

The Study on Cause and Effect of Abandoned Housing Project in Selangor

N F Ariffin^{1,*}, M F Md Jaafar¹, M I Ali¹, N I Ramli¹, K Muthusamy¹, S Wan Ahmad¹, N H Abdul Shukor Lim², N H Abd Khalid²

¹Faculty of Civil Engineering & Earth Resources, Universiti Malaysia Pahang, Pahang, Malaysia

²Faculty of Civil Engineering, Universiti Teknologi Malaysia, Johor, Malaysia

farhayu@ump.edu.my, faizaljaafar@ump.edu.my, idrisali@ump.edu.my,
noram@ump.edu.my, khairunisa@ump.edu.my, saffuan@ump.edu.my,
norhasanah@utm.my

Abstract. Construction industry is one of the most dynamic, risky, and challenging industries not only in Malaysia but other countries too. The main issues facing by the construction industry is abandoned building project. The issue of abandoned building had happened across the globe and brings negative impact to the nation and country. In Malaysia, the magnitude of this issue has grown to an unbearable state. According to the Sales and Purchase agreement, abandoned building is a construction work in a project site that has been continuously stalled for 6 months or more, whether during the project completion period or beyond the scheduled date of completion. When the projects of the building become abandoned, it gives an adverse effect such as downfall of economic growth. Besides, it will cause a serious problem of sustainability especially a waste of natural resources/material used for the construction. In order to prevent this problem, some mitigation plan is needed. This study was conducted to study the cause, effect and economic analysis on abandoned project. There is a need for broader discussions on its implications to the society and nation. The questionnaire survey was conducted and distributed to most civil engineers around Malaysia. The results was analysed using average index methods and likert scale. The result shows that there are many factors that contribute to the abandoned building project which mostly comes from the developer management itself. The loss of money when the project is abandoned is unneglectable. A mitigation plan need to be done in order to revive the abandoned project therefore, it will help in growth of economy in Malaysia.

1. Introduction

The abandonment rate of properties is as shocking as the unceasing event happen in a developing state. Therefore, the significance that this never-ending building abandonment will leads to several effects of on market price and values of the properties. Abandoned building is defines as construction work that has been continuously stalled for 6 months or more, during the project completion period or beyond the scheduled date of completion. Abandoned housing projects can bring both socio-economic and environmental impact to the country. Those socio-economic impacts include job loss, area loss,

population separation, and cost transfer between the private and public sectors, and the nature of the environment including visual effects, landscaping, erosion, loss of biodiversity, and pollution. The risks of abandoned building need to be identified as early as possible to minimize and reduce potential losses of the properties. However, a common reason for that is due to unforeseen factors resulting from the initial forecasting of project costs by housing project developers during the planning stage. In Malaysia, the construction industry has been criticized for delays in its project, increased cost, low productivity, unsafe site conditions, and poor quality. It also emphasizes that internal management problems create a negative impact resulting in abandoned housing projects, and therefore effective risk management is needed in implementing any construction activities to monitor risks and develop strategies to mitigate those effects. Besides, some developer had struggled with financial problems that led to many problems related to abandon projects. Therefore, this study aims to identify causes associated with abandoned housing projects and to recommend the best solution to this. Besides, the effects of abandoned building towards economy and society also will be identified.

2. Literature Review

In general, several projects in Malaysia failed to be completed according to its allocated time. The industry itself has a very poor reputation in managing risks at site that leads to abandonment and failure of a project. An abandoned project must and will be announced as abandoned by '*Jabatan Perumahan Negara (JPN)*'. From the data collected by JPN, the statistic will be given out to keep track on the percentage of an abandonment of housing project. A construction project involves many parties on both side of the supply chain. The abandonment of one project has negative financial effect on many [1]. Abandonment of construction projects is considered one of the most major problems in Malaysia construction industry according to the number and value of the projects involved. An abandonment will affect not only the immediate purchasers but also the other project player and the general public. Reviving abandoned projects involves expending public fund sometimes. Many researches have been done to scarce on the issue; to investigate the complications, research was conducted. In Malaysia, the construction industry has been criticized for its project delays, increasing costs, low productivity, unsafe site conditions, and poor quality. It has also been highlighted that internal management problems create negative impacts which result in abandoned housing projects, and, thus, effective risk management is required in implementing any construction activities to monitor the risks and develop the strategies to mitigate the impacts [2]. The construction sector, in Malaysia, has struggled with financial difficulties which have led to many problems associated with abandoned housing projects. Housing industry is one of the most dynamic, risky, and challenging businesses which contributes to the domestic wealth. More importantly, housing industry has been a major contributor to the Malaysian economy and, ultimately, it has a multiplier effect on other industries which support housing industry.

