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FACTORS TOWARDS THE RESTORATION OF ABANDONED RESIDENTIAL CONSTRUCTION PROJECTS IN MALAYSIA: A PILOT STUDY

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Graphical abstract

Abstract

The construction industry in Malaysia plays a vital role in meeting with people's needs and increasing the quality of life of the society as well. However, it must be noted that most of the construction projects are failed to complete on time. It is also not uncommon for construction projects to be delayed, or in the worst scenario even abandoned due to various reasons, which has been studied by researches from Malaysia and other countries as well. This study was conducted to identify the significant factors contributing towards the restoration of abandoned residential projects in Malaysia. This study also touches on the factors for non-revival/discontinuation of the abandoned projects too. In the purpose of doing so, data was collected using questionnaires from a certain targeted group for this study. The data collected was further analyzed, which resulted on the determination of the most important factors to the least. From the analysis too, the reliability of the questionnaire was also established, where it is suggested as a tool for further research on the related issue.

Keywords: Construction projects, abandoned, factors of restoration, non-revival, questionnaire

Abstrak

Industri pembinaan di Malaysia memainkan peranan yang sangat penting dalam memenuhi keperluan orang ramai dan meningkatkan kualiti kehidupan masyarakat. Walaubagaimanapun, pada masa kini ada projek-projek pembinaan yang tidak dapat disiapkan pada masa yang ditentukan. Didapati berlaku kelewatan, malah kebanyakan projek tersebut yang akhirnya terbengkalai. Faktor-faktor terbengkalai telah lama dikaji bukan sahaja di Malaysia tetapi di Negara-negara lain juga. Kajiselidik ini adalah untuk mengenalpasti faktor-faktor signifikan yang membawa kepada pemulihan projek-projek perumahan terbengkalai di Malaysia. Kajian ini juga menyentuh faktor-faktor signifikan sesuatu projek terbengkalai tidak diteruskan. Untuk tujuan ini, data-data dikumpul dengan menggunakan borang kajiselidik terhadap beberapa kumpulan yang bersesuaian dengan tujuan kajian ini. Data yang dikumpul seterusnya dianalisis, di mana factor yang paling signifikan kepada yang paling kurang signifikan telah dikenalpasti. Tahap reliabiliti instrumen yang digunakan dalam kajian ini juga ditentukan, di mana ia didapati sesuai dan boleh diaplikasikan dalam kajian yang lebih lanjut lagi.

Kata kunci: Projek pembinaan, terbengkalai, faktor pemulihan, borang kaji selidik

1.0 INTRODUCTION

In Malaysia and as well as in other countries, there is always an expectation by people to own a home that meets to their needs and their families as well, however according to [1], the problem of project delays in the construction industry is known to be a global phenomenon, and it is more devastating when it is lastly abandoned. The arising issue of housing projects being abandoned seem to mar the expectations of people to own a home. The amount of savings and bank loans that was put forwarded in buying a house seem to be a waste when the construction work of their houses are stopped suddenly.

As elaborated by [2], a development of a country relies on the establishments of various sectors, and in Malaysia these sectors comprises of agriculture, mining, manufacturing, construction, and etc. The construction industry in Malaysia has played a vital role in fostering the economic growth of the country. Therefore, the issues of abandoned projects have somehow impaired the economic growth of the country as well. The definition given by [3] on abandoned projects is that when a progress of a certain work faces too many problems and seems to be impossible to continue further on resulting it to stop completely, it is therefore defined as abandoned project. Due to the increasing numbers of abandoned housing projects in Malaysia, the Construction Industry Development Board (CIDB) has implemented the revival process of these abandoned projects as one of the main and important strategic, in the CIDB 7 Strategic Thrust [4]. To meet to the demand of people from all categories of income, let it be high, middle or low income, it has been made as an effort by the government to provide affordable houses for the society. The types of housing properties in Malaysia that are available are high cost, medium low cost, medium cost and low cost housings, multi-family housings such as flats, apartments, condominiums and townhouses. As the report shown by [5], all these types of residential construction projects has been identified to be abandoned. Over the years, there are various factors of abandoned housing projects that has been identified by past researches, not only in Malaysia but in other countries as well. The factors and its' interrelation among these factors for abandoned housing projects are summarized in Table 1 below.

