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Developing the Factors for Management Practices for the Deployment of Green Policy in the Malaysian Construction Industry

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Abstract
This research paper aims to ascertain the different factors for green policy between the internal and external factors. Although previous studies have tried to address the different factors that affect management practices, however the emphasis has being more on qualitative whereas this study bridges the knowledge gap by providing a valid methodology for assessing the 'management and factors' readiness of the Green policy deployment within the Malaysian construction industry through the general application of management practices and important factors identified. The findings of the paper are based upon a comprehensive literature search and empirical studies conducted with 102 Malaysian Construction Organisations currently utilising various modes of quality systems within their construction projects. Through a survey of data collected, this study empirically refines and validates 6 internal and external factors and 3 management practices deemed necessary for the deployment of Construction Green Policy. The study reports on the operational framework of Management Practices and internal with external factors (**MP& IEF**) model, which can be used to examine the levels of critical factors relating to the deployment of Green policy. The findings indicate that the MP&IEF model is both reliable and valid. All the Management Practices scored medium levels (means score > 3.00) with the highest being 'Vision' and 'Quality and Behaviour'. On the other hand, the most important internal factors for Green policy deployment were found to be 'Environmental/Green Technology', 'Training' and resistance to change. Whilst external factors were found to be 'Integration with Environmental Management', 'New Approaches to Management' and 'Shifting Customer Expectation'. The findings suggest that the internal and external factors as the mediator between management practices and green policy observed within the Malaysian construction quality can be transferred within the green policy environment with quality as the leverage for the deployment of green policy. This would contribute to the enhancement of the quality performance within the Malaysian Construction Industry. This paper concludes by presenting a new methodology for assessing the 'management and internal external factors' readiness of Green policy deployment for the Malaysian Construction Organisation. The frameworks presented in form of a hexagonal profile can be used to depict the levels of consideration of the management practices and internal external factors desirable for the Green policy deployment.
Keywords: Malaysian Construction Industry, Sustainability, Quality Systems, Construction Organisations, Green Management/Technology, Total Quality Management (TQM)

1. Introduction

This paper presents the findings of an ongoing investigation into the developing of the Construction Quality System approach within the Malaysian Construction Projects. (Sim, 2013) Many reports and researchers (Nima et. Al., 2001; Kamal and Flanagan 2012) showed that the Malaysian construction industry still suffers with many problems and being associated with low quality, low productivity, unskilled, project delays, poor maintenance, non-condusive and high accident rates on site.

The literature review establishes that significant amount has already been written on within the Malaysian context, however little research has been conducted to investigate and thus developing the sustainability and green policy as outlined in the 11th Malaysian Master Plan. Against this background and with the growing of international trade, customers have had a wider choice of products and services from around the world. Recent years had seen much attention and initiatives provided by government of Malaysian in the effort to bring the local construction industry up a par with those of developed countries. Wider choices have elevated quality requirements and pose another challenge. In this dynamic and competitive marketplace, companies are under tremendous pressure to becoming more customers orientated and more cost effective is just the beginning to continuously improvement of quality towards sustainability. There is therefore a need for quality management system that is ease of use, adaptable and flexible and environmentally concerned.

1.1 General Construction Overview

In Malaysia, Construction Industry Development Board (CIDB) has initialised the Green Technology programme since 1999 as an environmental development programme initiative with the establishment of "Technical Committee of Good Environmental Practices" which is also known as "TC9". The committee aided in determining the core direction and various proposals in order to strengthen environmental practice in

construction industry. The purpose of the establishment of the technical committee is to help CIDB to identify, prepare and develop the Construction Industry Standard (CIS), guidelines manual, technical reports, training modules and other materials associated with green technology in the construction industry. All of the taken initiates and conducted programmes proved CIDB's strong commitment in improving and strengthening best green technology practices in the construction industry in Malaysia. (CIDB Malaysia, 2013)

Issues of sustainability have been duly highlighted in the Construction Industry Master Plan (2011-2015) as being of significant importance for the Malaysian construction industry . Driven by environmental needs, Green Building Index (GBI) was jointly founded and developed by Pertubuhan Akitek Malaysia (PAM) and the Association of Consulting Engineers Malaysia (ACEM) in 2009. GBI (M) is a profession driven initiative to lead the property industry towards becoming more environment-friendly. From its inception GBI has received the full support of Malaysia's building and property players. It is intended to promote sustainability in the built environment and raise awareness among Developers, Architects, Engineers, Planners, Designers, Contractors and the Public about environmental issues. Previous studies (Lam et al., 2009) have indicated the need for green specification guides and a common database for overcoming the barriers in adopting green building practice. Hence, although the detail contents can be left to individual designers, a common framework for green specifying is considered necessary for striving ahead in the promotion of sustainable construction.

This research has been carried out in an attempt to develop such a specification framework in Malaysia as above, with views collected from stakeholders for drawing up a roadmap leading to its sustainable adoption. The experience gained should be of interest and reference value for other jurisdictions which have similar construction industry backgrounds and a multifarious specification regime. The internal and external factors will act as mediator and linkage for the betterment of the construction quality model framework and thus contribute to the body of knowledge.

In construction, it is apparent that in addition to achieving conformity to the requirements related to the quality of the built environment, sustainable development should be a primary goal; and in this regard, the scope of quality should encompass sustainability. (Aleksander & Jana, 2011)

2. Development and Validation of Instrument

In this section a discussion of the measurement instrument construction procedure, the characteristics of the sample and the methodology for data analysis is presented and discussed.

