



Framework for the Implementation Procedures of Relocation and Conservation of the Kampung Laut Old Mosque: A Contractor's Perspective

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Abstract: A high value building that is one of the early signs of the arrival of Islam to Malaysia and Southeast Asia is the Kampung Laut Old Mosque (KLOM). The mosque has been relocated to its original location, Kampung Laut, Tumpat to re-assimilate the original culture and landscape of its construction. The experience of implementing procedures for the relocation and retention of these heritage values should be gained as much as possible by the stakeholders of the construction industry. It can be used as one of a solid foundation to strengthen the role of the construction industry as a trigger for the development of other industries such as tourism; hence the economy of a country. At the same time, it is able to maintain the heritage values of the special buildings of the KLOM. Therefore, the objective of this study is to develop a framework for the implementation procedures for the relocation and conservation of the heritage values of the KLOM. Structured interviews were conducted with fourteen (14) respondents directly involved in the successful relocation and conservation of the heritage values of this mosque. This study revealed four (4) main categories containing eighteen (18) sub-categories belong to the independent variables. These independent variables will significantly affect the dependent variables in performing the procedure. This study also reveals four (4) elements of dependent variables in the procedure of relocation and conservation of heritage values of the KLOM, namely cost, quality, time and scope. The formation of this framework has revealed the holistic implementation procedure of a special building such as the KLOM. It is capable of being manipulated by stakeholders to implement such procedures effectively on other specialty constructions. In turn, it is able to increase the competitiveness of the construction industry to effectively contribute to the economy of a country.

Keywords: Framework, implementation, Kampung Laut Old Mosque, relocation and conservation

1. Introduction

The construction sector cannot be denied its importance to develop other sectors including the tourism sector. The construction industry is capable of supplying physical structures such as accommodation, shopping and businesses, including related infrastructure needs. In fact, the construction sector has the role of maintaining a building to be in good and perfect condition until the end of its lifespan. One of the high value buildings but needs to go through a conservation procedure where it needs to be relocated from Nilam Puri, Kota Bharu Kelantan to its original location called Kampung

Laut, Tumpat, Kelantan, while maintaining its original properties is the Kampung Laut Old Mosque (KLOM). This construction is of high value because its design and architecture is unique because the mortise is used as the main connector between components and does not use nails as is common in other wooden buildings (Hassan and Ahmad Nawawi, 2014). In fact, this mosque also shows a proof that Islam has long been established in Malaysia (Al-Ahmadi, 1984; Nasir, 2004; Hassan, 2010). The transfer of this building from Nilam Puri, Kota Bharu, Kelantan to its original place, namely Kampung Laut, Tumpat, Kelantan was done to re-assimilate this building with its original environment and culture. History shows that the relocation of the mosque from Kampung Laut, Tumpat, Kelantan to Nilam Puri, Kota Bharu, Kelantan had to be done due to the occurrence of two (2) major floods in Kampung Laut. The relocation of the mosque was done at a new site near its original site as the original site was submerged in sea water, the effect of the changing universe. The relocation of this building to a location near its original location aims to obtain recognition from the United Nations Educational, Scientific and Cultural Organization (UNESCO) as one of the world heritage sites. The relocation of the KLOM is expected to have a significant impact on tourism activities in the future. This is because according to Mamat and Zulkifli (2020), historical buildings and monuments are able to attract local and foreign tourists. This in turn will have a significant impact on the economic growth of a country.

2. Problem Statement

The construction sector needs to change for the better holistically to supply the constructions desired by other economic sectors in a country. In fact, the capacity of this sector needs to be increased the effectiveness of its service delivery to the level of consumption or post construction by maintaining the function or adapting to the reuse of existing buildings. History shows that traditional wooden buildings are among the earliest forms of human construction (Zhou and Yan, 2015; McDougall, 2006) and they need to maintain their function. This is because its value becomes higher over time to be used as a valuable reference to future generations. The process of conservation of existing buildings begins with wood-based buildings because it is an ancient material that has been used in this sector. According to Ahmad (2010), The Burra Charter (1999), and Reyer (2003), conservation involves a variety of processes, including maintenance, preservation, restoration, reconstruction, adaptation and interpretation. It is important that the implementation of the procedure of an operation is fully understood through the development of a framework (Rivera *et al.*, 2021; Bao and Lu; 2021; Turk *et al.*, 2022). It is important to give an overview of the efforts to maintain the originality of its construction; subsequently can be used as a basis in the implementation procedures of other constructions in the future. Therefore, the purpose of this paper is to analyze the implementation procedures of relocation and conservation of the KLOM; from Nilam Puri, Kota Bharu Kelantan to its near original location called Kampung Laut, Tumpat, Kelantan. It will be a useful guide to contractors and other construction sector stakeholders. It can be used as a basis to plan a follow-up action towards the effectiveness of the implementation of other constructions like the KLOM.

