ABANDONED PROJECT THROUGH THE MEDIUM OF UNFAVOURABLE ECONOMIC CONDITION IN MALAYSIA

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ABSTRAK

Projek perumahan terbengkalai adalah masalah yang berlaku di dalam sektor perumahan di Malaysia yang telah dialami sejak tahun 1980-an. Maka kertas ini bertujuan untuk menonjolkan sebab-sebab dan kesan pertumbuhan ekonomi terhadap projek perumahan terbengkalai. Faktor-faktor yang berkaitan dengan pembubaran atau kegagalan projek boleh dikategorikan kepada risiko ekonomi, kewangan, undang-undang, pengurusan, yang berkaitan dengan sistem, dan risiko yang tidak diduga. Kajian ini mendedahkan impak utama projek perumahan terbengkalai yang berpunca dari kesan pertumbuhan ekonomi. Untuk tujuan ini, kajian ini akan mengkaji sejauh mana kesan kenaikan harga bahan mentah, harga upah buruh dan harga jentera pengangkutan terutamanya di Malaysia ke arah pertumbuhan bilangan projek perumahan terbengkalai

KATA KUNCI |_Malaysia, projek rumah terbengkala , kos pembinaan_

ABSTRACT

Abandoned of housing projects during construction is a prevailing problem that the housing sector in Malaysia has been experiencing since 1980s. This paper aims to highlight the causes and impacts of economic growth towards the abandoned housing projects. Factors pertaining to projects abandonment can be categorized into economic, financial, legal, managerial, system-related, and unforeseen risks. The study reveals main impacts of abandoned housing projects which is economic impacts. For this purpose, the study will look into how the extent of the impact of rising raw material prices, labor wage prices and transport machinery prices especially in Peninsular Malaysia towards the growth of number in abandoned housing project

KEYWORDS |*Malaysia, abandoned housing project, construction cost*

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LIST OF ABBREVIATIONS

JKR   Jabatan Kerja Raya

PWD   Public Work Department

KPKT   Kementerian Perumahan dan Kerajaan Tempatan

CHAPTER 1

Introduction

1.1   Background of the study

The International Monetary Fund (IMF) on Tuesday 11 January 2018 raised its forecast for global growth to 3.6 per cent this year and 3.7 per cent in 2018. For both years, the outlook is up 0.1% point from the IMF's previous forecast in July and would mark the fastest growth since 2010 meanwhile the world after the Great Recession of 2007-2009 and a debt crisis in Europe. China's economy was slowing steadily, raising fears of economic fallout in the developing countries that supply raw materials to the world's second biggest economy (South China Morning Post, 2017).

Growth in Malaysia accelerated through 2017 with year-on-year growth projected at 5.8% highest annual growth rate since 2014 and expected to remain strong, projected at 5.2% for 2018, reported by the latest Malaysia Economic Monitor, World Bank. Accelerated growth has been fueled by strengthening domestic demand, improved labor market conditions, and wage growth, as well as improved external demand for Malaysia's manufactured products and commodity exports. Capital expenditure has also increased due to higher private and public investment (Joshua, 2017). Inflation has a negative impact on the economy and the population of a country. High inflation rates

will increase people's living costs and this will reduce their living standards. The distribution of production factors is also inefficient and will affect the economy.

The increase in the price of essential goods has been a huge impact on the lives of Malaysians on a regular basis overall. The rise in price of this item directly contributes to a higher cost of living. By default, the higher the theoretical cost, the less power the consumer buys. For individuals, inflation will decrease true income and this situation will be serious if the rate of inflation or inflation rate is much higher than that the rate of increase in individual money income that will affect the buying power and the quality of their lives. The impact of the increase in prices has also affected the construction industry. Uncontrolled raw material price increases, raise of labor wage price, the different gaps in home price competition are some of the examples that are taking place.

Therefore, to overcome the issues, this study is focusing on finding out the real problems and situation affecting the indefinitely delayed construction project or abandoned construction buildings due to the economic growth.

1.2   Problem Statement

In real terms, the Malaysian construction industry registered an average annual growth rate of 10.7% during the review period (2011–2015). This growth was supported by the 10th Malaysia Plan 2011–2015, under which the government invested heavily in infrastructure, industrial parks and residential buildings. In 2010, the government relaxed policies for public-private partnerships (PPPs) with an aim to develop the country's infrastructure. Consequently, total private investment in infrastructure projects increased from 52.0% of the total infrastructure spending in 2010 to 64.0% in 2014. According to the Department of Statistics Malaysia (DOSM), the total construction value of civil engineering increased by 11.9% from MYR32.7 billion (US$10.0 billion) in 2014 to MYR36.6 billion (US$9.4 billion) in 2015. This was

preceded by annual growth rates of 1.2%, 14.5%, 54.1% and 16.3% in 2014, 2013, 2012 and 2011 respectively (Clare, 2017).

Over the forecast period (2016–2020), the Malaysian construction industry is expected to continue to expand in real terms, supported by the government's plan to improve the country's transport network and tourism infrastructure, and increase the volume of renewable projects (Clare, 2017). This shows the construction industry plays a very important role in the economy of a developing country including Malaysia. However, not all the construction projects are completed on time or ahead of schedule. It is common for construction projects to be delayed, or in the worst scenario even abandoned due to various reasons.

The construction project can be abandoned at any stage of the life cycle of construction and giving a notable amount of loss. Malaysian Property and Housing Developers Association (REHDA) vice-president Datuk FD Iskandar FD Mansor said the increase in house prices, especially under the category of affordable and luxury, could not be stopped because the industry players were increasingly depressed due to the rise in prices of building materials that were considered to be extreme critical. Iskandar said the crisis of rising prices of building materials had to be addressed immediately before the demand for the goods grew with major projects under the Ninth Malaysia Plan and corridor development projects.

In general, Goods and Services Tax (GST) also affect the construction industry. The additional of 6% for construction materials affect all players for example developer, contractor and also consultant. With the costs of overall sales increase, it will give effect to the whole project. In fact, the replacement of Sales and Services Tax (SST) with GST is intended to be revenue-neutral to the government's coffers, so in theory to consumers, this may represent a minimal effect to the of everyday goods and services prices.

Therefore, this research will find out the connection between the prices of goods (GST) and affect towards cost construction. On top of that, this research will find out the reasonable solution about cutting down the possibility of future abandoned construction project in Pahang, Selangor and Kuala Lumpur. Besides that, to make sure this research is reasonable, some aspect will be observed.

1.3 Aim and Objectives

The aim of this research is mainly to investigate the effect of increment economical to involver's parties in construction industry.

The main objectives of this study are:
1) To study the trends of abandoned project in Malaysia.
2) To investigate the pricing effect in perspective of the construction industry.
3) To study the relationship between construction cost and number of abandoned housing projects

1.4 Scope and limitation

There are many categories of abandoned construction project in Malaysia which are housing project, commercial projects and industrial projects. The scope of this research will focus on housing projects, due to the fact that this category of project will affect most of the general public. While on the other hand, the commercial and industrial types of projects will only affect business ventures. In fact, the Ministry of Urban Wellbeing, Housing and Local Government (MHLG) only regulate and control the activity of housing development and rest the commercial and industry development through the Housing Development (Control And Licensing) Act 1966 (Act 118).

This study will also be conducted in certain district of the state of Malaysia according to the limitation of time in completing the research. The research will be conducted in Kuantan and Selangor, Malaysia. Moreover, narrow down the limitation area of research are to make it easier for the researcher to gain the aim and objective of the research.

Data for this study were collected from several sources such as interviews, questionnaires, reference books, published journal, web browsing and others. The study only focuses on the abandoned housing construction project and this study is also conducted for a year of study.

1.5   Layout of the thesis

This thesis is organized into five chapters as detailed below:

Chapter 1 – Introduction: This chapter discusses the background of the problems of abandoned construction projects in Malaysia the rationale behind this research, the aim and objectives of this research, the research methodology, and the organization of chapters.

Chapter 2 - Causes of Abandoned Construction Projects – A Review of the Literature: This chapter covers the review of existing literature on the causes of abandoned construction projects including definition of abandoned projects, Housing Development Act (HDA), Types of project in Malaysia, Housing Statistic in Malaysia and Different of Project Status, Reviews of Government service and tax(GST). It also reviews existing literature on potential causes of abandoned construction projects by reviewing economic factors that could negatively affect the success of a project by reviewing a raw materials price. This literature covers only in Malaysia economic situations.

Chapter 3 – Research Methodology: This chapter describes the methods used in this research to accomplish the aim and objectives. It reviews existing literature on the meaning and background philosophy of research and research methodology. It also reviews the

quantitative, qualitative, and triangulation methods, with discussions on the selection of a suitable method for this research.

Chapter 4 - The analysis data will be discussing in Chapter 4. The data will be obtaining from observation and data analysis in order to achieve all objectives. Technique and method that will be used to analyze the data will be discussed in this chapter.

Chapter 5 - Summarized and discuss all the results from Chapter 4

Chapter 2

Literature Review

2.0   Introduction

This chapter covers the research focus on the study of the abandoned housing building construction project in Malaysia due to the impact of economic growth. Review of the literature on the type of housing project, number of abandoned project and economic conditions in Malaysia.

2.1   House Definition

House is one of the absolute necessities of humanity to be fulfilled. Thinking of the importance of this need, humans cannot escape from a buying a house. This is because the house is used as a residence, a shelter, and a place to gather with the family. Everyone would have the desire to create a comfortable, peaceful, and beautiful house. In order to create the desired home, some shadows appear to translate the desire. In Malaysia, there are various housing designs and between them are landed houses and high rise housing.

But everything can change in a blink of an eye when the dream house all of this time, stuck and abandoned for years. Their sense of humor is certainly derived from the

pressure faced because it is constantly burdened with debt while what is purchased is uncertain. This is definitely not a new issue because the problem of abandoned projects has become the main topic of most newspapers, and it is not even possible to be a hot-talk topic. However, although it is an old issue that has been fed up, the solution is still deadlocked and as if the defense to the fate of the buyer.

After a long look at the future and invest in buying a house that may be just once in a lifetime, finally what they dream change to be a nightmare. The burden of life is increasing, the rent is to be paid and the payment of the installment of the bank needs to be settled so as not to be sued. Thus, this scenario cannot be looked down upon by the government. Drastic and immediate action should be taken to ensure that citizens have the right to do so. What to be proud of the progress made if the people are still victims. The proposals of various parties before this so that the government introduced and mandated the concept of changing from 'sell and build' to 'build and sell' should be recognized as the most appropriate measure to address the problem of abandoned projects. At least, with that approach, buyers can make a choice and be assured that the money they will invest will be promised what they want. However, this writing is not about discussing the approach, and it is only about the factor of the abandoned house due to the factor of economic growth.

2.2   Housing Development Act

The Housing Development Act (HDA) plays a major role in safeguarding the interests of property buyers, of which some of the issues include, but are not limited to, setting rules and regulations for when developers can start charging buyers for a new property, fighting on behalf of residents when a property is abandoned, and stepping in when there are conflicts between the developer and buyers. The majority of the commercial titled properties do not enjoy the protection of the HDA, hence many commercial property buyers are at the mercy of the developer whether the property is abandoned or whether there is a hidden clause in the contract which favors the developer heavily.

Developers of commercial properties are also subject to the whims of the developers. Where in the case of HDA regulated projects it is stipulated that a buyer only needs to start serving their loan upon completion of earthworks, in non-HDA regulated projects the developer can begin to demand payment as soon as even one tractor sets its tracks on the empty plot of land. A clause in the contract may be worded as, "… upon commencement of works".

2.3   Housing Project

Housing is a building or structures that individual and their family may live and protect that from the physical danger to give them secure and live away from the weather. The housing project is defined as a project development that only develops housing which is residential properties. According to the UNHABITAT and the basic human right to housing; Article 25 of the Universal Declaration of Human Rights, stated that everyone is the world has their right to have a housing which ensures access to a safe, secure, habitable, and affordable with the freedom from forced eviction. Therefore, the government has the responsibility to ensure everyone exercise to the right of housing, hence there is the reasons why a housing project being concerned (Abdul all., Abandoned House Project, 2015)

The term of safe and secure are referred to the security of tenure which is the guarantees protection against forced eviction, harassment, vandalism, theft and other threats where predatory, redevelopment and displacement are and then for "habitable" is referred to decent of home mean the housing should be provided with adequate of space which may protect the residents from all environmental issues such as cold, damp, heat, rain, wind and other threat to health; structural hazards and disease (Abdul all., Abandoned House Project, 2015).

In the infrastructure aspect, the house complete with the road access mean that the road provided for residents daily uses for in and out which can be known infrastructure it shall be adequate and accessible to all, especially for these housing that near to

employment area and academy area such office area, industry area, and school (Abdul all., Abandoned House Project, 2015).

Rather than that, the availability of facilities and services around residential area is also the term of habitable. The examples in the term of facilities are school, shop, mosque, healthcare, community hall and other social facilities. While, the availability in term of services are water, power plant, sewerage and treatment plant. These basic social needs that required to complete for a housing development project at the social aspect because in order to ensure the housing provide certain essential facilities for health, comfort and nutrition.

2.4   Types of Housing Project in Malaysia

In Malaysia, there are two (2) types of housing projects. Firstly, projects that are constructed by the government towards providing residential or office premises to its servants and administrators. Secondly, is the private housing project, spearheaded by four types of parties, namely (1) Cooperative Society; (2) Special Low Cost Housing Projects undertaken by private parties; (3) Private individual and private group housing carried by people at large and (4) Licensed private developers based on Economic Planning Unit.

Previously, only the licensed private developers are subject to the Housing Developers (Control and Licensing) Act 1966 (Act 118). However, after the new amendment made in 2002, all of the above parties are subject to the purview of Act 118 (currently is being renamed „Housing Development (Control and Licensing) Act 1966 (Act 118)). This means that all housing developments commenced and carried out by the above four (4) parties after the amendment are subjected to the provisions provided in Act 118. All the activities of housing development carried out by licensed private developers are now governed by the Housing Development (Control and Licensing) Act 1966 and its regulations made there under.

2.4.1 Low Cost House

In fulfilling housing needs for the low-income and middle-income groups, factors such as affordability, cost of development, and selling price frequently influence supply and demand in the housing sector. Currently, housing developments are concentrated in high-density urban and suburban areas where the purchasing power and market are significantly immense. However, in order to balance up current housing needs especially for the low-income and middle-income groups, the Government and the private sector must play their roles to fulfill social responsibility to the people. Moreover, through National Housing Policy (NHP), a comprehensive and holistic approach is introduced to increase the accessibility to own or rent the provided houses.

