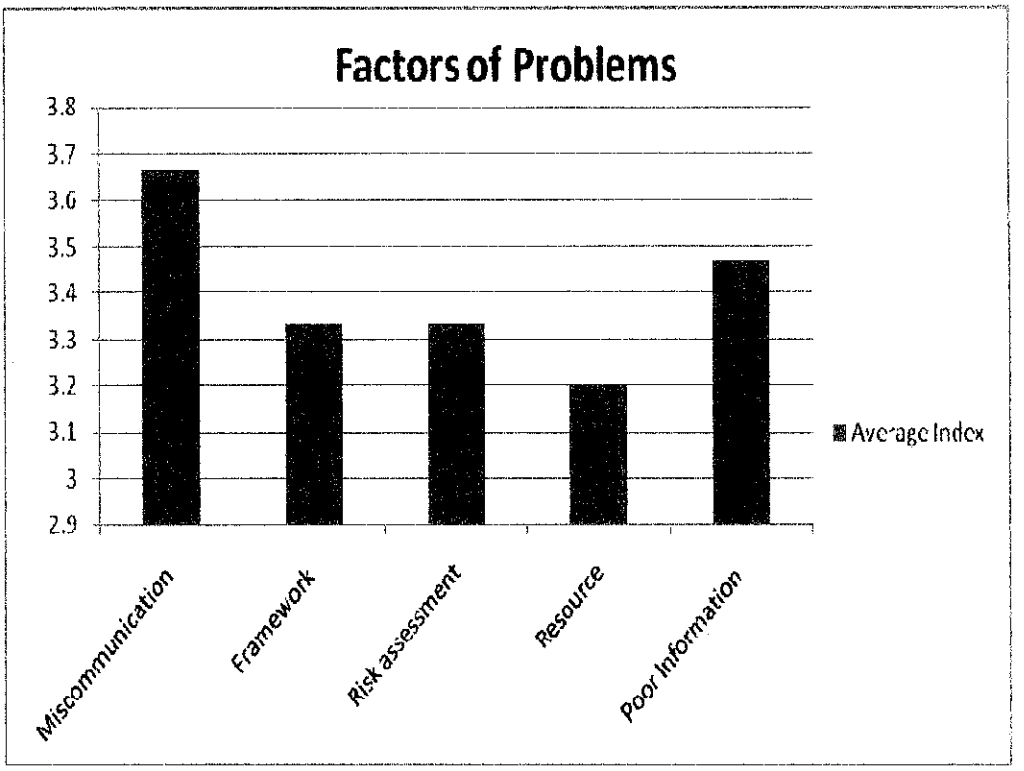


Figure 4.2.1.9a: Factors of reports and permits problems

Based on Figure 4.2.1.9a, miscommunication between the parties involved gave the major contribution for reports and permits problems with average index achieved is 3.67. Meanwhile, respondents have agreed that no optimum use of resource is the least contributor for reports and permits problems with average index achieved is 3.2. The collaboration between individuals is part of the wider collaboration between firms in the construction sector. The construction industry is thus characterised as networks of transactions, a phenomenon that exacerbates discontinuities in the process, but an inevitable feature, given the nature of the tasks and the market. The task of the project manager is to make sure that the organization of the design process is structured appropriately for the task at hand, and to ensure that there is sufficient integrative and co-ordinating mechanism for the work to progress meaningfully.

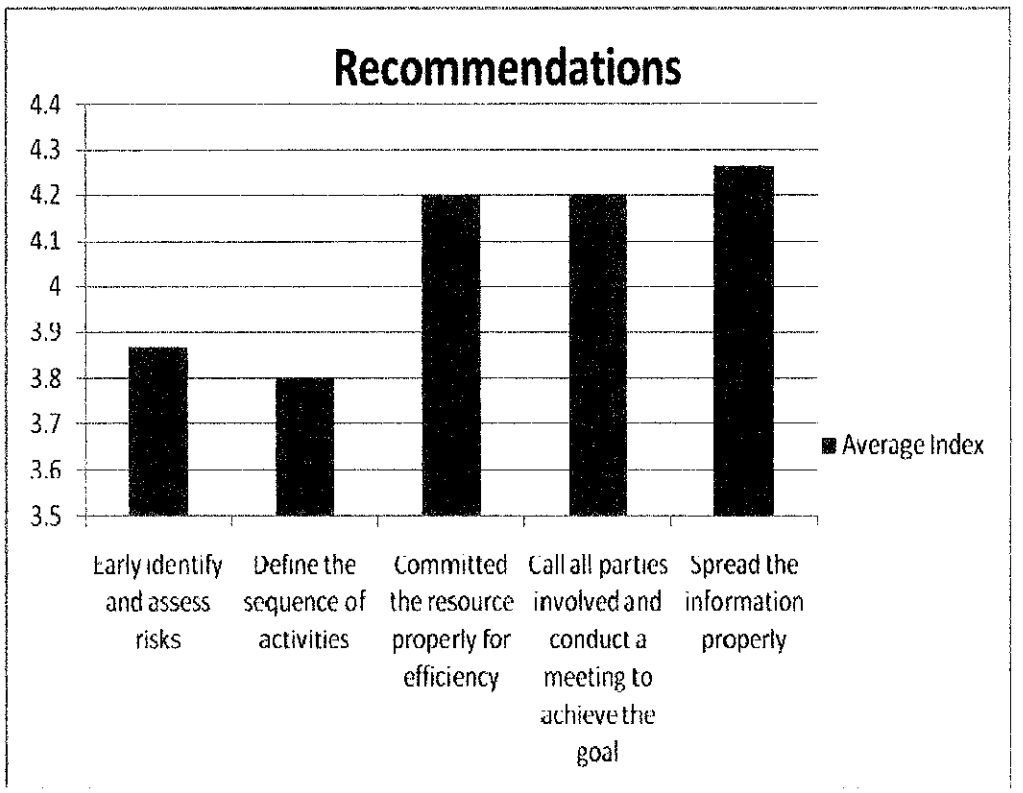


Figure 4.2.1.9b: Recommendations for reports and permits problems

Based on Figure 4.2.1.9b, most of respondents have agreed that by spreading the information properly, reports and permits problems can be solved. Meanwhile, define the sequence of activities has been agreed as the least effective solution for reports and permits problems with average index achieved is 3.8. Managers are in charge of people and will therefore act to coordinate the teams under them. Coordination is achieved because information flows up the organization chart so that the manager can take decisions and feed instruction back down the hierarchy. Clearly, this is critically dependent on the management information system. Project manager will collect information from one group and passes it to the next, while remaining in charge and monitoring progress.

4.2.1.10 Drawing Submission

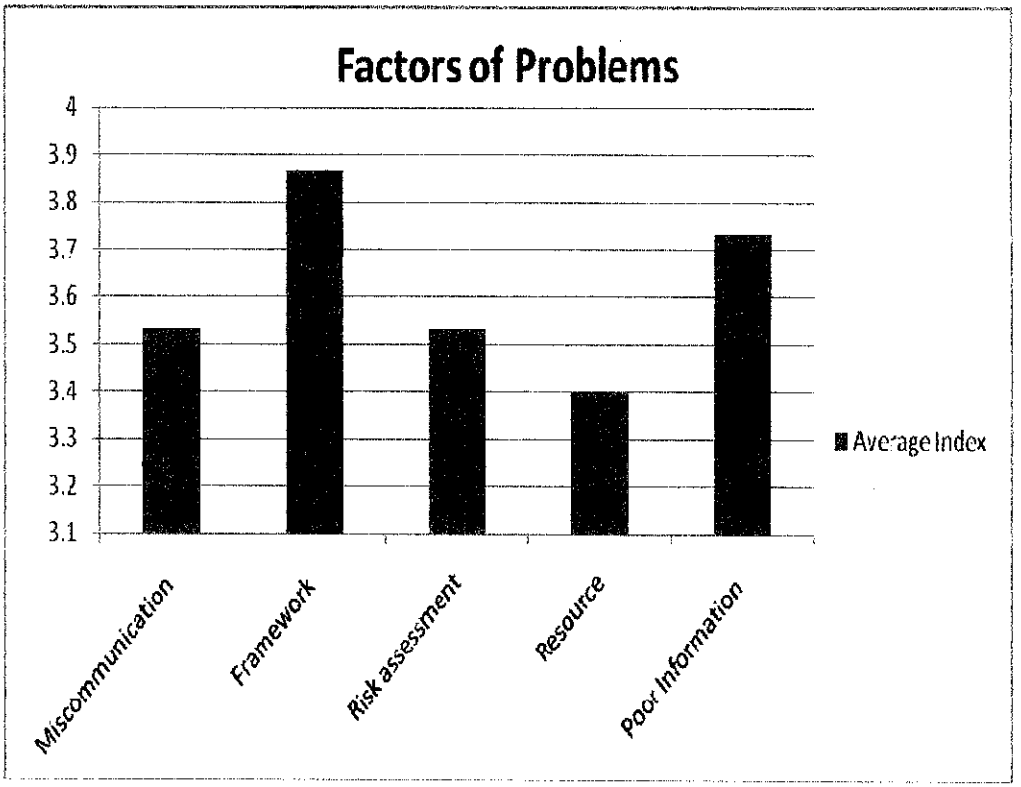
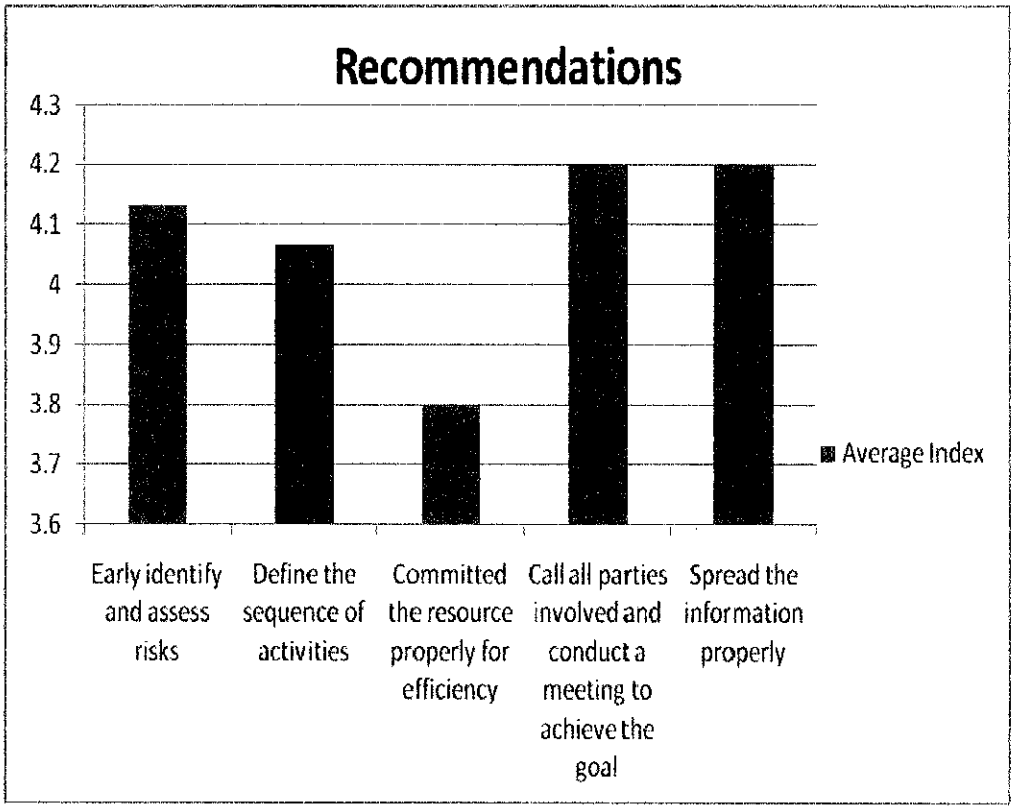