3. Literature Review

3.1 The Kampung Laut Old Mosque, Tumpat, Kelantan

The historic mosque that survived two major flood disasters is named the KLOM. This mosque is named as Kampung Laut in conjunction with its place of origin, which is a village in the Tumpat District located on the banks of the Kelantan River (Wikipedia, 2021). This mosque is a settlement about 11 kilometers (6.8 miles) from Kota Bharu, the capital of Kelantan, Malaysia built in the 18th century AD and is the oldest mosque in Malaysia and in Southeast Asia. According to traditional oral stories, centuries ago, missionaries sailed throughout the Malay archipelago to spread Islam. In the 1730s, a group of missionaries passed through the East coast of Peninsular Malaysia on their way to Pattani in Southern Thailand to Java in Indonesia. Unfortunately their boat leaked and ran into difficulties (Al-Ahmadi, 1984; Akib, 2003). The missionaries in the boat vowed that if they were brought to shore safely, they would build a mosque immediately to commemorate the event. Their prayers were answered, and the missionaries landed at Kampung Laut, Tumpat (Wikipedia, 2021).

Initially, the mosque was a basic structure with only four pillars supporting a three-story roof made of thatch leaves. Its area is only 400 square feet in total. At the end of the 19th century, the mosque became an important religious center and it was enlarged to provide additional prayer rooms, grants, a porch and a tower. 20 poles were built to support this additional construction using a very unique 'Tebuk Pasak' technique. It is built of wood but does not use a single nail. The thatched roof was replaced with a tiled roof. Mosques built on the banks of rivers are often hit by flash floods such as the 1926 flood known as 'Bah Air Merah' has weakened the foundation of this mosque (Hassan and Ahmad Nawawi, 2014). After a more severe flood in 1966 that washed away part of the mosque, the Malaysian Historical Society recommended that the mosque be moved to a safer place. In 1968, the mosque was moved and reopened in a new area in Nilam Puri built with the help of Kelantan Malay handicraftsmen (Azim, 2016). In 1988, the mosque was improved by providing modern facilities such as electricity, running water, toilets and seating areas. The pillars and walls of the mosque are also decorated with wood carvings.

Now, the KLOM has been relocated to a location near its original location in September 2020. It is part of the Kampung Laut Redevelopment Project as a 'Heritage Village' run by the East Coast Economic Region Development Council (ECERDC). The relocation work from Nilam Puri to Kampung Laut with a distance of 22 kilometers was

completed in the middle of 2022. Two commercial complexes located near the mosque, namely Laman Warisan Seni and Laman Warisan Serunding were created to increase tourism activities and businesses in the surrounding area.

3.2 Relocation and Conservation Procedures

Based on the experience of relocation and conservation procedures on Kampung Teluk Memali Mosque (Mamat and Zulkifli, 2020; Aziz and Zulkifli, 2018) and reference of related documents on KLOM, the relocation and conservation works can be divided into four main phases;

3.2.1 Dilapidation Studies and Documentation

The earliest process done to carry out the relocation and conservation work of this mosque was a historical investigation and re-measurement on site. This process is important to produce a complete set of measured drawings. The investigation and production procedure of this document needs to be carried out properly towards the effectiveness of its implementation (Mamat and Zulkifli, 2020). This set of measured drawings is used as the primary reference throughout the process of inventory, calendaring and reassembly of related building components. Codes and numbers are marked on each component in the measured drawings. This historical investigation is able to identify the types and various levels of disability that will guide the next level. In fact, the resulting dilapidation investigation report can be used as a basis in the repair work of the structure or parts involved. In turn, it acts as a reference in determining project costs in these conservation-related works.

3.2.2 Dismantling Works of Building Elements

The conservation of the KLOM involves the transfer of all structures and components of the mosque to a location near its origin, namely in the Kampung Laut District, Tumpat. In this second stage, rehabilitation and treatment work is carried out at the new project site and related workshops. The work of stripping each structure and component was done at the original site. It started with cleaning around the mosque to carry out the work of arranging wood. Cleaning is required to allow the crane to move smoothly at the stage of dismantling the structure and wooden components of the mosque. This cleaning is also important to ensure that the associated trucks are able to move freely during the process of transporting the structure and the wooden components.

Cleaning is also done in the mosque where all the furniture and equipment are loose and still moved to a specific location to facilitate the implementation of the activity of dismantling the structures and components of the mosque. The code-marking process is done on the wooden structures and components while the mosque's demolition procedure is done at the original location. The demolition process begins with the removal of the 'Singhorra' clay pieces, the wooden structure and the entire associated roof elements. Subsequently, the tie poles were removed, coded and moved to a location near the mosque; including the other main elements of the mosque namely the walls, and the lattice panels. Finally, all the structural elements of the mosque, namely the roof beams, pillars other than the tie pillars and the wall frame and floor beams were removed. Each one is marked and stored in a covered area near the original location of the mosque to prevent any damage from occurring that would affect its heritage value.

3.2.3 Inventory and Treatment

The process of transporting structures and components from Nilam Puri to the new Kampung Laut site is done using lorries and trucks; assisted by mobile crane. The wooden structure and components were moved and stored under several tents built for a while to avoid damage, the effects of weather action. The compilation is based on the reverse procedure of the construction calendar process. At the same time, the type of wood is determined and isolation is done to the defect levels of the wood and certain components. The identification of the types and levels of wood defects, including the level of strength is done by the consultant 'the Malaysian Timber Industry Board (MTIB)' and a conservator is appointed in the conservation project. All evaluations of the wood and its components are documented to make perfect planning in the treatment work; next it is used to make timely wood replacement decisions and the cost determination process is involved.