2.1 Development of the measurement instrument

The importance of developing validate measures are articulated by several researchers (Nunnally, 1978; Saraph et al, 1989; Madu, 1998). Several dimensions of validity need to be addressed such as content validity, construct validity and criterion-related validity (Flynn et al, 1994). In order to achieve that, they are various steps to be considered in the instrument development process. Much of the earlier works in quality management such as Saraph et al (1989) adopted a 9 step approach. The steps taken in the development and validation of the MP&IEF-AM are adopted from Sureshchandra et al (2002) seven step approach comprising the following:

- Step 1 Expound the theory and concepts that underlie a particular management philosophy
- Step 2 Design of survey instrument by careful selection of the representative items
- Step 3 Pre-testing of the instrument
- Step 4 Modifications, refinements and finalisation of the Instrument
- Step 5 Data Collection
- Step 6 Factor Analysis of Data
- Step 7 Proposed MP&IEF-AM Measurement Instrument

According to Sureshchandar et al (2002), a critical aspect in the evolution of fundamental theory is the development of good measures to obtain valid and reliable estimates of the construct of interest. **Step 1** which deals with expounding the theory and concepts that underlie a particular management theory involved the review of literature and the identification of existing job satisfaction measurement instruments. This formed part of the exploratory phase in phase of the research design. This issue has been presented in the earlier sub sections. **Step 2** involved the design of the survey instrument by careful selection of the representative items. **Step 3** dealt with the pre-testing of the instrument, either objectively or subjectively by experts in the field. According to Chileshe and Watson (2004), this is defined as content validity which forms part of the confirmatory factor analysis. **Step 4** is addressed by the modifications (if any) to the existing measurement instrument found in literature such as the Management of Complex Change (Abraham et al , 1997), refinement and finalisation of the MP&IEF-AM instrument which is provided for in the subsection dealing with the review of literature and existing instruments. Finally but not the least, **Step 5** dealt with data collection through a self administered questionnaire to 102 Malaysian Construction Organisation. **Step 6** contains the three-stage continuous improvement cycle which according to Chen and Paulraj (2004) lies at the heart of the instrument development process and addresses the issues of Confirmatory Factor Analysis. This is equivalent to scale evaluation process

which entails items generation, scale re-development and scale evaluation. The following sub section describes the process undertaken to determine the requirements of the steps in the development process. The undimensionality which is a mandatory condition for construct validity and reliability checking is addressed through a measurement model not shown in this paper was specified for the two constructs identified as management practices and internal/external factors. Confirmatory factor analysis is run for all the constructs. Content validity at the item level measures the target or content domain which it is supposed to measure and as the instrument has been developed based on the effective management of complex change (Abraham et al, 1997) and the 'Internal external factors', therefore ensuring validity since the instrument has been previously tested in several studies ranging from manufacturing to services. The reliability issues are addressed through the following measures is used in this paper for the reliability tests namely; Cronbach Alpha; Kaiser-Meyer-Oklin (KMO) Sampling measure of adequacy; and Barletts Measure.

2.2 Sampling Procedure

Because of the small sample, a measure of the sampling adequacy using the Kaiser-Meyer-Oklin (KMO) was carried out and the results obtained was a value of 0.768 with the Barlett's test of sphericity yielding an approximate chi square of 2112.86 (df = 551, Sig = .000). It's recommended that the value of KMO should be greater than 0.5 if the sample is adequate (Field, 2000). The above result of 0.788 indicates that the sample was adequate for each factorial or "factor analysis" determination. The KMO statistic varies between 0 and 1, and is defined as an index for comparing the magnitude of the observed correlation coefficients to the magnitudes of the partial correlation coefficients and for the original matrix.

The sample for the study consisted of 463 Malaysian constructional related organizations randomly selected from the CIDB Malaysia list of database. A total of 110 organizations responded giving a response rate of 25%. Eight of the responses were unusable due to incomplete data. The analyses are based on the remaining 102 organizations. An internal consistency analysis was carried out to each of the five management practices and the twelve internal and external factors. Both instruments had high cronbach alpha values with the motivation for certification achieving 0.753 whereas the Management Practice instrument adapted from Abrahams et al (1997) scored 0.702 thus indicating a high reliability of scales as values are > 0.7. (Nunnally, 1978). While the internal and external factors instrument had a high reliability (0.7575 and 0.7659). This item displayed a strong positive relationship to the total indicates the question that is good on reliability and thus affecting the findings from the whole scale .

3. Discussion of Findings

Table 2.0 shows a breakdown of the construction organisations who responded to our questionnaire. The table shows the distribution of the respondent's position, experience in the construction industry and the size of the organisation.

The information in Table 2.0 shows that the position of individual respondents were assessed and the majority of the respondents workers were twenty two director/assistant director (23 %), three head of finance/marketing (3 %), seven (7%) quantity surveyor, fifteen (15%) project and construction manager, six (6%) architect, eighteen (18%) engineers, one (1%) lecturer, eight (8%) consultant, eight (8%) quality manager, five (5%) environmental consultant and another nine (9%) not stated due to privacy issue.

Furthermore, each had been involved in the construction industry for a considerable period with a maximum of forty years and minimum of three years. This implies that they had enough knowledge and practical experience within the quality and green management system. Referring to Figure 3, the level of understanding of environmental management is significant (93%) and only 7% are not aware of it.

