

# The Insight on Quality Assessment System in Construction (QLASSIC) Implementation in Sarawak

K M A K Azir<sup>1,a)</sup>, W M N Muhammad<sup>1,b)</sup>, M N F Othman<sup>1,c)</sup> and D H Daeng<sup>1,d)</sup>

<sup>1</sup>Faculty of Architecture, Planning and Surveying, Universiti Teknologi MARA, Cawangan Sarawak, Kota Samarahan, Malaysia

\*Email: asyraf765@sarawak.uitm.edu.my

**Abstract.** Construction industry is one of the industries that contributes significantly to negative impact in terms of material, workmanship and quality of building. To overcome this issue, the Malaysian Construction Industry Development Board (CIDB) suggested a quality assessment system using a point monitoring checklist called Quality Assessment System in Construction (QLASSIC). QLASSIC is an effective tool to provide a criterion quality workmanship for contractors, hence allowing the building occupier getting the most quality building product from the developers. This initiative will be aligned with the national quality and safety aspiration as stated under the Construction Industry Transformation Programme (CITP) 2016-2020. Furthermore, in Sarawak with rapid construction industry growth of 13 percent over the year, the numbers of construction project assessed by QLASSIC is still considered at a low pace. Thus, this study aims to deliberate the insight of contractors and developers on the assessment system. Ample literature review was conducted on building quality assessment's benefits and its challenges, and later, a pilot survey were conducted among the contractors and developers in Sarawak for validation. In conclusion, this study revealed that Sarawak construction industry is slightly increasing towards the usage of quality assessment. However, lack of knowledge and getting a lower score of assessment may discourage the continuity of the implementation. The research findings may be a basis of references and necessary measures to promote QLASSIC implementation in Sarawak.

## 1. Introduction

Nowadays, buildings and infrastructure developments are being rapidly constructed in Malaysia especially in Sarawak, which plans to achieve the developed state status in 2030. In the last six years, the Sarawak construction industry continued to boom at over 13 per cent over the year and it is estimated about RM168 billions worth of mega projects are to be on the cards in the near term [1]. Therefore, to keep ahead in today's competitive project bidding scenario, the construction companies have to produce good quality of work so that it will increase the level of satisfaction of the end users and build the clients' confidence towards the quality of the workmanship [2]. Quality assessment building system on the other hand plays a very important role in construction industry because it is used to measure the quality standard and to achieve the marketability of the building constructed [3]. Back in November 2006, the Technical Committee on Quality Assessment in Construction with the assistance of Construction Industry Development Board (CIDB) Malaysia has developed a system called Quality Assessment System in Construction (QLASSIC) as a quality assessment system for building construction work standard through a scoring system based on the Construction Industry



Standard (CIS 7:2006) [4]. There are several categories of buildings that can be accessed using QLASSIC such as residential, public, commercial and industrial buildings. The total score of building quality is divided between the cost proportions of four components which are the structural work, architectural works, mechanical and electrical works, and external works [4]. This system is designed as a benchmark of the quality level for various construction elements, to evaluate the performance of the contractors according to the quality of workmanship and used as a specification of quality criteria for a contractor's performance scorecard. The challenge now is to achieve a widespread adoption of this quality assessment system, because there are a few numbers of developers and contractors practicing QLASSIC in their projects. According to the statistics by CIDB, in 2015 only 270 out of 4,512 projects adopted QLASSIC to assess the quality of the projects [5]. This paper aims to provide an overview of contractors and developers on the QLASSIC assessment system by identifying its possible benefits and challenges of its implementation. The scope of this paper provides a guideline in obtaining the data required for the research. The respondents are contractors and developers, who may have or may not have the experience in implementing QLASSIC and the area is in Sarawak. Therefore, the significance of this research is to assist the contractors and developers to understand the impact of QLASSIC and to assist the authority to overcome the implementation challenges.