3.2.4 The Re-Installation

The first step to be done for the re-installation of this mosque is the construction of a concrete floor. It does serve as the foundation for the mosque to be redeveloped in its original location. The assembly of wooden structures and components is done based on the reverse procedure during the dismantling procedures. As the final work on the new site of this mosque, the entire wood and components are painted based on its original color scheme. At the same time, the installation of floor slabs and other additional works related to it were carried out to beautify the exterior of the mosque.

4. Research Methodology

A face-to-face interview approach was implemented with the personnel of the contractor's organisation directly involved in the procedure. The selected of this approach because this study is based on a case study specifically on the

relocation and conservation procedures for the KLOM only. In fact, the details of the dependent variables that is the effect of the implementation of the procedure and independent that is the factors that influence the implementation of the procedure can be obtained perfectly even if the sample size is small.

4.1 Sampling Design

A total of fourteen (14) respondents were involved in this study. The project organization chart was a valuable reference in determining the respondents involved in this study. However, the respondents involved must meet the set selection criteria including: (a) be directly involved in the relocation and conservation procedures of the KLOM; (b) possess an academic qualification of at least a certificate in a construction-related field; (c) have extensive experience of at least ten (10) years of work experience in the construction industry; and (d) cooperative in giving independent opinions on the issues under study.

4.2 Data Collection Procedure

Structured interviews were conducted where various questions were asked to the respondents of the study. The general questions are based on 4 'W' which refers to 'What', 'Why', 'When' and 'Who' and 1 'H' refers to 'How' to give an overview of the research questions. The main questions of this study include:

- 1 What are the factors that influence the effectiveness of the implementation of the relocation and conservation procedure of the KLOM?
- 2 Why do these factors influence the effectiveness of its implementation?
- 3 When are these factors important that lead to the effectiveness of the implementation of the procedure?
- 4 Who are the parties involved in establishing the effectiveness of its implementation?
- 5 How do these factors shape the success or failure of the implementation of the relocation and conservation procedure of the KLOM?
- 6 What are the elements of success or failure of its implementation ?;
- 7 Why are these elements important in determining the success or failure of the implementation of the relocation and conservation procedure of the KLOM?
- 8 When and how are these elements influenced by the factors that affect the effectiveness of the implementation of the relocation and conservation procedure of the KLOM?

The influencing factors and elements of success or failure resulting from the implementation of the procedure that were raised by the respondents of the study were then explained in detail in the interview session. It is important to give an overview of its importance in giving a positive or negative impact to the implementation of the relocation and conservation procedures of the KLOM. All the knowledge, experience and views of the respondents in determining the factors that influence the effectiveness of the implementation of the procedure are recorded to prevent this valuable data from being lost. Interviews with respondents were conducted from April to June 2022 with each session lasting 45 to 65 minutes. Earlier, an appointment with the respondents involved was made at least two weeks before the interview session was conducted. Reminder to hold an interview session with the respondent was done 1 to 2 days before that. This is because they have a tight work schedule especially at the completion stage of the project. A total of eight (8) interview sessions were conducted at the construction site and the rest were held at their company office. The interview sessions were conducted face to face in accordance with the Standard Operating Procedure that was outlined by the Malaysian government at that time. Compliance with this government directive was necessary because the spread of Covid19 was still going on at the time. Interviews with the respondents of this study were conducted in Bahasa Malaysia, mostly using the Kelantan dialect to meet the comfort and desires of the respondents of the study.

4.3 Data Analysis

Qualitative studies using a structured interview approach require a specific analysis towards inferring the various data. To that end, Richie and Spencer (1994) who have developed a qualitatively study-based 5-level data analysis approach were referenced and adopted in this study. This is because this analytical approach has been used effectively in previous studies such as Marzuki (2008), and Hanafi *et al.* (2018); respectively in the fields of tourism and construction. This 5-level data analysis approach based on qualitative research includes: -

4.3.1 Familiarization

All qualitative raw data were recorded in the questionnaire which was then transferred and converted into a more comprehensible form of data transcriptions. Systematic and thorough data transfer and conversion is highly demanded at this stage. This is because the accuracy of data analysis at subsequent stages is dependent on the accuracy of data handling at this stage. Transfer and conversion errors easily occur at this stage because it is the basic data collected directly from

the study respondents. To ensure the high validity of these data transcriptions, repeated references were made to the questionnaires on which the raw data was recorded.