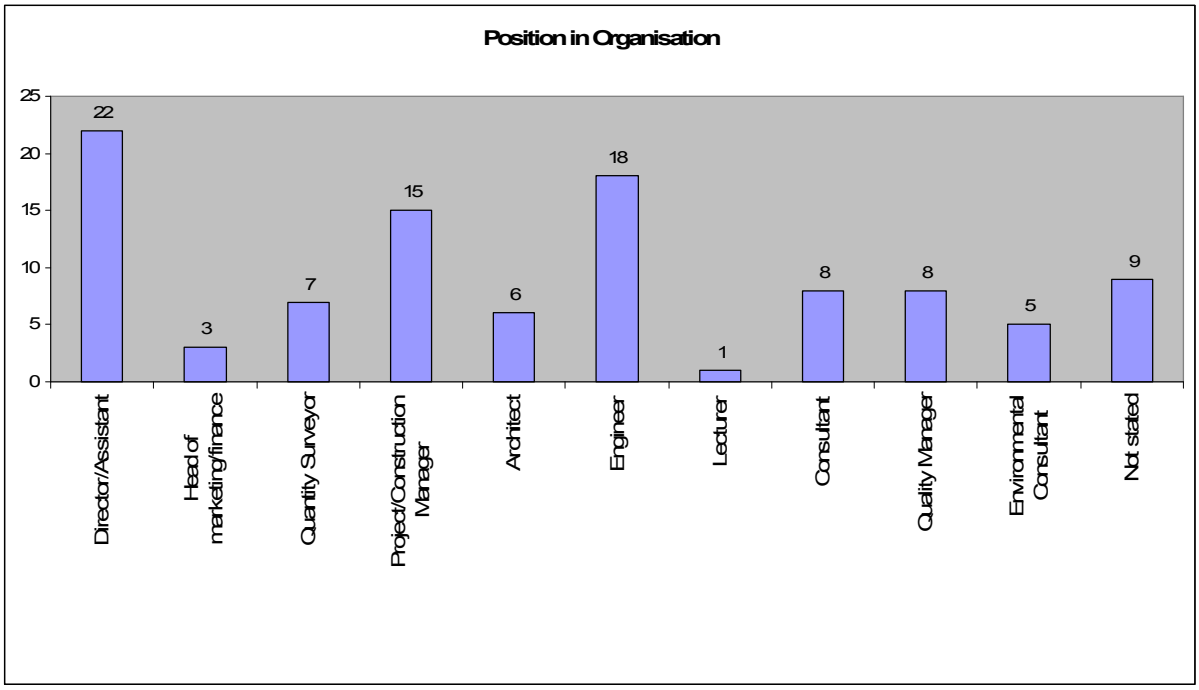

Figure 1: Background of respondents

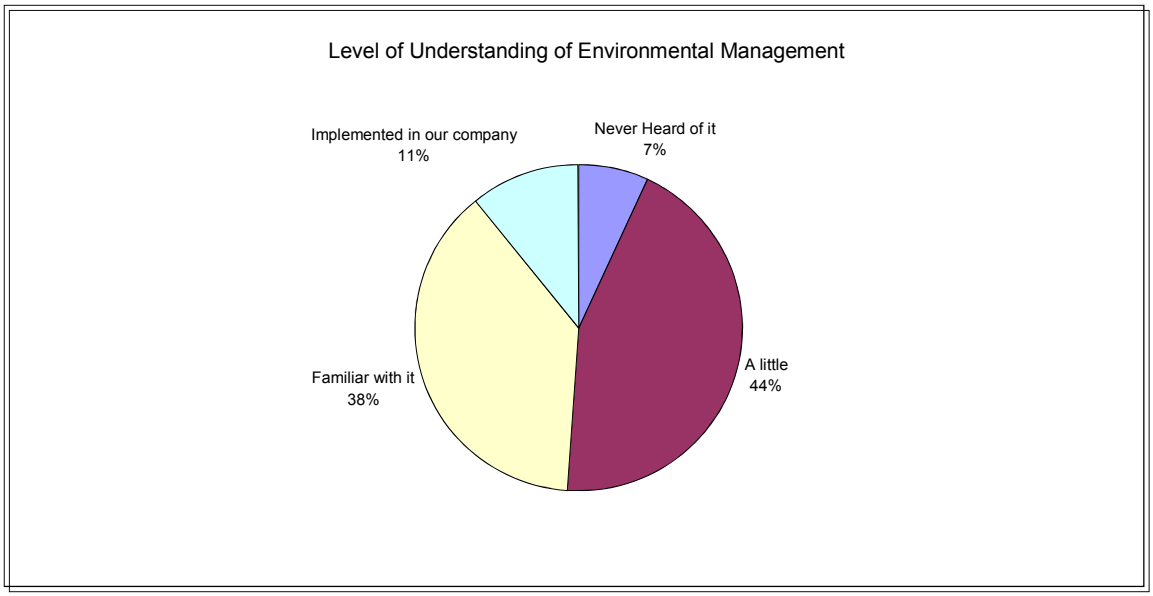

Figure 2 Level of Understanding of Environmental Management

3.1 Management Practices

The means and standard deviations for the six management practices and twelve 'internal and external ' factors for the SME's constructional related organizations are shown in tables 3 and 4. For the Management Practices, the means ranged between 3.25 and 3.63 while for the internal and external factors, between 3.30 and 3.67. A score of 4 or more indicates a high level of consideration would be provided for the deployment of the green management practice and certification factor would equally be of more concern. A score of less than 2.0 indicates that the organizations would not give the particular green management practice any consideration and that the certification benefit would be of less concern