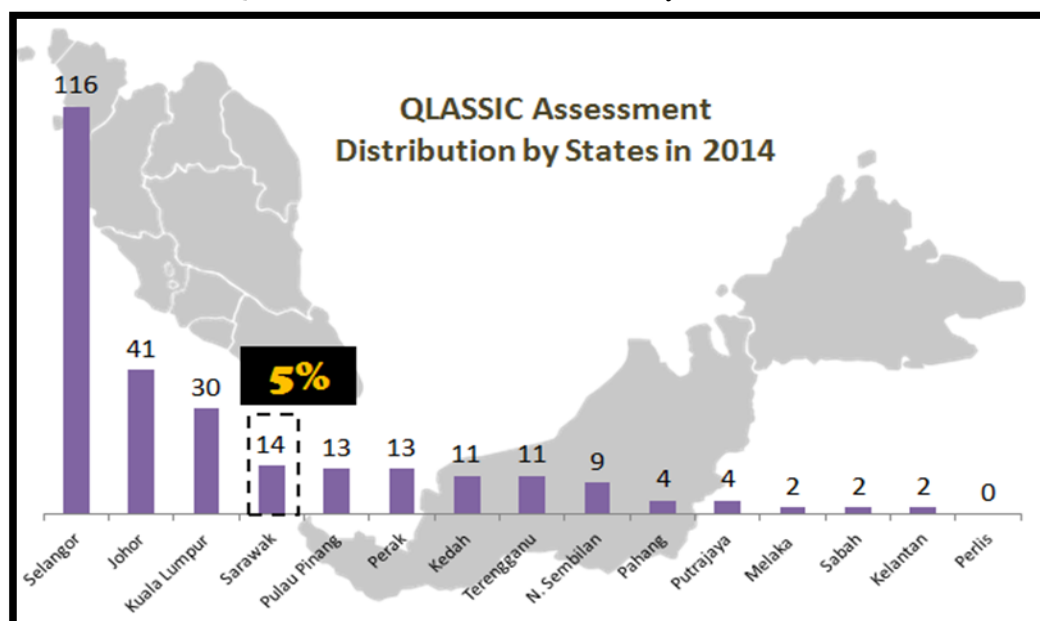
## **2. Quality Assessment System in Construction Industry (QLASSIC)**

In the last few decades, the Malaysian construction industry has been criticized for its performance and productivity and it was proved that the Malaysian construction industry carries poor quality on its projects. In November 2008, the Malaysian Housing and Local Government Minister stated that there are approximately 250 complaints from the buyers regarding building defects every year [6]. Therefore, the quality of the buildings becomes an issue because there were many accidents occurred related to building failure and most of the critics received from the public were related to common problems such as leaky roof, leaky walls, dampness, water penetration from upper toilet, and crack at floor slab [7]. It is common for construction projects to have some failure and defects, but it may bring negative impact toward cost, duration and construction parties' status [8]. Therefore, it is necessary to investigate the importance of quality for construction project success. The implementation of QLASSIC started when the previous system from the International Organization for Standardization (ISO) 9000 was not applicable to the construction industry because it was very difficult to be conducted and only suitable to be used for manufacturing industry. In order to cope with that issue, CIDB introduced QLASSIC through Construction Industry Standard (CIS) 7:2006 which was adapted from Construction Quality Assessment System (CONQUAS) Singapore to meet the requirement with the Malaysian construction industry [9]. It had also been modified with several adjustments in CONQUAS and changed into QLASSIC in 2007 [10]. The system was created by the Technical Committee on Quality Assessment in Construction together with CIDB and the relevant industry stakeholders in 2006 [11,12]. The main roles of CIDB in the development of QLASSIC are to assist and act as a moderator and facilitator for the technical committee throughout the development process of this standard so that, this system will be conducted in an organized way [4].

Referring to MBAM [13], there are several benefits of QLASSIC system. These benefits are to evaluate the level of quality in the construction industry, to have a standard quality assessment system as a point of reference for quality in the construction works, to assist contractors to accomplish defect-free while carrying out the construction work, to be used as criteria to evaluate the performance of contractors based on the quality of workmanship and to be used for data compilation for statistical analysis in estimating the level of quality and productivity of the construction industry. Nevertheless, there are still some challenges in implementing QLASSIC. According to the research made by [14], QLASSIC causes delay in construction. The statement was also being supported by [15], whereby the process of assessment may cause delay in construction activities. An additional cost due to requirement fees for the quality assessor was also becoming one of the challenges needed to be faced by the contractors and developers [16]. In fact, there is still a large number of developers and contractors in Malaysia that are not aware with the quality assessment system even the big