4.3.2 Identifying A Thematic Framework

According to Ritchie and Spencer (1994), the theme framework developed from the qualitative raw data involves 'logical and intuitive thinking processes..... and subsequently making sound judgments about the underlying meaning, importance and relationship to the issues highlighted and the relationship between the ideas and other ideas wisely'. Detailed observations of qualitative raw data are made to form themes and identify logical relationships holistically towards describing an observed phenomenon. It is a search process to ensure that all the questions created are answered by the respondents of this study. The framework that has been developed in this study is as illustrated in Figure 1. The main interview questions related to the implementation procedure of relocation and conservation of the selection of KLOM which is influenced by certain factors. Therefore, this thematic framework involves the development of these two questions. Basically, the majority of study respondents are more likely to represent the factors influencing the implementation of the procedure with Four (4) main categories namely: (1) Contractor's Organisation; (2) Suppliers; (3) Consultants and Clients; and (4) External Factors. The framework which includes four (4) main categories was created based on the feedback provided by the respondents of the study related to the factors that influence the implementation of the operating procedure. In addition, four (4) dimensions of the implementation of the relocation and conservation procedures of the KLOM have been identified including: (1) Cost; (2) Quality; (3) Time (Schedule); and (4) Scope.

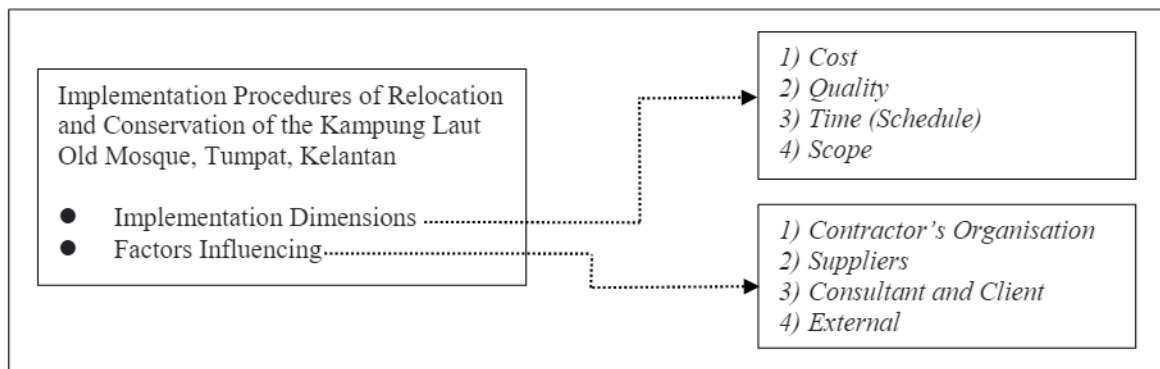


Fig. 1 - Study-themed framework

4.3.3 Indexing

The thematic framework has been identified through the process of preparation of the interview transcript followed by the process of interpretation using numerical code with the help of qualitative analysis software NVivo 2.0. The main indices from the thematic framework were elaborated and supported by brief explanatory notes as shown in Figure 2. Index coding was performed using relevant key statements. It was performed by the study respondents during the interview session. Each major theme identified is associated with an explanatory statement that illuminates and justifies the formation of a thematic framework. This explanatory statement is taken from several similar statements made by the respondents based on the same basic theme.

4.3.4 Charting

At this stage, a theme-based data visualization process is identified. It was done through the process of quoting similar themes generated from the transcripts of the interviews (Ritchie and Spencer 1994). Data were presented using charts based on two main approaches, namely (a) thematic framework, and (b) study determination. These key elements have a common theme that is then across all study respondents or a group of respondents across all related themes (Ritchie and Spencer 1994).

Table 1 lists examples of this data visualization process, in which two respondents correlated with each other and both themes were successfully identified. A macro and comprehensive view or analysis of the feedback of each theme of the relevant respondents can be done perfectly. However, there are situations where the feedback on each theme developed is not communicated by the respondents of the study. The existence of a theme can still be accepted if the statement is supported by most respondents in this study.