Figure 2.1 shows an example of low cost house project

2.5   Different Types of Construction Project Status.

It is useful to offer a precise definition of the concept of an abandoned construction site for this study. This is because the definition and the concept of abandonment in Malaysia might be different from those of other countries. There is different type of construction project status when it comes to abandonment of the project. Ministry of Urban Wellbeing, Housing and Local Government (MHLG) stated that there are three status about the problematic project during construction. The three status includes, abandoned project, project delay and sick project. In the other side, abandoned project definition differs from an abandoned house.

2.5.1   Abandoned Housing Project

Abandoned construction site by The Bellevue City Code Ordinance (2009) state that a lot or group of lots, including subdivisions, building or buildings, or other development located in a single-family residential land where the responsible person has ceased work for any reason for a period of 90 days. Circumstances indicating abandonment of a construction site include, but not limited to, failure to call for inspections, absence of workers, or removal of equipment and supplies. A valid building permit or other permit or approval issued by the city does not alter the status of a construction site deemed abandoned. Construction does not include temporary repairs, additions, remodels, or maintenance projects on existing single- family homes.

While in Malaysia, based from MHLG "Abandoned Projects" are defined as the non-complete project within or later than the delivery date stated in Sale and Purchase Agreement and there are no significant act can be observed or noticed at the construction site within six (6) continuous months, or the company has been registered as *"Petisyen Penggulungan"* in high court under section 218 of the Companies Act 1966, or the company is under the Receiver and Manager, or the Developers are not be able to

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acknowledge in wiritng to the *"Pegawai Perumahan"* and the MHLG have confirmed the project as abandoned project under section II(I)(c) of Act 118.

In an enactment (1978) define "abandoned housing development means where a licensed housing developer had refused to carry out, delayed, suspended, stopped or ceased work continuously for a period of more than six months from the expected date of completion/ delivery as agreed upon the contract and stated in the sales and purchase agreement." Project failure and abandonment, according to Ubani and Ononuju (2013) is described as the resultant effect of the consequence of revoke on an already commissioned project by virtue of the factors of the factors that precipitated the failure starting from the beginning.

Project abandonment on a general note, is the act of giving up an action on an issue completely with the intention of not resuming either. When decisions on a project are put on hold without any specific time to commence work on the project, such a project is termed to be abandoned (Hanachor, 2012).

Hanachor, (2012) further opined that there are two limits of schedule lag between suspension and resumption on a project. The short term lag ranges between 1 to 2 years, while the long term lag ranges between 3 to 5 years. Where the two scenarios are applied, a project is termed abandoned when some of the physical features are seen wearing away and becoming obsoleteand out of use, which invariably would attract substantial amounts of funds to replace. A construction project is adjudged abandoned if it is not ready or completed for its occupants to use. While in the U.S., Malaysia, U.K. an abandoned construction project is one whose appearance shows some visible signs of distress such as deterioration, burned and possibly boarded up according to Abdul, et al (2013).

In Malaysia, the regulatory authorities (public) have laid down a set of conditions for adjudging a project as abandoned. The conditions include: one or more of the following ensues; no visible construction activities for a period of six months and beyond; the developer wounds up; the constructor is unable to complete the project; the regulatory body declaring the project abandoned pursuant to Acts establishing it.

2.5.2   Project Delay

Ministry of Urban Wellbeing, Housing and Local Government (MUHLG) states that project delay is the project which is experiencing delays in the construction period where there are different gaps between the actual in-progress sites work compared to the work scheduled, which is between 10% and 30%. According to N. Hamzah .et .al (2012) there are two types of delays, namely non-excusable delays and excusable delays.

A non-excusable delay is the delay caused by the contractor or its suppliers and through no fault by the owner. The contractor is generally not entitled to relief and must either make up for lost time through an acceleration or pay compensation to the owner.

2.5.3   Sick Project

The project that is experiencing delays in the construction period where gaps between actual work progresses compared to the work scheduled is more than 30%, or the projects fail to be completed during the construction period is considered as a sick project by Ministry of Urban Wellbeing, Housing and Local Government (MHLG).

2.6   Reviews On GST

The aim of each country in total development do not rests by simply gaining additional economic strengths. Indeed, they must catch the growth of the other developed countries. They must increase the progress of the economic activities and provide essential policies and governmental regulations that can be implemented and applied in both local and national regions. Furthermore, the country should target a balanced development and global competitiveness.

The Malaysian government had implemented the GST on 1st April 2015. Definitely, this will create an impact on the businesses and people. GST was introduces bearing the 6% tax that 13 will take effect on 2015. It is important that the businesses understand the GST bill in order to provide the expected benefit and create a feedback on the government. Furthermore, both people and businesses are entitled to assess the risk and various impacts that might produce by the GST (Chia, 2010). However, what are the expected recognizable impacts of GST among the contractor.

Malaysian economy experienced the growth on their GDP for 2005 by pointing the 5% increase. In return, the budget deficit dropped in 3.8% which helped the progression of the projects. However, the government is still looking for appropriate intervention to stabilize the prices on oil and other fuel products. In the year of 2006, the government proposed that there should be better flexibility in sustaining the growth momentum. Thus in beginning of 2007, GST will be introduced to improve tax collection through indirect taxation and to ensure a more stable source of revenue (Nathan, 2006).

Among measures announced during 2004 was that the current sales and service tax would be replaced with a single consumption tax or the GST, in line with many other ASEAN countries. This introduction of new tax attacks the deficiencies in the policies and regulations in the country. For example, smuggling was targeted because of the huge loss of about 30 per cent of income from cigarette duties. Security inking and tax stamps on cigarettes as well as a customs crackdown which began in June, yielded a significant drop in smuggling and higher duty collection of RM800 million (US$210.5) for just the period from June to September, compared with RM600 (US$157.9) million collected for the first three months of the year.

However, industry sources say that there is still much more to be done (Martinez, 2005). It is expected that a number potential benefits can be gained through the implementation of GST in the country. Firstly, the knowledge regarding the GST can provide the opportunities for the businesses and consumers in their investment and consumption decisions. The implemented of GST would stimulate the domestic consumption as consumers seek to minimize any impact that GST that may have on prices when the tax becomes live.

There is a significant effect on the acceleration of spending by consumers and business spending to prepare for the tax would also potentially increase tax revenue for the government through the increase in domestic consumption and aid in the reduction of the budget deficit. GST 14 can have a positive impact on exports and the ability of the government to make timely refunds to export-oriented businesses. Therefore, the acceptance of the new tax by the public would also be a key factor for the government and answer the basic necessities such as food issues, water, electricity and water, and health (Choon, 2009).

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│     Implementation of GST        │
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                ▼
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│     Increase in Price Level      │
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│   Increase in Total Production   │
│              cost                │
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│    Decreased the Developer       │
│          Profit Gain             │
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                ▼
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│  Increase Price Level of Output  │
│    (Housing Price Increase)      │
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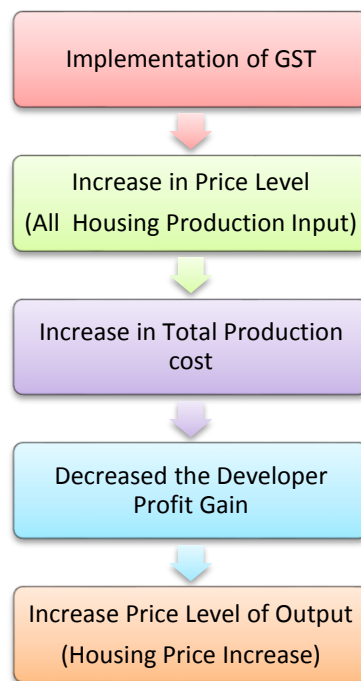
Figure 2.2 GST Impact on Construction Capital Costs and Housing Property Prices

(Anthony, 2007)

2.6.1 Impact GST Towards Construction Capital Cost

Impacts of GST on Construction Capital Costs Building material costs are the major components in construction development costs while GST implementation has been identified to have inflated the construction material prices within a year of implementation (Breen et al. 2002, Burgess, 1998 and Daliae, 1999). Findings as shown in Table 1 indicate that all building materials set the highest cost increase after GST implementation is not surprising as prior to GST implementation only second schedule materials were being charged 5% of sales and service tax (SST). On the other hand, GST had also led to an increment to the land acquisition cost although supply of land for housing properties is exempted from GST. Hence, the argument of Dato' SubromaniamHolsay saying that the "biggest cost components" which is land being exempted from GST would lead to cost saving for housing developers is imprecise. Besides, marketing costs has also been raised after GST implementation which may be a result of developers outsourcing marketing agents to help them boost the sales of property while the agents are entitled to as much as 5% of the project's Gross Development Value, leading to higher marketing costs for the developers.

2.7 Factors Affecting Construction Costs

There are many factors which affect the construction cost estimate and have significant impact on project cost. But these studies are focus on construction materials costs and labor wage rates.

2.7.1 Construction Materials

The type and availability of a particular material can also affect your approach to a cost estimate. If your client insists upon a particular material or if a particular manufacturer's product is crucial to the success of a project, the cost of that specific item can drive up the cost of the project. This is essentially a closed

specification. If, however you can accept a material of equal or somewhat reduced quality, you will leave room for greater price competition and lower the project cost. (Incidentally, the availability of a product or material can also affect the success of a project relative to the client schedule expectations. When you are selecting products or materials, you should also consider the concerns of "lead time" (the time it will take for an order to be manufactured and delivered (Budisuanda, 2011)

2.7.1.1   Cement

Cement is a hydraulic mineral binding material. Blended with water, the pulverous cement can generate the plastic paste which will turn into hard cement block and bind granulated (or block) materials together after a series of physical and chemical effects. The hardening of cement paste will happen not only in the air but also in water and also can maintain and increase its strength. Cement is one of the important materials for the construction of national economy. Also, it is the basic component for concrete, reinforced concrete, and prestressed concrete, commonly used in construction, transportation, water conservancy, electric power, national defense, and other construction projects.

According to the national cement naming standard, cement can be named based on its main hydraulic minerals as: Portland cement, aluminate cement, sulphate cement and sulpho-aluminate cement, and phosphate cement. Among many varieties of cement, the commonly used one is the Portland cement (including Portland cement, ordinary Portland cement, Portland blast furnace cement, Portland pozzolana cement, Portland fly-ash cement, and composite Portland cement). In projects, the varieties of cement should be selected reasonably based on the specific environment. As for the property of cement, Portland cement is the basic one.

Figure 2.3 shows an example of Portland Cement

2.7.1.2 Brick

Brick may be classified according their uses as follow, bearing in mind that it is sometimes possible for a brick to come under more than one heading such as facing brick, common bricks, engineering bricks and special bricks. A brick is building material used to make walls, pavements and other elements in masonry construction. Traditionally, the term brick referred to a unit composed of clay, but it is now used to denote any rectangular units lay in mortar. A brick can be composed of clay-bearing soil, sand, and lime, or concrete materials. Bricks are produced in numerous classes, types, materials, and sizes which vary with region and time period, and are produced in bulk quantities. Two basic categories of bricks are fired and non-fired bricks.

Figure 2.4 shows an example of Brick classification

2.7.1.3   Aggregate

For a good concrete mix, aggregates need to be clean, hard, strong particles free of absorbed chemicals or coatings of clay and other fine materials that could cause the deterioration of concrete. Aggregates, which account for 60 to 75 percent of the total volume of concrete, are divided into two distinct categories--fine and coarse. Fine aggregates generally consist of natural sand or crushed stone with most particles passing through a 3/8-inch sieve. Coarse aggregates are any particles greater than 0.19 inch, but generally range between 3/8 and 1.5 inches in diameter. Gravels constitute the majority of coarse aggregate used in concrete with crushed stone making up most of the remainder.

Aggregate, in building and construction, material used for mixing with cement, bitumen, lime, gypsum, or other adhesive to form concrete or mortar. The aggregate gives volume, stability, resistance to wear or erosion, and other desired physical properties to the finished product. Commonly used aggregates include sand, crushed or broken stone, gravel (pebbles), broken blast-furnace slag, boiler ashes (clinkers), burned shale, and burned clay. Fine aggregate usually consists of sand, crushed stone, or crushed slag screenings; coarse aggregate consists of gravel (pebbles), fragments of broken stone, slag, and other coarse substances. Fine aggregate is used in making thin concrete slabs or other structural members and where a smooth surface is desired; coarse aggregate is used for more massive members.

Figure 2.5 shows an example of Fine Aggregate and Coarse Aggregate

2.7.1.4 Steel Reinforcement

Steel consists mostly of iron, with a carbon content under 2% and various other elements. Construction steel refers to various steel materials used in construction projects, including various materials used for steel structures (such as round steel, angle steel, joint steel, and steel pipe), plates, and steel bars, steel wires, and strands used in concrete structure. Steel is the material produced under strict technical conditions, and it has the following advantages: even materials, stable properties, high strength, certain plasticity and toughness, and the properties to bear impacts and vibration loads, and can be welded, riveted, or screwed; the disadvantages are: easy to be corroded and high cost of repairs.

These characteristics determine that steel is one of the important materials needed by economic construction departments. In construction, the steel structures consisted by steel in various shapes have high security and light deadweight, used for large-span and high-rise structures. However, because every department needs a large amount of steel, the wide use of steel structure is limited to some extent. But though concrete structures have heavy deadweight, the usage of steel is decreased greatly, and it can overcome the corrosion and high cost of repairs of steel. Thus, steel is widely used in concrete structures.
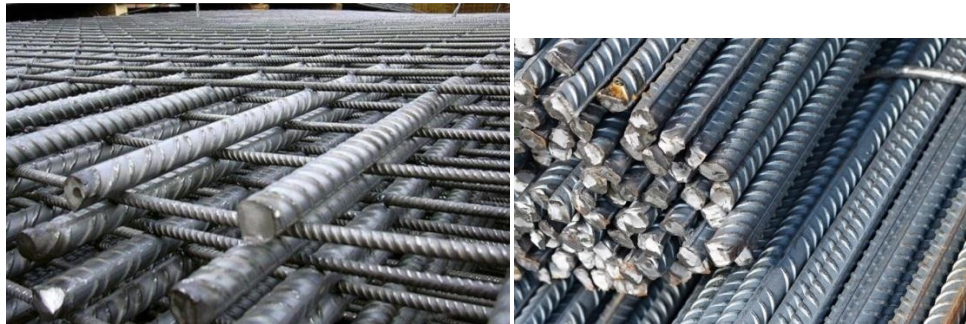
Figure 2.6 shows an example of Mash Reinforcement and Bar Reinforcement

2.7.1.5 Ready-mix Concrete

Ready-mix concrete is concrete that is manufactured in a batch plant, according to a set engineered mix design. Ready-mix concrete is normally delivered in two ways. First are the barrel truck or in–transit mixers. This type of truck delivers concrete in a plastic state to

the site. Second is the volumetric concrete mixer. This delivers the ready mix in a dry state and then mixes the concrete on site.