construction companies [9]. This issue was justified through a report prepared by [17], stating that 60% of G7 contractors are not aware on the QLASSIC implementation. Besides, in 2014, only 264 projects were assessed with this system compared to the huge number of developers [18]. The scenario was similar to that in Sarawak where the implementation of QLASSIC percentage was still considered low compared to other regions as in Figure 1 [16]. Generally, QLASSIC was not widely implemented and often taken lightly by the developers and contractors [10]. From 2015 until 2017, only 13 out of 120 projects were evaluated using QLASSIC where 10 projects were located in Kuching and three others in Miri [19]. According to S. Katessan [20], it is compulsory for all government projects exceeding RM50 million in amount to implement the QLASSIC assessment system starting from 2018. A decade after QLASSIC was first introduced to the construction industry, only 6% of the total projects in Malaysia are using it [5].

**FIGURE 1.** QLASSIC Assessment Distribution by State in 2014 [16].



### 3. Methodology

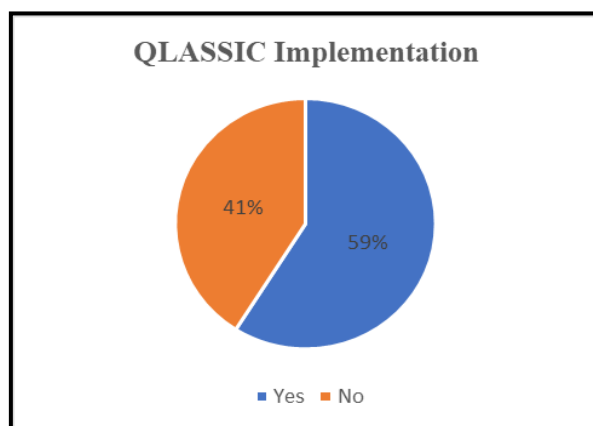
An intensive literature review was conducted to explore the information related to QLASSIC implementation. The aim of this research is to highlight the insight of QLASSIC implementation by identifying its challenges. The paper began with a review of QLASSIC and its benefits in the construction industry. Subsequently, a structured questionnaire was used to obtain the data. The research focused on the construction industry in the state of Sarawak. Sarawak is the biggest state in Malaysia, where major construction projects take place in Kuching and Miri. The questionnaire was performed primarily to collect the representative data from two main parties, i.e., the contractors and the developers. 40 sets of questionnaires were distributed. The questionnaire was divided into three sections where each section focused on one objective. Section A briefly exhibit the demographic information such as the company name, the nature of the company's business, the designation of the respondent and the type of project being assessed by using QLASSIC. Section B comprised of the benefits of QLASSIC and lastly, Section C was designed to ascertain the challenges in QLASSIC implementation. These sections were formatted in an attitude scale as Likert scale type. The attitudinal scale is used to measure the respondents' attitude towards the various aspects and to provide the techniques to combine the answer into one overall indicator. The data received were analyzed using the descriptive analysis which showed the unvaried summary statistics such as mean for several

variables in a single table and calculated the standardized values. This method was achieved using the Statistical Package for Social Science (SPSS) version 14.0 software. The results were used to get an insight on the current practice of QLASSIC through acquiring their perception on the benefits and challenges related to the implementation of QLASSIC.