Figure 4.2.1.10a: Factors of drawing submission problems

Based on Figure 4.2.1.10a, no proper framework for the project's activities had been the major contributor for drawing submission problems with average index achieved is 3.87. Meanwhile, the respondents have agreed that no optimum used of resource only gave small contribution to the drawing submission problems. Designing is a process of human interaction and, consequently, the outcome contains the interpretations, perceptions and prejudices of the people involved. The acceptability of the outcome is also based on a trade-off among the individuals about what they are willing to accept as satisfactory interpretation of their ideals. Inevitably, design is a trade-off between many conflicting needs until there is a solution that enables everyone to move forward to the next aspect of the problem. Each designer will have different perceptions of the problem and many ideas for its solution. Therefore, almost inevitably, features that one designer considers to be important may well be deemed unimportant by others.



4.2.1.10b: Recommendations for drawing submission problems

Based on Figure 4.2.1.10b, most of the respondents have agreed that by calling all parties involved and conduct a meeting to achieve the goal and spread the information properly; drawing submission problems can be solved. Meanwhile, committed the resource properly for efficiency is the least solution suggested by the respondents with average index achieved is 3.8. Conflict is a tremendous source of dynamism and creativity within any organization. Debate should be encouraged and controversy resolved. Conflicting requirements will always need to be resolved in construction project. The need to resolve conflicts effectively and impartially is the same during the design stage as it is during the construction stage. Procedures are standard ways of doing things. Establishing a procedure enables work to be done without reference to coordinators or a higher authority. Manuals and guides can be used to indicate the correct approach.

4.2.1.11 Health, Safety and Security

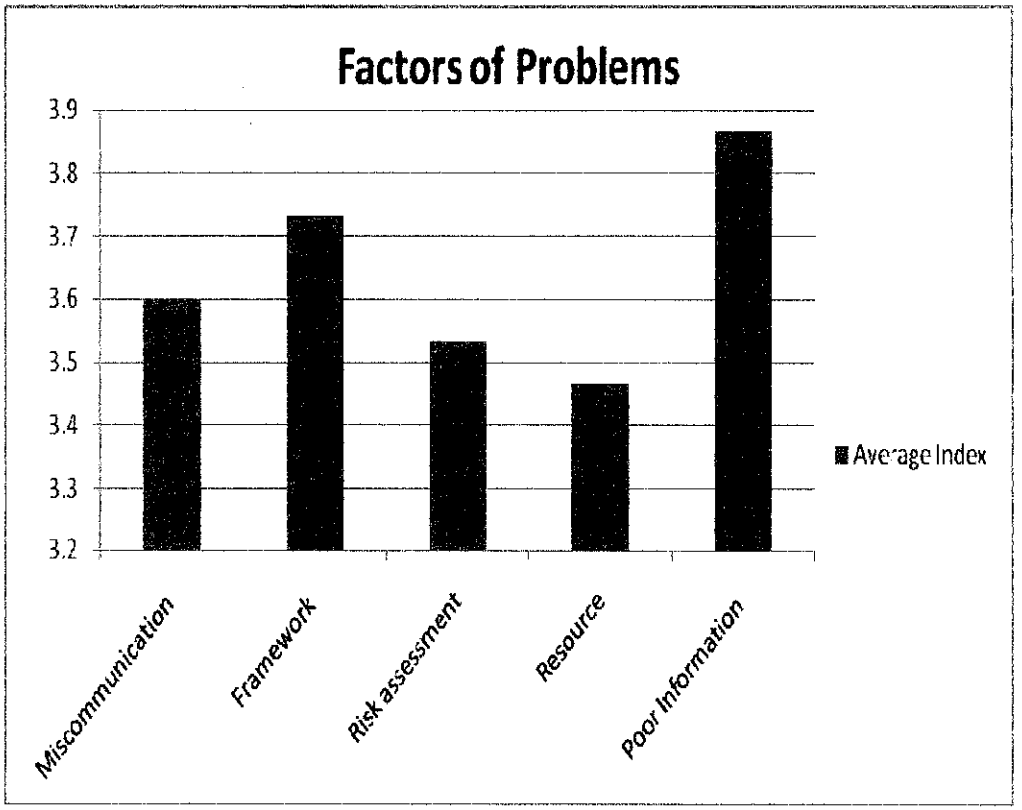


Figure 4.2.1.11a: Factors of health, safety and security problems

Based on Figure 4.2.1.11a, respondents had agreed that information does not spread effectively are the main contributor to health, safety and security problems with average index achieved is 3.87. Meanwhile, no optimum used of resource is agreed as the least contributor to health, safety and security problems with average index achieved 3.47. In operations that involve complex processes, dangerous substances, and potential safety risks, there is a need for a particular review of the design by those who are to operate the building and its processes. This needs to be done in increasing detail as the design progresses. However, it must not be left too late as major changes during the construction stage will lead to delays and major cost increases.

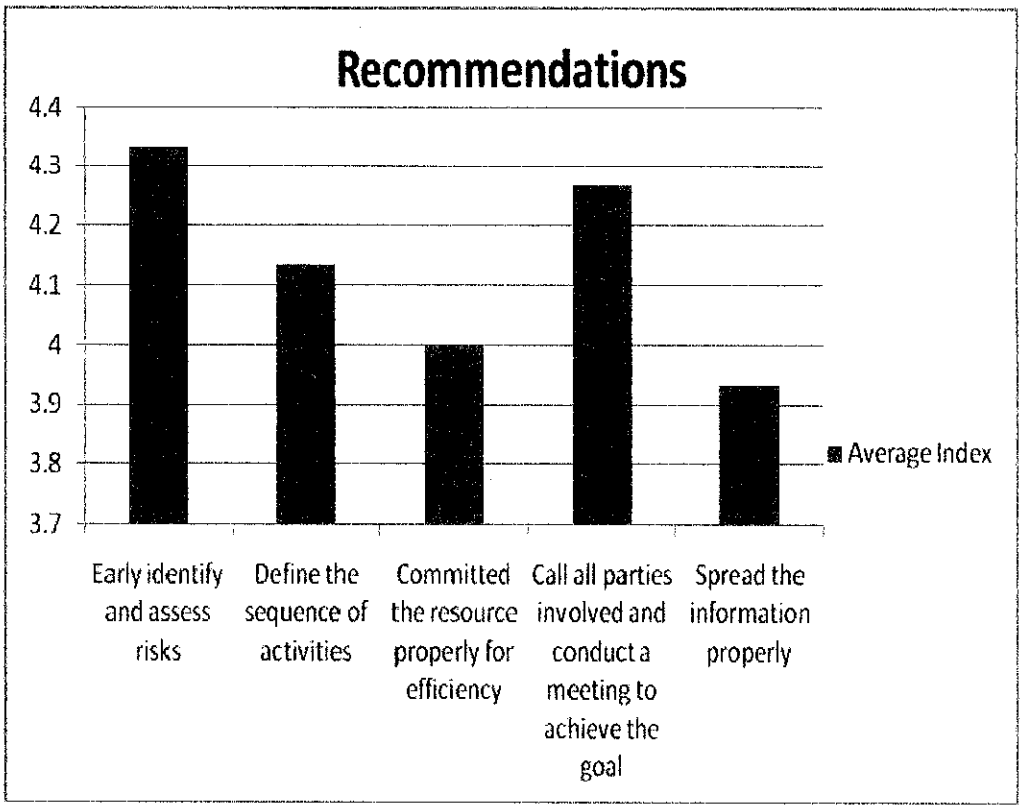


Figure 4.2.1.11b: Recommendations for health, safety and security problems

Based on Figure 4.2.1.11b, most of the respondent agreed that by early indentify and access risks; health, safety and security problems can be solved. However, spread the information properly is the solutions that are least suggested by the respondents. Risk management is the process by which risks to health and safety are effectively controlled. Among the risk management are:

