EXAMINING CORRUPTION ISSUES IN MALAYSIA CONSTRUCTION INDUSTRY: PARTAKER PERSPECTIVES

Rumaizah Mohd Nordin[1]*, Ezlina Mohd Ahnuar[1], Md. Asrul Nasid Masrom[2], Naseem Ameer Ali[3]

[1]*College of Built Environment,*
UNIVERSITI TEKNOLOGI MARA, MALAYSIA
[2]*Department of Construction Management,*
Faculty of Technology Management and Business,
UNIVERSITI TUN HUSSEIN ONN MALAYSIA
[3] *School of Built Environment,*
MASSEY UNIVERSITY, NEW ZEALAND

Abstract

Unethical issues in relation to corruption is believed to slowly penetrate into the construction sector around the world due to its involvement with a multitude of players, different phases of work, and a great deal of input from both the public and private sectors. Due to the construction's central role in development, corruption in construction can be harmful to the entire project mainly in terms of poor quality of the finished product, reduced economic return to investments, and increased number of injury and death. Despite concerns on this regard have been discussed, a commitment to rooting out corruption is crucial and is still unexplored. This paper aims to examine the homogeneity levels of perception between project stakeholders on the issues of corruption. A questionnaire survey was conducted with a total response of 37.6% was attained from the total of 189 questionnaires sent to the Government, public authorities, consultants, and contractors. The result indicates that there is a difference in perception between the different groups of respondents in the vulnerable areas of corruption in the construction project development. The outcome could be useful and pave a way for the policy maker in reforming anti-corruption strategies in order to mitigate corruption issues among construction industry players.

Keywords: Corruption, Construction Industry, Transparency, MANOVA

---

[1] Corresponding author E-mail: drrumaizah@uitm.edu.my

INTRODUCTION

The construction industry plays a significant role in the socio-economic development of any nation (Grace & John, 2016; Mac-Barango, 2018). The construction industry is associated with the growth of the economy and essentially supports the Malaysia's Gross Domestic Product (GDP) (Khan, Liew, & Ghazali, 2014; Sohail et al., 2016) as more than 120 industries rely on the construction industry (CIDB Malaysia, 2016). In relation to that, RM138 billion investment on the construction sector had been announced in the Tenth Malaysia Plan (2011-2015) by the Ministry of Works with the hopes to grow Malaysia's economy further (Yong & Mustaffa, 2012). In the subsequent plan, the Eleventh Malaysia Plan (2016-2020), RM260 billion was injected for the construction industry (Aris, 2017). From these investments, the construction industry successfully contributed to 4 percent of the Malaysia GDP and was expected to increase by 5.5 percent in 2020 (CIDB Malaysia, 2016). Positive interaction between project actors directed by the elements of trust, stakeholder management, empowerment, and collective decision making, would create value for the project (Latiff, et al., 2020).

Corruption is a fiduciary crime that is believed to slowly penetrate the construction sectors in countries around the world (Rahim, 2010). The construction industry is said to be vulnerable to corruption due to its large size and fragmented nature of construction projects, where contractors and subcontractors are often involved in complex construction activities, extended periods of construction, complicated process and financial intensity (Deyong & Ferguson, 2017; Dosumu, 2018). Nordin (2015) highlighted that construction projects have several phases which are strategy formulation, procurement, construction, and completion, and corrupt practices are spread throughout these phases. Besides, these phases involve a multitude of players (i.e., client, consultant engineers and architects, financiers, insurers, main contractors and subcontractors), different phases of work, and a great deal of input from both the public and the private sectors (Abdul-Rahman, et al., 2010; Kenny, 2009).

According to the Transparency International-Malaysia, the country loses about RM 30 billion each year to corrupt practices (PEMANDU, 2012). Corrupt practices can be found at every phase of a construction projects i.e., in the planning stage, the awarding of construction contracts as well as the operation and maintenance of projects (Murray & Meghji, 2009; Krishnan, 2009; Sohail & Cavill, 2006; Zou, 2006). Furthermore, there is growing consensus within and outside the construction industry that corruption and other unethical practices are endemic in the construction industry (Ameh & Odusami, 2010). Other than that, TI's BPI 2005 also revealed corruption to be greater in construction than any other economy sector as TI's BPI 2008 revealed that public works and construction were perceived to be the most corrupt industry in the world (Krishnan, 2009).

Due to the construction's central role in development, corruption in construction can be especially harmful. In particular, corruption that leads to poor quality of the finished product, and insufficient maintenance can significantly reduce the economic return to investments and carry high human costs in terms of injury and death (Kenny, 2007). The probable reasons could be construction project developments involve numerous parties, various processes, different phases of work, and a great deal of input from both the public and private sectors (Takim & Akintoye, 2002). Besides, there are various ways for corrupt transactions to be carried out; it can range from the demand for sexual favours, to the offer of a contract to a family member, to the promise of political support from powerful interest groups (Transparency-International(a), 2011).

