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Journal of Facilities Management

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Article information:

To cite this document:

Robert Osei-Kyei, Albert P.C. Chan, (2017) "Implementation constraints in public-private partnership: Empirical comparison between developing and developed economies/countries", Journal of Facilities Management, Vol. 15 Issue: 1, pp.90-106, <https://doi.org/10.1108/JFM-07-2016-0032>

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Implementation constraints in public-private partnership

Empirical comparison between developing and developed economies/countries

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Abstract

Purpose – This paper aims to empirically investigate the differences and similarities on the implementation constraints in public-private partnership (PPP) in developing and developed economies/countries, represented by Ghana and Hong Kong, respectively.

Design/methodology/approach – A questionnaire survey was conducted with relevant experienced PPP practitioners in Ghana and Hong Kong. One hundred and three completed questionnaires were received for analysis. Kendall's coefficient of concordance analysis, mean score ranking, Mann-Whitney U test and quartile grouping were used for data analysis.

Findings – The results show six implementation constraints with significant differences. Constraints related to the general investment climate of PPP projects (i.e. ecological conditions of PPP) are ranked higher in Ghana than in Hong Kong, whereas constraints related to the organisation and negotiations of PPP projects are higher in Hong Kong than in Ghana. Further, two constraints, lengthy delay in finalising negotiations and lengthy delay due to political debate, are very critical in both jurisdictions, whereas “negative public perceptions on PPP transactions” and “high use of unsolicited proposals” are of less challenge in the implementation of PPP in both jurisdictions.

Originality/value – The findings of this study contribute to knowledge on the international best practices of PPP. In addition, international private bidders would be informed of the mitigation measures to adopt when engaging in PPP arrangements in any part of the world, whether in a developing or developed economy country.

Keywords Hong Kong, Ghana, Developing economies/countries, Public-private partnership, Developed economies/countries, Implementation constraints

Paper type Research paper

1. Introduction

In recent decades, the public-private partnership (PPP) concept has become very popular in both developing and developed countries (Osei-Kyei and Chan, 2015a; Ke *et al.*, 2009). It has been considered as an approach to provide public infrastructure, which offers high value for money compared to the conventional procurement approach (Chou and Pramudawardhani, 2015; Cheung *et al.*, 2009). Essentially, PPP allows public facilities to be better managed and maintained by outsourcing risks to the private sector (Ke *et al.*, 2011).

This paper forms part of a PhD research project entitled “A best practice framework for PPP implementation for infrastructure development in Ghana” from which other papers have been produced with different objective/scope but sharing the same background and methodology. The research project described is fully supported by the Hong Kong PhD Fellowship Scheme from the Research Grants Council of the Hong Kong Special Administrative Region and The Hong Kong Polytechnic University, Hong Kong. Authors wish to express their sincere gratitude to all PPP practitioners and researchers in Ghana and Hong Kong who participated in this research study.



Despite the worldwide application of PPP and the considerable efforts by governments towards the policy implementation during the past couple of years, a significant number of failed or distressed cases have been recorded in both developing and developed countries. Some examples include the Sydney Cross City Tunnel (Australia), Trakia Motorway project (Bulgaria), Western Harbour Crossing (Hong Kong), Hangzhou Bay Cross-sea Bridge (China), The Ngone bridge project (Lao PDR), M7 Toll Road (Hungary), Bangkok Elevated Road System (Thailand), Pitesti–Bucharest–Constanza motorway (Romania), Ghana National Housing Project (GNHP; Ghana), Lekki toll road project (Nigeria) and Highway 407 (Canada) (Soomro and Zhang, 2013; Tam, 1999; Kumaraswamy and Zhang, 2001; Monsalve, 2009; Liu *et al.*, 2016). Therefore, the need to assess the potential constraints in PPPs has become very important for both research and practice. However, considering that the PPP concept has become a global practice, where private investors, consultants and financiers are engaged irrespective of their cultural background and geographical differences; the potential constraints in PPPs need to be empirically evaluated and compared among developing and developed economies/countries. This is crucial during this period because such empirical investigation will enable international private bidders to be fully aware of the potential challenges and the mitigation measures to adopt when engaging in PPP arrangements in different economies, whether developing or developed economy. Moreover, governments that are yet to adopt the PPP policy will be informed of the preventive actions to take to record more successful cases.