Batch plants combine a precise amount of rock, sand, water and cement together by weight, allowing specialty concrete mixtures to be developed and implemented on construction sites. The first ready-mix factory was built in the 1930s, but the industry did not begin to expand significantly until the 1960s, and it has continued to grow since then.

Ready-mix concrete is often preferred over other materials due to the cost and wide range of uses, from bird baths to high rise buildings and bridges. It has a long life span when compared to other products of a similar use, like road ways. It has an average life span of 30 years under high traffic areas compared to the 10 to 12year life of asphalt concrete with the same traffic.

Figure 2.7 shows an example of Concrete mixing

2.7.1.6   Formwork

Formwork can be made out of timber, plywood, steel, precast concrete or fiberglass used separately or in combination. Steel forms are used in situation where large numbers of re-use of the same forms are necessary. For small works, timber formwork proves useful. Fiber glass made of precast concrete and aluminums are used in cast-in-situ construction such as slabs or members involving curved surfaces.

Formworks can also be named based on the type of structural member construction such as slab formwork for use in slab, beam formwork, column formwork for use in beams and columns respectively etc. Timber is the most common material used for formwork. The disadvantage with timber formwork is that it will warp, swell and shrink. Application of water impermeable cost to the surface of wood mitigates these defects
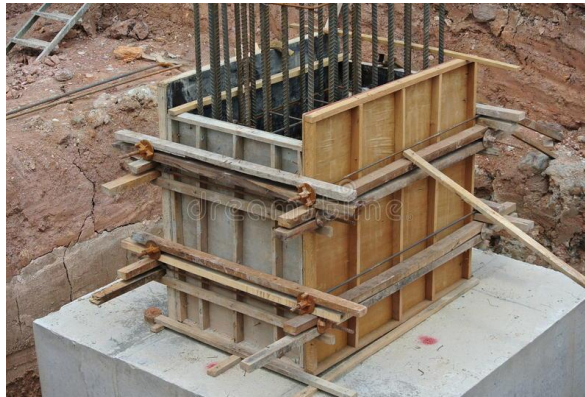
Figure 2.8 shows an example of Timber Formwork

2.7.2 Labour

The general state of the economy will affect the cost of a project so it is important to watch what is happening with the rate of inflation in developing accurate construction estimates. When the economy is booming (like it is now) and the unemployment rate is very low, there may be some wage pressure, particularly in the skilled and labor intensive construction industry. If there are indications of inflationary pressures, you must place some limits on your construction estimate. You should either indicate to the client that the period for which such an estimate is accurate will be relatively brief, or include some budgetary contingency for inflation over the period before bids are 'let' and the project is awarded to a contractor (Budisuanda, 2011)

2.7.2.1 Unskilled Labour

It is a type of labour which does not have much skill in performing a given job. The job which does not demand any degree of skill while performing it is entrusted to such unskilled labour. In Construction Industry, there is enough scope for the employement of

such labour. The workers are allotted work such as cleaning, sweeping, digging, concrete mixing, curing, material handling and others.

2.7.2.2   Semi-skilled Labour

This category of labour emerges from unskilled groups of labours. When particular worker performs a given job repeatedly for a long period, he becomes proficient in that work, or alternatively when the worker observes a particular job constantly and tries to acquire skill of performing that particular job when opportunity comes. He thus picks up that work as a semi-skilled worker. There have several position in Construction Industry for semi-skilled workers. For example, concrete, glazier, scaffolder, machine attendant, and others. They called as semi-skilled labour because no training facilities is provided to these workers for such jobs.

2.7.2.3   Skilled Labour

It is a particular type of labour has to carry out specific types of jobs. To perform specialized jobs, training is required. Such labour force is produced after giving them required training in the institutions meant for this purpose. In some cases, the workers get training from his nearest background or by self-experience. For example, Mason, carpenter, painter, fitter, plumber, brick layer and electrician.

2.7.3   Mobilization

Mobilization is defined at businessdirectory.com as "activation of a contractor's physical and manpower resources for transfer to a construction site until the completion of the contract".One large state's Department of Transportation describes mobilization costs on a construction project this way: "includes preparatory work and operations, including, but not limited to, those necessary for the movement of personnel, equipment, supplies and incidentals to the project site, for the establishment of all offices, buildings and other facilities necessary for work, on the project, and for all other work and operations which must be performed or cost incurred prior to beginning work on the various items on the project site."(Philip Campbell, 2017)

Chapter 3

Research Methodology

This chapter describes the methods used in this research to accomplish the aim and objectives. It reviews existing literature on the meaning and background philosophy of research and research methodology. It also reviews the quantitative, qualitative, and triangulation methods, with discussions on the selection of a suitable method for this research. This is followed by discussions on the methods used in this research, i.e. literature review, questionnaire survey, and semi-structured interviews. Then, the techniques used for analysis of data are also presented.

3.0 Data and methodology

This topic presents in detail about the data and methodology that are being used in this research to achieve the objectives. In order to obtain data, the first step is to identifying all announcement reports and the next step is the data being test and analyzed. The methodology part elaborates the types of methods or tests that are used for this research.

3.1   Data Collection

Samples will be selected by identifying and comparing the number of abandoned housing project and relationship with construction price for 10 years in Malaysia. This sample will consist of the yearly basis announcement. The methodology includes a topic on data analysis, hypothesis and also statistical tests. The data section clearly elaborates on the process of collecting the data that needs to be obtained in order to perform the tests while the methodology section elaborates on the types of methods or tests that will be performed. In this study the secondary data is used which is collecting from Housing and Local Goverment Department (KPKT) and Public Works Department (JKR) where this data shows the prices for construction materials, the rate of labor and labor wages.

3.2   Dependent variable

The dependent variable is the number of abandoned project. The number of abandoned project acts as the dependent variable and this study is to identify the impact of the construction price.

3.3   Independent variables

The three independent variable which is the prices for construction materials, the rate of labor and labor wages. This research is to examine how the impact of the variables and the relationship between variables.

3.4   Research methodology

In Oxford Dictionaries (Oxford Dictionaries 2010a), a methodology is "a system of methods used in a particular area of study or activity". Different authors of research methodology reference books use different terms, such as research strategy (Naoum 2007),

research methods (Fellows & Liu 2008), and research design/method (Creswell 2009). Naoum (2007) defines research strategy as the way in which the research objectives can be questioned. According to Fellows and Liu (2008) research methods concern the techniques/approaches on collection and analysis of data. Creswell (2009) defines research designs as plans and the procedures for research that span the decisions from broad assumptions to detailed methods of data collection and analysis. However, for the purpose of this research, the term "research methodology" is preferred. Naoum (2007), Fellows and Liu (2008) and Creswell (2009) further divide research methodology broadly into quantitative and qualitative methods. In addition, Fellows and Liu (2008) and Creswell (2009) discuss an additional third method, called triangulated studies / mixed methods, which is basically a mixture of the quantitative and the qualitative methods. The quantitative, qualitative, and triangulated methods will be discussed in detail in the following sections.

3.4.1   Qualitative method

Many authors describe the qualitative method as exploratory in nature (Creswell 2009; Fellows & Liu 2008; Naoum 2007; Richardson et al. 2005). Specifically, Creswell (2009) describe the process of qualitative research as involving emerging questions and procedures. Fellows and Liu (2008) explains that qualitative studies seek to go deep and to gain insights. Therefore, the results of qualitative studies tend to be detailed and hence rich in content and scope (Fellows & Liu 2008), and complex (Creswell 2009).

The qualitative method is also inductive in nature. According to Fellows and Liu (2008), the exploration of the subject is undertaken without prior formulations, the object is to gain understanding and collect information and data such that theories will emerge. Creswell (2009) states that the data analysis process is inductively building from particulars to general themes.

According to Richardson et al. (2005), the subjects studied in a qualitative research are intangible variables and phenomena (often behavior). The subjects studied are described as complex situation, and social or human problem (Creswell 2009). Fellows and Liu (2008) state the subjects studied as the reason things happen as they do; events, processes and structures; aspects of people's social world; people's assumptions, prejudices, etc., and the impact of these on behavior and, thence, (organizational/project) performance.

The participant giving information on the subject studied may be an individual or a group (Creswell 2009; Fellows & Liu 2008). Different authors give various descriptions of the information given by the participant, i.e. verbal description or explanation (Richardson et al. 2005); meanings, experiences (often verbally described), and description (Naoum 2007); meaning the individuals or groups ascribe to a social or human problem (Creswell 2009); meaning which people attribute to events, processes and structures, people's perceptions of the world, people's assumptions and prejudices, and briefs, understandings, opinions, views etc. of people (Fellows & Liu 2008).

Analysis of qualitative data involves the researcher making interpretations of the meaning of the data (Creswell 2009). Also, analyses of qualitative data require a lot of filtering, sorting and other „manipulations" to make them suitable for analytic techniques (Fellows & Liu 2008). For example, transcribing interviews and analyzing the content of conversations.

Qualitative method is "subjective" in nature (Naoum 2007). Fellows and Liu (2008) state that the objectivity of qualitative data is often questioned, especially by people with a background in the scientific, quantitative, positivist tradition. Fellows and Liu (2008) also added that a variety of external, environmental variables are likely to impact on the data and results and the researchers are likely to be intimately involved in all stages of the work in a more active way than usually is acceptable in quantitative studies. The final written report of qualitative research has a flexible structure (Creswell 2009), and this may be the result of the subjectivity of qualitative research.

Qualitative methods include direct and participant observation, videotaping of subjects, and document analysis (Richardson et al. 2005), historical methods (Salkind 2009), grounded theory, phenomenological research, and narrative research (Creswell 2009), case studies (Creswell 2009; Richardson et al. 2005; Salkind 2009), interviews (Richardson et al. 2005; Salkind 2009), and ethnography (Creswell 2009; Salkind 2009).

3.5   Literature Review

The literature review stage is mainly carried out at the beginning stages of the research but it continues throughout as the research progresses. Existing literature on the issues and causes of abandoned construction projects has been reviewed. The sources of information are mainly news articles. Apparently there is a lack of research in this area. Therefore, existing literature on potential causes of abandoned construction projects has also been reviewed by reviewing factors that could negatively affect the success of a project. It is believed that some of the factors that affect the success of a project, if overlooked, may lead to the abandonment of construction projects. These potential causes will be used as a basis for an industry wide questionnaire survey as well as semi structured interviews to gain industrial opinions on the causes of the problems as well as suggestions on how to solve the problems.

3.6   Analysis of Data

Basic descriptive methods, ranking of potential causes with Spearman‟s ranking correlation coefficient, and factor analysis with Cronbach‟s α reliability analysis were used to analyse the data from questionnaire survey. Basic descriptive methods include frequency distribution and mean. The Spearman correlation is to measure the similarity in ranking a list of items between different groups of respondents (Field 2005; Naoum 2007), i.e. the

ranking of the 41 potential causes of abandoned construction projects by the different demographic groups. Factor analysis is a technique for identifying groups or clusters of variables (Field 2005), i.e. to group the 41 potential causes into groups of correlated causes, each group represents a latent cause. Cronbach's α reliability analysis checks the groups extracted from factor analysis to see how well the variables within each group measure a common construct (Field 2005).

The results of the open ended question and the transcript of the interviews were analyzed using the methods for analyzing open ended data (Creswell 2009). The data were grouped into themes/categories by means of assigning categories/labels/codes to segments of the data. This is followed by studying the interrelationship between the themes/categories.

3.7 Summary

A literature review on what is research and research methodology with particular emphasis on the qualitative methods has been presented. The actual methods used for literature review, questionnaire survey and semi-structured interview has also been reported. Also reported are methods for analysis of quantitative and qualitative data. The overall research methodology has been summarized in a flowchart as shown in Figure 3.1 below.

```
                    ┌─────────────────────┐
                    │  Identification of the │
                    │       problem        │
                    └─────────────────────┘
                               │
                    ┌─────────────────────┐
                    │  Selection of research │
                    │         title         │
                    └─────────────────────┘
                               │
                    ┌─────────────────────┐
                    │   Literature Review   │
                    └─────────────────────┘
                               │
                    ┌─────────────────────┐
                    │  Research Methodology  │
                    └─────────────────────┘
                               │
                    ┌─────────────────────┐
                    │    Data Collection    │
                    └─────────────────────┘
```