With bribery seen as widespread in the construction sector, stakeholders and organisations should be cautious of bribe paying and not tolerate unethical practices. However, the field of corruption in public sector construction has remained a relatively under-researched area (Tabish & Jha, 2012). Among the many challenges faced by the public service institutions, corruption remains one of the most pervasive and least confronted (Davis & Stark, 2001). In such instances, independent civil society organisations that monitor the deals between government and companies can play an important role in increasing transparency and accountability, and reducing bribery and corruption risks (Hardoon & Heinrich, 2011). Thus, a commitment to rooting out corruption is a critical part of any developmental strategy.

LITERATURE REVIEW
Corruption in Construction Industry
Corruption and bribery are complex transactions that involve both someone who offers a benefit; often a bribe, and someone who accepts, as well as a variety of specialists or intermediaries to facilitate the transaction (Riano & Hodess, 2008). Corruption is usually defined as the misuse of entrusted power for private gain (Transparency-International, 2011). However, Malaysian Anti-Corruption Commission (MACC) looks into corruption as gratification given by any person and received by public officials in relation to official government duties (Malaysia-Government, 2009).

Corruption exists with all different stakeholders and in every phase of project life cycle, including conception; design; bid and contract signing; construction stages (including materials purchasing); commissioning and handover; and operation and maintenance (Murray & Meghji, 2009; Sohail & Cavill, 2006; Zou, 2006; Tabish & Jha, 2012). Nonetheless, most of the issues in corruption is focused at the procurement phase of a construction project development. There are several publications (Ismail et al., 2017; Lane, 2017; OECD, 2016; Transparency International, 2018) that emphasised the procurement phase to ethical and corruption issues. This may be due to complex

public procurement procedures and lack of transparency in many countries, and that manipulation is hard to detect (Kuhn & Sherman, 2014).

There are many sources contributing to corruption in construction that can be divided into two distinct factions that are technical and behavioural. Temptation for corruption exists everywhere because an 'inclination' for corruption is conceived to be intrinsic to human nature but needs permissiveness, opportunities, and incentives (Gebel, 2012). In the context of Malaysian scenario, the Malaysian Anti-Corruption Commission for the duration of ten years (1998-2008) clearly stated that corruption does exist in the nation's construction industry. Complexity of construction, weakness in construction management, financial pressure in generating wealth and stringent work process is believed to be the technical sources of corruption (Rahim, 2010). Other than that, construction projects involve a multitude of players that lead to various psychological human behaviour which could affect the attitude towards corrupt activities. Individuals come to consider corruption to be a normal or even acceptable, which has been in place since time immemorial. When norms such as 'return a favour when asked' or 'minimise conflict with fellow members of your community' exist in a pervasively corrupt society, they could encourage further corruption and further promote social ostracism to those who attempt to fight it (Varese, 2000).

Corruption in the global economy is a fact, with numerous reports that verify corruption in public sector and construction as extremely nasty (Krishnan, 2009). Despite the true cause of corruption is uncertain, it is estimated that the industry's loss to corruption is approximately 10% or $500 billion per year (Jong, et al., 2009). As for Malaysia, the issue of corruption in construction is at a serious level (Zain, 2014). Given the intrinsically secretive nature of corrupt activities, collecting reliable quantitative information is virtually impossible. But in reality, both the extent and nature of corruption can be measured and assessed with some degree of confidence (Kaufmann, 1998). Due to the fact that corruption is correspondingly more complex to measure and quantify empirically, a number of key international experts refer to the perception of corruption as a suitable measure (PEMANDU, 2011).

Undoubtedly, corrupt practices have a lot of adverse effects to the industry, to the development of the economy, and to human resources. Corruption is said to inflate the cost of construction works by 10 percent (Manaf, 2013), cause devastating effects on the quality of the built environment (Takim, Shaari, & Nordin, 2013), and adjusting to favourable terms in the procurement consumes time and cause delays. Other than the three indicators, corruption has an effect on health and safety when low quality engineering projects fails to meet the safety requirement due to fraud in the workmanship (Folorunso & Aribisala, 2017).

In recent years, corruption control strategy has been high on the agenda in many parts of the world with explosions in studies of the issue but relatively

little examine the problem in a sector specific approach (Batory, 2012) (Estache & Wren-Lewis, 2010). To combat corruption in the construction industry, all stakeholders (i.e. company shareholders, professional trade bodies, civil society organisations) have roles to play in exposing and combating malpractice (Transparency International, 2019). However, it has been a long time since the construction industry collaborated for a strategy to attack the problem of corruption (Jong, et al., 2009). Despite some governments had enacted legislation to outlaw bribery, the enforcement has been spotty. Evidence shows that despite government campaigns and initiatives, corruption remains acute, widespread, and in fact worsened in recent years (Siddique, 2010).