The construction industry in Malaysia has a poor reputation for managing risks, with many major projects that failed to be completed within the specified time frames of the project. Abandoned housing projects are not unique to Malaysia as it is considered as a major problem in construction industry in many other countries including US, Spain, Russia, Dubai, and Kuwait. However, the problems associated with abandoned housing projects in Malaysia have been plaguing long enough at a scale that deserves a great attention. It was reported by JPN that between 1990 and 2005, there were total of 261 abandoned housing projects in Malaysia involving 88,410 houses. State of Selangor, in particular, had the most number of abandoned projects, whereby 63 projects involving 32,987 houses affected 22,480 buyers. Even though the number has been gradually decreased, it was reported that, in 2010, there were still over 45,339 units of abandoned houses which would require RM3 to RM5 billion for the projects to be completed.

Every construction project might face some major risks, including costs overrun, schedule delay, unsafe working environment, and low quality of product. As a result, the problems associated with abandoned housing projects can pose serious problems to the government (national, state, and local government), bankers, purchasers, and developers. Although the government of Malaysia has intervened in an attempt to overcome the problems associated with abandoned housing project through rehabilitation programme for those projects having the potential to be revived, as well as a few

regulatory actions for preventing future abandoned housing projects, the issues related to abandoned housing projects are still unresolved. Therefore, this study aims to identify the risks pertaining to abandoned housing projects and to recommend mitigation strategies. Based on the previous research, the definition of abandoned residential properties is a building whose occupant has moved out due to poor maintenance and infrastructure, security, dilapidation, natural disaster which made has made the building not to be suitable to be habitable. Act of isolating a building or stopping activities or maintenance works during the development of a project within the period of agreed contract agreement and has no intention of coming back to continue constructing is the definition of the abandonment developed project [3].

3. Methodology

In order to identify the numbers of abandoned housing projects, the data will be collected from JPN, previous research papers, newspapers, statistical data and local authorities. This data then were tabulated to observe the pattern from year to year. General causes and effects of building abandonment were analysed by conducting a questionnaire with the respondents are from developer, civil engineers, architects, builders, contractors and others public workers. The questionnaires were distributed evenly to the expertise and were analysed by using the Relative Importance Index (R.I.I.) technique based on the work of [4]. In this study, the questionnaire was divided into four Sections, where section A is meant for the respondent background identification while in Section B, the question asked about the knowledge of the respondent regarding abandoned building project. Meanwhile, in Section C, the question discussed factor and cause of the building abandonment. The last section which is Section D is a suggested solution from the respondent to solve the abandoned building project issue. The data obtain from the questionnaire was analysed using the average index method and the multiple choice question is made based on Likert's Scale for five ordinal measure of the agreement. The Relative Importance Index, (RII) is as Equation 1;

$$R.I.I. = [(5n_5 + 4n_4 + 3n_3 + 2n_2 + n_1) / 5N] \quad (1)$$

Where;

n_5 = Strongly Agree (SA); n_4 = Agree (A); n_3 = Unsure (US); n_2 = Disagree (DA); n_1 = Strongly Disagree (SDA); and n = number of respondents.

4. Results and Discussions

The use of sections to divide the text of the paper is optional and left as a decision for the author. Where the author wishes to divide the paper into sections the formatting shown in table 2 should be used.