Table 1 Causes of Abandoned Projects [6]

FACTORS	CONTRIBUTING FACTORS
Improper Management	Lack of communication on projects goals
	Lack of project team promise
	Improper project timing and scheduling
	Improper project planning and design
	Incompetent project manager
	Leadership instability
	Improper project monitoring and controlling
	Improper project financing
Incompetent Contractors	Improper project timing and scheduling
	Leadership instability
	Rework
	Improper project monitoring and controlling
	Lack of project risk assessment
Client Related	Lack of end-user's needs
	Interference of end-users
	Death of client/owner/investor
	Disputes between parties involved in a contract
Inconsistent Government Policies	Economic conditions/economy crisis
	Improper project monitoring and controlling
Improper Project Financing	Lack of project risk assessment
	Economic conditions/economy crisis
	Rework
	Payment delay
	Increase of material cost
Rework	Lack of project risk assessment
	Improper management
Other Causes	Community eruption and interference
	Land disputes
	Climate change/natural disaster
	Poor marketing strategy

There are steps that have been injected to revive the projects that have already been abandoned. Although there are abandoned projects that has been revived successfully, but there are projects that are still being revived or being considered to be revived. At the same time there are number of abandoned projects which has not yet come close to the consideration stage, due to some reasons such as the possibility of project revival is slim as there are no companies that are interested in investing on the revival of abandoned projects. As starting a new construction project, reviving an abandoned project has its challenges and risks as well, but when a project is successfully revived and completed, it does have its beneficial contribution to various parties, and reduces the burden and the anxiety of this parties as well including the government.

Based on the factors that was obtained through literature reviews and also from interviews conducted

with certain officials related to abandoned projects and restoration as well, a new list of factors on the restoration of abandoned residential construction projects was laid out. Together with this, the factor for the discontinuation or non-revival of abandoned projects was also obtained. The next part of this paper discusses the design study that was used in measuring the factors, and lastly the analysis on the outcome of the study that was conducted.

2.0 DESIGN OF THE STUDY

The study on the factors contributing towards the restoration of abandoned residential projects was carried out by using questionnaires. The questionnaire is a research instrument commonly and largely used as a quantitative method. The questionnaire was designed to suit the various target groups that was identified in the earlier stage of this study. In the process of designing the questionnaire especially in the part of using the suitable questions or instruments for the purpose of this study, a comprehensive literature review which supports the survey was conducted. The questionnaire was also designed through observation during discussions and interviews with officials who are directly involved with the issue of abandoned projects in Malaysia, where in this case it is the Ministry of Housing and Local Government. Before further going ahead with the pilot survey, an expert survey was conducted with 10 people including 5 academicians and 5 non-academicians. Majority of the people used in the expert survey approved of the questionnaire, there were only a few comments and inputs that was given, which ultimately led to the necessary modifications and final establishment of the questionnaire.

The questionnaire that was designed was a Likert Scale type of questionnaire, and was divided into 3 parts, which were Part A: Demographic, Part B: Identifying the most significant factors contributing towards the restoration of abandoned housing projects in Malaysia and Part C: Identifying the most significant factors contributing towards the non-revival/discontinuation of abandoned housing projects in Malaysia. The questionnaire was distributed to 30 respondents from government and non-government sectors, who were selected as the key people complying with the issue, in this study. Table 2 shows the summary on Part A of the questionnaire, that is the demographic of the 30 respondents in this study.