- Avoid the risks-don't use the dangerous machine or the hazardous substances
- Combat the risks at source-provide a non-slip flooring in the kitchen
- Adapt work to the workers-don't expect staff to get used to strecthing to reach the controls
- Use technology-from sound insulation to ventilation
- Have a coherent policy-don't simply make judgements, be organized
- Protect the workplace-don't rely at all times on personal protective equipment
- Inform staff-so that everyone understands what he/she must do and why
- Lead from the top-develop a safety culture from directors to cleaners

4.2.1.12 Environmental

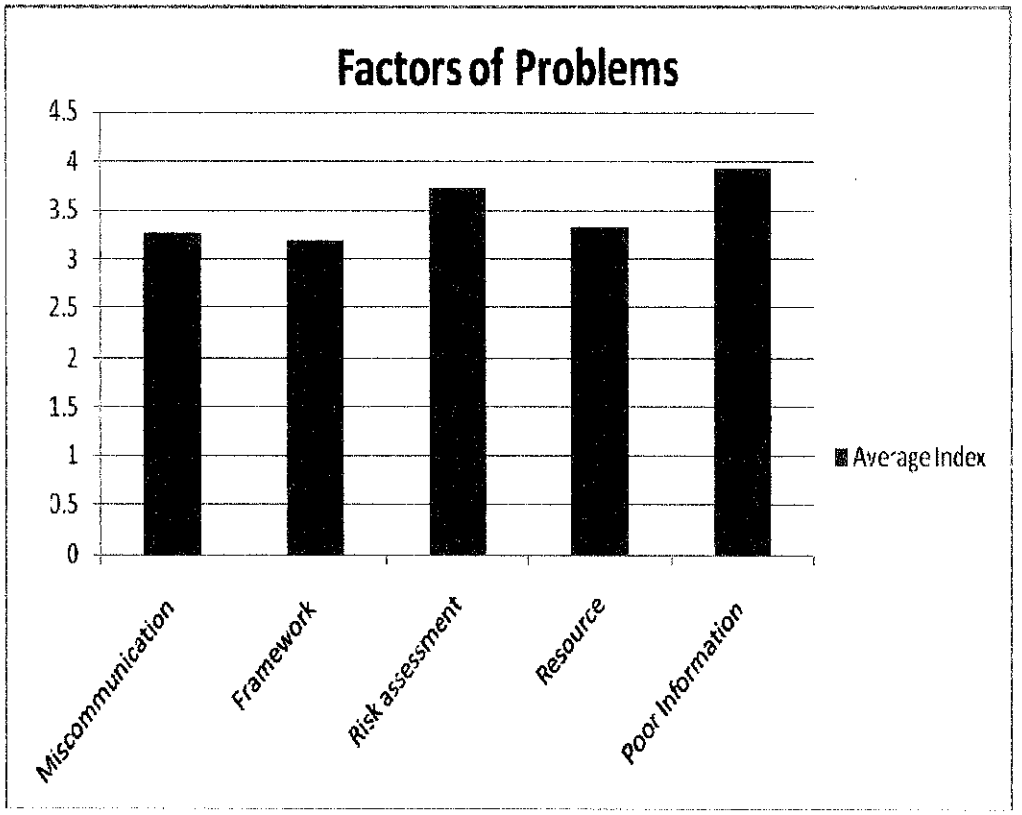


Figure 4.2.1.12a: Factors of environmental problems

Based on Figure 4.2.1.12a, information does not spread effectively had gives a major contribution for environmental problems with average index achieved is 3.93. Meanwhile, the respondents have agreed that no proper framework for the project's activities and miscommunication between the parties involved only gave small contribution to the environmental problems. All round the world construction materials generate million tons of waste annually. These construction materials require high embodied energy resulting with large CO2 (Carbon Dioxide) emissions. The highest CO2 producing material is cement and a large amount of CO2 is produced in the processing of construction materials and in the transport of these materials. If the consumption of the construction materials remains the same all around the world then by the year 2050 the production of the cement in the world could reach 3.5 billion metric tons. By reducing the consumption of construction materials or by reducing the impacts caused by each construction material the unfavourable environmental impacts can be alleviated to some extent.

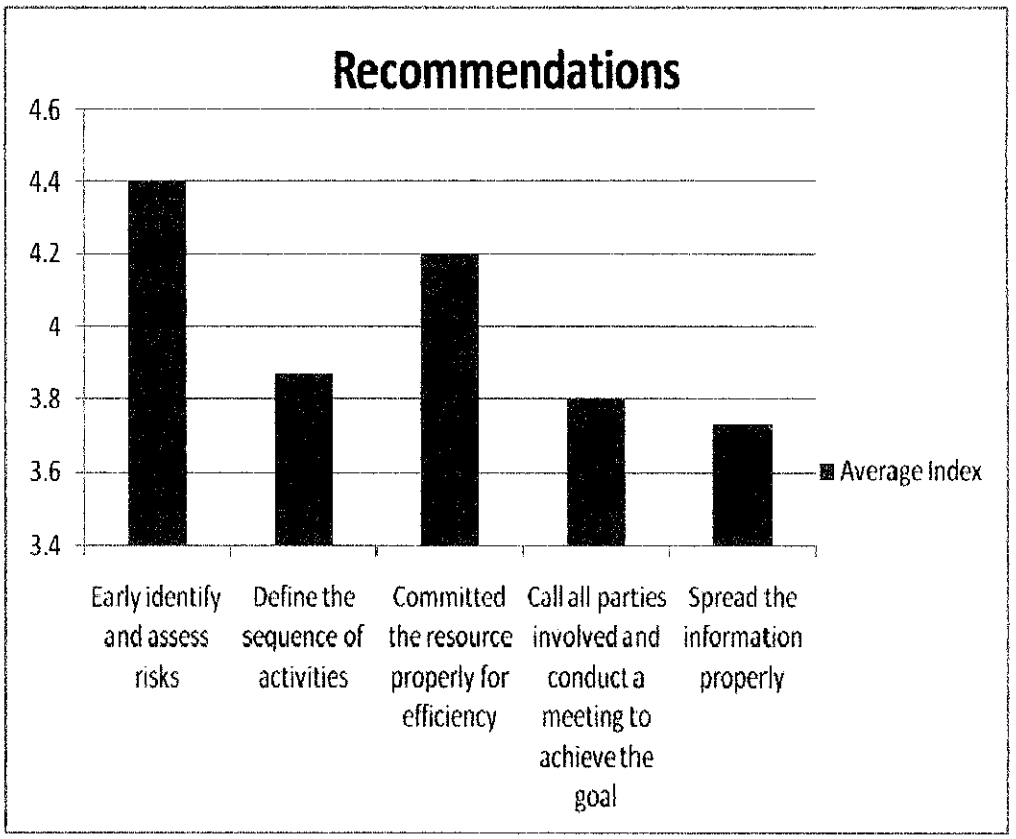
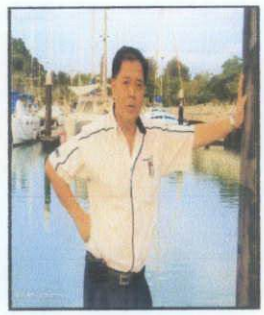


Figure 4.2.1.12b: Recommendations for environmental problems

Based on Figure 4.2.1.12b, most of respondents have agreed that by early identify and assess risks, environmental problems can be solved. Meanwhile, spread the information properly has been agreed as the least solution to environmental problems with average index achieved is 3.73. For the designer it is a privilege of selecting material which is an integral part of the design. Today the main reasons for selecting materials in unscientific process are due to the lack of standards and not compatible contribution from the industry. Concrete is claimed by the concrete industry to be the most sustainable material as it is made from waste material (The Concrete Centre) and has very low embodied energy. In the construction industry as there is no general agreement on the methodology for selecting materials due to disorganized nature of the construction industry itself. To implicate this methodology for selecting materials the designers should be educated in the life cycle assessment tools to decrease the environmental impacts.

4.2.2 Interview



1) Name : **Md. Arifin Naim**
2) Position : **Assistant General Manager**
3) Company : **Encorp Construct Sdn Bhd**
4) What is the most common problem exist at the site?

   Delay of work progress.
5) What factors caused the problem to occur?

   Shortage of worker and poor site management.
6) What are the relevant actions taken to overcome this problem?

   To find good workers with high skill and giving good productivity.
7) Who is the most responsible person contributes to the problem?

   Project Manager and Site Manager.
8) Is the planning department play an important function in the project?

   Yes, but in normal case, Project Manager should involve in planning too.
9) What can be done to increase the effectiveness of planning in the project?

   Team of planner must include site people or on ground experience during planning stage. Planner should go to site and get all ground's data such as logistic, Site Investigation (SI) and other environmental issues. All risk and factor should be identified in the early stage of the project. Plus, drawings and plan should be reviewed carefully and any mistakes should be corrected on paper instead on the ground.

1) Name : **Nazuha Hamsah**
2) Position : **Planner**
3) Company : **Encorp Construct Sdn Bhd**
4) What is the most common problem exist at the site?

   Shortage of labours and shortage of materials.
5) What factors caused the problem to occur?

   Improper planning and money problems.
6) What are the relevant actions taken to overcome this problem?