Table 1. Statistical data abandoned housing project in Selangor

City	No of Abandoned Project
Shah Alam	10
Petaling Jaya	3
Klang	30
Subang Jaya	3
Kajang	12
Selayang	9
Ampang Jaya	4
Sepang	7
Kuala Selangor	8
Hulu Selangor	14
Kuala Langat	13
Total	113

Table 1 shows that the number of abandoned project in all city in Selangor. The data had been recorded by Selangor Housing and Property Board located in Selangor, Malaysia. The table shows that Klang city has the highest number of abandoned project which is 30 out of 113 housing had been recorded. The reason Klang had recorded highest number of abandoned housing project is due to the population at Klang state is around 229 665 people compare to the other city. Hence, more houses are developed in this area. When too many projects are builds in Klang the tendency of project to become abandoned is higher because it will resulted in excessive development in one area.

The negative impact of abandoned project can be towards society and environment includes abandoned site area and pollution [5]. It also will negatively affect the water resources, forest, wildlife and nearby residents. As in a case in Thailand, a conflict had been occurred between non-cooperation with local residents because of the compensation payment [5].

4.1 Cause of abandoned housing project

There are several factors that cause the project to abandon. Based on the questionnaire survey, the data had been plotted and present in this section.

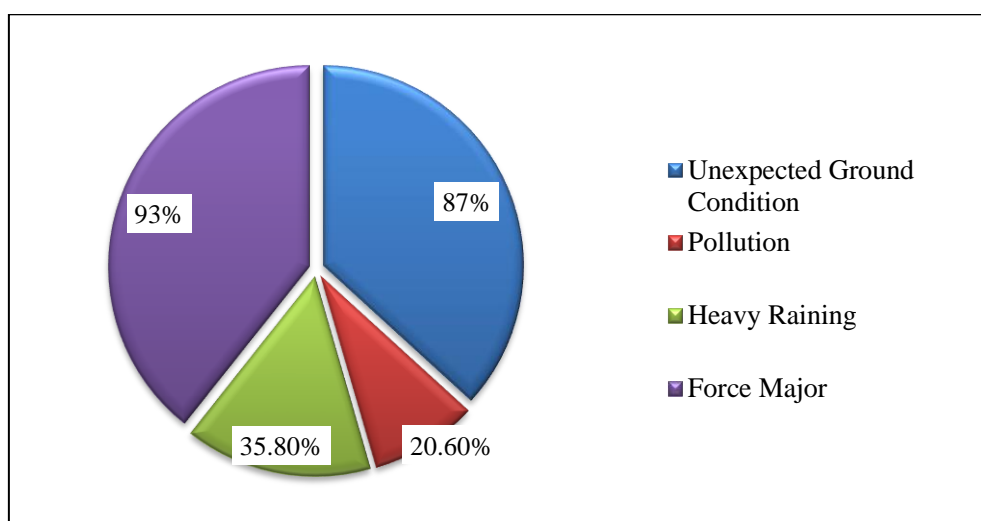


Fig.1. Average index of environmental impact of abandoned building in Selangor

Figure 1 shows that force major, such as earthquake, floods and storm has the highest mean that is 3.71. The respondent has agreed the force major has a highest probability contributes to the abandoned project and unexpected ground condition is the second higher probability may lead to abandoned project. This is because natural disaster is unpredictable and this statement is supported by previous study from [2]. Bad weather and unforeseen ground condition are among factors that cause schedule delay. When this happen at the construction sites the effects is very high such as destruction of the houses and the contractor need to start the new one with new cost.

Environmental impact is unpredictable and it is very risky when it happens at the construction. For example, limestone areas are characterized by some of the most difficult ground conditions in Malaysia, namely weak soils overlying limestone bedrock with karstic features such as pinnacles, solution channels, cavities and overhangs, posing difficulties both during design and construction of foundations [6]. Hence good precautions and inspection at the site location must be increased frequently to monitor the process to avoid any problems that can lead to the abandoned housing project.