Essentially, considerable studies have been conducted to assess the barriers to successful PPP implementation; however, majority of these studies offered discussions which are country specific (Ismail and Haris, 2014; Demuijnck and Ngnodjom, 2011; Osei-Kyei and Chan, 2015b; Abdul-Aziz and Kassim, 2011; Cheung and Chan, 2011; Babatunde *et al.*, 2015). Also, some have attempted to compare between developed economies/countries (Cheung *et al.*, 2010; Chan *et al.*, 2010a). Though outputs of past related studies enhance the understanding on the constraints in PPPs, they do not reliably and genuinely inform practitioners of the implementation constraints that are exclusive to developing and developed economies/countries, and the ones that are similar in the two diverse economic and socio-political systems.

The current paper, which is part of a larger research project that aims to develop a best-practice framework for PPP implementation in Ghana drawing on international experiences aims to empirically evaluate the differences and similarities on the implementation constraints in PPP in developing and developed economies/countries, represented by Ghana and Hong Kong. Ghana represents a typical developing economy, which has huge infrastructure deficit and a rapid urbanisation growth rate. The PPP market in Ghana shares several risks and characteristics with many developing countries in Africa, South East Asia and Latin America and Caribbean. Further, the PPP practice in Ghana is at an early development stage which is seen in other developing countries. The PPP policy was introduced in 2004 but failed to be operationalised (Osei-Kyei and Chan, 2016). In 2011, the policy was launched again with a new guideline [Ministry of Finance and Economic Planning (MOFEP), 2011]. Like other developing economies/countries, very few projects have been implemented and introduced, with many of the initiated ones still at the preparatory stage (Osei-Kyei and Chan, 2016). Hong Kong is a developed economy, which shares many political and economic features with other developed economies/countries including Singapore, South Korea, the UK, Australia and Canada. The PPP concept has been practiced in Hong Kong for over two decades as seen in many developed countries. Hong Kong has recorded both successful and failed or distressed PPP projects. Essentially, the

practice of PPP in Ghana and Hong Kong are considered suitable and adequate to represent that of many developing and developed economies/countries.

It is hoped that the outputs of the study would inform international developers of the mitigation measures to adopt when engaging in future PPP projects. Further, the results contribute to the international best practices of PPP.

2. Literature review on the implementation constraints in PPP

Over the years, the implementation constraints in PPP projects have become a topical issue because of many reported held up and failed PPP projects (Babatunde *et al.*, 2015). Most of the research studies have unravelled the formidable obstacles in PPP projects from developing and developed economies/countries' perspective. It is quite understandable considering the diverse conditions and risk factors among the two economic jurisdictions.

In developing economies/countries, the acts of corruption have been identified as a major challenge in PPP project development, which is quite uncommon in the developed economies/countries (Demuijnck and Ngnodjom, 2011; Chan and Ameyaw, 2013). Corruption allegations incite public and political protests, which end up hindering the progress of PPP projects (Loxley, 2013). More essentially, they gradually diminish the general public's trust and therefore fuel the negative public perceptions on government dealings with the private sector (Osei-Kyei and Chan, 2015b).

The weak public institutional structure in developing countries greatly impedes PPP development (Pessoa, 2010; Loxley, 2013). In essence, a dedicated and competent public authority is required to effectively negotiate and bargain on the contract terms in the interest of the general public. However, if such strong public institutions are not established, the project ends up facing lots of obstructions particularly at the operational period.

High-end user charge has also been reported to be a major factor hindering the success of PPP development in developing countries. This is because the income levels in developing countries vary largely. Specifically, a large number of people have very low income (Amadi *et al.*, 2014; Ismail and Haris, 2014); thus, toll increment is not well received by users and local commuters (Osei-Kyei and Chan, 2015b). High user charge often results in numerous public protests and agitations, which may compel the host government to provide subsidies. Further, it forces users to look for alternatives particularly for toll roads. This therefore reduces the economic benefit of the project to the society.