Fighting corruption is seen as important to achieveSustainability Development Goals (SDGs) as sustainability is impossible to be achieved with corruption lying within the whole process (Andreevska, 2018). The strategies to combat corruption in construction are raising awareness, strengthening professional institutions, prevention of corruption as well as enforcement and monitoring measures (Nordin, 2015). As for Malaysia, Code of Ethics for Contractors is formulated, created, and implemented by the Construction Industry Development Board (CIDB) with one of the objectives is to outline best practices as well as noble conduct which are accepted as standard practices among contractors that are capable of motivating and enhancing the level of professionalism, integrity, and accountability (CIDB, 2010).

Conceptual framework and hypothesis
Based on the discussion, Figure 1 proposes a conceptual framework consisting of four major parts: National Agenda; Corruption and Construction; Response Mechanism; and Outcomes, which are based on understanding of issues related to corruption in construction across project development.
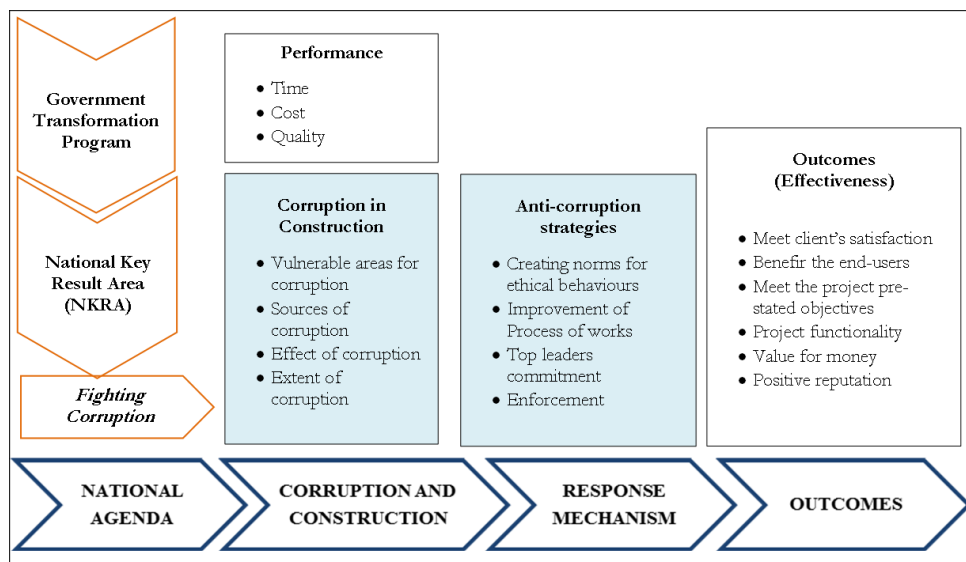
Figure 1: Conceptual Framework

The first part of the framework is the National Agenda, which is the push factor for the research. Fighting corruption is one out of the seven National Key Results Area (NKRA) of Malaysia. Its aim is to improve Malaysia's Transparency International (TI) and Corruption Perception Index (CPI) (PEMANDU, 2012) (Kaufmann, 1998). Furthermore, the National Key Results Area (NKRA) of Malaysia is under the Government Transformation Program (GTP) that is designed to provide all Malaysians access to improved public services irrespective of race, religion, and region. The objective of GTP is to transform the government into becoming more effective in its delivery of services and to move Malaysia forward to become an advanced and united country, with high standards of living.

The second part of the framework is the Corruption and Construction consisting of two components (i.e., performance and corruption in construction). The first component is the performance of the project (i.e., Time, Cost and Quality). Performance or overall success is discussed based on the project's time, cost, and quality performance (Ling & Leong, 2012). In order to plan and manage a successful project, the three parameters of time, cost, and quality should be considered (Bowen & Cattel, 2012). Based on various research, higher corruption leads to poor performance of construction projects in terms of time, cost, and quality (Sohail & Cavill, 2006; Kenny, 2007; Transparency-International, 2011). In addition, other serious consequences of corruption may include lower economic growth rate, ineffective government, infringement of civil/political rights, decrease in investment of foreign and domestic investors, lower quality of

public infrastructure, and reduced effectiveness of provision of public goods (Nordin, 2015). In order to come up with an anti-corruption effort, the issues concerning corruption need to be taken into consideration.

Due to the fact that corrupt practices negatively affect the performance of construction industry, the second component focuses on the issues concerning corruption in construction, by which focuses on four (4) elements of vulnerable areas of corruption across the project phases; sources of corruption (i.e., technical and behavioural); extent of corruption; and effects of corruption. Corruption practices can be found at every phase in a construction project (i.e., planning, inspection, design, bid and contract signing, construction, service delivery, and operation and maintenance) (Sohail & Cavill, 2006). As for this research, opportunities for corrupt acts across project phases can be divided into four areas of strategy formulation, procurement, construction and completion.