Table 1: Descriptive Statistics & Results of Internal Consistency Analysis for Management

Variable	Rank	Mean	StDev	Variance	Skew	Kurtosis
Vision	1	3.6337	0.8453	0.7145	-0.228320	-0.474
Management Practice	4	3.3762	0.7328	0.5370	0.051994	-0.244
Systems support	6	3.2574	0.8325	0.6931	0.013312	-0.191
Motivation and Rewards	5	3.3069	0.8915	0.7949	-0.47666	1.140
Communication	3	3.4059	0.8964	0.8036	-0.391127	0.256
Quality and Behaviour	2	3.4752	0.8437	0.7119	0.130155	-0.037

The average scores given by respondents for each management practice were calculated. The higher the mean, the more likelihood of the management practice being deployed by the respondents. The three most important practices (with the highest means) are:

(1) Vision (mean = 3.63)
(2) Quality and Behaviour (mean = 3.47)
(3) Communication (mean = 3.40)

3.1.1 Discussion of Management Practices

The results of the survey (Table 3.0) are now discussed with to the framework proposed in Figure 1.2.

- **Vision**

The aim of this question was to measure the degree to which a quality vision was designed and articulated by top management. It also measures the clarity and depth of perception of this vision. The results confirm that motivation for green policy really needs to be governed by vision from management practice point of view.

Since vision is the most important element (mean score = 3.6337) and has a significant effect on motivation for CONQUAS (p = 0.023 < 0.05). According to Abraham et al (1997) Vision is the perceived clarity of goals, means and values for change. The higher mean score indicates that Vision is possibly one of the most important elements in green management deployment. This can be equated to leadership as used in other studies (Chileshe and Watson, 2003; Chileshe and Watson, 2004; Tan, 1997; Sim, 2006). The medium standard deviation (sd = 0.8453) for the vision indicates that there might be a medium rate of concern for this practice among the respondents. This finding is consistent with Chileshe and Watson (2003) who found that Leadership in TQM requires the manager to provide an inspiring vision, make strategic directions that are understood by all and to instill values that guide subordinates.

- **Communication**

Communication measures the extent to which various communication approaches were used to emphasize a quality theme and the effectiveness of each of the approaches. Examination of table 3.0 indicates that communication was third ranked (mean score = 3.4059) and that it is an important and significant (p < 0.05) element towards the motivation for green policy.

- **Quality and Behaviour**

Quality and Behaviour was identified as the second considered (rank = 2th; mean = 3.4752) in comparison to other management practices. Q&B defined as providing some output variables where respondents could record their perceptions of tangible gains achieved through the change to a quality orientation.

Having provided the descriptive statistics for the management practices that require consideration for the assessing the readiness of green deployment, the following section identifies the desirable internal and external factors enhancement of quality performance levels in Construction Projects.

3.2 Internal and external factors

Table 2 Descriptive Statistics & Results of Internal Consistency Analysis for Internal Factors

Internal Factors (Variable)	Rank	Mean	StDev	Variance	Skew	Kurtosis
Management Commitment	4	3.3762	1.0757	1.157	0.032998	-0.905
Requirements of standards	4	3.3762	1.0567	1.1170	0.02159	-1.038
Documentation	5	3.3069	1.0271	1.0549	0.14077	-0.915
Training	2	3.4455	0.9947	0.9895	-0.06419	-0.530
Resistance to change	3	3.3960	0.9382	0.8616	-0.186763	-0.2652
Usage of computer Technology	6	3.3030	1.0547	1.1125	-0.1867630	-0.9857
Environmental/Green Technology	1	3.6733	0.9392	0.8822	-0.406394	-0.005

Each and every of the internal factors is considered having significant effect on green implementation. These are shown by mean value ranging from 3.3069 to 3.6733 (All items above 3.00) (Refer table 4.0) However, just three highest mean values on top of the list will be selected for analyst. The reason behind is to incorporate only the internal values that are considered more important into the research framework. Therefore, only three variables are chosen - 'Environmental/Green Technology', 'Training' and 'resistance to change' which has value of 3.6733, 3.4455 and 3.3960 respectively.

Table 3 Descriptive Statistics & Results of Internal Consistency Analysis for External Factors

External Factors (Variable)	Rank	Mean	StDev	Variance	Skew	Kurtosis
Demanding Global Customers	4	3.4059	0.9293	0.8636	-0.291418	-0.300
Shifting Customer Expectations	3	3.4509	0.9506	0.9036	-0.045070	-0.320
Opposing Economic Pressures	5	3.3663	0.9697	0.93450	-0.15099	-0.709
New Approaches to Management	2	3.5149	0.9513	0.8323	-0.246377	-0.021
Integration with Environmental Management	1	3.6040	0.9600	0.9216	-0.302481	-0.226

Each and every of the external factors is considered having significant effect on green implementation. These are shown by mean value ranging from 3.6040 to 3.5149 (All items above 3.00) (Refer table 4.0) However, just three highest mean values on top of the list will be selected for analyst. The reason behind is to incorporate only the external values that are considered more important into the research framework. Therefore, only three variables are chosen - 'Integration with Environmental Management', 'New Approaches to Management' and 'Shifting Customer Expectations' which has value of 3.6040, 3.5149 and 3.4509 respectively.