Table 2 Demographic

Org.		Gender		Profession		Category		TOHP		W/Exp (years)		INV/ APR		P/QLF	
CIDB/HQ	2	Male	20	Developers	4	Government	20	MCH	6	31-35	3	Yes	15	SPM	1
CIDB/PN	1	Female	10	Architects	2	Private	10	HCH	1	21-25	6	No	15	Diploma	6
CIDB/PRK	2			Engineers	6			Flats	1	11-15	10			Degree	18
JKR	5			Construction Managers	2			Apartment	2	26-30	1			Masters	5
KPKT	5			Liquidators	5			Others	6	16-20	1				
MBPJ	5			Others	3			Light Commercial BLdg.	1	<10	9				
Liquidator	5			QS	2			Multi-family	1						
Developer	5			Technician	1			All residential	12						
				Town Planner	5										
TOTAL	30		30		30		30		30		30		30		30

CIDB/HQ-Construction Industry Development Board/Head Quarters
CIDB/PNG- Construction Industry Development Board/Penang
CIDB/PRK- Construction Industry Development Board/Perak
JKR-Jabatan Kerja Raya (Public Works Department)
MBPJ-Majlis Bandaraya Petaling Jaya (Petaling Jaya City Council)
TOHP-Type of Housing Projects
MCH-Medium Cost Housing
HCH-High Cost Housing
W/Exp-Working Experience
INV/APR-Involvement in Abandoned Project Restoration
P/QLF-Professional Qualification

The next part of the analysis based on the answers given by this 30 respondents is discussed on the next part of this paper.

3.0 ANALYSIS OF THE QUESTIONNAIRE

As this study is based on the factors towards the restoration of abandoned residential projects in Malaysia, therefore groups for this questionnaire were identified, targeted and selected, which complies with the each aspects as laid out in the questionnaire.

The analysis of the 30 questionnaires that was collected was further analysed to test the questionnaire's validity and reliability. As elaborated by [7], in science and statistics, validity is the extent to which a concept, conclusion or measurement is well-founded and corresponds accurately to the real world. It is also according to them that the validity of a measurement tool is considered to be the degree to which the tool measures what it claims to measure. [8] has stated that in psychometrics, reliability is the overall consistency of a measure. A measure is said to have a high reliability if it produces similar results under consistent conditions. According to [9], validity of an assessment is the degree to which it measures what it is supposed to measure. This is not the same as reliability, which is the extent to which a measurement gives results that are consistent. Within validity, the measurement does not always have to be similar, as it does in reliability. As this study is based on the factors towards the restoration of abandoned residential projects in Malaysia, therefore groups for this questionnaire were identified, targeted and selected, which complies with the each aspects as laid out in the questionnaire.

The questionnaire analysis that was conducted for this study was by using the SPPS software. The items or more known to be the variables here that are used in the questionnaire, are identified to be exogenous variables, meaning one variable is not influenced by another variable, and moving towards to be latent variable for the purpose of factor analysis. According to the founder [10], in statistics or the classical test theory, Cronbach's α (alpha) is used to estimate the reliability of a psychometric test. Cronbach's alpha will generally increase as the inter-correlations among test items increase, and is thus known as an internal consistency estimate of reliability of test scores. Internal consistence is a measure on the correlations between different items on the same test. It measures whether several items that propose to measure the same general construct produce similar scores. A commonly accepted rule for describing internal consistency using Cronbach's alpha is shown in Table 3:

Table 3 Level Of Internal Consistency [11]

Cronbach's Alpha	Internal Consistency
$a \geq 0.9$	Excellent (High-Stakes testing)
$0.7 \leq a \geq 0.9$	Good (Low-Stakes testing)
$0.6 \leq a \geq 0.7$	Acceptable
$0.5 \leq a \geq 0.6$	Poor
$a \leq 0.5$	Unacceptable

Based on the understanding gained on these elements, the 30 completed questionnaires that was collected was further tested on its' reliability, and the results obtained is shown in the Table 4.