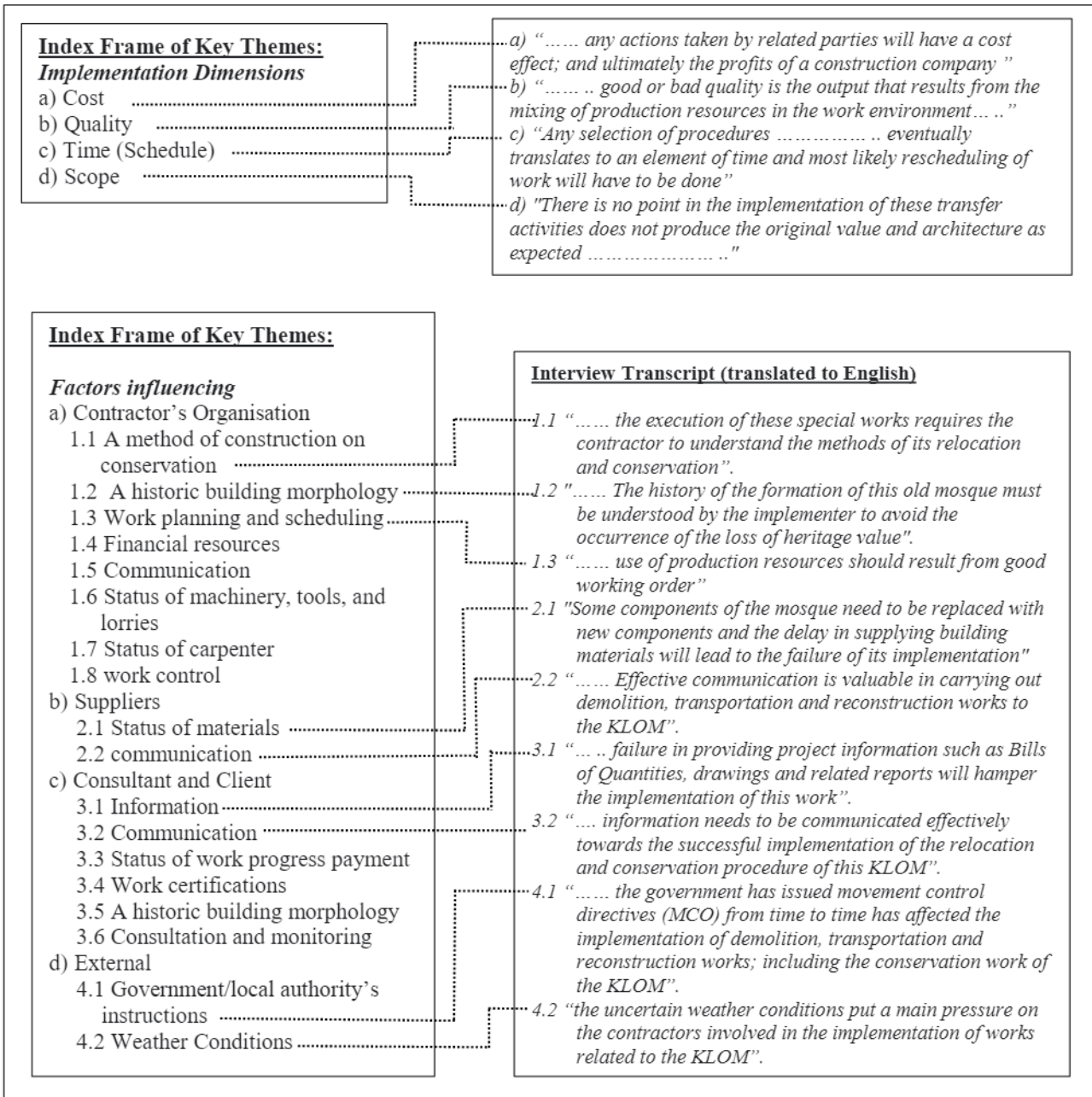


Fig. 2 - Index coding from the interview transcripts

Table 1 - Examples of themes from the index

Respondent	Theme 1	Theme 2
1	<i>Contractor’s Organisation</i> Contractors need to equip themselves with technical knowledge as well as knowledge to carry out work related to the relocation and conservation of this building.	<i>Suppliers</i> The supply of appropriate and timely building materials plays an important role in carrying out the work of relocation and conservation of this special old mosque.
5	Good tagging and work arrangements are the key to the implementation of work related to the relocation and conservation of the KLOM.	There were times when there were delays due to the replacement of the original components of the mosque such as the doors and fascia boards that were damaged.

4.3.5 Mapping and Interpretation

Qualitative data analysis is driven by six (6) main steps including: a) concept identification; b) the mapping range and nature of the phenomenon; c) topology production; d) the search for unity; e) production of information; and f) the development of related strategies (Ritchie and Spencer, 1994). The analysis of this study was done on the questions that were formed in the early stages of this study. The mapping analysis is based on the theme of the data that has been collected before the evidence structure is produced. The data analysis of this study has revealed the main dimensions of the implementation of the relocation procedure which include dismantling, transporting and reconstruction activities; the conservation of the KLOM as shown in Figure 3. In other words, the interpretation of this data reveals the factors influencing the implementation of the relocation and conservation activities of the KLOM. These factors need to be considered in such a project environment to ensure successful implementation in the context of cost, quality, time (schedule) and scope.

A total of nineteen (19) factors have been successfully revealed in this study which are categorized into four main parts namely contractor’s organisation, supplier, consultant and client and external. The factors in the category of contractor’s organisation, supplier, consultant and client and the external environment have sub-factors of 8, 2, 6 and 3 respectively. The sub-factors under the category of contractor’s organisation are: a) A method of construction on conservation; b) A historic building morphology; c) Work planning and scheduling; d) Financial resources; e) Communication; f) Status of machinery, tools, and lorries; Status of labor (expert); and g) Work control. The sub-factors under the supplier category are: a) Communication; and b) Status of materials. Meanwhile, the sub-factors under the category of consultants and clients are: a) Information; b) Communication; c) Status of work progress payment; d) Work certifications; e) A historic building morphology; and f) Consultation and monitoring. Finally, the sub-factors under the category of external are: a) Government/local authority instructions; and b) Weather conditions.

In addition, the four dimensions of implementation which include the elements of cost, quality, time (schedule) and scope are related to the factors that influence it. These four elements are important towards the formation of a holistic framework in the implementation environment of the relocation and conservation procedures of the KLOM.