Primary Data

➢ Questionnaire
➢ Interview

Secondary Data

➢ Articles
➢ Journals
➢ Website

Analysis of Data

Result, Conclusion and Recommendation
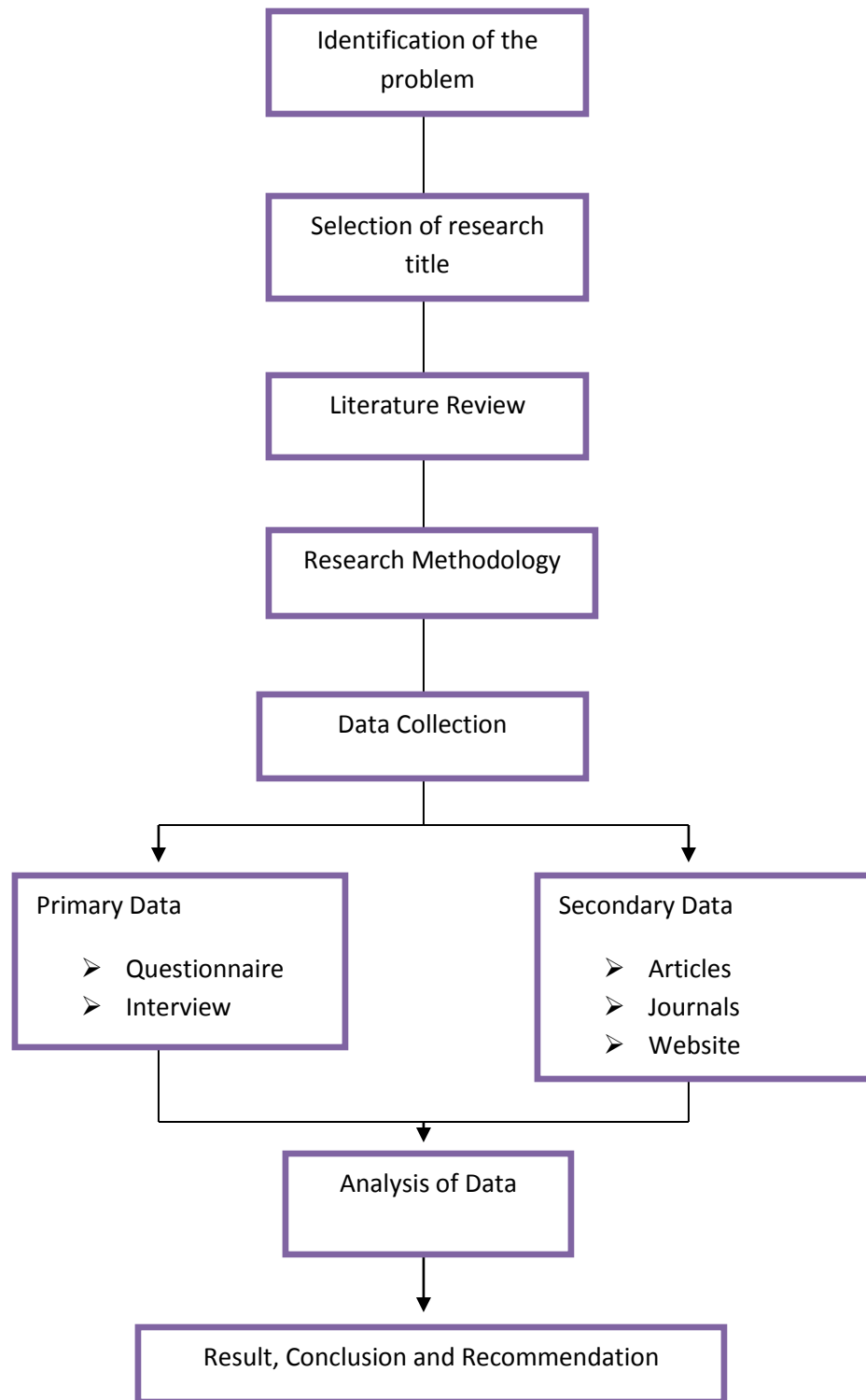
Figure 3.1 shows an example of Chart Flow

Chapter 4

Results and Discussion

4.0 Introduction

This chapter will explain the finding of data collecting and all also data analysis in order to achieve all three objectives. Analyses of the data were obtained from the local authority's department. The survey is to collect data and trends of abandoned house project in Malaysia, the materials, workmanship and transportation cost for construction industry.

This chapter shows the important information for this research. The researcher will discuss and analyze in detail the data had been collected. The data collected by has been compiled from the annual Statistic of the JPN, in order to convey the message of the various stakeholders regarding housing affairs regulated by JPN. All information is collected from the internal parts of JPN as well as from State Governments and Local Authorities.

This chapter also discussed the point this topic will also discuss the relationship between abandoned housing trends with prices of goods, abandoned housing trends with labor rates and abandoned housing trends with transportation costs. This chapter is significantly to achieve all three objectives.

4.1   The overall status of the abandoned housing projects

The area of this research will cover in Peninsular Malaysia. Figure 4.1 shows the overall status of abandoned housing projects from year 2011 to 2017. Based on the bar chart, the pattern of abandoned projects shows a decline each year and rise at the end of year 2016. Starting from 2011 to 2016, the number of abandoned houses decrease to 48 projects from 110 in year 2011, until in year 2017, the number of projects increased to 66 projects.
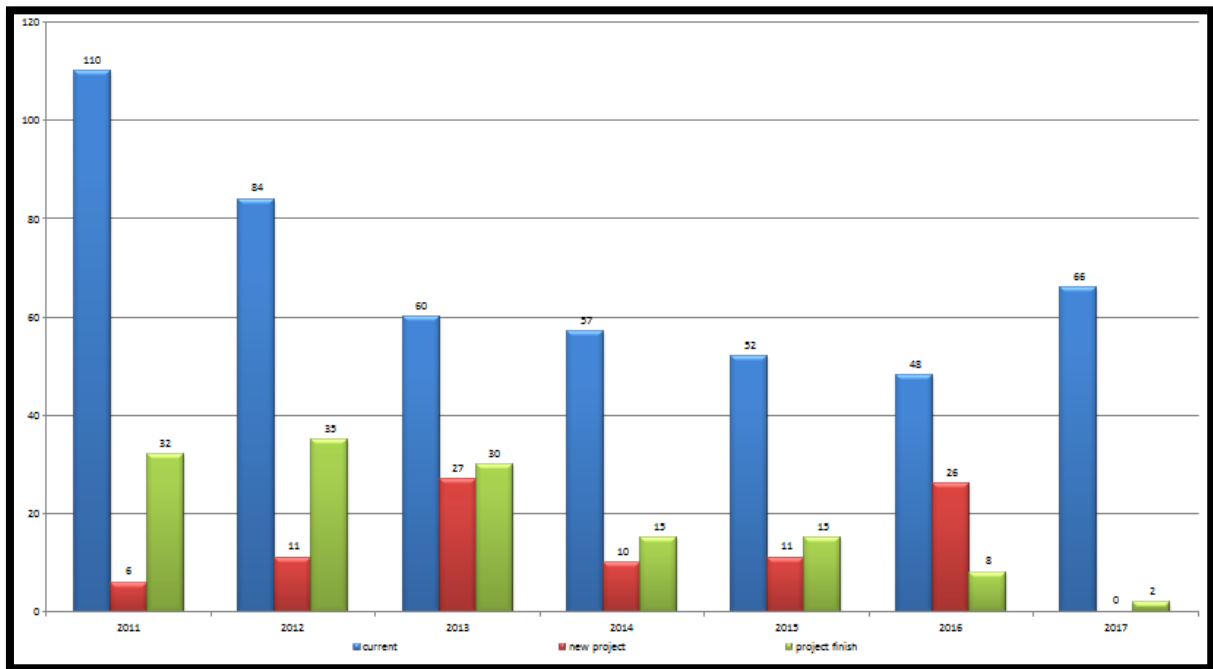

Figure 4.1 Bar Chart of abandoned house project 2011 to 2017

Table 4.1: Status of abandoned house project 2011 to 2017

		Current Project	New Project	Project Finish
Year	2011	110	6	32
	2012	84	11	35
	2013	60	27	30
	2014	57	10	15
Year	2015	52	11	15
	2016	48	26	8
	2017	66	0	2

For new project that is listed abandoned from 2011 to 2016 did not show a high increase and completed abandoned projects also show a decline each year.

Table 4.2 shows the trends of abandoned house from each State

STATISTIC OF ABANDONED PROJECT 2011 TO 2017

Year	2011		2012		2013		2014		2015		2016		2017	
State	Num project	House Units	Num project	House Units	Num project	House Units	Num project	House Units	Num project	House Units	Num project	House Units	Num project	House Units
Johor	17	7 840	21	2 371	16	5 851	11	4 126	9	2 868	10	2 890	44	8 839
Kedah	7	669	16	2 366	8	1 654	3	814	2	765	2	765	14	2 097
Kelantan	4	569	18	1 312	4	436	1	39	4	289	12	1 095	19	1 961
Melaka	3	810	4	316	2	714	1	554	0	0	0	0	8	1 503
Negeri Sembilan	16	2 542	12	1 472	7	1 739	5	1 165	4	973	2	323	25	4 340
Pahang	7	1 754	13	1 058	3	543	4	761	6	812	5	618	17	3 458
Perak	9	1 683	9	850	7	913	9	1 023	9	962	5	675	18	2 327
Perlis	0	0	1	76	0	0	0	0	0	0	0	0	0	0
Pulau pinang	8	3 298	12	2 076	4	2 261	2	1 550	2	1 550	2	1 550	14	6 660
Selangor	40	21735	88	14894	34	17529	30	13624	24	7 856	32	7 667	82	29483
Terengganu	1	21	14	1 399	0	0	0	0	2	210	3	319	4	340
Wilayah Persekutuan	4	1 442	8	1 380	2	1 070	2	1 070	1	134	1	134	9	3 632
Total	116	42363	216	29570	87	32710	68	24726	63	16419	74	16036	254	64640

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Table 4.2 shows the overall status of abandoned housing projects according to the state in year 2011 until 2017. A total of 254 housing projects were listed abandoned in January 2017.

Table 4.3: Statistic of abandoned house project according to State

Year (January 2017)		Number of project	Number of houses	Number of buyers
State	Selangor	82	29,483	20,788
	Johor	44	8,839	5,807
	Negeri Sembilan	25	4,340	3,110
	Pahang	17	3,458	2,594

(Sources: Bahagian Pemulihan Projek terbengkalai,2017)

Based on Table 4.3, the total abandoned projects in the State of Selangor are the highest was recorded in 2017 which was 82 projects. This amount involving 29,483 housing units and 20,788 buyers. This is followed by the Johor with 44 projects (8,839 housing units and 5,807 buyers), Negeri Sembilan with 25 projects (4,340 housing units and 3,110 buyers) and Pahang with 17 projects (3,458 housing units and 2,594 buyers).

The Malaysian housing sector has been suffering from this problem since early 1980s up to date. For instance, in 2014 only there were 68 abandoned housing projects in the Peninsular Malaysia (excluding Sabah and Sarawak), comprising 24,726 housing units and 17,468 buyers(Alashwa, 2016). This statistic clearly shows that a total of 14 abandoned housing projects take place over a 3-year period and this happens over several factors that will be discussed.

Other than that, Ho and Hussin (1994) reported the influence of the economy on the construction industry and abandoned housing projects are intertwined. The economic

recession that struck Asian countries in the mid-1980s is believed to be one of the main reasons for the abandonment of numerous housing project. According to an ABC analysis of U.S. Bureau of Labor Statistics data, construction material prices rose another 0.8 percent in June (2018) and are 9.6 percent higher than they were at the same time one year ago, June represents the latest month associated with rapidly rising construction input prices. Nonresidential construction materials prices effectively mirrored overall construction prices by rising 0.9 percent on a month-over-month basis and 9.8 percent on a year-over-year basis.

Therefore, in addition to examining factors that have been issued by the government, there are other costs such as land, labor, other materials, compliance authority fee, loans and finance costs, working capital, marketing and management costs that need to be taken into account.

4.2   Analysis construction cost

In this section, will discuss the extent to which the impact of the rise in the price of goods on the rate of increase in the number of abandoned houses. The development of the construction industry has given rise to the growth of various building materials. Building materials comprise natural substances such as s and, wood, rocks, etc. or manufactured materials such as concrete, metal, cement, glass, etc. The CIDB classifies building materials into 17 categories which is cement, aggregate, sand, steel reinforcement ready mix concrete, bricks, roofing, walls and floor tiles, ceiling board, plumbing works, sanitary fittings, paints, steel and metal sections, plywood timber, glass, ironmongery.

Table 4.4 outlines the major materials which have been identified by CIDB as the most frequently required for building projects and civil engineering works, as well as the estimate utilization of these materials in 2016.

Table 4.4: Estimated utilization of eight major building materials, 2016

Material Category	Unit	Material demand for total work done, 2016		
		Number of Projects	Material Value (RM mil)	Material Quantity (mil)
Steel Reinforcement	m. tonne	6,230	8,479.8	4.0
Ready Mixed Concrete	m³	6,326	6,677.5	32.8
Plywood	piece	6,324	4,190.3	73.7
Brick	pallet	6,036	4,470.3	22.0
Paint	5 litre	5,897	3,152.8	30.3
Sand	m. tonne	6,077	2,289.3	58.2
Glass	m²	5,885	2,174.5	49.3
Cement	tonne	6,077	1,932.0	5.4

(Sources: Construction Industry Development Board (CIDB) Malaysia (Projection of Construction and Material Demand, Dec. 2016)

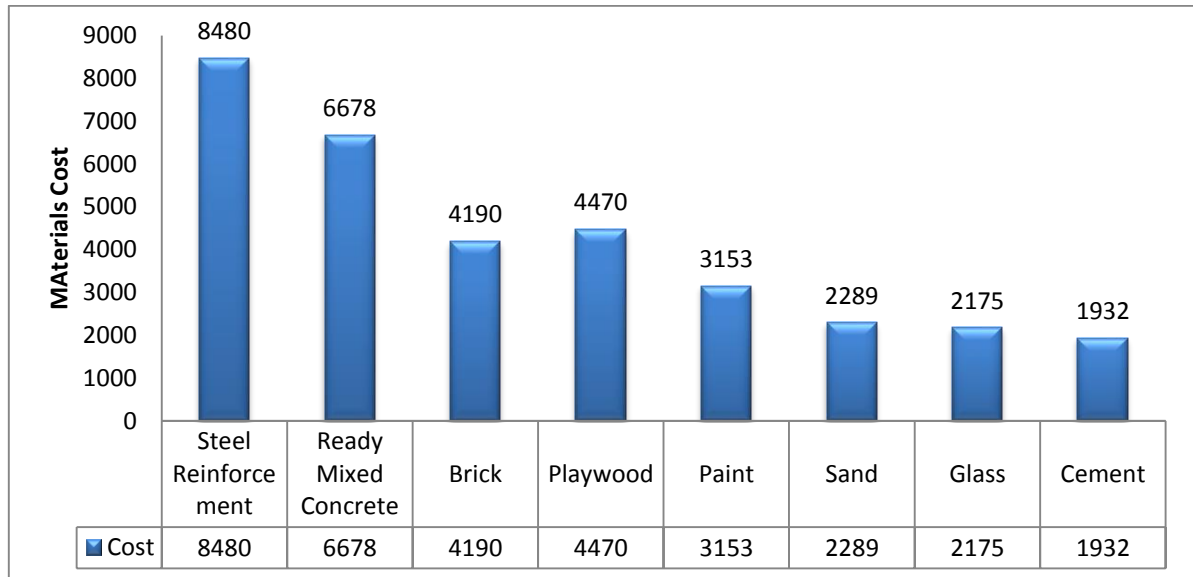|	Steel Reinforcement	Ready Mixed Concrete	Brick	Playwood	Paint	Sand	Glass	Cement
Cost	8480	6678	4190	4470	3153	2289	2175	1932