4. Reliability of Data

The analysis will be meaningless unless the questionnaire is reliable. Reliability is the ability of the questionnaire to consistently measure the topic under study at different times and across different populations. (Hinton, et. Al, 2004) .The most popular method is the Cronbach's Alpha.

Table 4 Reliability of Data

Categories	Variables No.	Average Cronbach Alpha	Result Interpretation
Internal Factors	3	0.7575	Acceptable
External Factors	3	0.7659	Acceptable
Management Practices	3	0.7592	Acceptable

Cronbach's Alpha ranges from 0 to 1. The higher the number, the more reliable of questionnaires. After the reliability test, it is found out that all section for the construction quality model is reliable. This is shown by the Cronbach's Alpha value of between 0.7575 and 0.7865.

As discussed previously in Chapter 2, Nunnally (1978) recommended that a value of 0.7 should be achieved. It is assumed that if alpha for any scale is greater than 0.7 then it is acceptable. As shown in table above, the eleven variables are considered acceptable .These are the average of 11 items for the model framework. While 0.7575 is the value for the 3 internal factors, 0.7659 for external factors, 0.7592 for management practice variables and 0.7865 for cultural values variables. All variables displayed a reasonable positive relationship and reliable. In the words, the results of all variables are reliable. These again reconfirm the research findings.

4.1 Regression

In this research, there are four test used to determine the reliability of data presented in regression in Minitab. The four are - Normality test from histogram, multicolinearity, auto correlation and normal probability plot. Regressions in this part are of two sections A and B (Refer Chart 4.26). The results are as follows:

Relationship A - Management Practices to Green Policy
Relationship B – Internal External Factors to Green Policy