   By having a proper planning and a good financial.
7) Who is the most responsible person contributes to the problem?

   Project Manager and Quantity Surveyor.
8) Is the planning department play an important function in the project?

   Yes, of course.
9) What can be done to increase the effectiveness of planning in the project?

   By having a good knowledge and experience. Plus, a good relationship with team member.

1) Name : **W. Vincent Rajkumar**
2) Position : **Assistant Manager (QA/QC and Safety)**
3) Company : **Encorp Construct Sdn Bhd**
4) What is the most common problem exist at the site?

   Communication, coordination between related parties, limited resources and poor understanding and comprehension of scope of works.
5) What factors caused the problem to occur?

   Money, incompetency and non-commitment.
6) What are the relevant actions taken to overcome this problem?

   Approve sufficient working capital, trainings and recruitment of competent staff with positive attitude.
7) Who is the most responsible person contributes to the problem?

   Ultimately Project Manager shall conduct regular meetings to resolve all problems.
8) Is the planning department play an important function in the project?

   Yes.
9) What can be done to increase the effectiveness of planning in the project?

   Planners must know construction methodology thoroughly.

1) Name : **Suhada Binti Rahim**
2) Position : **Assistant Project Planner**
3) Company : **Encorp Construct Sdn Bhd**
4) What is the most common problem exist at the site?

   Safety issues and late delivery of materials and manpower controls.
5) What factors caused the problem to occur?

   Late of awareness of safety by workers. Also, shortage of materials, manpower (most of labour resources are imported, permit problems).
6) What are the relevant actions taken to overcome this problem?

   First of all, by having safety briefing by safety department (tool box planning). Secondly, by having a proper planning of materials usage and time.
7) Who is the most responsible person contributes to the problem?

   Safety-to be implemented by all workers.
8) Is the planning department play an important function in the project?

   Absolutely. By planning tools, its guide the team members to each activities in construction.
9) What can be done to increase the effectiveness of planning in the project?

   Understanding more of sequence of work, understanding of the factors that may affected site and teamwork.

1) Name : **Norhayati Binti Yacob**
2) Position : **Quantity Surveyor**
3) Company : **Encorp Construct Sdn Bhd**
4) What is the most common problem exist at the site?

   Delay of delivering materials on site and shortage of labour.
5) What factors caused the problem to occur?

   Shortage of material and most of labours are imported and shortage of labour occurs if they were sent back to their country.
6) What are the relevant actions taken to overcome this problem?

   Make a proper planning at initial stage.
7) Who is the most responsible person contributes to the problem?

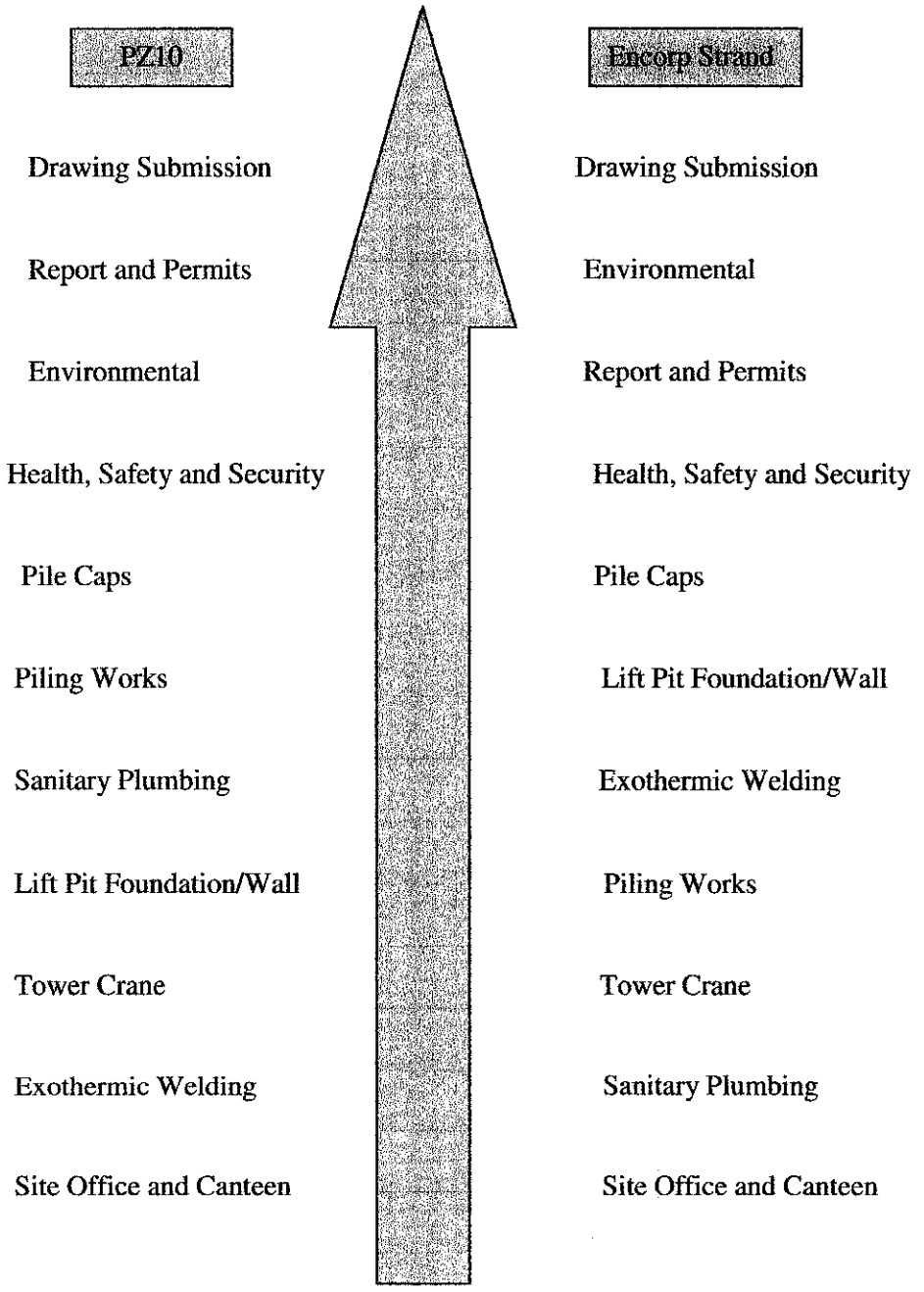
   Project Manager.
8) Is the planning department play an important function in the project?

   Yes. It is.
9) What can be done to increase the effectiveness of planning in the project?

   Through understanding of the project and teamwork.

4.3 Results Comparison

4.3.1 Ranking of the problems in construction project that are affected by improper planning



4.3.2 Comparison of the Main Factors that Contributing to Problems in the Construction Site

Construction of Hotel and Office Tower on Plot Z10	Problems	Construction of 14 Blocks 230 Units Shop Offices and 28 Units Penthouse (Phase5)
No proper framework for the project's activities	**Tower crane installation**	a) No proper framework for the project's activities b) Miscommunication between the parties involved c) Information does not spread effectively
Information does not spread effectively	**Site office facilities and canteen preparation**	Information does not spread effectively
a) Information does not spread effectively b)Miscommunication between the parties involved	**Piling works**	Information does not spread effectively
Information does not spread effectively	**Pile caps**	No proper framework for the project's activities
a) Information does not spread effectively b) No identifying and accessing risk	**Lift pit foundation and lift pit wall**	Information does not spread effectively
Information does not spread effectively	**Exothermic welding for earthing and lightning protection**	Miscommunication between the parties involved

No optimum used of resource	**Sanitary plumbing**	Information does not spread effectively
a) Information does not spread effectively b) Miscommunication between the parties involved	**Report and permits**	Miscommunication between the parties involved
a) Information does not spread effectively b) Miscommunication between the parties involved	**Drawing submission**	No proper framework for the project's activities
a) Information does not spread effectively b) No identifying and accessing risk	**Health, safety and security**	Information does not spread effectively
Miscommunication between the parties involved	**Environmental**	Information does not spread effectively