Furthermore, corruption may root from both technical (in terms of insufficient regulation and effectiveness) and behavioural (due to involvement of multitude of players with various psychological human behaviours). Corruption might be an acceptable and normal means of obtaining routine low-level actions and/or approvals by officials through cutting red tapes in order to make decision-making predictable, motivating underpaid workers, and enabling personnel to obtain political power. Due to construction projects are important for the country's development which involve various processes, different phases of work, and a great deal of inputs from both the public and private sectors, it is not surprising that the incidence of corruption in the construction is high (Abdul-Rahman, et al., 2010) (Kenny, 2009). Extent of corruption relates to the seriousness of occurrence or opportunities for corrupt action to happen. Across the globe, perception of corruption is measured in various ways however, the corruption measurement tools governed by Transparency International are Corruption Perception Index (CPI), Bribe Payers Survey (BPI), and Global Corruption Barometer (GCB) (Riano & Hodess, 2008).

The third part is the Response Mechanism in terms of Anti-corruption Strategies. Based on the literature, various anti-corruption strategies are available across countries and sectors. The strategies include creating norms for ethical behaviours (i.e., Code of Conduct, Whistle-blowing protection, Anti-corruption Policy, Ethical Practices, Administrative Reforms, and Integrity System); Improvement of Process of Works (i.e., Investigation, Prevention, Education, Awareness Raising, Anti-Corruption Agency, Integrity Pacts (IP), and Good Governance); Top Leaders' Commitment, and Enforcement.

Finally, *the fourth part* of the framework is the outcome in terms of project effectiveness as a result from the transparency initiative. It is important to consider the project effectiveness including meeting client satisfaction; benefit the end-users; meeting project pre-stated objectives; project functionality; value for money; and positive reputation.

For the purpose of this study, the second part (corruption in construction) and the third part (anti-corruption strategies) will be given attention and to be tested for difference in opinion based on the research hypothesis:

H_{01}: *There is no significant difference between the three groups of respondents (i.e., Government agencies, contractors, and consultants) in perception of the issues of corruption (i.e., areas of corruption, sources of corruption, effects of corruption, extent of corruption and anti-corruption strategies).*

RESEARCH METHODOLOGY

The data collection method used for this study is a questionnaire survey with a-ten-point Likert type scaled items for the participants to indicate their level of agreement and disagreement. A non-probability of judgement purposive sampling was used based on the expertise of respondents (Government, public authorities, consultants, and contractors) on the subject matters. The data were analysed using Multivariate Analysis of Variance (MANOVA) from Statistical Package for Social Science (SPSS) version 21.

Based on Table 1, a total response of 37.6% was attained from the total of 189 questionnaire sent. The response rates for the data collection are acceptable since the normal response rate in construction environment is around 20 to 30 percent (Takim & Akintoye, 2002).

Table 1: Response data

Respondents	Sent	Return	Percentage (%)	Cumulative Percentage
Government Agencies	99	25	35.2	35.2
Contractors	43	25	35.2	70.4
Consultants	47	21	29.6	100.0
Total	**189**	**71**	**100.0**	

Other than that, based on the experience of the participants (Table 2), it is reasonable to infer that the majority of the participants have sound knowledge on the issue of corruption in construction with a total of 42 respondents (59.2%) having more than ten years of experience in construction industry or in the effort to fight corruption. This implies that the data gathered is relevant as more than half of the respondents have experience of more than ten years in handling construction projects and/or involved in the anti-corruption effort by which can be considered as highly experienced (Masrom, 2012).

Table 2: Respondents' experiences

Years of experience	0 - 10	11 - 20	21 - 30	More than 30	Total
Contractor	8	12	4	1	25
Government agencies	16	3	5	1	25
Consultant	5	8	6	2	21
Total	**29**	**23**	**15**	**4**	**71**
Percent	40.8	32.4	21.1	5.6	100
Cumulative percent	**40.8**	**73.4**	**94.4**	**100**	

DATA ANALYSIS

MANOVA tests mean differences among groups across several dependent variables and simultaneously by using sum of squares and cross-product matrices (Sekaran, 2003).

In order to test the research hypotheses using MANOVA, the steps that need to be conducted is summarised in Figure 2:
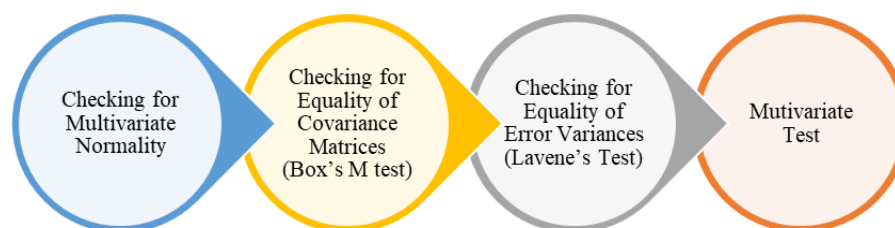
Figure 2: Process for data analysis of MANOVA

Checking for Multivariate Normality

Table 3 shows the result for checking the Mahalanobis Distance to test for the multivariate normality. In the row labelled Mahal. Distance, the value under the column marked Maximum will be used to compare the critical value. In this case, the value is 29.990. The critical value is determined using a chi-square table with the number of dependent variables as the degree of freedom (df) as shown in Table 4. In this case, the dependent variables are five (df=5), hence the critical value is 20.52.