4.1.1 Management Practices to Green Policy

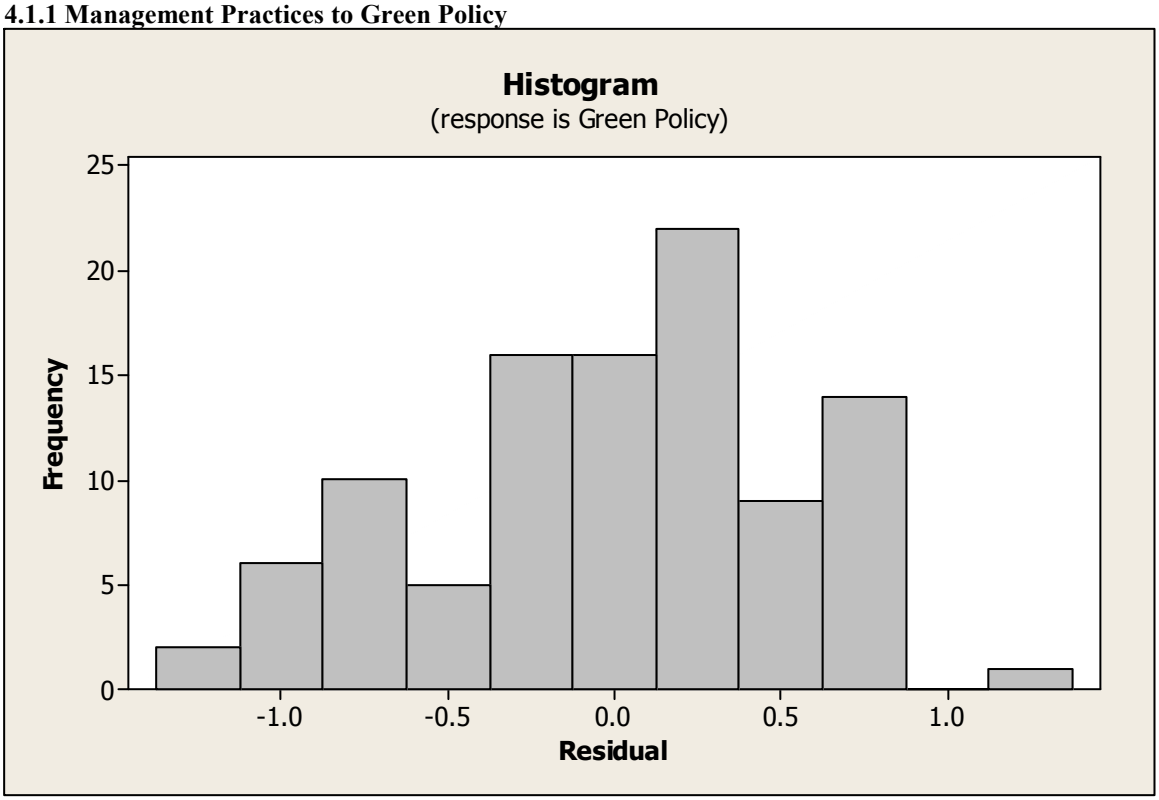

Figure 3 Management Practices to Green Policy Histogram

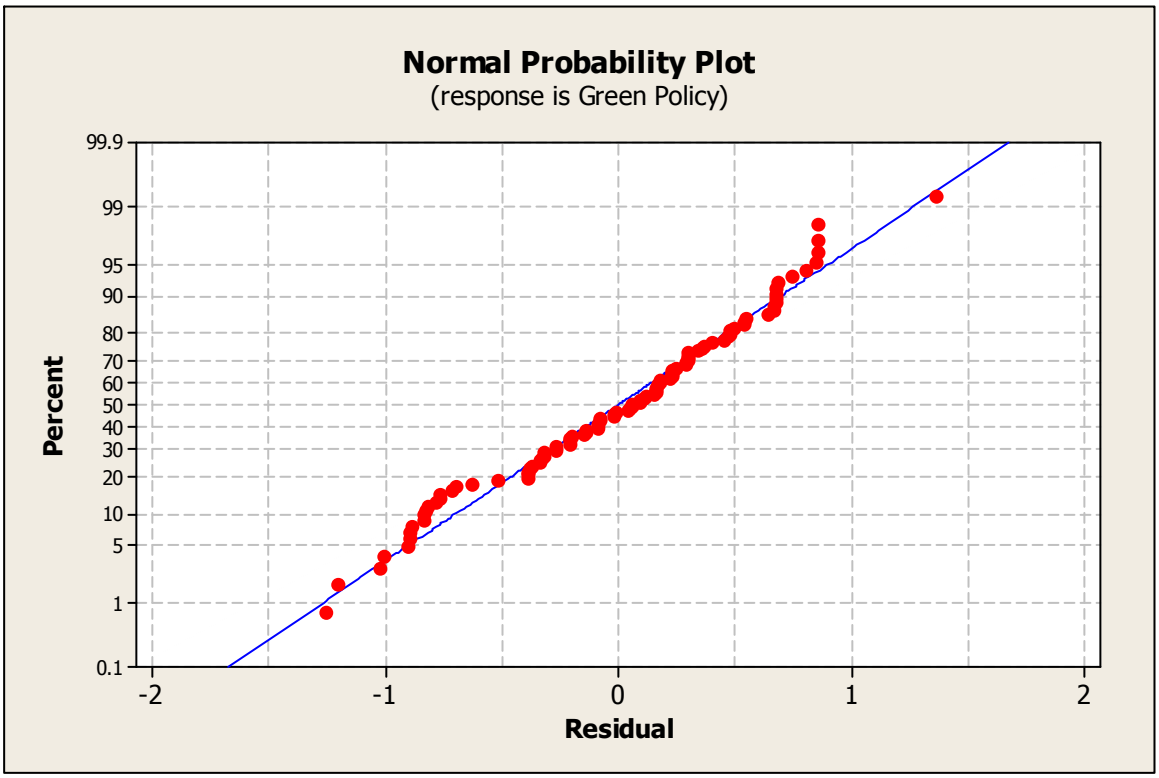

Figure 4 Management Practices to Green Policy Normal Probability Plot

Table 5 Management Practices to Green Policy Multicolinearity and Auto Correlation Analysis

Predictor Constant	Variance Inflation Factor (VIF)
MG	1.247
CO	1.361
QB	1.416
Durbin-Watson statistic	= 2.1719

The normality test of histogram is evenly distributed. The Normal probability plot test is along the positive relationship of linear line with just a few residuals. The constant VIF (1.247 to 1.416) of multicolinearity test is less than 7 which is good. And the result of Durbin Watson statistic (2.1719) of autocorrelation test is between 1.5 and 2.5, which is acceptable. Since, relationship A passed all the four tests of regression, we can conclude that Relationship A is statistically reliable (significant) in term of Management Practices towards Green Policy. Therefore, the hypothesis of the relationship is supported. The same procedure is also applied to test Relationship B – Internal External Factors to Green Policy and the result are as follows.