Figure 4.2: Estimated utilization of eight major building materials, 2016 (CIDB) (Sources: Construction Industry Development Board (CIDB) Malaysia)
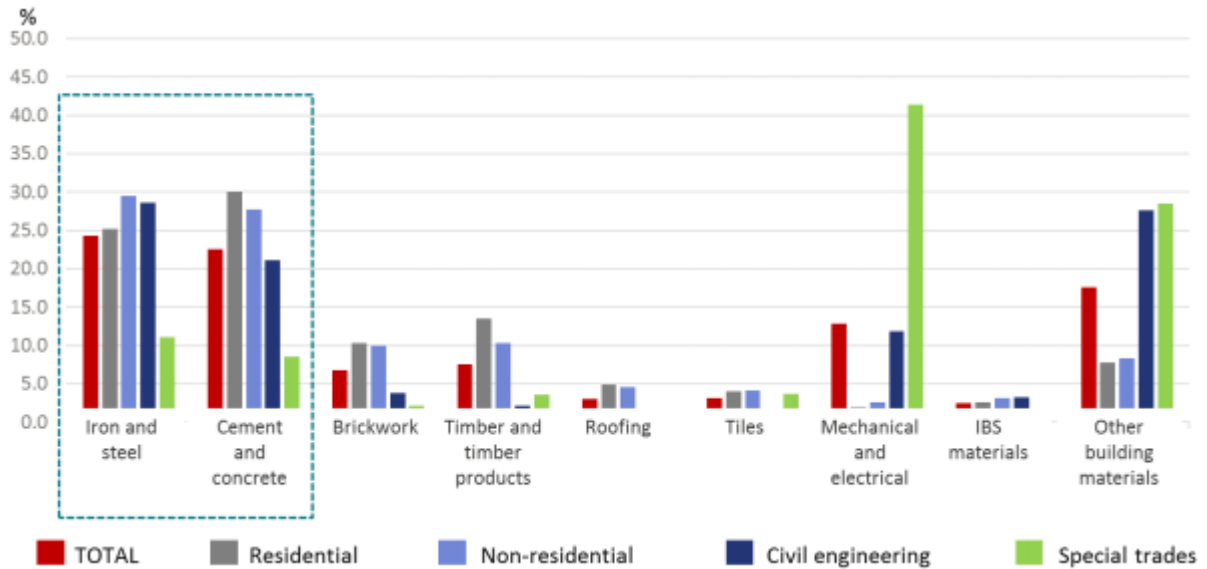
37

Figure 4.3: Total cost of building materials used in construction projects, 2015 (DOSM)
(Source: Department of Statistics Malaysia (DOSM) (Economic Census for Construction,
2016*)*

Referring report *in Market Review of Building Materials in the Construction Industry by*(Consulting, 2017), pricing trends of building materials are analyzed for the period 2015 - February 2017, based on prices gathered by the Construction Industry Development Board (CIDB) and Department of Statistics Malaysia (DOSM).Prices from CIDB are based on the net transaction price between contractors (across different grades in selected states / cities) and suppliers (manufacturers / distributors) under normal credit terms and for bulk purchase. Prices include average discount / rebate and taxes.

This study will cover 4 market review building materials - cement, steel (with a focus on long steel) and ready-mixed concrete, which accounted for close to 60% of the total estimated value of materials used in construction projects. The scope of this review focuses on understanding the market structure, industry players, pricing trends, market concentration /dominance and competition concerns.

4.2.1 Material

4.2.1.1 Cement

Table 4.5: Cement Price from 2010-2018

Materials Type/Years Price	JKR STANDARD				
Type (Unit)	Prices (RM)				
Cement (50kg/bag)	2008-2010	2010-2012	2012-2014	2014-2016	2016-2018
Ordinary Cement	11.08	13.00	14.20	16.00	18.30
Red Cement	87.60	87.60	90.50	107.90	123.50
White Cement	46.93	46.90	51.00	57.80	66.20

(Sources: JKR STANDARD Book)

In the cement industry, the manufacturers have enjoyed continuous growth in demand since 2010. However, supply exceeded demand in 2016 due to overcapacity and contraction in local demand. This led to intense price pressure in 2016. Although improvement has been observed in the second half of 2017, the issues with extra capacity and slow growth in demand are expected to continue for the rest of the year. The figure 4.4 shows the price of Ordinary cement, Red cement and White cement increase every year since 2010.
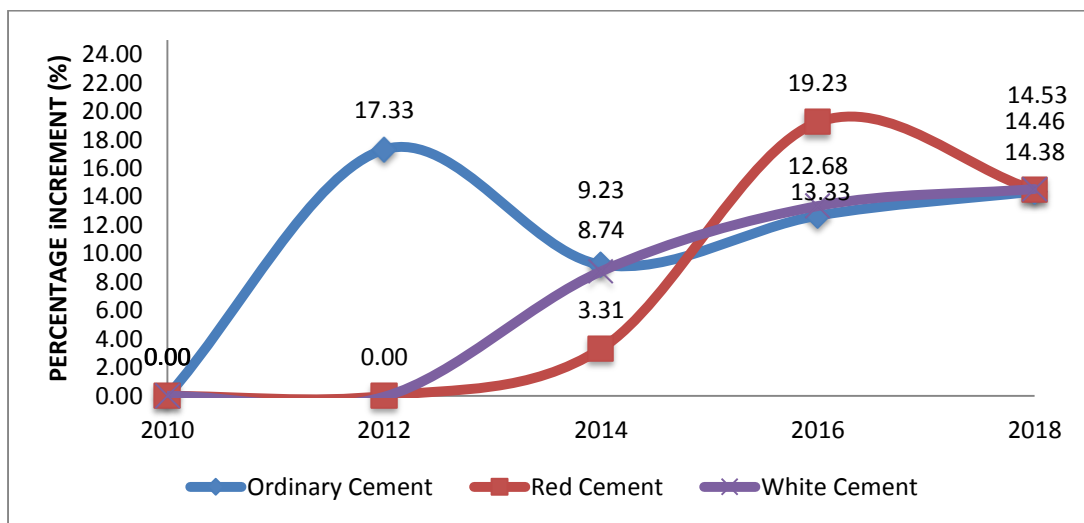

Figure 4.4: Percentage of price increments for cement

4.2.1.2   Steel Reinforcement

Table 4.6: Steel Reinforcement price from 2010-2018

Steel Reinforcement (Tonne)					
High Yield Steel:	2008-2010	2010-2012	2012-2014	2014-2016	2016-2018
10mm diameter	1868.66	2200.00	2310.00	2499.10	2499.10
12mm diameter	1776.43	2200.00	2310.00	2495.60	2495.60
16mm diameter	1701.63	2100.00	2200.00	2361.50	2361.50
20mm diameter	1825.60	2166.00	2235.00	2326.20	2326.20

(Sources: JKR STANDARD Book)

Table 4.6 shows, average market price of round bars (Y10 / Y12 / Y16 / Y20) was RM1,700 and RM2,500 per MT from year 2010 to 2018 in Peninsular and East Malaysia respectively. The main cost components in steel making, excluding capital expenditure, are raw materials which account for up to 70% of total production cost (mainly scrap metal or iron ore) and energy.
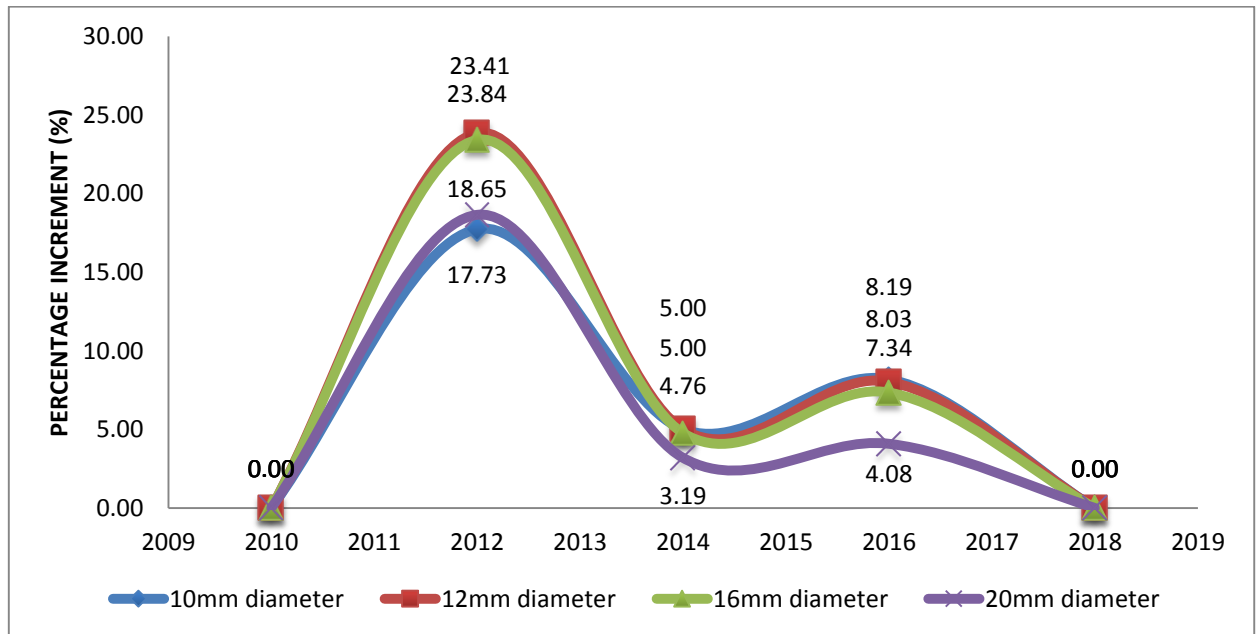

Figure 4.5: Percentage of price increments for steel reinforcement

4.2.1.3 Ready-mix concrete

Table 4.7: Ready-mix price from 2010 to 2018

Ready Mix Concrete (m³)	2008-2010	2010-2012	2012-2014	2014-2016	2016-2018
Grade 15	140.85	144.60	162.50	178.00	203.80
Grade 20	141.83	144.00	160.00	177.40	203.10
Grade 25	149.37	150.10	169.70	184.90	211.70

(Sources: JKR STANDARD Book)

On the other hand, ready-mixed concrete production is much less capital intensive with a lot more players involved. There are an estimated 150 companies with about 10 large companies and approximately 1,000 batching plants in 2017 (CIDB, Malaysia). Some of the large players are owned by companies which are involved in cement manufacturing. Average market price of Grade 15and Grade 20 normal mix was RM140 and RM203 per cubic meter, and for Grade 25 was RM 150 to RM215 from year 2010 to 2018 in Peninsular and East Malaysia respectively. Figure 4.6 shows the price increment of ready-mix concrete grows from year 2010 to 2015 but suddenly bottomed out in year 2016 and grew back on year 2017.
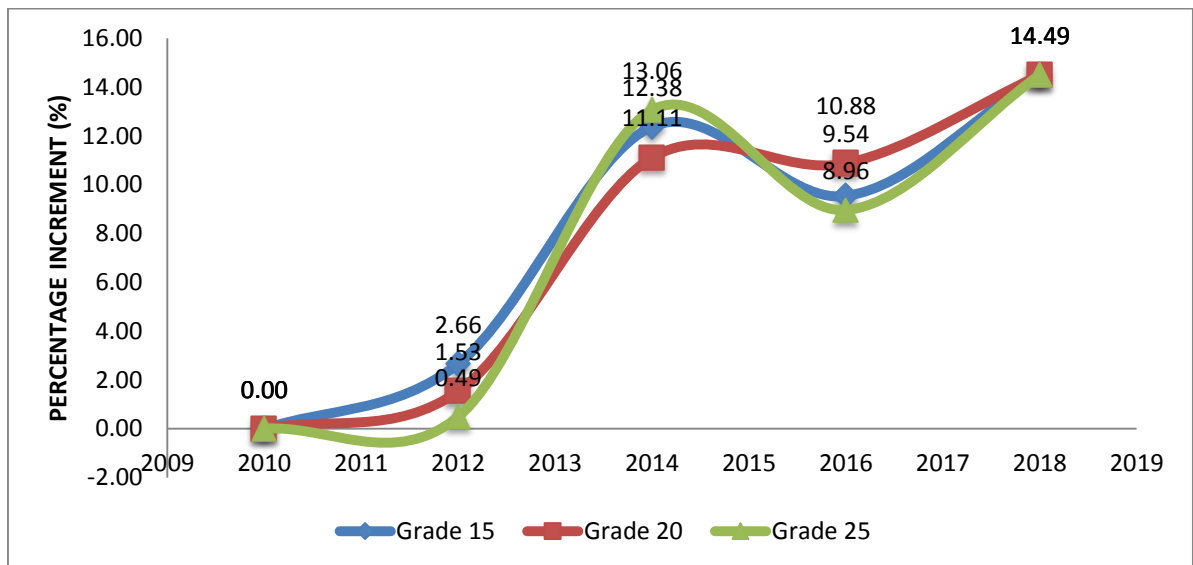

Figure 4.6: Percentage of price increments for ready-mix concrete

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4.2.2 Workforce

The rapid development of the construction sector led to the high demand for the construction workforce. The main challenge for contractors in the building industry is to compete for manpower. The job market demographics show that all sectors are competing for workforce.

According to President of Malaysia Construction Contractor Association, Foo Chek Lee, the construction sector, such as housing and highways, required between 800,000 and 900,000 workers to fill 140 projects being launched nationwide. Then he said, in a project to be carried out, a normal construction worker who was paid RM50 a day before was now raised between RM70 to RM80 a day. While for skilled workers, their salary of RM120 per day was now calculated according to the hour of RM40 per hour. If they work eight hours a day, their salary can reach up to RM320 per day due to lack of manpower.

This section is a discussion of the results of data collection on salary offerings for the field of work provided by the Public Works Department (JKR) in the construction sector. In order to align with the goals of the study, this study is based only on the selected parts of the state for research findings which is Selangor, Johor, Negeri Sembilan and Pahang and each of these states has also been divided into parts.