Table 3: Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	7.4870	22.7123	14.6338	3.18591	71
Std. Predicted Value	-2.243	2.536	.000	1.000	71
Standard Error of Predicted Value	1.891	8.843	3.653	1.268	71

Adjusted Predicted Value	6.8849	27.6074	14.8766	3.86089	71
Residual	-20.71323	22.77507	.00000	12.86089	71
Std. Residual	-1.558	1.713	.000	.964	71
Stud. Residual	-1.707	1.768	-.008	1.007	71
Deleted Residual	-24.85455	24.24376	-.24276	14.06561	71
Stud. Deleted Residual	-1.733	1.798	-.005	1.013	71
Mahal. Distance	.430	29.990	4.930	4.954	71
Cook's Distance	.000	.249	.017	.034	71
Centered Leverage Value	.006	.428	.070	.071	71

a. Dependent Variable: Organisations

Table 4: Critical values for evaluating Mahalanobis distance values.

No. of dependent variables	Critical Value	No. of dependent variables	Critical Value
2	13.82	**5**	**20.52**
3	16.27	6	22.46
4	18.47	7	24.32

Source: Pallant, 2010

From the result, Maximum Mahal. Distance of 29.990 is larger than the critical value of 20.52 which means that there is a multivariate outlier in the data file. However, based on the data file there are two persons (ID=pbtM03 and ID=c4Ssite) who exceeded the critical value with the largest value is 29.990. Since there are only two persons exceeding the critical value and the sample size is small, these persons will remain in the data file and 'cleaning the data' is not required as suggested by Pallant (2010).

Checking for Equality of Covariance Matrices (Box's M test)
Table 5 shows the result of the Box's M test that checks the assumption of homogeneity of covariance across groups. From the result, sig. value of .111 is larger than .001; hence the assumption of homogeneity of variance-covariance matrices is not violated.

Table 5: Box's Test of equality of Covariance Matrices.

Box's M	44.509
F	1.324
df1	30
df2	13843.338
Sig.	.111

Checking for Equality of Error Variances (Lavene's Test)

Table 6 presents the result of the Lavene's test that checks the assumption of homogeneity of variance across groups. The results show that all the sig. value (i.e., .913, .197, .744, .876, and .652) are greater than .001; hence the assumption of homogeneity of variance is not violated.

Table 6: Lavene's Test.

	F	df1	df2	*Sig.*
Perception on the scenario (extent) of corruption in Malaysia	.091	2	68	*.913*
Vulnerable areas for corruption in the construction project development	1.664	2	68	*.197*
Reasons for corruption (sources)	.298	2	68	*.744*
Effects of corruption	.132	2	68	*.876*
Anti-corruption strategies	.431	2	68	*.652*

Mutivariate Test

Table 7 shows the multivariate test of significance that will indicate whether there are statistically significant differences among respondents' groups on a linear combination of the dependent variables. Based on the result, the sig. value for Wilk's Lambda of .041 is smaller than .05 which indicates that there is a statistically significant difference between the respondents in terms of the items of corruption.

Table 7: Multivariate Tests[a].

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	Pillai's Trace	.987	979.338[b]	5.000	64.000	.000	.987
	Wilks' Lambda	.013	979.338[b]	5.000	64.000	.000	.987
	Hotelling's Trace	76.511	979.338[b]	5.000	64.000	.000	.987
	Roy's Largest Root	76.511	979.338[b]	5.000	64.000	.000	.987
Organisations	Pillai's Trace	.259	1.934	10.000	130.000	.046	.130
	Wilks' Lambda	***.750***	***1.980[b]***	***10.000***	***128.000***	***.041***	***.134***
	Hotelling's Trace	.321	2.024	10.000	126.000	.036	.138
	Roy's Largest Root	.278	3.615[c]	5.000	65.000	.006	.218

a. Design: Intercept + Organisations
b. Exact statistic
c. The statistic is an upper bound on F that yields a lower bound on the significance level.