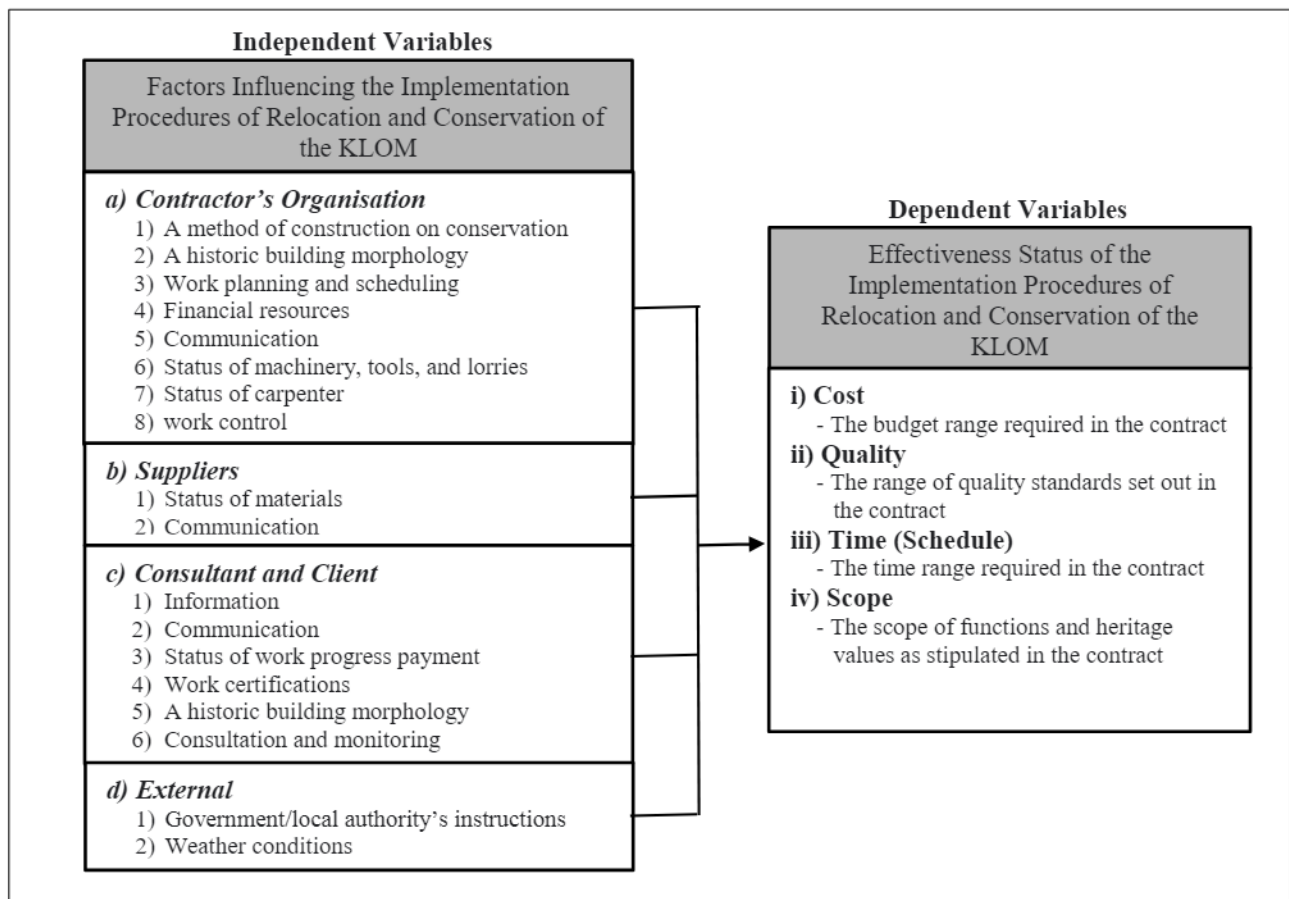


Fig. 3 - A framework for the Implementation Procedures of Relocation and Conservation of the KLOM, Tumpat, Kelantan

5. Findings and Discussion

Cost, quality, time (schedule) and scope are the indicative elements to the success or failure of the implementation of procedures for the relocation and conservation of the KLOM. In an effort to move this mosque from Nilam Puri to a location near the original in Kampung Laut, various factors influenced its implementation. As an implication the cost, quality and time are increased or can be reduced which will give a clear sense of the meaning of the success or failure of its implementation. In fact, the target of preserving heritage values at an early stage is refined once they are fully implemented. It is also one of the essential elements; is named as the element of scope in determining the success or failure of the transferred of the mosque.

Contractors involved in this operation have a role to comply with all the terms of the contract signed with their clients. To relocate the KLOM, including its entire heritage, a deep understanding of the value and history of its formation is a must. In fact, an in-depth understanding of the methods in dismantling, transportation, and reconstruction, including conservation works of buildings is a valuable asset towards the effectiveness of the relocation implementation. This is because the contractors are often faced with an unexpected issue at various stages of implementation. This situation requires them to use all their knowledge and competence in determining the best decision in these difficult times. For example, the contractors need to have extensive experience in determining the appropriate method to remove the tie pillars of the mosque. This is because these building components have their own gravity key and mortise system. Planning and scheduling of work also plays an important role in ensuring that the work of relocating the mosque from Nilam Puri to its original place, Kampung Laut, is done properly. It includes the planning of the appropriate space after the tagging work and before the installation work of the wooden components is done at a location near the original. Resource planning and scheduling activities are also related to the determination of the use of cranes and transport trucks; including the appropriate and optimal manpower required in this operation.