Table 4.8: Zoning classification for states

Zoning By State	
Zone A	Selangor & Negeri Sembilan
Zone B	Johor
Zone C	Pahang

Table 4.9: Price rate for Tukang Bata in all Zone

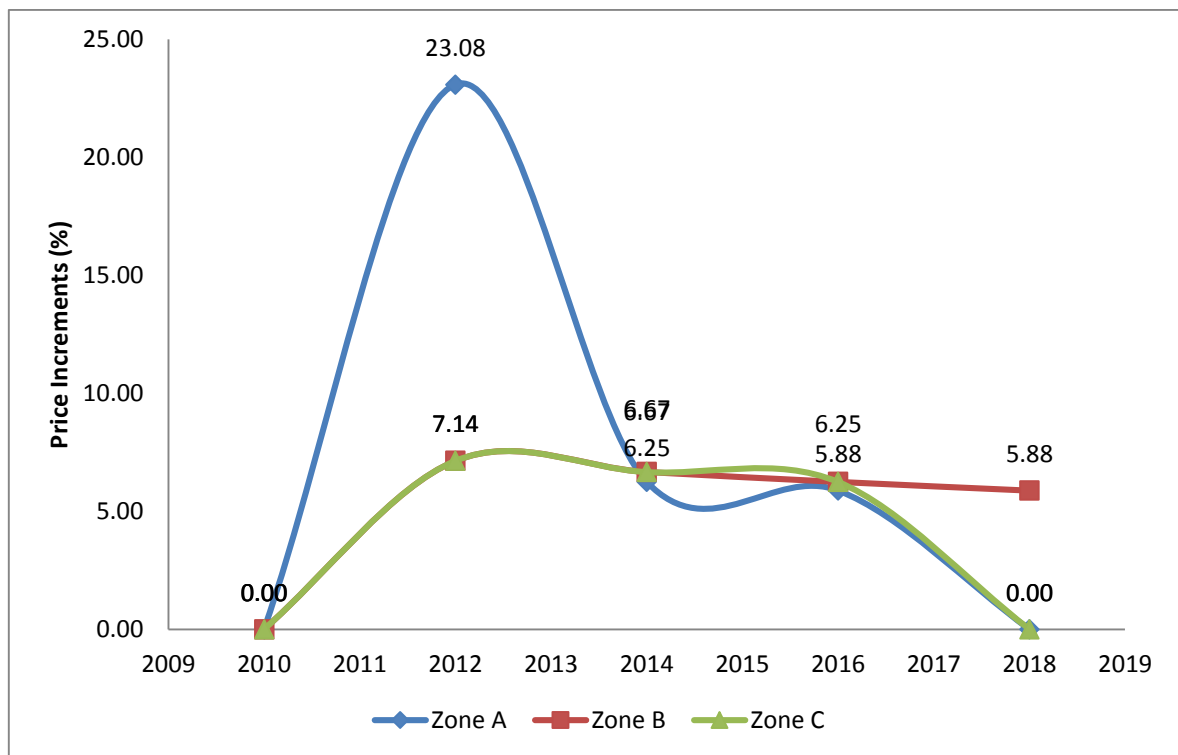| No	Zone	Unit	Labor wage rate				
			Years (RM)				
			2008-2010	2010-2012	2012-2014	2014-2016	2016-2018
a.	Zone A	Day	65.00	80.00	85.00	90.00	90.00
b.	Zone B	Day	70.00	75.00	80.00	85.00	90.00
c.	Zone C	Day	70.00	75.00	80.00	85.00	85.00

Figure 4.7: Price increment from year 2010 to 2018 for Zone A

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Table 4.10: Price rate for Tukang Besi in all Zone

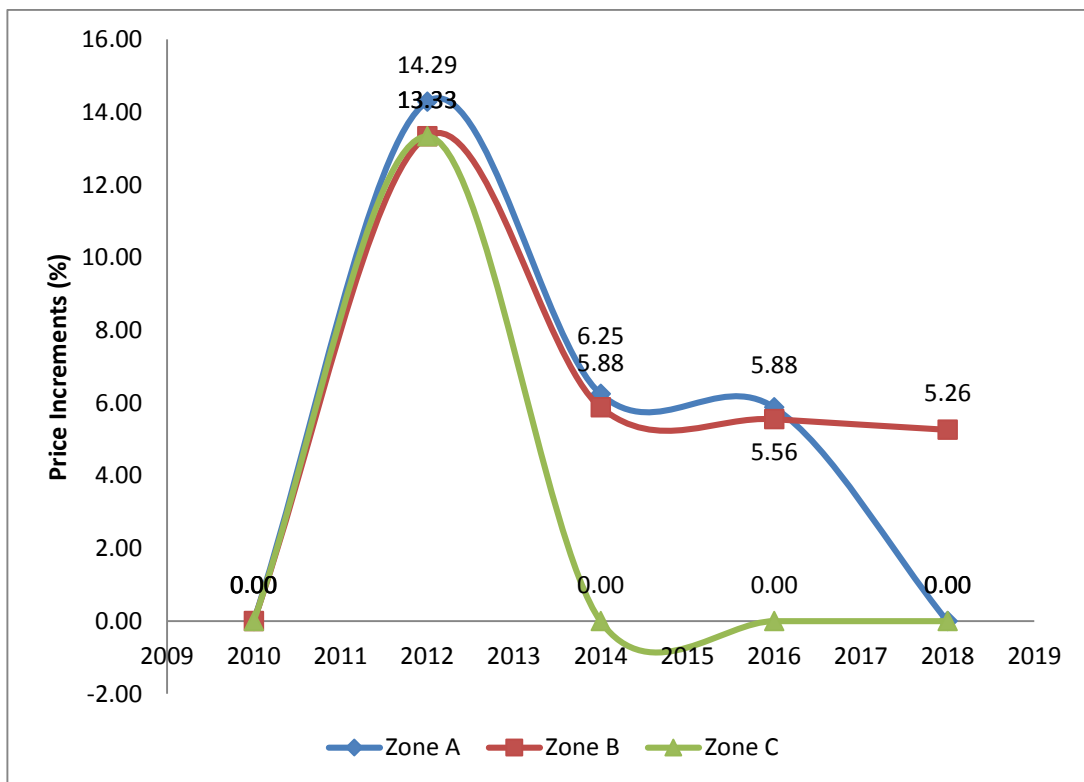| Tukang Besi							
			Labour wage rate				
No	Zone	Unit	Years				
			2008-2010	2010-2012	2012-2014	2014-2016	2016-2018
a.	Zone A	day	70.00	80.00	85.00	90.00	90.00
b.	Zone B	day	75.00	85.00	90.00	95.00	100.00
c.	Zone C	day	75.00	85.00	85.00	85.00	85.00

Figure 4.8: Price increment from year 2010 to 2018 for Zone B

Table 4.11: Price rate for Tukang Konkrit in all Zone

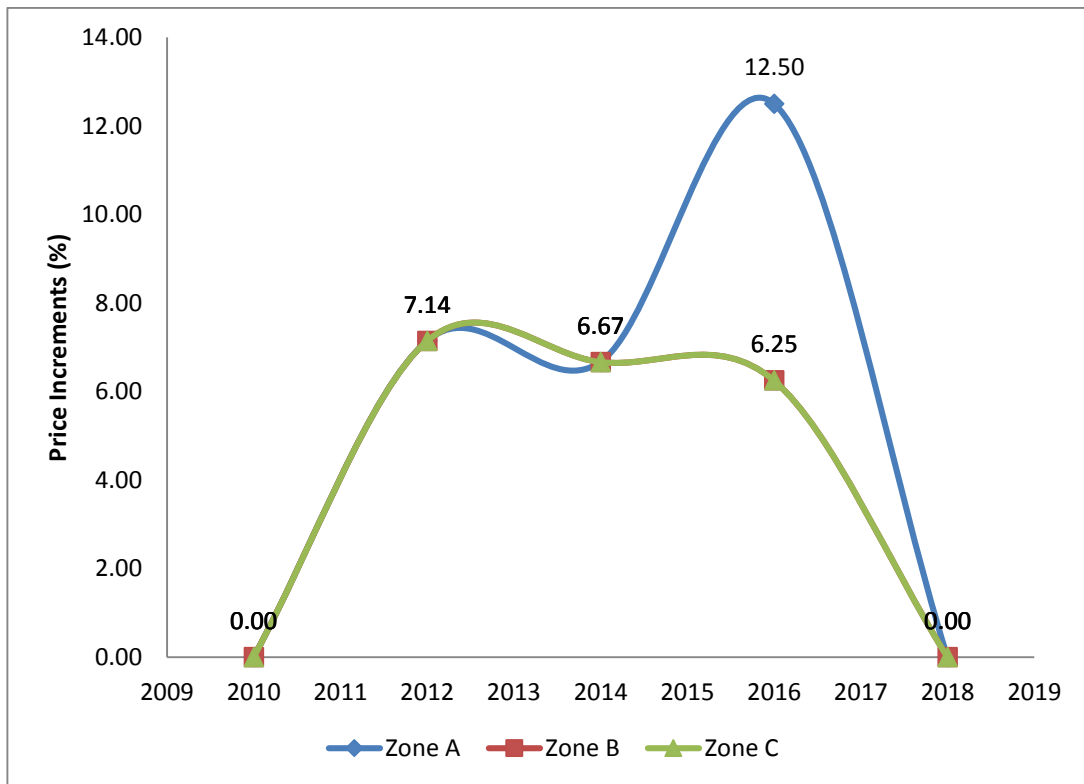| Tukang Konkrit							
			Labour wage rate				
No	Zone	Unit	Years				
			2008-2010	2010-2012	2012-2014	2014-2016	2016-2018
a.	Zone A	day	70.00	75.00	80.00	85.00	85.00
b.	Zone B	day	75.00	85.00	85.00	85.00	85.00
c.	Zone C	day	70.00	75.00	80.00	85.00	85.00

Figure 4.9: Price increment from year 2010 to 2018 for Zone C

Based on the information and data obtained, pricing for the workforce has been divided according to the designated area. For this study, it has been divided into several parts, namely Zone A representing the state of Selangor and state of Negeri Sembilan, Zone B representing state of Johor and Zone C representing state of Pahang.

Table 4.9 shows the rate of work of the *Tukang Bata* for all zones from 2008 to 2018. For Zone B and Zone C, wage rates start at RM 70 compared to Zone A representing Selangor and Negeri Sembilan that start at RM 65. However, in 2010, Zone A showed a high price increase of 23.08% making the price of wages to RM 80 while Zone B and Zone C only increased by 7.14% and made wage price to RM 75.

For the work of *Tukang Besi*, the price rate increase in year 2012 for Zone B and Zone C is at the same value of 13.33% whereas for Zone A is 14.29%. However, in the next 6 years, the Zone C does not indicate any improvement and remains at 0% while for Zone A and Zone B it fluctuates over 6 years. For *Tukang Konkrit* wage prices, the three zones experienced a similar increase in 2012 of 7.14% and by 2014 of 6.7% and decreased over the next 4 years to 6.25% and 0% in 2018.

Based on the graph above, Zone A, Zone B and Zone C shows the rate price of labor work increases every year. By comparing among these three jobs above, the *Tukang Besi* showed a high increase compared to *Tukang Batu* and *Tukang Konkrit* in previous 8 years. As a result, among all the work being studied, *Tukang Besi* shows a high increase each year in terms of price compared to other jobs in all zones.

4.2.3   Transport machinery

Addition in terms of size, power and sophistication of a machine and equipment makes the work productivity more efficient and beyond giving success in completing a project, however, the use of machinery is also closely related to the cost of which it will involve increased cost of machinery ownership and machinery maintenance costs (Marek

Krajnaket al, 2015). The cost of a larger and more powerful machine is usually more expensive than low-powered machines

Construction machinery is a machine designed with moving and being able to do certain work (Edward et al, 2014). Machinery is also the main source used during the construction process, at where it can save time, produce quality work, reduce the use of labor force and thus minimize construction costs (Langford et al, 2014).

Table 4.12: Zoning classification for states

Zoning By State	
Zone A	Selangor & Negeri Sembilan
Zone B	Johor
Zone C	Pahang

Table 4.13: Price rate for Excavator in year 2010 to 2018

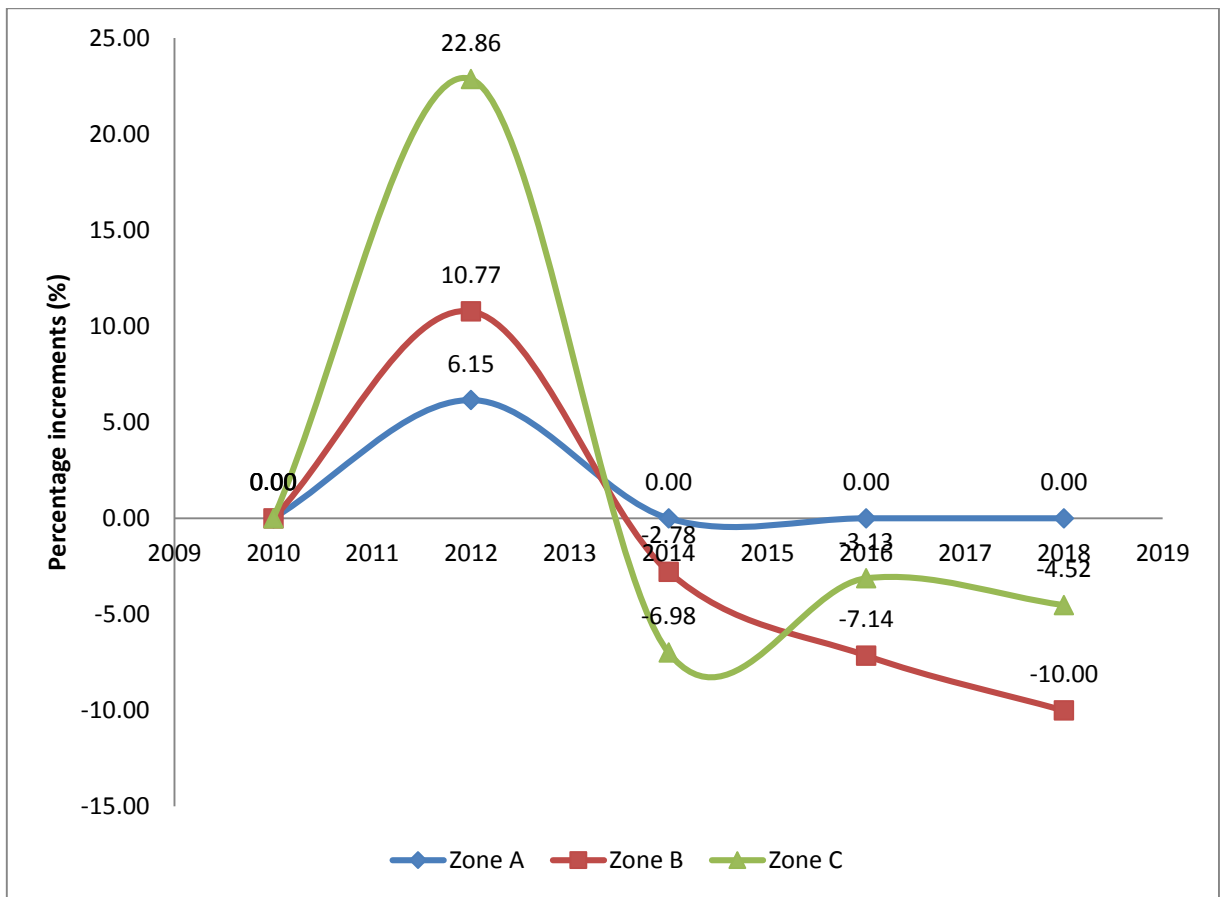| Excavator	Price rate (RM)				
Year	2008-2010	2010-2012	2012-2014	2014-2016	2016-2018
Zone A	650.00	690.00	690.00	690.00	690.00
Zone B	650.00	720.00	700.00	650.00	585.00
Zone C	700.00	860.00	800.00	775.00	740.00