Whereby Table 8 shows the results for Tests of Between-Subject Effects. Due to the significant result, a follow up test was conducted to explain

the group differences. Since at this point a number of separate analyses were being looked into, Pallant (2010) suggested to set a higher alpha level to reduce the chance of the Type 1 error. This was done by applying the Bonferroni adjustment through dividing the original alpha level (i.e., .05) by the number of analyses intended (i.e., 5). Hence, for this research the new alpha was changed to .01 and the result would be considered significant only if the probability value (Sig.) was less than .01. Based on the result, the only significant difference between the three groups of respondents (i.e., Government agencies, contractors, and consultants) was on the vulnerable areas of corruption in the construction project development. The importance of the impact of different respondents from different organisations on vulnerable areas of corruption can be evaluated using the effect size statistic utilising the value of Partial *eta* squared. The value in this case is .196 which according to Cohen (1988) in Pallant (2010) is considered a large effect. This represents about 19.6 percent of the variance in vulnerable areas of corruption explained by the three groups of respondents.

Table 8: Tests of Between-Subjects Effects.

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	*Partial Eta Squared*
Organisations	Extent (Culture)	1037.157	2	518.578	3.914	.025	.103
	Areas	*656.478*	*2*	*328.239*	*8.269*	*.001*	*.196*
	Source: Technical	777.294	2	388.647	1.714	.188	.048
	Effects	30.561	2	15.281	.105	.901	.003
	Strategies	376.728	2	188.364	1.174	.315	.033

Table 9 shows the estimated marginal means in order to know the difference of mean scores between the groups. For vulnerable areas of corruption, the mean score for contractors is 25.080, government agencies is 19.640, and consultants is 26.762.

Table 9: Estimated Marginal Means.

Organisations

Dependent Variable	Organisations	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Extent (Culture)	Contractors	44.320	2.302	39.726	48.914
	Government agencies	35.600	2.302	31.006	40.194

	Consultants	42.381	2.512	37.368	47.393
Areas	Contractors	*25.080*	1.260	22.565	27.595
	Government agencies	***19.640***	***1.260***	***17.125***	***22.155***
	Consultants	*26.762*	1.375	24.018	29.505
Source: Technical	Contractors	84.480	3.012	78.470	90.490
	Government agencies	76.920	3.012	70.910	82.930
	Consultants	82.762	3.286	76.204	89.320
Effects	Contractors	64.320	2.417	59.496	69.144
	Government agencies	65.800	2.417	60.976	70.624
	Consultants	65.524	2.638	60.261	70.787
Strategies	Contractors	79.200	2.533	74.145	84.255
	Government agencies	73.720	2.533	68.665	78.775
	Consultants	76.762	2.764	71.246	82.278

With that, Government agencies were found to have different perception on the vulnerable areas of corruption compared to contractors and consultants while the mean score for contractors and consultant are almost similar (less than 1 scale point). This shows that contractors and consultants might have the same perception on the vulnerable areas for corruption but different when compared with the Government agencies.

DISCUSSION OF FINDINGS

A multivariate analysis of variance was conducted to assess if there were differences of opinions between the three respondents (i.e., Government agencies, contractors, and consultants) on the item of corruption including vulnerable areas of opportunities for corruption, sources of corruption in terms of technical, effects of corruption, extent of corruption, and anti-corruption strategies available. The assumptions of independence of observations and homogeneity of variance-covariance were checked and met. Mahalanobis distance were checked for multivariate normality with no serious violation noted. A statistically significance difference was found, Wilk's Λ=.750, $F(10,128)$=1.98. p=.041, multivariate $\eta 2$= .13. When the result for dependent variables were considered separately, using a Bonferroni adjusted alpha level of .01, the difference in opinion between the respondents (i.e., Government agencies, contractors, and consultants) existed in the vulnerable areas for corruption in the construction project development with $F(2,68)$=8.269, p=.001.

However, the remaining four issues (i.e., sources of corruption, effects of corruption, extent of corruption, and anti-corruption strategies) are similar in opinion between the three groups of respondents. This implies that the result did

not support the hypothesis of 'there is no significant difference between the three groups of respondents (i.e., Government agencies, contractors, and consultants) in perception of the issues of corruption'. Hence, it could be deduced that H01 cannot be accepted.

The reason for this predicament may be due to the involvement of the different stakeholders in the different phases across the construction project development that leads to the difference in perception on which phase creates more opportunities for corruption. Adding to that, the result revealed that Government agencies were found to have different perceptions on the vulnerable areas of corruption compared to contractors and consultants. The probable reason for this predicament is that government tend to hide information on corruption (Olken, 2009) suggesting that the definition of corruption on the abuse of powers by public officials for private gain is true. Besides, this result inclines to support various reports on public officials or civil servants that is condemned as a notably corrupt sector (TI's GCB).

CONCLUSION
In summary, it is noteworthy that there is a difference in perception between the government agencies, the contractors, and consultants in terms of areas vulnerable for corruption. This may be due to the involvement of different stakeholders in the different phases across the construction project development. Besides, the opportunities of corruption within the various phases may be the result of a difference in scope of work and authorities by the various stakeholders. Therefore, it is inevitable to consider the differences in order to develop significant anti-corruption strategies.