4.3.3 Construction of Hotel and Office Tower on Plot Z10

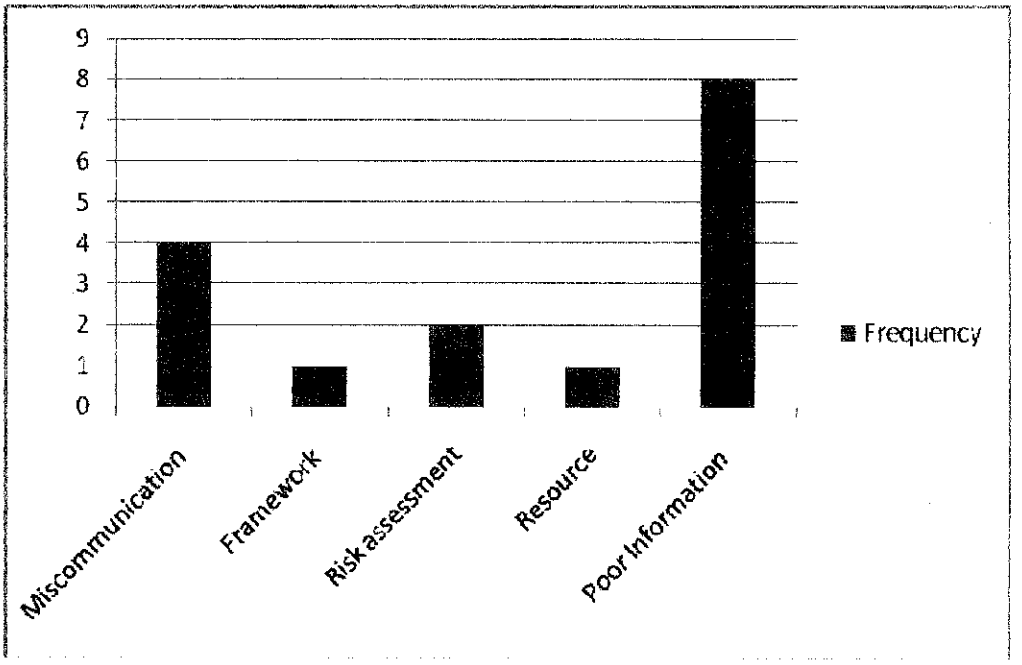


Figure 4.3.3: Factors that contribute to problems in PZ10 project

Based on the results of the survey at the Construction of Hotel and Office Tower on Plot Z10, Precinct 1, Wilayah Persekutuan Putrajaya, we can see that eight out of eleven of the problem caused by information does not spread effectively and six out of eleven of the recommendation suggest call all parties involved and conduct a meeting to achieve the goal. Meanwhile, from the interview, every person has their own opinion on what factors causing problems to occur and whom to blame. Five out of five interviewees suggested that if each parties and workers can work together and discuss the problems thoroughly, solution can be made. Communication planning pulls the project together. The project manager and project office are at the heart of the project's information and control system. It is the project manager's responsibility to develop not only the project organisation structure, but also to develop the project's communication plan and lines of communication. Planning department should play more roles in this project by trying to get everybody together so that everybody can have a say and problem solving can be more effective instead of just planning the works without taking into account other considerations.

4.3.4 Construction of 14 Blocks 230 Units Shop Offices and 28 Units Penthouse (Phase 5)

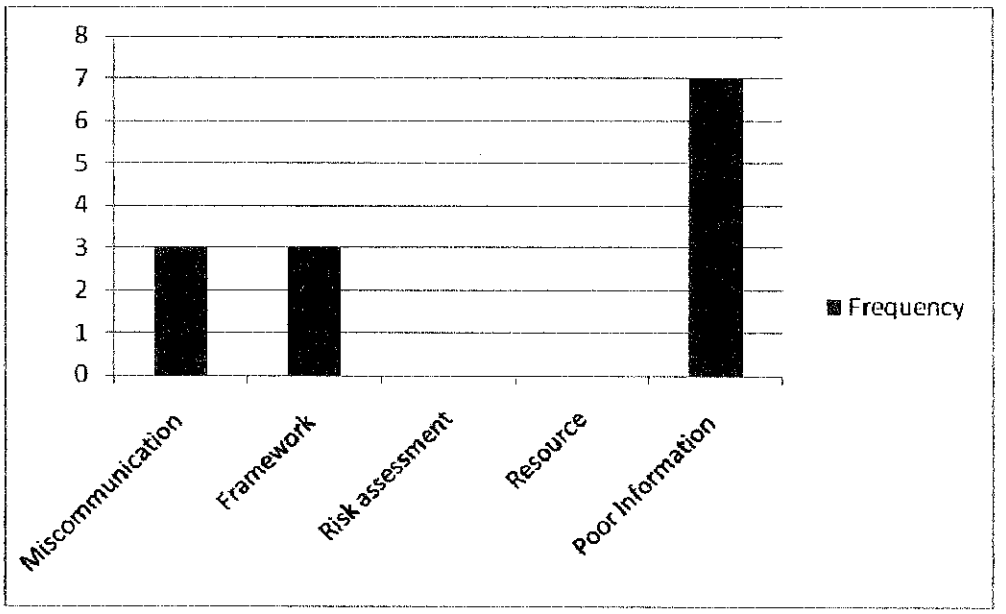


Figure 4.3.4: Factors that Contribute to Problems in Encorp Strand Project

Based on the results of the survey at the Construction of 14 Blocks 230 Units Shop Offices and 28 Units Penthouse (Phase 5) on Lot PB1, Kota Damansara, we can see that seven out of eleven of the problem caused by information does not spread effectively and six out of eleven of the recommendation suggest early identify and assess risks. Meanwhile, from the interview, every person has their own opinion on what factors causing problems to occur and whom to blame. Five out of five interviewees suggested that if communication improved, project's efficiency will increased. The design process is an inter-related and uncertain exchange of design information between design specialists, which requires careful planning and coordination. When the design process for a building consists of a small number of sequential operations, then the management of the whole process is relatively simple. However, because each component is fixed to others, there have to be frequent and detailed interactions between the designers of each component to ensure that the fixing and support provisions are compatible. The sequences and interfaces between specialist designers thus form a network of design activity.

CHAPTER 5
CONCLUSIONS AND RECOMMENDATIONS

5.1 Comparison of the Most Suggested Solution for Construction Problems

Construction of Hotel and Office Tower on Plot Z10	**Problems**	**Construction of 14 Blocks 230 Units Shop Offices and 28 Units Penthouse (Phase5)**
Define the sequence of activities	**Tower crane installation**	Early identify and assess risks
Call all parties involved and conduct a meeting to achieve the goal	**Site office facilities and canteen preparation**	Call all parties involved and conduct a meeting to achieve the goal
a) Early identify and assess risks b) Define the sequence of activities	**Piling works**	Early identify and assess risks
a) Define the sequence of activities b) Call all parties involved and conduct a meeting to achieve the goal	**Pile caps**	Spread the information properly
a) Early identify and assess risks b) Define the sequence of activities c) Committed the resource properly for efficiency	**Lift pit foundation and lift pit wall**	Call all parties involved and conduct a meeting to achieve the goal

Call all parties involved and conduct a meeting to achieve the goal	**Exothermic welding for earthing and lightning protection**	a) Early identify and assess risks b) Committed the resource properly for efficiency c) Spread the information properly
Call all parties involved and conduct a meeting to achieve the goal	**Sanitary plumbing**	a) Early identify and assess risks b) Define the sequence of activities
Early identify and assess risks	**Report and permits**	Spread the information properly
Call all parties involved and conduct a meeting to achieve the goal	**Drawing submission**	a) Call all parties involved and conduct a meeting to achieve the goal b) Spread the information properly
Early identify and assess risks	**Health, safety and security**	Early identify and assess risks
Call all parties involved and conduct a meeting to achieve the goal	**Environmental**	Early identify and assess risks

5.2 Construction of Hotel and Office Tower on Plot Z10

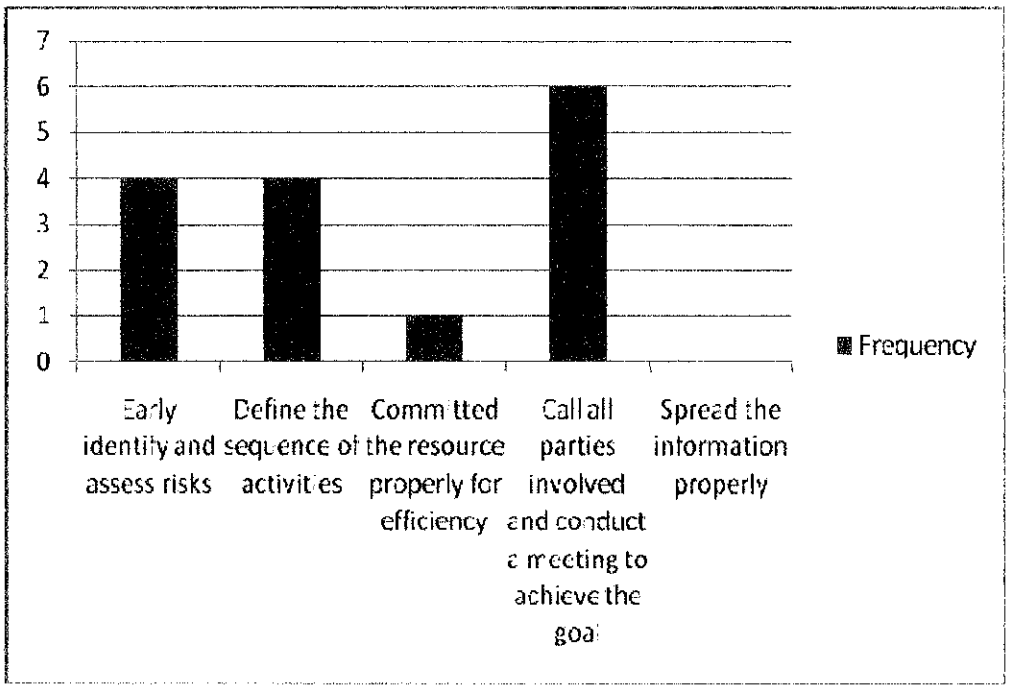


Figure 5.2: Recommendations for problems in PZ10 project

The understanding between the client and each of the selected design consultants needs to be formalized. Informal meetings may be held between the client and design consultants to discuss the client's needs and objectives and how they may be interpreted, and to explore a preliminary strategy for producing a solution. Through these discussions a closer understanding and sympathy for each other's objectives will be formed. The designers must understand and explain any legal or financial constraint on the type and quality of building the client wishes to build, as well as its intended function. The client will want to know about the designer's approach to style and form and preferred types of materials, as well as ideas for the environment within the building. For this purpose the designer will often prepare drawings and models of the building to illustrate various options. Through this process the designers can express their creative talent and the necessary mutual trust will be built up. During this period, the designer's aim will be identify clearly with the client the range of opportunities available for the development, and to establish the problems that have to be solved. Eventually the designers will identify themselves with the problems in such a way that they will own them and finding a solution will then become the focus for their efforts.