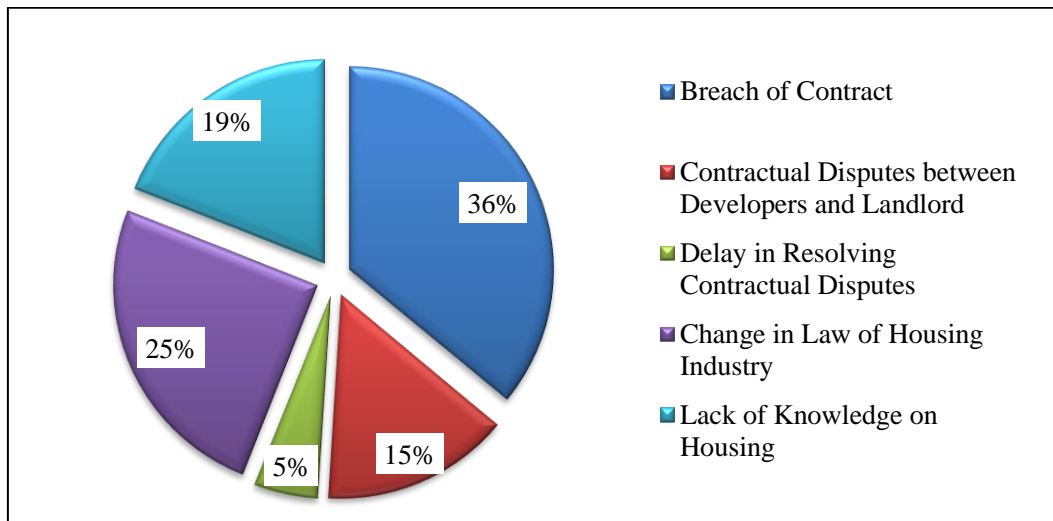


Fig. 2. Average index of law

Based on figure 4.4 the respondent has agreed lack of knowledge on housing project industry law by the developer and breach of contract has a higher probability compare to the other factors. This factor contributed greatly towards management issue mentioned. This result also supported by previous studies conducted. Inappropriate project planning and scheduling can result in high frequency of schedule adjustments [7]. This can contributes to delay in project or abandoned housing project may happen.

Lack of knowledge on housing industry law by the client or developer can causes the breach of contract. Inappropriate contract arrangements will contribute to disputes in international projects. Inappropriate risk allocation among project team members means risk is not shared proportionately to every each team member [8]. When problems arise, they usually affect the one who assumed too much risk. When the one is unable to absolve the impacts of the risk, the resultant liquidation may potentially lead to delay, cost overrun or even abandonment of project.

Poor contract administration also includes lack of appropriate dispute resolution method which means either no dispute resolution mechanism is integrated in contract [6], or that the method used is inappropriate. This will resulted in delays and disputes in a construction project which might eventually render a project to be abandoned. It is very important to understanding the law in housing industry by developer to avoid any problems that can contributes to the abandoned project.