Contractors need to make sure they have the capacity financially. Defective components require high maintenance and replacement. It had to be borne by the contractor at an early stage as the procedure of restoring the features was difficult. Communication between the contractor and sub-contractors, skilled carpenters, suppliers and consultants is also an important ingredient in implementing the relocation procedure and retention of the original features of the KLOM. Any vague and inaccurate information will hinder the smooth execution of a job. In carrying out the work of relocating the mosque and its heritage features, the resources involved namely machinery, equipment and trucks are important to be used properly. The absence of these resources has a negative impact in carrying out such work. In fact, skilled carpenters who used earlier woodworking methods and techniques are becoming extinct with time. This situation has a negative impact in maintaining the original features of the KLOM. In addition, the contractor must control the implementation of dismantling, unloading and re-installation of the mosque and its original characteristics based on the planning and scheduling of work that has been established at the initial stage. All these features need to be refined by the contractor involved to ensure the successful implementation of the relocation procedure and the retention of the heritage features of the KLOM.

Another party that is also important in the implementation of the relocation procedure, and the retention of its original heritage features and values of the KLOM is the suppliers. Communication between suppliers and the contractor is important so that the building materials can be prepared perfectly at the actual location of the KLOM. Difficulty in obtaining supplies of building materials; that is, work that involves the activity of treating and replacing original components or constructions will have a negative impact on the performance of the implementation. There were times when the latest building materials had to be adapted to the original construction of the KLOM. However, approval must be obtained first from the relevant conservator consultants before the latest building materials are ordered and delivered to the actual location of the mosque. Other building materials involved in the procedure include retaining walls and other constructions based on concrete, steel, brick and wood including the supply of related equipment.

One of the features that need to be considered seriously by the consultant and the client in the implementation of this procedure is the supply of accurate and sufficient information to the related contractor. Accurate and sufficient information includes contract-related documents and drawings including work change instructions, reports and relevant certificates throughout the construction and post-contract period. This information is important to be channeled to the contractors involved and it is increasingly valuable in projects related to the relocation and conservation of heritage values in the KLOM. As the contractors are often exposed to situations of uncertainty at construction sites; the consultant's decision is highly demanded. For example, Bedug Drum at the initial stage is difficult to determine by the consultant whether it is in one of the mosques in Kota Bharu or Tumpat. This situation has a negative impact on the implementation of the relocation procedure and the retention of the original features of the KLOM. This accurate and sufficient information needs to be communicated effectively to the contractors involved to facilitate the implementation of the procedure.

In relation to the high costs faced by contractors; issues related to the payment of work progress need to be given serious attention by the consultants and clients involved. The consultant and the client must act immediately if a claim for work progress money is made by the related contractor. In fact, other relevant certificates need to be issued in a timely and perfect manner. To ensure that all the features mentioned earlier are implemented successfully by the consultant and client of this project, in-depth knowledge related to the value and history of the formation and construction of the original KLOM is very influential. Thus, the role of the consultant as the client's representative; that is, as a reference party or a

party that provides consulting services to all parties must be maintained throughout the implementation period of this high value project. In fact, the consultant must act as the party that will monitor the entire process of relocation, transportation, and reconstruction of the KLOM. It is important to ensure that the implementation of this high-impact project is done smoothly; either in the previous location, the location between the two that is the previous and new or the new and original location that is in Kampung Laut, Tumpat Kelantan.

This high value relocation and conservation project of the KLOM is not implemented in an airtight environment or vacuum shaft. It is also influenced by other external factors and one of them is compliance with government or local authority instructions issued by them from time to time. Government instructions especially in the season of Covid19 infection whether they are a movement control, tightened or conditional movement control instructions are very influential. Its influence is very large in determining the level of smooth implementation of the work as a whole. Any instruction issued by the authorities to a district, state or country will have a significant impact on its supply chain. Any disruption to a single operation will cause disruption to other operations in their supply chain.

In addition, the increasingly unpredictable day to day weather effects the implementation of relocation, transportation, and reconstruction of the KLOM. The dismantling and reconstruction of the components of the KLOM must be done carefully and cautiously to avoid damage to the structures and pieces of wood involved, including mortise and tenon and other wood connection methods. Any damage due to disassembly and reconstruction work of the components not done properly will affect the mosque original characteristics. With the existence of an increasingly volatile weather environment, thus will affect the concentration of carpenters; further affecting the smooth running of the work handled by them. In fact, the production of the planning and scheduling report of the work must consider the weather situation throughout the implementation of this procedure. It is important to avoid the occurrence of unrealistic situations in the work planning and scheduling prepared by them.