5.3 Construction of 14 Blocks 230 Units Shop Offices and 28 Units Penthouse (Phase5)

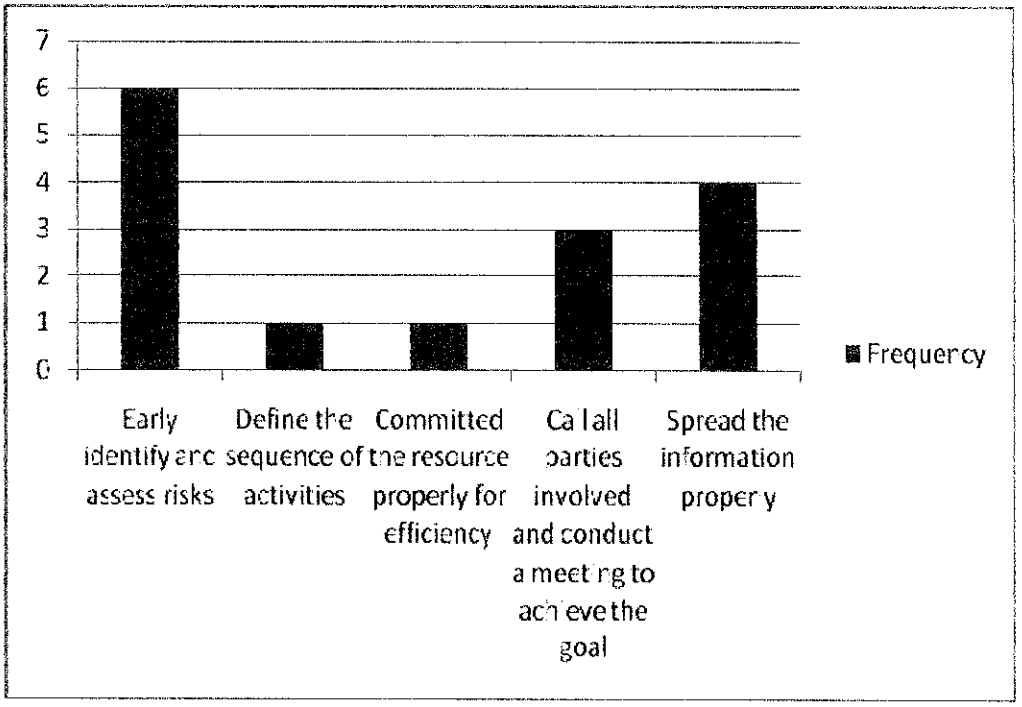


Figure 5.3: Recommendations for Problems in Encorp Strand Project

The most common way to perform a risk analysis is to gather key personnel for risk identification sessions, and then interview them in groups or as individuals. However, both the risk analyst and the individuals will then bring bias to the results. This bias should be minimized by always adjusting the analysis process according to the number of people involved in the process and the complexity of the project. A key rule is, however, that groups make better decisions than individuals, and in addition, groups create stronger ownership to risk assessment and the results from analyses. One of the most important factors in the risk management process is the gathering of key personnel with one purpose only: to discuss, assess and quantity the risk affecting project parameters. Such a group process stimulates participants to communicate and express their opinions in an open-minded environment where people are free to express whatever feelings they have.

Planning is a powerful management and communication tool. Because of the increased complexity in construction techniques and materials as well as diverse labor issues and the pressures of budgets, planning has increasingly been the standard control method. Otherwise, it is difficult, if not impossible, to coordinate the diverse activities in a construction project. An effectively managed project must closely coordinate the activities of the owner, the designer, the construction manager, and all the other people who come together at the job site. This project can be expanded by analyzing the effectiveness of the planning for each construction project in Malaysia. The factors for each of the problem at the construction site in Malaysia can be identified, thus risks can be reduced and project's efficiency will increase.

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ATTACHMENTS

GANTT CHART FOR FYP I

No	Detail/Work	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Proposing the topic	■													
2	Literature Review		■	■	■	■									
3	Extended proposal submission						●								
4	Collecting data						■	■	■						
5	Project defense & progress evaluation									●					
6	Prepare final report									■	■	■	■		
7	Pilot Survey											■	■		
8	Submit the draft of final report													●	
9	Modified final report													■	■
10	Submitted the modified final report														●

GANTT CHART FOR FYP 2

No	Detail/Work	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Survey	■	■	■												
2	Interview				■	■										
3	Data Analysis						■	■								
4	Documentation							■	■							
5	Progress report submission								●							
6	Data Analysis & Documentation									■	■	■				
7	Pre-EDX											●				
8	Submission of Draft Report												●			
9	Submission of Dissertation (soft bound)													●		
10	Submission of Technical Papers													●		
11	Oral presentation														●	
12	Submission of Project Dissertation (Hardbound)															●

PZ10 PROJECT BACKGROUND

SUNWAY CONSTRUCTION

SUNWAY CONSTRUCTION SDN BHD

THE PROPOSED DESIGN, CONSTRUCTION AND COMPLETION OF 3 STAR HOTEL AND OFFICE TOWER ON PLOT Z10, PRECINT 1, WILAYAH PERSEKUTUAN PUTRAJAYA

MONTHLY PROGRESS REPORT NO. 12
December 2010

(26th Nov. 2010 to 25th Dec. 2010)

CONTRACT NO:
BDG/COM/P1/Z10/CONTRACTOR/09-0045

PUTRAJAYA HOLDINGS

1.1 CONTRACT SUMMARY

Contract Title	:	The Proposed Design Construction And Completion Of 3 Star Hotel And Office Tower On Plot Z10, Precint 1, Wilayah Persekutuan Putrajaya.
Contract no.	:	BDG/COM/P1/Z10/CONTRACTOR/09-0045
Nature of Project	:	Design and Build Lump Sum Fixed Price based on Employer's Requirement (Design Brief, Performance Specifications, Scope of Works and Drawings)
Contract Sum	:	RM 147,360,000.00
Defects Liability Period	:	24 Months from CPC
Liquidated & Ascertained Damages	:	RM52,000.00 (LAD Imposed Per Day) Not Exceed 10% Of Contract Sum (Maximum Lad Imposed)
Date of Award	:	28th September 2009
Date of Site Possession	:	07th October 2009 Revised Site Possession:
Date of Completion	:	06th October 2012
Period of Interim Claim	:	Monthly
Period of Honouring of Certificates	:	Within 30 Days Upon the ER's Certification
Percentage of Certified Value Retained	:	
Limit of Retention Fund	:	

1.2 CONTRACTUAL PARTIES

a) Employer and Checker Consultants

Employer	:	**PUTRAJAYA HOLDINGS SDN BHD** Block 1, Menara PJH, No. 2, Persiaran Perdana, Precinct 2, 62100 Putrajaya, Wilayah Persekutuan Putrajaya. Telephone No. : 03 - 8883 1707/1774 Fax No. : 03 - 8883 1753
C&S Engineer	:	**PERUNDING BAKTI SDN. BHD.** Damansara Intan, No. 1, Jalan 20/27, 47400 Petaling Jaya. Telephone No. : 03 – 7724 2088 Fax No. : 03 – 7724 1946
M&E Engineer	:	**LI-ZAINAL SDN. BHD.** A-1-08 & A-2-08, Jalan SS7/13B, Aman Seri Kelana Jaya, 47301 Petaling Jaya. Telephone No. : 03 – 7877 7998/198 Fax No. : 03 – 7877 7098
Quantity Surveyor	:	**Q&C JURUKUR PERUNDING** No. 37-2, Jalan 5/76B, Desa Pandan, 55100 Kuala Lumpur. Telephone No. : 03 – 9282 9899 Fax No. : 03 – 9281 6040
Interior Design	:	**INVENZIONI & ASSOCIATES** 53 AR & BF Floor, Jalan Kosas 1/3, Taman Kosas, 68000 Ampang, Selangor. Telephone No. : 03 – 4295 5773 Fax No. : 03 – 4295 5829
Hotel Consultant	:	**VALUE HOSPITALITY** M-2-16, Plaza Damas, No. 60, Jalan Sri Hartamas 1, 50480 Kuala Lumpur. Telephone No. : 03 – 6201 8338 Fax No. : 03 – 6201 3883

b) Contractor and In-House Consultant

Contractor	:	**SUNWAY CONSTRUCTION SDN. BHD.** Level 8, Menara Sunway Jalan Lagoon Timur Bandar Sunway 46150 Petaling Jaya Telephone No. : 03 – 5639 9333 Fax No. : 03 – 5639 9533
Architect Consultant	:	**VERITAS ARCHITECTS SDN. BHD.** 2nd Floor, Banugnan Getah Asli, 148, Jalan Ampang, 50450 Kuala Lumpur. Telephone No. : 03 – 2162 2300 Fax No. : 03 – 2162 2310
C&S Consultant	:	**PETAREKA PERUNDING (M) SDN BHD** No. 5, Jalan 11/62A, Bandar Sri Menjalara, 52200 Kuala Lumpur. Telephone No. : 03 – 6272 6878 Fax No. : 03 – 6272 9878
M&E Consultant	:	**PETAREKA PERUNDING (M) SDN BHD** No. 5, Jalan 11/62A, Bandar Sri Menjalara, 52200 Kuala Lumpur. Telephone No. : 03 – 6272 6878 Fax No. : 03 – 6272 8878
Landscape Architect	:	**VERITAS LANDSCAPE SDN. BHD.** B-12-15, Blk B Megan Avenue II, 12, Jalan Yap Kwan Seng, 50450 Kuala Lumpur. Telephone No. : 03 – 2163 6971 Fax No. : 03 – 2163 6970

3.0 EXECUTIVE SUMMARY

3.1 Progress of Works To Date:

Actual Overall Progress Work	=	10.5%
Schedule Work	=	14%
Ahead / Delay (%)	=	-3.5%
Ahead / Delay (Day)	=	-47 days

3.2 Significant Development and Achievement for December 2010

a) Site Physical Works Progress:

C&S works:

- Pilecaps:
  - ✓ As of the cut-off date, the total of completion is 173 numbers out of 242 pilecaps (or 855m3 out of 933m3 volume of concrete: or equivalent to 92% completion).