Figure 4.10: Price increment for Excavator in year 2010 to 2018

Table 4.14: Price rate for Lorry 5 tonne in year 2010 to 2018

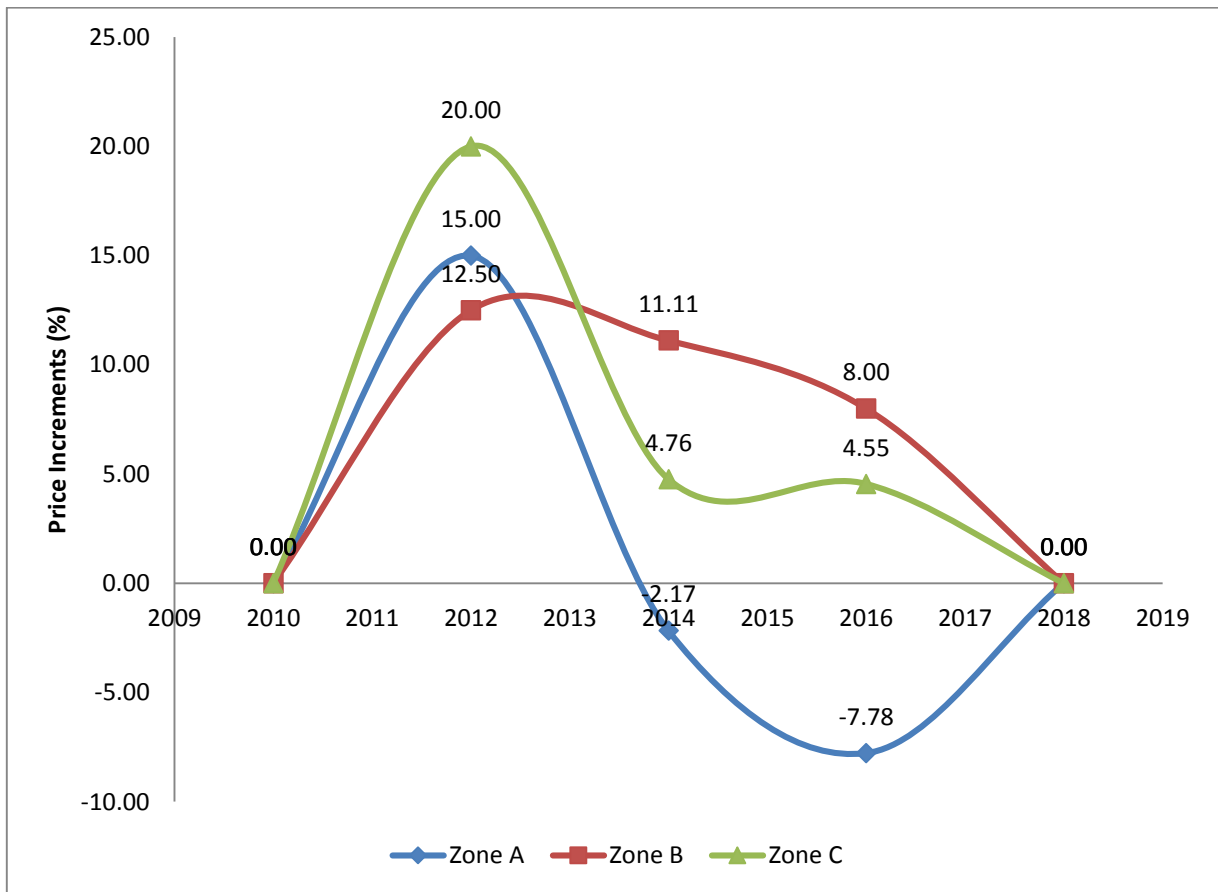| Lorry 5 tonne	Price Rate (RM)				
Year	2008-2010	2010-2012	2012-2014	2014-2A016	2016-2018
Zone A	400.00	460.00	450.00	415.00	415.00
Zone B	400.00	450.00	500.00	540.00	540.00
Zone C	350.00	420.00	440.00	460.00	460.00

Figure 4.11: Price increment for Lorry 5 tonne in year 2010 to 2018

Table 4.15: Price rate for Concrete Mixer in year 2010 to 2018

Concrete Mixer	Price Rate (RM)				
Year	2008-2010	2010-2012	2012-2014	2014-2016	2016-2018
Zone A	200.00	230.00	230.00	230.00	205.00
Zone B	230.00	270.00	270.00	270.00	295.00
Zone C	150.00	85.00	95.00	105.00	165.00

Figure 4.12: Price increment for Concrete Mixer in year 2010 to 2018

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Usually rent rates include machinery, drivers and oils. Based on the table above, the current rate ranges for excavator in Zone A, Zone B and Zone C in year 2010 from RM 650.00 to RM 700.00However, in 2012, the price increase in Zone C rose sharply by 22.86% (RM 860) followed by Zone B with 10.77% (RM 720) and Zone A 6.15% (RM 690) per day. However, in 2014 the price dropped by -6.98% to make the excavator rental price to RM800 a day. The decrease in rental price was also followed in the Zone B with a decrease of -2.78%. At Zone A, no increase has occurred during the next 6 years and maintains a rental price of RM 690 perday. the percentage increase in price has fluctuated over the next 4 years in Zone B and Zone C.

For materials such as soil, concrete, cement, brick, timber and etc. are transported and transplanted from inside and outside the site using machinery such as lorries 5 tonne. In 2012, the three zones showed an increase in prices by 20% in Zone C, 15% in Zone A and 12.30% in Zone B and make the rental price for 5 tonnelorries at RM 420 to RM460 per day. In the next 6 years, the rental price decreased until 2018, all zones were at the same rate of 0 percent without improvement.

4.3 Relationship between construction cost and numbers of abandoned project

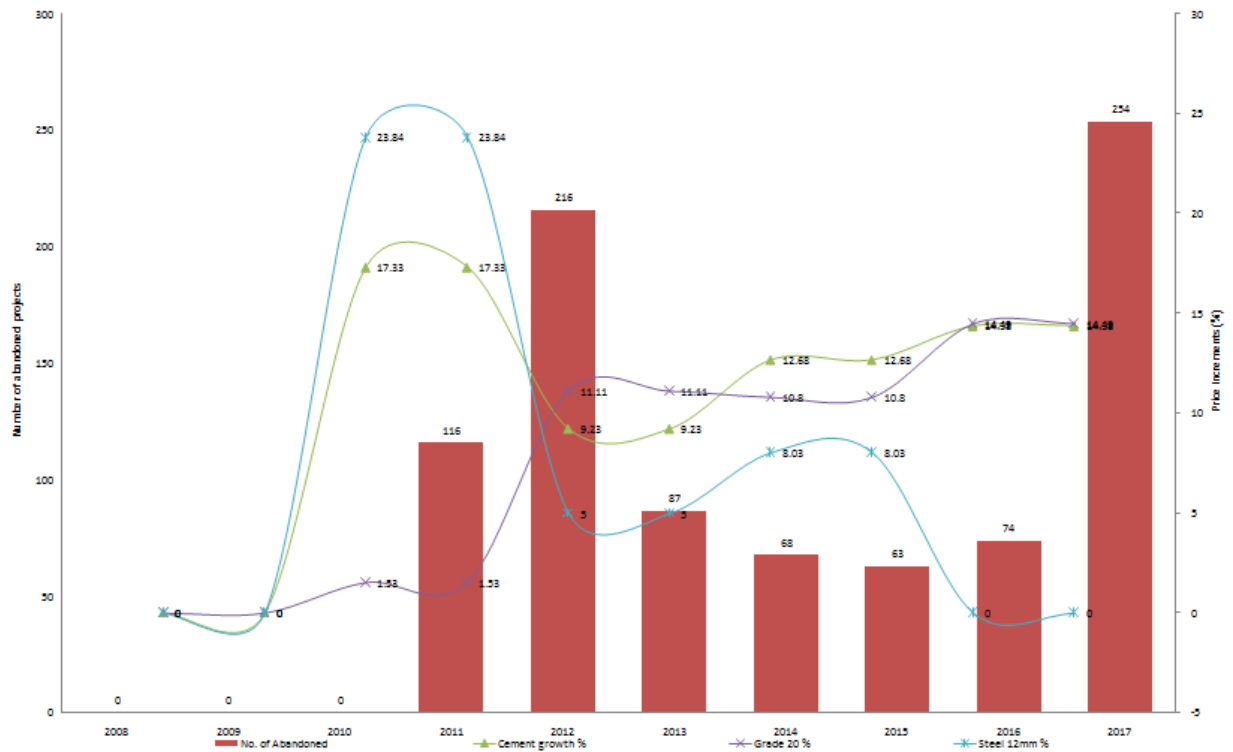### 4.3.1 Materials over number of abandoned project

Figure 4.13: Number of abandoned project over Price increments of Materials

Based on the figure 4.13, over the last 10 years the study found that material prices showed an increase in prices each year. This fluctuation graph occurs because of several factors such as high demand rate of materials that aligned with the increases in the number of approved projects and also the rate of imposition of GST tax on raw construction material. GST tax imposed on goods of 6% starting on April 1, 2015 has slightly affected the prices of goods in the construction industry. For example, ordinary cement price in year 2012-2014 (before GST implementation) cost RM14.20 per bag and has increased to RM16.00 per bag in year 2015-2016 and continuous increase with 14.3% percent (RM 18.30) per unit bag from the following year. This situation also take place for all types of construction materials.

Breen 2002, Burgess,1998 and Daliae,1999) reported that Building material costs are the major components in construction development costs while GST implementation

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has been identified to have inflated the construction material prices within a year of implementation. Besides, Abukar in *Supplier structure and Housing construction cost* said that, building material costs are the major components in construction development costs while GST implementation has been identified to have inflated the construction material prices within a year of implementation. Findings as shows such as aggregates, brick, cement, sand, general labour. bar bender, concrete mixer and mobile crane indicate that all building materials and machinery set the highest cost increase after GST implementation is not surprising as prior to GST implementation only second schedule materials were being charged 5% of sales and service tax (SST). Therefore, higher construction cost might lead to the higher property prices.

By referring both obtained results, it was found that the implementation of the GST on the price of construction goods greatly affected the rise in construction costs. If it might report as hypothesis, "the higher the price of the material, the higher the cost of building cost". Therefore, it can lead to the abandonment of abandoned housing projects. As conclusion, the increase in the prices of goods with the implementation of GST in year 2015, affects the growth rate of the abandoned housing projects in year 2015 to 2017 with 191 projects.

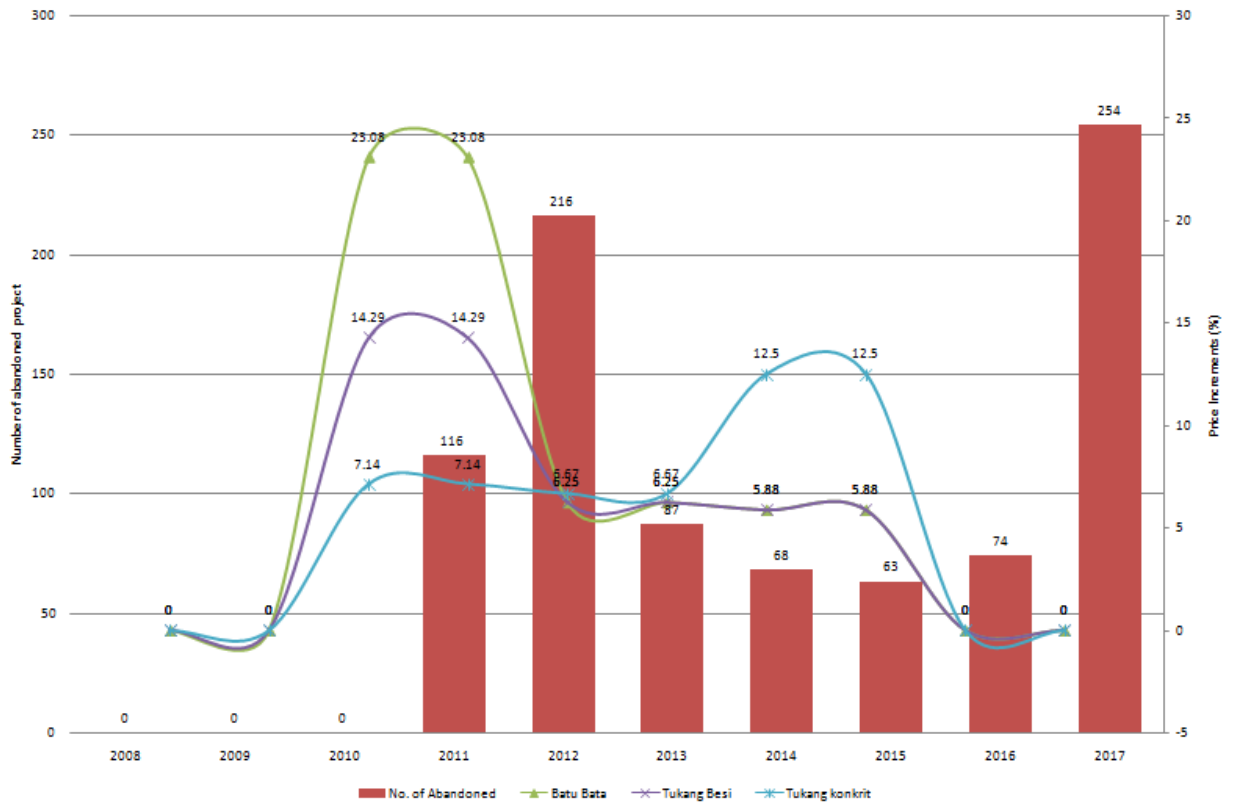## 4.3.2   Workforce over number of abandoned project

Figure 4.14: Number of abandoned project over Price increments of Workforce

Based on figure 4.14, the price for labor wages does not show a high increase every year. Started in year 2012, all wage costs deficits despite the number of abandoned house rising to 216 projects. In the following year, the price for the three workforce shows a reduction until in year 2016, there is no price increase.