Other reported critical constraints in developing economies/countries include the lack of competition in the procurement process, unstable macroeconomic indicators, immature financial market, incomplete risk transfer and the high use of unsolicited proposals (Loxley, 2013; Pessoa, 2010; Marin, 2009; Abdul-Aziz and Kassim, 2011; Askar and Gab-Allah, 2002; World Bank, 2012).

In the developed economies/countries, implementation constraints including high transaction and participation costs, lengthy contract negotiations, a great deal of management time spent in contract transaction, confusion over government objectives and evaluation criteria have been reported to be critical (Cheung *et al.*, 2010; Li *et al.*, 2005a; Chan *et al.*, 2010a; Algarni *et al.*, 2007; Grimsey and Lewis, 2007; Liu and Wilkinson, 2011; Xenidis and Angelides, 2005).

The lengthy nature of the bidding process of PPP poses high cost of transaction to both the public and private sector parties (Cheung and Chan, 2011). Practically, it is required that during the bidding process, the public authority should engage professionals as transaction advisors. Similarly, the private bidder may also engage professionals to provide legal, technical and financial advisory services during negotiations. Emphatically, the cost incurred by both project parties in engaging professionals for advisory services is often very

high. This is because the professionals have to be involved throughout the bidding process, which can take several months or years before negotiations are finalised (Corbett and Smith, 2006). Aside the cost of engaging professionals, the private sector bears the cost of assembling and setting up consortium (Ezulike *et al.*, 1997).

Delay in finalising negotiations has impeded the progress of many PPP projects in the developed countries (Cheung and Chan, 2011). The final negotiations of PPP projects cover issues such as the transfer of risks, payment terms and imposition of legal terms. Unless the project parties are fully satisfied with these terms, the final agreement cannot be reached (Chan *et al.*, 2006). Essentially, some negotiations can go on for over years, particularly for complex projects (Cheung *et al.*, 2010). The end result is that it affects the proposed completion time and the general public's interest in the project. Specifically, the general public loses confidence in the PPP concept.

Considering that some implementation constraints in PPP obviously differ among the developing and developed economies/countries, there could be others that are common in both jurisdictions. In this regard, an empirical analysis of the significant differences and similarities of the implementation constraints will be interesting and beneficial for both practice and research. This is currently lacking in literature; thus, this study bridges that knowledge gap.

3. Methodology

3.1 Prior literature and pilot study

From a thorough review of germane literature, 15 relevant implementation constraints in PPP were identified. To ascertain the clarity and applicability of the set of factors (i.e. implementation constraints), the list was sent to six PPP experts with rich industrial and/or academic experience for review and pre-testing: four from Ghana and two from Hong Kong. The experts confirmed the applicability of the factors in each jurisdiction with few modifications in the wording of some factors. Table I shows the list of implementation constraints in PPP with their relevant literature sources.

3.2 Collection of research data

An empirical questionnaire survey was conducted with targeted PPP experts from both the academic and industrial sectors in Ghana and Hong Kong. The survey was conducted between the period of May 2015 and April 2016. The experts were requested to rate on a five-point Likert scale (i.e. 1 = least important to 5 = extremely important) the importance of each implementation constraint in PPP as applied in their respective jurisdiction. Targeted respondents were selected based on a two-stage sampling approach. First, a purposive sampling method with pre-defined criteria was adopted to identify initial prospective respondents. The pre-defined criteria were that:

- respondent should have in-depth knowledge on the general practice of PPP and must have followed very closely the development of PPP in Ghana or Hong Kong; and
- respondent should have adequate direct hands-on (at least one project) and/or research experience in PPP project delivery in Ghana or Hong Kong (Chan *et al.*, 2010b; Ameyaw and Chan, 2015).

In the second stage, the identified respondents were opportunistically requested to suggest potential colleagues who may be interested to participate in the research study (Cheung *et al.*, 2012). Majority of the suggested prospective participants willingly accepted to participate in the study and were included in the final list of targeted respondents.