6. Conclusion

There were many factors influencing the implementation of work procedures of tagging, dismantling, transferring, re-installing, conservation of the KLOM. It was found that the factors involving the contractor's organisation were the most numerous compared to other sub-categories. The contractor needs to play a more effective role towards ensuring success in the implementation of this high value project. Factors related to the consultant and the client comes in second position. Their failure to provide consulting services and supply timely and sufficient information as it should have had a negative impact on the implementation of the relocation and conservation procedures of this mosque.

Suppliers are one of the important categories to ensure the smooth implementation of work procedures for tagging, dismantling, transferring, re-installing, and conservation of the KLOM. Good communication with the contractor to supply relevant building materials is an asset in the implementation of this special project. Factors related to the external such as compliance with government/local authority instructions and weather conditions need to be properly addressed by the contractors involved. All the factors under the four (4) main factor categories have a significant impact on the smooth implementation of work procedures for tagging, dismantling, transferring, re-installing, and conservation of the KLOM. Any failure to address these factors will negatively impact its implementation in the context of cost, quality, time (schedule) and scope.

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References

- Ahmad, A.G. (2010). *Rangka Kerja Pemuliharaan Bangunan Warisan Pemuliharaan Bangunan Bersejarah*. Pusat Penerbitan Universiti (UPENA), UiTM, 21–39
- Akib, S. M. (2003). *Masjid Tua Kampung Laut*. Kuala Lumpur: United Selangor Press Sdn Bhd.
- Al-Ahmadi, A. R. (1984). Bangunan Kuno Masjid Kampung Laut: Hubungannya dengan Campa dan Demak. In N. M. N. M. Salleh (Ed.), *Warisan Kelantan IX*. Kota Bharu: Perbadanan Muzium Negeri Kelantan
- Azim, A. Aziz (2016). Masjid - Selected Mosques and Musollas in Malaysia. Kuala Lumpur: *ATSA Architects*. pp 1–4
- Aziz, A.A. and Zulkifli, M.H. (2018). The Relocation, Conservation and Preservation of Kampung Teluk Memali Mosque in Kg. Gajah, Perak to Ipoh, Perak, Malaysia. *Islamic Heritage Architecture and Art II*. Vol. 177. 181-192
- Bao, Z. and Lu, W. (2021). A Decision-Support Framework for Planning Construction Waste Recycling: A Case Study of Shenzhen, China. *Journal of Cleaner Production*. Vol. 309, 127449
- Hanafi, M.H., Farrell, P., Yusoff, M.N., Abdullah, S. and Abdul Razak, A. (2018). Installation Systems of On-Site Prefabricated Concrete Components: a Qualitative Approach, *International Journal of Construction Management*, Vol. 18(5), 343–350

- Hassan, A. S. (2010). Islam Came to South East Asia From China: Evidence from Traditional Chinese Roof Design in Kampung Laut's Old Mosque, Malaysia. *Canadian Social Science*, 6(5), 1-15.
- Hassan, A.S. and Ahmad Nawawi, M.S. (2014). Malay Architectural Heritage on Timber Construction Technique of the Traditional Kampung Laut Old Mosque, Malaysia. *Asian Social Science*; Vol. 10(8), 230-240
- ICOMOS – The Burra Charter – “The Australia ICOMOS Charter for Places of Cultural Significance”, *Australian ICOMOS Inc. 2000*, Deakin University, (1999).
- Mamat, M.J. and Zulkifli, M.H. (2020). Conservation And Relocation Project Of The Teluk Memali Mosque, *PalArch's Journal of Archaeology of Egypt/Egyptology*, Vol. 17(5), 1191-1201
- Marzuki, A. (2008). Analysing Impacts from Tourism Development: A Framework Method, *Proceedings of National Symposium on Tourism Research*, 26 July, USM Penang
- Nasir, A. H. (2004). *Mosque Architecture in the Malay World*. Bangi: Universiti Kebangsaan Malaysia Press.
- Reece McDougall, (2006). Conserving Timber Structures, Australian, *Journal of Multi Disciplinary Engineering*, Vol. 4(1), 15-23
- Reyers, J. (2003). Risk and Liability for Consultants Advising on the Built Heritage, *Structural Survey*, Vol. 21(1), 8-15
- Ritchie J, Spencer L. (1994). *Qualitative data analysis for applied policy research*. In: Bryman A, Burges RG, editors. Analyzing qualitative data. London: Routledge.
- Rivera, F.M, Mora-Serrano, J., Valero, I. and Onate, E. (2021). Methodological-Technological Framework for Construction 4.0. *Archives of Computational Methods in Engineering*. Vol. 28, 689–711
- Turk, Z., Soto, B.G., Mantha, B.R.K., Maciel, A. and Georgescu, A. (2022). A Systemic Framework for Addressing Cybersecurity in Construction. *Automation in Construction*. Vol. 133, 103988
- Wikipedia (2021). https://ms.wikipedia.org/wiki/Masjid_Kampung_Laut; 6.10.2021; 3.55pm
- Zhou, Q. & Yan, W. (2015). A Seismic Behaviors of Ancient Chinese Structures Strengthened by Different Methods, *Studies in Conservation*, Vol. 60(6), 384-392