As a result of the growth of the local construction industry, the construction sector requires a lot of workforce. The rapid development of the construction sector has led to high demand to the workforce. These high requirements cannot be met by local labor force and ultimately lead to high demand for foreign workforce. As a result, there is an outrageous dependency syndrome to foreign workers, as if the country was a desperate local manpower trained. According to Ling (2005) said that comfortable environment such as working in air condition, proper or tidy attire and in working place make most of the local manpower more desire to work in. Local citizen more prefers to working in office

jobs where they were offered them white-collar jobs and the images is more tidy. Moreover, that, employed in environment involve of construction field is very actual poor. Less in security, shortage of job development, lack in management system and it will make these all will be the reason by local labour in to refuse to working in construction field.

Besides, according to Zehadul (1999), low wages and high risk jobs in construction field is among of the reasons why local manpower tries to escape involving in construction industry. In manufacturing field, payment for those who work in that sector is higher than payment for manpower in construction field is relatively lower than that. In encourage more foreign labour to join in the company, the companies are purposely in to turnover of local workforce when they to keep the salary in low level to allow higher turnover of local. Maintain a relatively low wages can avoid the participation of local labour where foreign labour was significantly in their uncontrolled presence.

However, this problem does not adversely affect the wage rate of the labor force. Although wage rates are decline, but the number of abandoned housing projects steadily increasing year by year. As the result, the initial statement is contrary to the data obtained. Then it can be concluded, the rate of increase for the workforce is not significantly affect the numbers of abandoned housing project

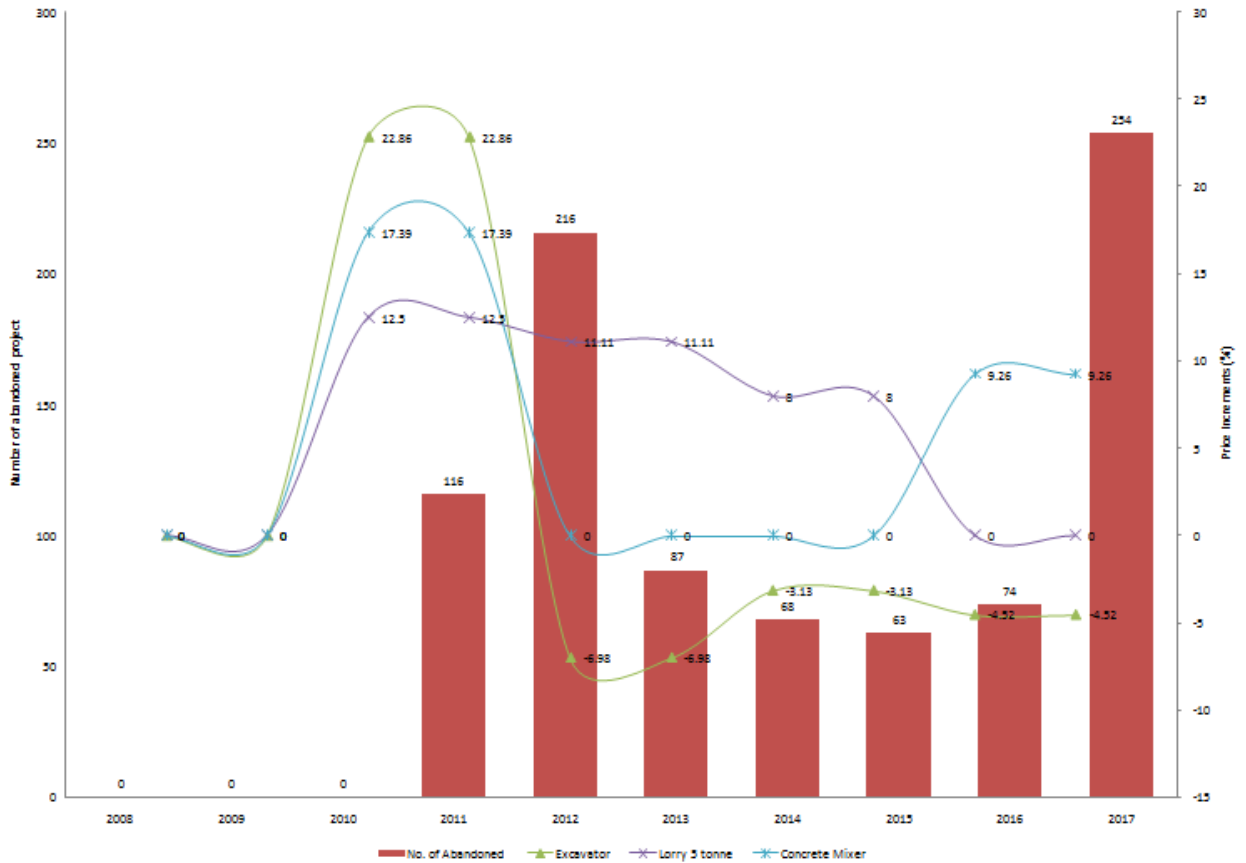### 4.3.3 Transport machinery over number of abandoned project

Figure 4.15: Number of abandoned project over Price increments of Transport machinery

Based on figure 4.15 above, the rise in rental prices for all equipment increased by 12.5% for Lorry 5 tonne, 17.89% for concrete mixer and 22.86% for excavator in 2010. However, in 2012, the excavator rental price has shown a sharp decline to -6.98% makes the rental price from RM 860 to RM800 per day. However, the price for the concrete mixer does not increase compared to the previous year. Furthermore, for the price of the concrete mixer rental, the total increase in 2012 was 12.5% making the rental price increase from RM 450 to RM 500 per day. For the following year, the rental price for lorry 5 tonne and concrete mixer shows an increase in prices until 2017 and the excavator rental price continues to show a yearly turnover so that the rental price in 2017 is RM540 per day.

The rising prices of essential materials that burden the community, there has been an impact on other price increases as it involves this fuel source. Among of them is the

housing construction industry which has a high impact on increases in oil prices. For example, machinery equipment should be transported from place of production to construction site. The increase in oil costs and transportation costs will certainly be transferred to the contractor by raising the price of the final goods transported. One of the ways to overcome this problem is by maintaining a regular machine. Purchase of machinery equipment requires considerable startup capital in addition to effective use planning. Such investments if taken into account in detail can contribute to speeding up the process build and save time and reduce labor costs. If the purchase of machinery equipment burdens the financial position of the contractor, the lease or purchase of the used equipment may be undertaken through a company which provides rental equipment on a contractual basis, daily rental or an agreed period of time.

4.4   Summary of the chapter

The change in prices of construction costs affects the smoothness of constructing the project. The first objective of this study is to study about the trend of abandoned project in Malaysia. The findings reveal that the number of abandoned housing projects that are abandoned and new abandoned projects show an increase each year from 2010 to 2018. Besides that abandoned housing projects that have been completed from 2010 to 2018 do not show a significant increase.

For second and third objective is to study the effect of rising prices of goods, labor wages and transportation machinery prices on the construction industry towards the relationship in the number of abandoned housing projects. From the results of this study, the rise in raw material prices for construction work affects construction project. It can begin with failure to complete the work within estimated period until the full failure of the project to be carried out causing the project to be abandoned.

As a conclusion, if it is to be made in the form of percentages for comparison between this three categories, then it can be made that the cost of the raw material price is

ranked 65%, the transportation cost is 15% and the labor cost is 10% effect the abandoned of housing project growth.
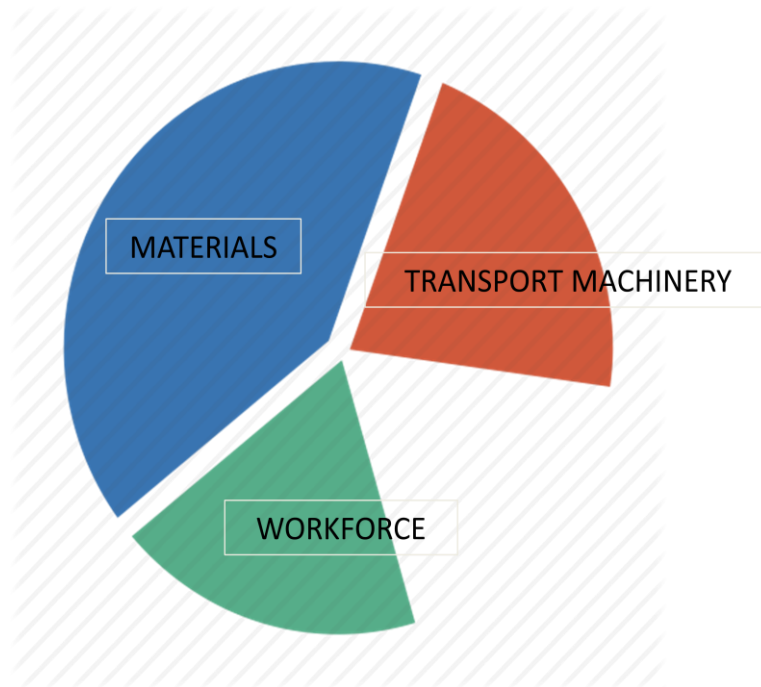

Table 4.16 Classification for cost construction

TYPE	PERCENTAGE
MATERIALS	65%
TRANSPORT MACHINERY	25%
WORKFORCE	10%

Chapter 5

Conclusion

This proposal is focusing on highlight the causes and impacts of construction cost growth towards the abandoned housing projects. For this purpose, the study will look into how the extent of the impact of rising raw material prices, labor wage prices and transport machinery prices especially in Malaysia towards the growth of number in abandoned housing project. The authorities involve was Jabatan Kerja Raya (JKR) that focused in price of materials goods, Kementerian Perumahan dan Kerajaan Tempatan (KPKT) that concentrated on numbers of abandoned project yearly.

The first objective is to study trends in abandoned housing projects in Malaysia. what can be proved here is the number of abandoned housing increases showing an increase each year throughout the study.

The second objective is to investigate the impact of the rising cost of construction costs in the construction industry. The findings from the Jabatan Kerja Raya (JKR) show that the cost of construction shows an increase in prices each year. Finally, data comparisons are made to determine the cost of materials, labor cost and transport machinery, which sectors clearly affect the cost of construction.

The last objective is to study the relationship between material prices and the number of abandoned housing projects. After the study, it can be determined that the cost of materials shows consistently increasing annually as compared to other costs. Then it can be concluded, the rise in the price of goods affects the total number of abandoned projects.

REFERENCES

1) Abdul-Aziz, A.R. and Kassim, J.P.S. (2011), Objectives, success and failure factors of housing public-private partnerships in Malaysia. Habitat International, 35 (1), 150-157.

2) Dahlan, N.H.M. (2011b). Rehabilitation of abandoned housing projects: A comparative analysis between the law and practice in Peninsular Malaysia and the Republic of Singapore. Commonwealth Law Bulletin, 37 (1), 145-173.

3) Abandoned housing projects in malaysia: risk management capabilities during rehabilitation   Hamzah Abdul-Rahman,1 Ali M. Alashwal2*Abdul Aziz Abdullah

4) Market review of building materials in the construction industry, Malaysia Copmetition Commission (MyCC), Ipsos Business Consulting

5) Manpower needs in construction (foreign labour issues) (2007), Razlina binti Mohamed

6) Cabaran-cabaran di sektor binaan dalam menyediakan tenaga kerja mahirtempatan – satu sorotan penulisan (2006), Zakaria mohd yusof, Dr. Yahya buntat, Dr. Mohamed Shariff mustaffa, Prof. Dr. Muhammad rashid hj. Rajuddin

7) Factors Affecting the Demand of Affordable Housing among the Middle-Income Groups in Klang Valley Malaysia, Nurshuhada Zainon*, Faizul Azli Mohd-Rahim, Syazwani Sulaiman, Saipol Bari Abd-Karim, Atikah Hamzah.

8) Causes of abandoned construction projects in Malaysia (2013) Yap Eng Hoe

9) Khalid, M.S. (2010), Abandoned Housing Development: The Malaysian Experiance. PhD, Heriot-Watt University. MHLG. (2012). Abandoned Housing Projects Retrieved 28 July, 2012, from http://www.kpkt.gov.my/kpkt/

10) PEMUDAH. (2011). PEMUDAH 2011 Annual Report on Abandoned Housing Projects in Malaysia. Law wordpress.com. Retrieved from http://nuarrualhilal.wordpress.com/2012/03/01/pemudah-2011-annual-report-on-abandoned-housingprojects-in-malaysia/

11) Jabatan Kerja Raya (2010), Jadual Kadar harga Kerja-kerja Kecil dan Pembaikan 2010. Retrieved: https://www.jkr.gov.my/my/page/jadual-kadar-harga-2010

12) Jabatan Kerja Raya (2012), Jadual Kadar harga Kerja-kerja Kecil dan Pembaikan 2012. Retrieved: https://www.jkr.gov.my/my/page/jadual-kadar-harga-2012

13) Jabatan Kerja Raya (2014), Jadual Kadar harga Kerja-kerja Kecil dan Pembaikan 2014. Retrieved: https://www.jkr.gov.my/my/page/jadual-kadar-harga-2014

14) Jabatan Kerja Raya (2016), Jadual Kadar harga Kerja-kerja Kecil dan Pembaikan 2016. Retrieved: https://www.jkr.gov.my/my/page/jadual kadar-harga-2016

15) Jabatan Perumahan Negara (2010), Laporan Perangkaan Perumahan 2010. Retrieved:http://ehome.kpkt.gov.my/resources/index/fileupload/ LAPORANPERANGKAANTAHUNAN

16) Jabatan Perumahan Negara (2012), Laporan Perangkaan Perumahan 2012.

APPENDICES