- Basement 2 Beams:
  - ✓ As of the cut-off date, the overall completion for beams at Basement 2 is 70%.

- Basement 2 Slabs:
  - ✓ As of the cut-off date, the overall completion for beams at Basement 2 is 35%.

- Basement 2 Columns:
  - ✓ As of the cut-off date, the total number of completion is 44 out of 234 columns (i.e. 19%).

- Retaining Wall:
  - ✓ As of the cut-off date, the overall completion for Retaining Wall is 20%.

- Basement 1 Beams & Slab:
  - ✓ As of the cut-off date, the overall completion for beams & slab for Zone 2 at Basement 1 is 11%.

- Lift Core Wall:
  - ✓ As of the cut-off date, the overall completion for lift core wall for Zone 1 (Hotel) at Basement 2 is 84%.

M&E Works:

- Overall progress for Exothermic Welding for Earthing and Lighting Protection at pile caps is 100% complete.
- 1st Fix Electical Fittings (i.e. conduits) at Basement 2 columns and lift cores is in progress.

b) Reports and Permits:

- Infrastructure submission was approved by PJC via letter Ref: 0905CS/NZ/0186
- Permit for disposal of earth materials was granted by Jabatan Tanah dan Galian Persekutuan on 3rd May 2010 via letter Ref: PYP/10/02-33(11).
- Building Plan Approval received on 25th June 2010.
- Night work permit renewed / extended until 15th March 2011 by PJC on 16th September 2010 via letter Ref. No: PP/PEM/KI/KAW.KEJ/KPM/2002 Jld.5 (27).
- Night work permit renewed / extended until 1st January 2011 by PJH on 1st October2010 via letter Ref. No: PJH/HSS/NWP20/927/2010.
- JKKP permit (PMA 62895) for Tower Crane No. 2 (Hotel) was obtained on 8th November 2010. Third party inspection was held on 9th November 2010. PJH issued machinery permit (ref. no: 7660) on 15th November 2010 with the expiry date on 15th February 2011.
- Third party inspection was held on 22nd November 2010. JKKP permit (PMA 66292) for Tower Crane No. 1 (Office) was obtained on 24th November 2010. PJH issued the machinery permit on 25th November with the expiry date on 6th December 2010.
- The machinery permit by PJH for TC No. 1 was extended until 1st March 2011.

c) Interim Progress Claim Submission and Honour of Progress Payment:

- Interim Progress Claim No. 10 was submitted on 20th December 2010.

3.3 Planning for the Succeeding Period (One Month Look Ahead)

Based on the current situation at site, physical works to be carried out for next month are as follows:

- To start and complete Lift Core Wall at the following locations:
  - ✓ B1 to Mazzenine Floor lift core wall at Zone 1 (Hotel)
  - ✓ B2 and B1 lift core wall at Zone 4 (Office)
  - ✓ B2 lift core wall at Zone 5 & 7 (Podium)

- To complete Basement 2 beams and slabs works at the following locations:
  - ✓ Zone 5 – currently the progress is at 30%
  - ✓ Zone 6 – currently the progress is at 33%
  - ✓ Zone 7 – currently the progress is at 82%
  - ✓ Zone 8 – currently the progress is at 6%

- ✓ Zone 9 – currently the progress is at 63%
- ✓ Zone 10 – currently the progress is at 18%

- To Basement 2 columns works (i.e. B2 to B1) at the following locations:
  - ✓ Zone 1 (Hotel)
  - ✓ Zone 3 (Office)
  - ✓ Zone 4 (Office)
  - ✓ Zone 5 (Podium)
  - ✓ Zone 6 (Podium)
  - ✓ Zone 7 (Podium)
  - ✓ Zone 9 (Podium)

- To complete Basement 1 beams and slabs works at the following locations:
  - ✓ Zone 2 (Hotel) – currently the progress is at 11%
  - ✓ Zone 1 (Hotel) – currently the progress is at 0%
  - ✓ Zone 3 (Office) – currently the progress is at 0%
  - ✓ Zone 4 (Office) – currently the progress is at 0%

- To achieve Ground Floor beams and slabs works progress at the following locations:
  - ✓ Zone 2 (Hotel) – to achieve 30% progress.
  - ✓ Zone 1 (Hotel) – to achieve 15% progress.

3.4 Critical Decision and Action Required

	Issue	Status	Action Required
1.	Basement 1 Floor Beam Details	✓ Rev. 02 submitted to PJH on 15/12/2010	a) Pending comment/approval from PJH/P. Bakti. b) Delay in approval affects Basement 1 construction.
2.	Basement 2 Kitchen Key Plan	✓ Rev. 00 submitted to PJH on 27/10/2010	a) Pending comment/approval from PJH b) Delay in approval affects B2 Zone 5 slab construction.
3.	Basement 2 Kitchen Floor Reinforcement Layout & Tables	✓ Rev. 00 submitted to PJH on 27/10/2010	c) Pending comment/approval from PJH d) Delay in approval affects B2 Zone 5 slab construction.

d) C&S Design Development

- Delay in the design development stage (DD) for C&S drawings to Basement 2 and Basement 1 has affected the physical progress at site.

- As of the cut-off date (25th December 2010), the overall C&S drawings submission and approval are as follows:

ID	C&S Drawings	Target %	Actual %
2	Submission (Rev. 00)	100%	73%
3	Review & Comment (Rev. 00)	100%	45%
4	Re-submission	100%	45%
9	Review & Approve	100%	28%

e) ID User sign off drawings

- Delay in issuing ID user sign-off drawings has led to the delay in design process for Architectural, and/or C&S, and/or M&E.

f) Risks of Future Delay:

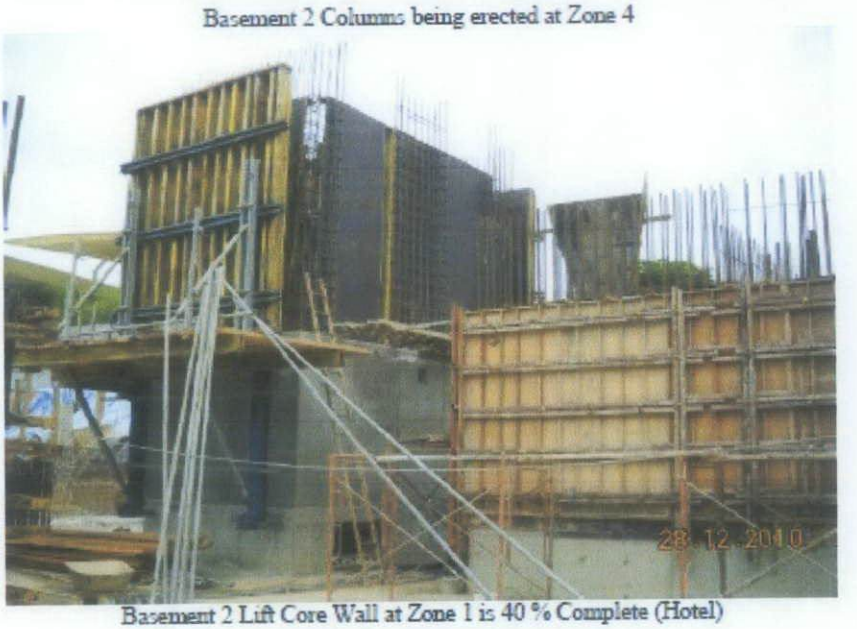
- Delay in obtaining status B or A for Basement 1 floor beams and slabs details especially at the Hotel and Office areas will lead to further delay in the overall project progress.

PROGRESS PHOTO (December 2010)

Overview of Project Site: View 1

Overview of Project Site: View 2

Basement 2 Columns being erected at Zone 4



Basement 2 Lift Core Wall at Zone 1 is 40 % Complete (Hotel)

ENCORP STRAND PROJECT BACKGROUND

Cadangan Membina 14 Blok 230 unit Kedai Pejabat dan 28 unit Penthouse (fasa 5) Di Atas Lot PB1, Pusat Bandar 1, Kota Damansara, Mukim Sg Buloh, Daerah Petaling, Selangor D.E
- **Main Building Works**

FORTNIGHTLY PROGRESS REPORT NO. 06
PERIOD: 24-5-2011 to 8-6-2011

CLIENT : -

MUST EHSAN DEVELOPMENT SDN BHD
46-G, Jalan PJU 5/21, The Strand Encorp
Pusat Perdagangan Kota Damansara, Kota Damansara, PJU 5,
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Tel 03 6286 7777
Fax 03 6286 7799

PROJECT TEAM : -

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SKM Engineering Sdn Bhd
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QUANTITY SURVEYOR

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Fax 03-6157 8660

M & E ENGINEER

Juara Consult Sdn Bhd
No. 324-1, Jalan Midah Besar,
Taman Midah Cheras
56000 KL

Tel 039173 8311
Fax 03-9173 8377

MAIN CONTRACTOR

ENCORP CONSTRUCT SDM BHD
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Pusat Perdagangan Kota Damansara,
Kota Damansara PJU 5, 47810, Petaling Jaya
Tel : 03 - 6286 7777
Fax : 03 - 6286 7799

Prepared By :

(Max) Cheong)
ECSB

Acknowledge by :