Table 4 Reliability Test

Aspects	Items/Variables	Cronbach's Alpha	No. of items/variables
1	B1-B8	0.893 ≥ 0.9	8
2	B9-B19	0.945 ≥ 0.9	11
3	B20-B24	0.862 ≥ 0.9	5
4	B25-B29	0.822 ≥ 0.9	5
5	B30-B36	0.916 ≥ 0.9	7

Based on the reliability test that was obtained as shown in Table 4, the reliability here is between good and excellent, resulting the questions or the instruments used are reliable to measure the intended issue or in this case the factors. As for the next analysis for all the variables used in Part B and Part C in the questionnaire, complying with the answers given by the 30 respondents, the value of Cronbach's Alpha that was obtained is as in Table 5.

Table 5 Overall Reliability Test based on 30 Respondents

Variables	Cronbach's Alpha	Variables	Cronbach's Alpha
B1-B36	0.963 ≥ 0.9 (Excellent)	C1-C5	0.7 ≤ 0.801 ≤ 0.9 (Good)

The results above also indicates the same as for each aspects, that the reliability analysis that was conducted shows the questions or the instruments used are reliable enough to measure the issue, with an internal consistence of excellent and good.

After this part of the analysis was done, the next analysis that was carried out was the factor analysis on the variables used in the questionnaire. Factor analysis is defined as a process in which the values of observed data are expressed as functions of a number of possible causes in order to find which are the most important [12]. Although the variables were categorized in 5 aspects/factors in certain accordance in the questionnaire that was distributed, after going through the factor analysis on the 30 completed questionnaires, a total of 6 components was extracted bringing the factors now to be 6. Furthermore, based on the factor analysis

too, the original arrangement of the factors in the questionnaire was able to be positioned from the most significantly important to the least that is from Factor 1 to Factor 6, as shown in Table 6.

Table 6 Factors from Most Significant to the Least

Part	Factor	Aspects	Variables
B	1	Management	B9-B19
	2	Inception point/stage	B1, B3-B8
	3	Building/project	B30-B36
	4	Client	B20-B24
	5	Government policies	B25-B29
	6	Abandoned projects with high number of units with maximum purchasers	B2

Based on Table 6, the sixth factor seem to be standing out on its' own, and it's not trading in any of the other 5 factors and in fact conflicting with them, with the most minimum percentage of variance of 3.616%. As for the most significant factors contributing towards the non-revival/discontinuation of abandoned housing projects, only 1 component has been extracted from the factor analysis, where variables C1 to C5 are categorized as one factor for Part C of the questionnaire. Based on the factors analysis that was conducted, here is Table 7 with the layout of the factors in Part B and Part C of the questionnaire, in accordance as extracted. Based on Table 7, all the factors are laid out accordingly from the most important to the least, when it comes to identifying the most significant factors contributing towards the restoration of abandoned residential projects in Malaysia, based on the feedbacks given by individuals targeted and selected for the purpose of this study