4.1.2 Internal external factor to green policy

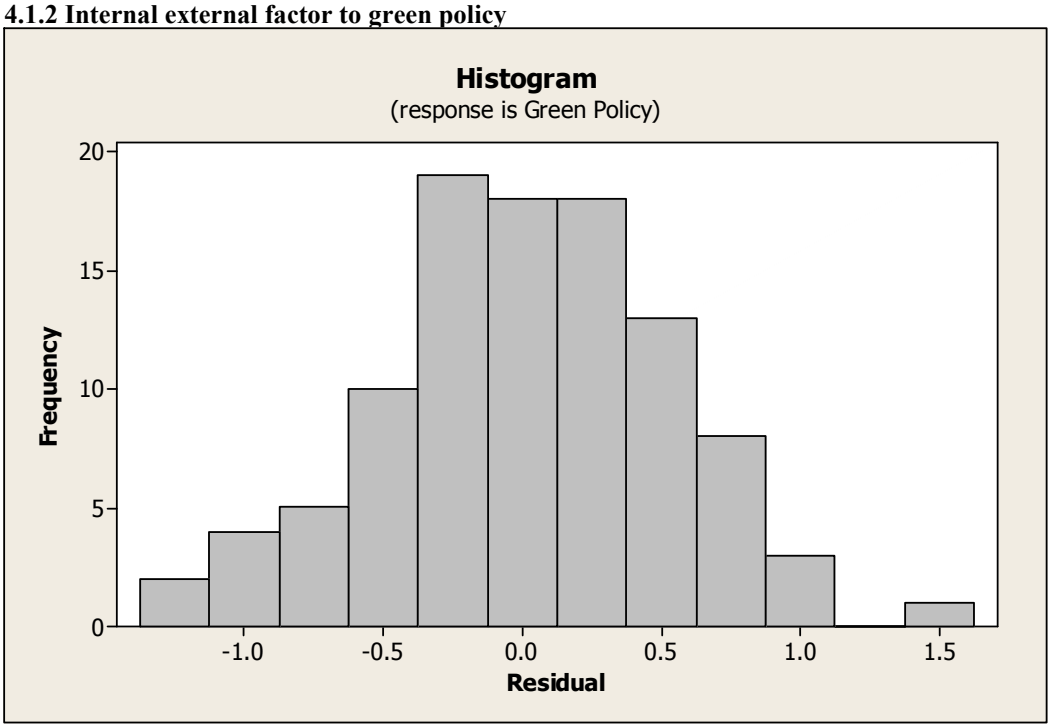

Figure 5 Internal external factor to green policy Histogram

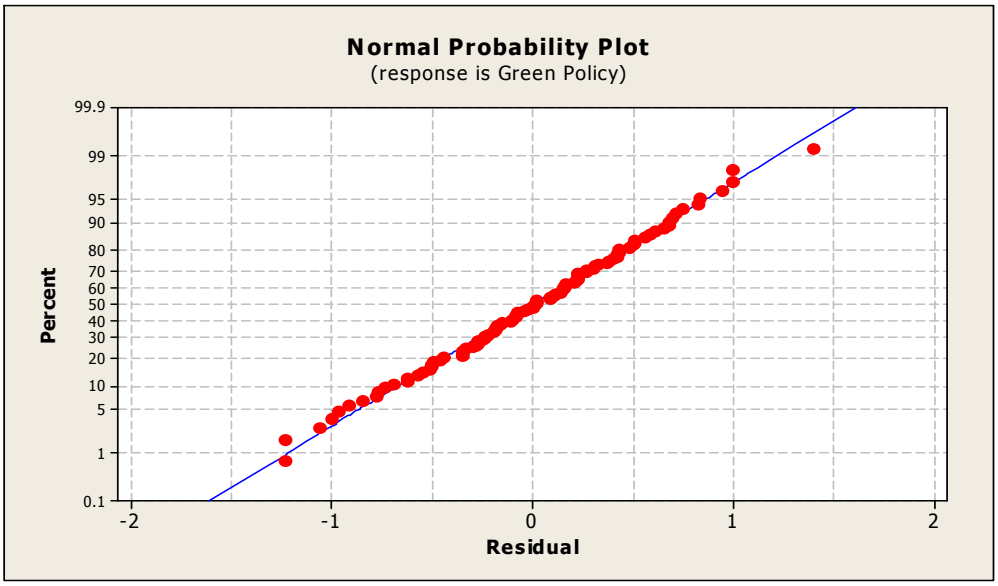

Figure 6 Internal external factor to green policy Normal Probability Plot

Table 6 Internal external factor to green policy Multicolinearity and Auto Correlation Analysis

Predictor Constant	Variance Inflation Factor (VIF)
RC	1.704
GT	1.458
SC	1.399
NA	1.476
IE	1.566
TR	1.521
Durbin-Watson statistic	= 2.23684

The normality test of histogram is evenly distributed. The Normal probability plot test is along the positive relationship of linear line with just a few residuals. The constant VIF (1.399 to 1.704) of multicolinearity test is less than 7 which is good. And the result of Durbin Watson statistic (2.2368) of autocorrelation test is between 1.5 and 2.5, which is acceptable. Since, relationship B passed all the four tests of regression, we can conclude that Relationship B is statistically reliable (significant) in term of Internal External Factors to Green Policy. Therefore, the hypothesis of the relationship is supported.

From the above regression analysis , we can conclude that the model suggest is the best fit in model as compare to the model suggest earlier. The model suggested earlier was accepted by looking at the cronbach alpha and p value. The latter model is better in terms of influencing the management practices factors. Therefore the mediator factors is accepted to further enhance the outcome of the implementation of the green policy nationwide.

Literature suggests that there are two essential conditions in establishing mediation: 1) showing that the predictor variable (X) is related to the mediator variable (Z) showing that the mediator variable (Z) is related to the criterion variable (Y). In a similar vein, previous researchers (MacKinnon et al. 2002) suggest that mediation inferences are justified if the path between predictor variable and moderator variable) and path between moderator variable and criterion variable are significant.

Although Baron and Kenny (1986) assert that predictor variable (X) and criterion variable (Y) must have a significant relationship to allow for mediation effects, this condition is no longer essential. Recently, literature such as Shrout and Bolger (2002) suggests that mediation effect can also be established in the absence of significant direct relationship between the predictor variable (X) and criterion variable (Y).

5. Development Approach

Chileshe and Sim (2007) developed a model approach between management practices and construction quality. They analyze that there is a great significant between the two relationships. This research aims to build upon the aforementioned model framework by looking other factors within and without the organization for the deployment of green and quality policy in Malaysian construction industry.