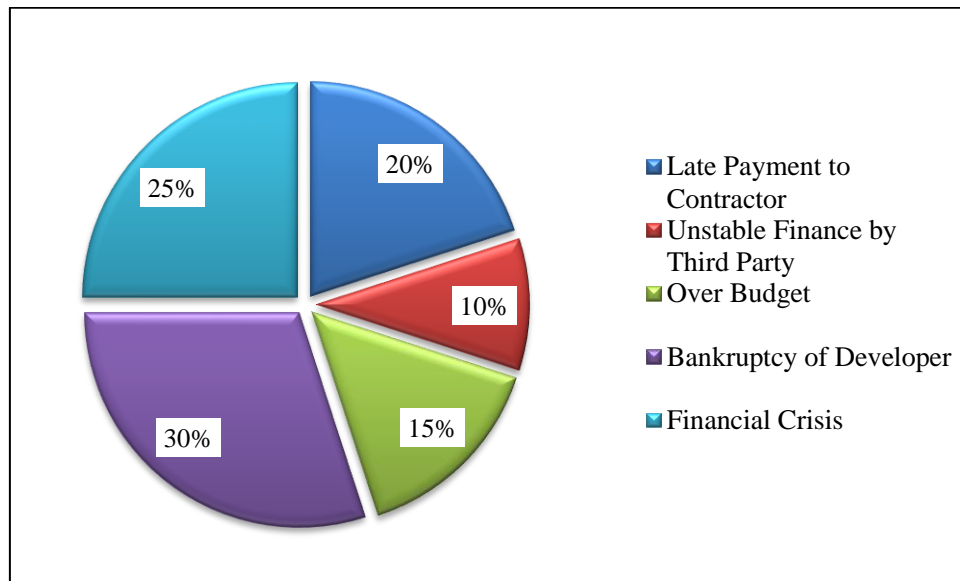


Fig. 3. Financial crisis

Figure 3 shows that financial crisis and bankruptcy by developer is the highest main reason contributes to the abandoned housing project in Selangor agreed by the respondent. Financial is very important in all construction project and good financial system is required to manage the flow cash of many in the company to avoid any problems related to the financial such as namely late payment, poor cash flow management, insufficient financial resources and financial market instability. The most important aspect of cash flow management is to avoid any extended cash shortages which are caused by having too great a gap between cash inflows and outflows. This statement has been supported by previous study [9] addressed that lack of funds may affect the project cash flow and lead to delay in of site possession which consequently causes the delay in project and maybe lead to the abandoned project. This is very important to have good management financial plan in every construction project.

This result has been supported by previous study [10] stated that in Jordan, the financial problems faced by many contractors led to delays in construction projects. This is because of the many changes made by project customers during construction. Consequently, it increases the cost of construction where contractors need to get materials and equipment out of their normal boundaries. In addition, the delay in paying the contractor will affect the cash flow of the contractor. Delay in payments causes slow progress on the site, as many subcontractors and suppliers are subject to financial difficulties. Therefore, no material is sent to this site. Hence it can cause delay in project.

5. Conclusions

Several conclusions can be made from the obtained results. The conclusions are:

- i. There are many issue involved in housing project such as risks related to the environmental impacts, construction, politic, law, management and finance. From the result it shows that under the categories have been abovementioned issues, the probability of risks from unexpected ground condition, shortage of manpower, suspension of foreign workers by government, breach of contracts, weakness in management by the inexperienced developer and financial crisis is very high, so all these risks are considered the most significant risks that can contributes to the problems associated with abandoned housing project in Selangor.
- ii. The respondent seems agreed with the purpose solution to abandoned housing project in Selangor is by having a good financial system in the company. It shows that good financial system is the key to the successful project because with the good financial system we can avoid

many risk related to the abandoned housing project to be happen. All the problems associated with abandoned housing project need an effective system of risk management strategies to face the rapidly growing housing industry in Selangor. These risks should be detected in early stage and prevent efficiently managed by all parties involved in housing industry to prevent this problem occurred in future.

6. References

- [1] A. Ng. The Star Newspaper 18 July (2009)
- [2] H. Zhi. Int. Journal of Project Management **13**, 4 pp. 231–237 (1995)
- [3] W. Spelman, Journal of Criminal Justice 21 (1998)
- [4] E.C. Lim, J. Alum, International Journal of Project Management 13, 51 (1995)
- [5] S. R. Toor, S. O Ogunlana, Cons. Management and Economics **26**, 4 pp. 395–408 (2008)
- [6] E.H.W. Chan, R. Y. C Tse, Jour. of Cons. Eng. and Management **129**, 4 pp 375–381(2003)
- [7] Y. Frimpong, J. Oluwoye, L. Crawford, Int. Jour.of Project Management **21**, pp 321–326 (2003)
- [8] S. M. Dissanayaka, M. M. Kumaraswamy, Eng. Cons. and Arch. Management, **6**, 3 pp 287 (1999)
- [9] M. Dahlan, N. Hilal, The Malayan law journal 6, 1 (2006)
- [10] S. V. Doraisamy, Applied Mechanics and Materials 773, 979 (2015)

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