Table 7 Factors & Variables in Accordance

Part B: Factors contributing towards the restoration of abandoned housing projects	
FACTOR 1: Management Aspects	
1	Determination & understanding the project goals
2	Senior management involvement & support
3	Better understanding on the works in terms of contract
4	Identifying various problems & suitable decision-making in solving/tackling it
5	Identifying effective & necessary changes
6	Having early & complete planning & design
7	Approval of Building Plan
8	Availability & proper management of the needed resources including adequate funds, trained personnel & technology, based on the restoration plan
9	Putting forward project updates & reviews conduction regularity(project controlling & monitoring)
10	Putting forward project risk assessment & analysis
11	Having an efficient restoration practice with logical sequence of various activities to be followed in the restoration process
FACTOR 2: Aspects based on inception point/stage	
1	Accessing the basic information & details of the project
3	Surety on the ability of the project is able to advance & not a helpless project
4	Negotiations conducted with the stakeholders
5	Obtaining & achieving agreement with all the parties involved
6	Complying with all the approval conditions & amendments that has been put forward by the technical agency
7	Coordinating the revival efforts through the original developer & the savior developer.
8	Obtaining professional & authorized developer for the project
FACTOR 3: Building/project Aspects	
1	Looking into the behavior of material used & structural system in the projects.
2	Identifying the possibility of deterioration, its' causes & mechanisms.
3	Focus on the existing documents of the project.
4	Evaluation on the remaining structure to expose its' actual physical condition.
5	Making assessment & further gaining physical evidence on the condition of the existing structure by inspection, diagnosis & cause analysis.
6	Knowing the environmental conditions of the building (building safety).
7	Knowing the maintenance aspect & efficiency in hence, by having the knowledge of the whole-life of the building.
FACTOR 4: Client Aspects	
1	Knowing the cultural significance & social values of the project towards the target group/clients
2	Taking account the number of occupants intended in the project.
3	Taking account the surrounding community & resolve any occurring issues.
4	Resolving land issues/disputes (approval of land)
5	Having the proper collaboration & giving the needed focus on the importance of the clients

FACTOR 5: Aspects based on Government Policies	
1	Taking account the current political conditions.
2	Taking account the current legislative mandates.
3	Having & conducting proper steps in consideration of the economy condition or crisis.
4	Political influences in bias contract rewarding
5	Focus on new project developments by new political party, failing to focus & complete previous housing projects.
FACTOR 6:	
1	Abandoned projects consisting of high number of units with maximum purchasers
Part C: Factors on Cancellation or discontinuation on the restoration process	
1	Project restoration cost is too high to proceed or to be revived.
2	Project location is not safe/the condition of the earth or landform seem to be a threaten to the population there, for example possible collapse of cliff, landslide and other natural disasters.
3	Land dispute issues by the landlord which could not be solved or by court order.
4	The project has been auctioned by the financier.
5	The site of the specific abandoned project has been focused as future government public interest project (other than residential project).

5.0 CONCLUSION

Overall, there were 2 analysis that was carried out in this study. One was the reliability test, which was mainly to determine the reliability of the questions or items used in the questionnaire. Through this test, it could be concluded that the questions are reliable to measure the problem or issue. All the factors and variables stated in the questionnaire have shown to be suitable and also are relevant in measuring the problem in this study.

It is also could be stated that from the analysis conducted based on the various feedback given by the respondents in this study, the validity of the questionnaire seems to be good as the concepts used in it measures or corresponds well with the issue highlighted in this study.

The second analysis that was carries out was the factor analysis. Through the factor analysis that was conducted, the most important factors to the least was able to be determined based on the respondents answer. In a certain degree, this clarifies that the items or variables used in each factors have the tendency to be accurate. This simplifies the process to use each components or factors with its' variables to go ahead with further research on a bigger scale.

There were some comments and suggestions that was given by some of the respondents in the open-ended question section in both Part B and Part C. As for the comments and suggestion given in Part B are: 1) prior investigation on developers, 2) good financial plan which makes profit, 3) involvement of state/federal government, 4) better law to safeguard purchasers, 5) relevant control on material prices and charges, etc. For Part C, the inputs given on the factors that could cause for the non-revival of abandoned projects are: 1) design approval taking too long, 2) lack of initiatives taken by local political parties/people, 3) purchasers are not able to be contacted/died/bankrupt/not interested, 4) project has been abandoned for too long, 5) there is still a hold up on the financial situation, etc.

Based on all the data analysis, feedbacks and outcomes that was gained through this study, this could be used as a benchmark and also a guiding principle in conducting a more thorough investigation and research on this issue. The results obtained later from the bigger scale of the research then could be used in finding a solution, or in this case the right way or process of restoration for this contentious issue, that is the abandoned residential projects in Malaysia.

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