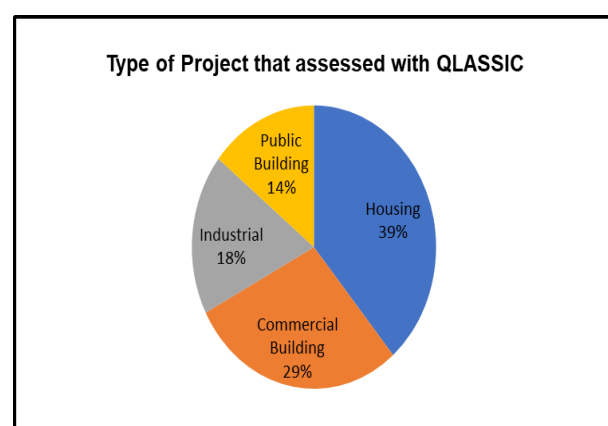
#### 4. Results and Analysis

An In this study, 40 sets of questionnaires were distributed across Kuching and Miri. These sets were distributed face-to-face and via e-mail to contractors and developers. However, only 37 sets of questionnaires were returned within the stipulated period. The percentage of the response received over the number of questionnaires distributed is 92.5%. Furthermore, the feedback from the 37 respondents in this study were sufficient to make a statistical analysis for the research. Section A underwent the demography of the respondents' business. The results show that most of the respondents are from the contractor companies with the percentage of 75.6%, equal to 28 number of respondents. Meanwhile, 24.4% of the respondents were the developers with a number of 9 respondents only. This shows that the sampling for this research are mostly responded by the contractors. Furthermore, the analysis of Section A found 59% of the respondents have implemented and have the knowledge regarding QLASSIC. The rest of the result which is 41% has never used or are unfamiliar of QLASSIC (Figure 2). According to the short interview with the respondents, most of them are not familiar in using QLASSIC as they are using the other assessment methods such as ISO, QAQC and CONQUAS. On the other hand, those companies implementing QLASSIC is due to the requirement by the authority or the client. From 24 contractor-developers, 39% of QLASSIC implementation is on residential project. Then, followed by the commercial building with a percentage of 29% and industrial building 18%. The least type of project implementing QLASSIC is public building which contributes only 14% as per Figure 3.

**FIGURE 2.** Demographic distribution of QLASSIC Implementation.



**FIGURE 3.** Demographic distribution of Project Assessed by QLASSIC.



Under Section B, the data is analyzed by using the descriptive analysis. The first data analyzed is the perception on the benefits of QLASSIC. According to Table 1, the highest mean is 4.43 and its standard deviation is 0.558, pointing to the benefit of QLASSIC to measure the quality of workmanship in the construction work. This is followed by the benefit to build contractor-developer reputation and to improve end-user satisfaction, both with the mean of 4.37 with standard deviation 0.490 and 0.598 respectively. The third highest benefit is to use as a requirement to select the successful contractor-developer with the mean score at 4.31 and standard deviation of 0.676. The fourth highest benefit is to ensure the defect issues are identified for future improvement with the

mean score of 4.29 and standard deviation 0.572. Two other benefits are to improve the company productivity and to use QLASSIC as marketing tools, ranked the two lowest with the mean distribution of 4.09 and 3.94 respectively. The scores indicated that most respondents agree that the major benefit of QLASSIC implementation is to measure the quality of workmanship.

**TABLE 1.** Distribution of mean and standard deviation for the Perception on Benefit of QLASSIC.

Rank	Description	Mean	Standard Deviation
1	To measure the quality of workmanship in the construction work.	4.43	.558
2	To build the reputation of the contractor/developer firm.	4.37	.490
3	To improve end-user satisfaction.	4.37	.598
4	To use as a level of standard to be awarded to the successful developers and contractor.	4.31	.676
5	To ensure defect issues are identified for future improvement.	4.29	.572
6	To improve the company productivity.	4.09	.612
7	To use QLASSIC as marketing tools.	3.94	.765

Moreover, Section C proceeded with evaluating the perception of contractor-developers on the challenges in QLASSIC implementation. The descriptive statistics are summarized in Table 2.

**TABLE 2.** Distribution of mean and standard deviation for the Perception on Challenges in QLASSIC Implementation.

Rank	Description	Mean	Standard Deviation
1	Contractor/developer not aware on QLASSIC.	4.03	.747
2	Level of knowledge on QLASSIC is still low.	4.00	.840
3	Process in applying and implement QLASSIC is complicated.	3.94	.765
4	Previously gained lower QLASSIC score may discourage future implementation.	3.83	.747
5	QLASSIC has effect on construction cost.	3.63	.843
6	QLASSIC may cause delay in construction activities.	3.17	.707

It was found that being unaware of QLASSIC assessment among respondents contribute to the highest challenges with the mean of 4.03 and 0.747 in standard deviation, followed by lack of knowledge on QLASSIC, with the mean of 4.00 and 0.840 standard deviation. Then, the complicated process in applying and implement QLASSIC becomes the third highest issue scoring at 3.94 mean and 0.765 standard deviation. The fourth challenge is where the previous low QLASSIC score may discourage future QLASSIC implementation with 3.83 mean. Nevertheless, the challenges of that the QLASSIC has the effect on construction cost and may cause delay in construction activities are the two lowest perceived by the respondents with the mean distribution of 3.63 and 3.17 respectively.