REFERENCES
Abdul-Rahman, H., Wang, C. & Yap, X. W. (2010). How Professional Ethics Impact Construction Quality: Perception and Evidence. *Scientific Research and Essays,* 4 December, 5(23), pp. 3742-3749.

Ameh, O. J. & Odusami, K. T. (2010). Professional Ambivalence towards Ethics in the Nigerian Construction Industry. *Journal of Professional Issues in Engineering Education and Practice,* pp. 9-16.

Andreevska, E. (2018). *Anti-Corruption Initiatives, Good Governance And Human Rights: The Republic Of Macedonia* (Vol. 1). Retrieved from http://oecdobserver.org/news/archivestory.php/aid/2163/Defining_corruption.html

Aris, A. (2017). Construction to outperform GDP growth in 2017.

Batory, A. (2012). Why do Anti-corruption laws fail in Central Eastern Europe? A target compliance perspective. *Regulation and Governance,* Volume 6, pp. 66-82.

Bowen, P. A. & Cattel, K. S. (2012). Perception of Time, Cost and Quality Management on Building Projects. *The Australian Journal of Construction Economics and Building,* pp. 48-56.

CIDB (2010). *Code Of Ethics for Contractors.* 3 ed. Kuala Lumpur: s.n.

CIDB Malaysia. (2016). *Chapter 1: Malaysian Economy at a Glance. CIDB.* https://doi.org/10.1111/j.1467-8462.1993.tb00816.x

Davis, M. & Stark, A. (2001). *Conflict of Interest in the Professions.* New York: Oxford University Press.

Deyong, M., & Ferguson. (2017). Corruption and Public Procurement. *Evaluation of Procurement Laws Procedures*, (January), 1–51.

Dosumu, O. (2018). Assessment of the likelihood of risk occurence on tendering and procurement of construction projects. *Journal of Construction Business and Management*, *2*(1), 20–32. https://doi.org/10.9745/GHSP-D-17-00110

Estache, A. & Wren-Lewis, L. (2010). *What Anti-corruption Policy can learn from Theories of Sector Regulation,* Belgium: ECARES.

Folorunso, O., & Aribisala, J. (2017). Corruption in Engineering Projects, Causes, Effects and Possible Solutions. *Journal of Recent Activities in Infrastructure Science*, *2*(3), 1–4.

Gebel, A. C. (2012). Human nature and morality in the anti corruption discourse of Transparency International. *Public Administration and Development,* Volume 32, pp. 109-128.

Grace, X., & John, A. (2016). Public procurement in Malaysia: is there a need for reform? A look at the objectives of public procurement principles with particular emphasis on transparency. Retrieved from http://eprints.um.edu.my/16506/1/REGULATION_OF_PUBLIC_PROCUREME NT_IN _MALAYSIA___(REFORMATTED)_(1).pdf

Hardoon, D. & Heinrich, F. (2011). *Bribe Payers Index 2011,* Berlin, Germany: Transparency International.

Ismail, F., Mohd Danuri, M. S., Mohamed, O., Abdul-Karim, S. B., & Nawi, M. N. M. (2017). Ethics - related issues in the tender evaluation of Malaysia public projects. *Journal of Design and Built Environment*, *17*, 166–180. Retrieved from https://www.scopus.com/inward/record.uri?eid=2-s2.0-85040517166&partnerID=40&md5=028782afb22a1238d2d7c3c532f1b4da

Jong, M. d., Henry, W. P. & Stansburry, N. (2009). Eliminating corruption in Our Engineering/Construction Industry. *Leadership and Management in Engineering*, July, pp. 105-111.

Kaufmann, D. (1998). Research on Corruption: Critical Empirical Issue. In: *Economic of corruption.* USA: Springer, pp. 129-176.

Kenny, C. (2007). *Construction, Corruption and Developing Countries,* s.l.: s.n.

Kenny, C. (2009). Transport Construction, Corruption and Developing Countries. *Transport Review,* 29(1), pp. 21-41.

Khan, R. A., Liew, M. S., & Ghazali, Z. Bin. (2014). Malaysian Construction Sector and Malaysia Vision 2020: Developed Nation Status. *Procedia - Social and Behavioral Sciences*, *109*(May 2015), 507–513. https://doi.org/10.1016/j.sbspro.2013.12.498

Krishnan, C. (2009). Combating Corruption in the Construction and Engineering Sector: The Role of Transparency International. *Leadership and Management in Engineering*, July, pp. 112-114.

Kuhn, S., & Sherman, L. (2014). *Curbing Corruption in Public Procurement: A Practical Guide*. Berlin.

Lane, J.-E. (2017). Corruption: A New Analysis. *Open Journal of Political Science*, *07*(01), 157–169. https://doi.org/10.4236/ojps.2017.71012

Latiff, A. M. A., Jaapar, A. & Mat Isa, C. M. (2020). Project governance practices in urban public housing projects: a case study of public housing in Malaysia. *CONSTRUCTION ECONOMICS AND BUILDING,* pp. 120-136.