(Mr. Desmond)
Sc Leow Resident Architect

ENCORP CONSTRUCT SDN BHD

Cadangan Membina 14 Blok 230 unit Kedai Pejabat dan 28 unit Penthouse (fasa 5) Di Atas Lot PB1, Pusat Bandar 1, Kota Damansara, Mukim Sg Buloh, Daerah Petaling, Selangor D.E

- **Main Building Works**

CONTENT

ENCORP CONSTRUCT SDN BHD

Cadangan Membina 14 Blok 230 unit Kedai Pejabat dan 28 unit Penthouse (fasa 6) Di Atas Lot PB1, Pusat Bandar 1, Kota Damansara, Mukim Sg Buloh, Daerah Petaling, Selangor D.E
- **Main Building Works**

CONTRACT INFORMATION

ORIGINAL CONTRACT SUM	:	RM 166,793,095.40
DATE OF SITE POSSESSION	:	21st February 2011
DATE OF COMMENCEMENT	:	21st February 2011
DATE OF COMPLETION	:	20th December 2012
CONSTRUCTION PERIOD	:	22 months

ENCORP CONSTRUCT SDN BHD

Cadangan Membina 14 Blok 230 unit Kedai Pejabat dan 28 unit Penthouse (fasa 5) Di Atas Lot PB1,
Pusat Bandar 1, Kota Damansara, Mukim Sg Buloh, Daerah Petaling, Selangor D.E
- **Main Building Works**

2.0 Summary of progress report (cut off Date:8-6-2011)

	Current Progress		Previous Progress	
Schedule	11.00 %		9.50 %	
Actual	10.00 %		8.70 %	
Ahead/ (Delay) %	-1.00 %	(7.0) Days	-0.80 %	(5.0) Days

A) Root cause of delay :
- ~ Pending of Revise Drawings at Level Upper Ground due to level of gradient at exposed area
- ~ Pending of dimensions and details to Upper Ground 4 for staircase (G-H/16-17) and ramp (L-M/16-17)
- ~ Pending on UG3 R.C details plan
- ~ Change of design of TNB - sub station 3 & 4 (remedial works in progress)

B) Summary of Site Progress

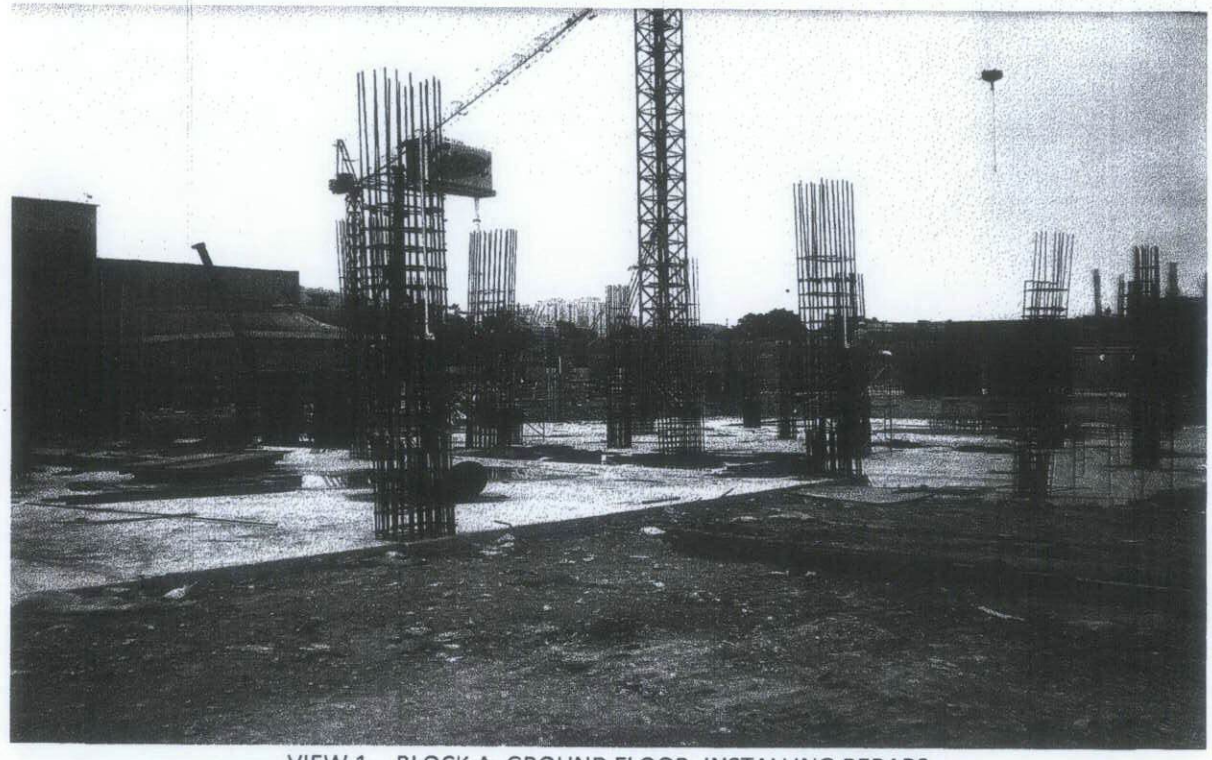
(1) Columns, Lift & Stair Core W:
- ~ P3 to P2 columns, lift and stair core at Block J, K, L, M, N, P (GL A-Y/16-21) - 100 % completed
- ~ P2 to P1 columns, lift and stair core at Block M, N, P (GL A-Y/17-21) - 100 % completed
- ~ P2 to P1 columns at Block J, K, L (GL A-Y/16-17) - 10 % completed

(2) Beams & Slab
- ~ P2 beams and slab at Block M, N, P (GL A-Y/17-21) - 100 % completed
- ~ P2 beams and slab at Block J, K, L (GL A-Y/16-17) - 10 % completed
- ~ P1 beams and slab at Block M, N, P (GL A-Y/17-21) - 85 % completed (except TNB)
- ~ P1 beams and slab at Block J, K, L (GL A-Y/16-17) - 10 % completed

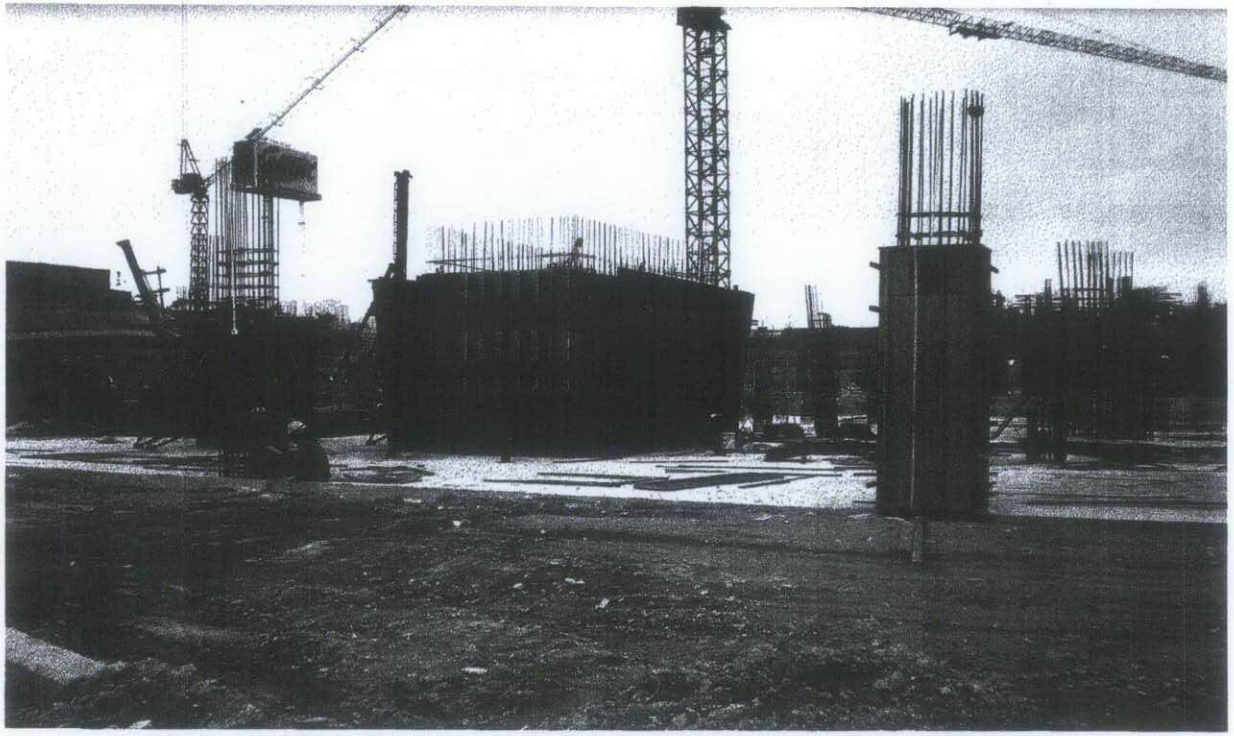
(3) Staircase
- ~ P3 to P2 staircase at Block M, N - completed

(4) Internal RC Ramp
- ~ P3 to P2 ramp at Block J-M (GL A-C/16-19) and Block L-P (GL X-Y/16-19) - completed

C) 2 weeks "look ahead" program
- ~ To completed UG4 (Block P area) beam and slab
- ~ To completed P1 to UG 4 columns, lift and stair core wall at Block M, N, P
- ~ To complete UG3 (grid line 16-17) beam and slab



VIEW 1 - BLOCK A, GROUND FLOOR. INSTALLING REBARS.



VIEW 2 - BLOCK A, GROUND FLOOR, INSTALLING FORMWORK FOR LIFTCORE WALL.