## 5. Conclusions



Based on the research findings, it can be concluded that the QLASSIC implementation in Sarawak and the knowledge level of professional players toward QLASSIC are slightly increasing. This was supported by more than 50% respondents who implemented and are aware of the purpose of QLASSIC. Majority these respondents agreed that the implementation of QLASSIC can measure the quality of workmanship. It was also found that most of the respondents agreed that through high QLASSIC recorded scores, business reputation can be built in construction industry. However, throughout this study it was also found that nearly half of the respondents are neither having any experience in implementing QLASSIC nor aware of the quality assessment. The main challenge faced by the contractors and developers is not being aware of the existence of QLASSIC, followed by other challenges such as low level of knowledge in QLASSIC, complicated process in applying and implementing QLASSIC, and the low previous scores in QLASSIC marks, hence discouraging further implementation. Thus, a few strategies are suggested in this research to assure the implementation of the quality assessment system. One of the suggestions received from the respondents is to appoint a third party monitored by CIDB to conduct QLASSIC. It is to make sure that the QLASSIC implementation is expedited. Next, the process flow in QLASSIC application can be revised to become more customer friendly. Furthermore, the QLASSIC scoring system needs to be improved and persistently checked for the quality of the project. In addition, promoting QLASSIC through organizing more roadshows, seminars, trainings, and reducing the fees for its registration may also attract more construction players, hence helping to achieve the objectives of Construction Industry Transformation Program 2016-2020.

## References

- [1] R Lau 2018 Construction Sector Boom to Continues into 2018 (The Borneo Post)
- [2] Janipha N A I and Ismail F 2013 Conceptualisation of Quality Issues in Malaysian Construction Environment *Procedia - Social and Behavioral Sciences* 53–61
- [3] Ahmad N, Sabli M N and Othman A A 2014 Assessing the implementation of conqwas standard amongst contractors towards improving quality of workmanship The Institution of Engineers Malaysia
- [4] Iva P 2013 Cis 7:2006 Quality Assessment System for Building Construction Work Fluids 11<sup>th</sup> *Offshore Mediterranean Conference and Exhibition* Ravenna Italy
- [5] V. Nair 2016 QLASSIC Case of Setting High Standards *The Star*
- [6] R K Bhatt 2016 QLASSIC: Doing it Right the First Time *iProperty Magazine*
- [7] Wahab S N A and Hamid M Y 2011 A review factors affecting building defects of structural steel construction. Case study: Student accommodation in UiTM Perak *Procedia Engineering* 174–179
- [8] Ahzahar N et al. 2011 A Study of Contribution Factors to Building Failures and Defects in Stabilized Construction Industry *Procedia Engineering the 2nd International Building Control Conference* 249–255
- [9] Kam K J Hilmy A and Hamid A 2012 Elixir International Journal **46** 8525–8529 Fluids 11<sup>th</sup> *Offshore Mediterranean Conference and Exhibition* Ravenna, Italy
- [10] M A Malek and A Norizam 2013 *Malaysian Construction Research Journal* **13** 69-77
- [11] Information on <https://www.scribd.com/document/343958042/September-2015-QLASSIC-the-Way-Forward-in-the-Construction-Industry>
- [12] CIDB 2017 Quality Guidebook for Homeowners; First Edition Construction Industry Development Board Malaysia
- [13] MB Association 2017 QLASSIC Awareness and Assessor Training MBAM Training Centre
- [14] N Manap, Y K Goh and N Syahrom 2017 The International Conferences on Eco Engineering Development 1-12
- [15] Bernama., Government Construction Projects Must Apply QLASSIC The Borneo Post, 2017
- [16] Chuang, QLASSIC Implementation in Kuching [Interview] February 2018

- [17] I Loyalty 2016 Understanding Customer Satisfaction on CIDB & Construction Products and Services Ipsos
- [18] G. Tan, "CIDB to Make QLASSIC Requirement The Borneo Post.
- [19] CIDB, "QLASSIC Projects in Sarawak 2006-2017 Construction Industry Transformation Programme, 2018
- [20] S. Katessan 2017 QLASSIC Awards 43 Quality Building Projects Starproperty *Meeting* San Francisco