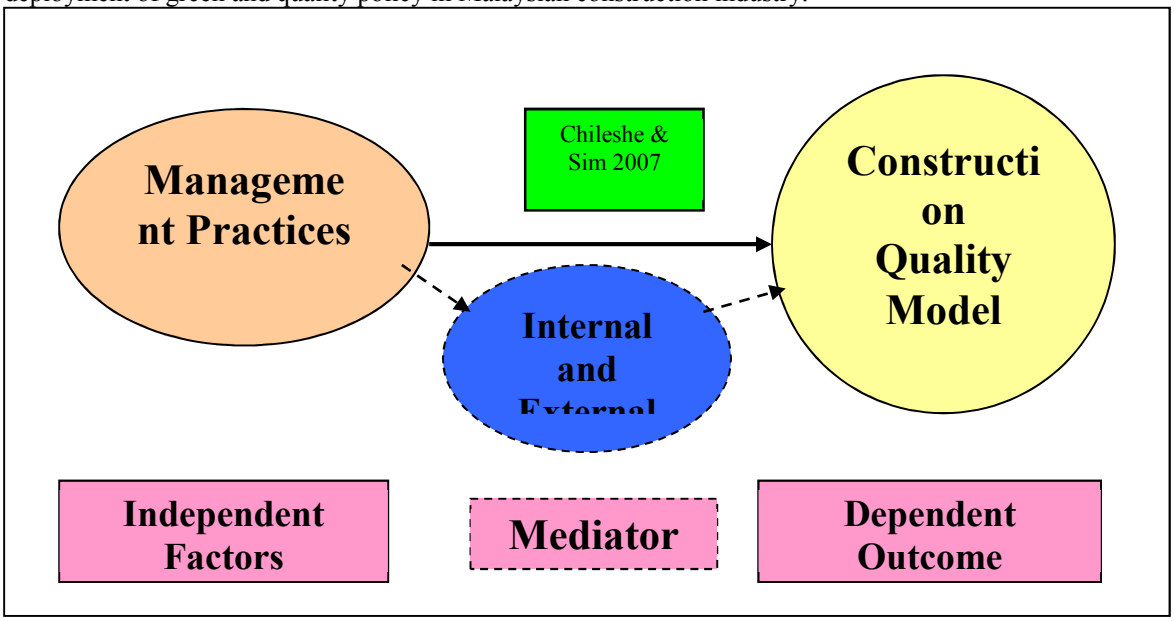

Figure 7 MP&IEF Model Development Approach.

The permeable boundaries of process and outcome factors show that this approach is flexible and adaptable. Dependent variables are the variables that might affect by or dependent itself on the independent variable. In other words, while independent variables measure the potential effects. On the other hand,

independent variables (management practices) are the variables whose effects on something else that are trying to evaluate, and they are independently controlled by the researchers, in this case, the author as the experimenter. The influences from the internal and external factors are very significant in the findings of the research.

6. Summary of Discussions

Based on the quantitative result analysis by using Minitab Statistical software analysis, in this research, a theoretical model was hypothesized. The intention was to combine all of the identified three management practices model and six internal external factors implementation constructs into one independent variable, which was used to test the relationships between green management implementation and internal and external factors.
The statistical analysis findings revealed (Pearson> 0.400) has three very positive effects that :
i) Vision has positive effects on shifting
ii) Training will impact communication
iii) Resistance to change will affect quality behaviour
iv) Resistance to change will customer expectation
ii) Quality behaviour has positive effects on the shifiting customer expectation
iii) Flexibility has positive effects on vision.

In addition, the statistical analysis findings revealed (Pearson < 0.400 >0.001) has seven effects as below:
i) Vision will impact the environmental management affect communication
v) Quality behaviour will affect integration with environmental management
Vi) Vision will affect shifting customer expectation
vii) Quality behaviour will affect respect for authority

The Pearson correlation coefficients obtained could not be considered exceptionally high but were acceptable and also most of them were statistically significant. The most important for the present purpose is to determine how the factors influence the management practice and thus affect the cultural values to bring a commended framework for new quality management model in construction.

7. Conclusions

To conclude, data from 102 construction companies were used to develop the factors for management practices for the deployment of green policy in the Malaysian Construction Industry. Contrary to what was hypothesised in the models, a number of hypotheses were not confirmed by the data. This disconfirmation does not imply these constructs are useless or unimportant. Instead, there's a need to identify the problem areas of these constructs and implement them more effectively. The training and environmental education must be in action to ensure the successful implementation of green management.

Six management practices associated with the effective management of complex change are correlated with twelve different internal external factors for green policy deployment. In summary it can be stated that the overall level of awareness and readiness of green deployment within Malaysian Construction Organisations is medium-high.

The authors acknowledge that several studies (Barad, 1995; Ahmed et al , 2005; Low and Leong, 2001; and Xia and Proverbs, 2002) have tried to address the comparison of construction quality between the east and western countries, however the emphasis is more on qualitative whereas this study bridges the knowledge gap by providing a valid methodology for developing of the eastern construction quality systems with environmental concept and policy in mind through the generation of the indices reported in this paper.

Thus, the objective of this paper which was ‘To develop the factors for management practices for the deployment of green policy in the Malaysian Construction Industry’ has been fulfilled, both in an objective and subjective way. The study provided a raft of contributions, both theoretical and practical. The literature reviews for primary objectives of CIDB Malaysian and GBI has been defined and identified.

The six constructs identified as the internal and external factors that can motivate deployment of green policy are just one of the pillars for the building. Motivation without the way of practices is meaningless. The data collected for management practice identified three more constructs, namely; vision, quality and behavior, and communication. The in depth review from the literature is therefore important to support and sustain the constructs mentioned above.

Again, the extensive literature review managed to identify some internal and external factors such as Environmental/Green Technology’, ‘Training’, ’resistance to change’ 'Integration with Environmental Management’, ‘New Approaches to Management’ and ‘Shifting Customer Expectations’ which may interrupt the successful implementation of Green management. Therefore, two more constructs were identified making the interpretation of these variables (constructs) more valid. Finally, there is a model framework being produced for the evaluation and adoption of green management within the Malaysian construction industry. This framework is

totally formulated on the basis of the results from the research. With the management practices factor as the independent variables and green management as dependent variables; and with the internal and external factors as the mediator and management practices as dependent variables.

Although the descriptive statistics used in this research paper are taken from within the Malaysian Construction Industry, the impact of Management Practices and Internal and External factors and its associated benefits of Environmental Management deployment are universal and probably of interest to the other countries.

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