Ling, F. Y. Y. & Leong, E. F. K. (2012). Performance of Design-Build Projects in term of Cost, Quality and Time: Views of Clients, Architects and Contractors in Singapore. *The Australian Journal of Construction Economics and Building,* pp. 37-46.

Mac-Barango, D. (2018). Severity Rank of Factors Affecting Construction Cost by Clients, Consultants and Contractors. *International Journal of Economics and Financial Management*, *3*(1), 1–13.

Malaysia-Government (2009). *Akta 694: Akta Suruhanjaya Pencegahan Rasuahn Malaysia.* s.l.: Kerajaan Malaysia.

Manaf, M. T. A. (2013). *"Jerung" Dalam Jaring Kami*. (Manaf, Ed.). Kuala Lumpur: SPRM.

Masrom, M. A. N. (2012). *Developing a Predictive Contractor Satisfaction Model (CoSMo) for Construction Projects (PhD Thesis),* Queensland, Australia: Queensland University of Technology.

Murray, M. & Meghji, M. R. (2009). *Corruption within International Engineering-Construction Projects,* s.l.: s.n.

Nordin, R. M. (2015). *A Framework of Transparency Initiative (TI) to Fight Corruption for Public Construction Projects*. Universiti Teknologi Mara.

OECD (2016). *High-Level Principles for Integrity, Transparency and Effective Control of Major Events and Related Infrastructures*. Retrieved from http://www.oecd.org/gov/ethics/HighLevel_Principles_Integrity_Transparency_Control_Events_Infrastructures.pdf

Olken, B. A. (2009). Corruption Perception vs. Corruption Reality. *Journal of Publuic Economics,* pp. 950-964.

Pallant, J. (2010). *SPSS Survival Manual (4th Edition).* England: McGraw Hill.

PEMANDU (2011). *Government Transformation Programme Annual Report 2010,* Putrajaya: Prime M inister's Department.

PEMANDU (2012). *Government Transformation Programme Annual Report 2011,* Putrajaya: Prime Minister's Department.

Rahim, N. A. (2010). Rasuah dan Implikasinya dalam Sektor Pembinaan Negara. *Bina Integriti*, Oktober - Disember, Volume 4/2010, pp. 4-9.

Riano, J. & Hodess, R. (2008). *Bribe Payers Index 2008,* Berlin, Germany: Transparency International.

Sekaran, U. (2003). *Research Methods for Business: A Skill Building Approach (4th Ed).* USA: John Wiley & Sons.

Siddique, N. A. (2010). Combating Corruption and Managing Integrity in Malaysia: A Critical Overview of Recent Strategies. *Public Organisation Review,* pp. 153-171.

Sohail, M. & Cavill, S. (2006). *Corruption in Construction Projects.* United Kingdom, s.n.

Sohail, M. & Cavill, S. (2016). Corruption in construction projects. *Firms*, (April). Retrieved from http://www.leadershiponline.co.za/articles/corruption-in-construction-4548.html

Tabish, S. Z. H. & Jha, K. N. (2012). The impact of anti-corruption strategies on corruption free performance in public construction projects. *Construction Management and Economics,* 30(1), pp. 21-35.

Takim, R. & Akintoye, A. (2002). *Performance Indicator for Successful Construction Project Performance.* United Kingdom, s.n., pp. 545-555.

Takim, R., Shaari, S. M., & Nordin, R. M. (2013). Transparency Initiative (TI) for Enhancing Quality of Life: Behavioural Components that Lead to Corruption in Construction. *Procedia - Social and Behavioral Sciences*, *101*, 110–119. https://doi.org/10.1016/j.sbspro.2013.07.184

Transparency-International(a) (2011). *Strategy 2015,* Berlin: Transparency internatinal.

Transparency International (2018). *Corruption Perceptions Index 2017*.

Transparency-International (2011). *Corruption Perception Index 2011,* Germany: Transparency International.

Transparency International (2019). Asia Pacific: Little to no progress on anti-corruption. Retrieved January 31, 2019, from https://www.transparency.org/news/feature/asia_pacific_makes_little_to_no_progress_on_anti_corruption

Varese, F. (2000). Pervasive Corruption. pp. 99-111.

Yong, Y. C., & Mustaffa, N. E. (2012). Analysis of factors critical to construction project success in Malaysia. *Engineering, Construction and Architectural Management*, *19*(5), 543–556. https://doi.org/10.1108/09699981211259612

Zain, D. B., 2014. *Opening speech for Integrity in Building Seminar*. Kuching

Zou, P. X. W. (2006). Strategies to Minimizing Corruption in the Construction Industry in China. *Journal of Construction in Developing Countries,* 11(2), pp. 15-29.