Table I.
Implementation
constraints in PPPs

Implementation constraints in PPPs	Liu and Wilkinson (2011)	Ismail and Harris (2014)	Cheung <i>et al.</i> (2010)	Osei-Kyei and Chan (2015b)	Chan <i>et al.</i> (2010a)	Askar and Gab-Allah (2002)	Adams <i>et al.</i> (2006)	Babatunde <i>et al.</i> (2015)	Li <i>et al.</i> (2005a)
Lengthy delay in finalizing negotiations		x	x		x				x
Lack of experience and appropriate skills in PPP project delivery				x	x			x	
Lengthy delay due to political debate		x	x		x			x	x
Unstable economic and commercial conditions	x			x					
Complex contractual negotiations		x	x			x			
High cost of project financing						x	x		
Misallocation and incomplete transfer of risks				x					
Lengthy delay due to public opposition and agitations								x	
Absence of comprehensive and clear policy guidelines and procedures		x					x	x	
High end user fee charges		x		x					
Weak public institutional structure and capacity							x	x	
Negative public perception on PPP transactions				x					
Immature financial market				x				x	
High participation and transaction costs	x								x
High use of unsolicited proposals			x	x	x	x			

Overall, 207 potential respondents from the academic and industrial sectors were sourced and identified from PPP-related publications that focused on Ghana or Hong Kong, dedicated private organisations and public institutions that have expressed strong interest in PPP projects (e.g. Ghana: Urban Roads Department, Ghana Highways Authority, Public Investment Division, Ghana Ports and Harbours Authority, Public Procurement Authority, Ghana Water Company Limited; Hong Kong: Architectural Service Department, Civil Engineering and Development Department, Highways department, Housing department, Efficiency Unit, Hospital Authority). Of the total respondents identified, 120 came from Ghana, whereas 87 came from Hong Kong. The key reason for identifying a large number of respondents in Ghana is because, in the past couple of years, more public departments and institutions have initiated quite a large number of PPP projects; thus, many people are involved with PPP practice in Ghana compared to Hong Kong.

Further, Ghana's population size (i.e. 26.7 million) is much bigger compared to the population size in Hong Kong (7.24 million) (World Bank Group, 2014); therefore, there is the possibility of identifying more potential respondents in Ghana than Hong Kong (Cheung *et al.*, 2012). Questionnaires were administered to targeted respondents either by face-to-face (i.e. majority of questionnaires distributed in Ghana) or e-mails (i.e. majority of questionnaires distributed in Hong Kong). For those questionnaires sent through emails, instructions were given for an option of responding through the "Survey Monkey" online questionnaire platform.

In total, 103 completed questionnaires were received: 77 from Ghana and 26 from Hong Kong representing response rates of 64.17 and 29.89 per cent, respectively. The higher response rate in Ghana was anticipated considering that majority of the questionnaires were administered face-to-face, which always yields a favourable response rate compared to online and telephone surveys (Aquilino, 1994; Ameyaw and Chan, 2015; Szolnoki and Hoffmann, 2013). Although, a lower response rate is obtained in Hong Kong, the sample size of 26 is considered satisfactory and reasonable when compared with previous related studies conducted in Hong Kong [Cheung *et al.*, 2009, 2012 (34 responses); Javed, 2013 (18 responses)]. More importantly, the Hong Kong respondents possess rich experience in PPP practice, which render their responses adequate for analysis (Table II). Nonetheless, the overall sample size of 103 is suitable and adequate for further analysis, when compared with similar studies including Liu *et al.* (2016) (57 responses: 32 from China and 25 from Australia) and Cheung *et al.* (2012) (45 responses: 34 from Hong Kong, 11 from Australia). Table II shows the detailed background of respondents.

Characteristics	Ghana		Hong Kong	
	No. of replies	(%)	No. of replies	(%)
<i>Category</i>				
Private	27	35.1	8	30.8
Public	35	45.5	12	46.2
Academic	15	19.5	6	23.1
Total	77	100	26	100
<i>Number of years of industrial and/or research experience in PPPs</i>				
≤10 years	62	80.5	15	57.7
11-20 years	14	18.2	8	30.8
≥21 years	1	1.3	3	11.5
Total	77	100	26	100

Table II.
Respondents'
background

3.3 Tools for data analysis

The Statistical Package for Social Science 21.0 was used to conduct statistical analysis including Kendall's coefficient of concordance, mean score ranking and Mann–Whitney U test. The degree of consensus on the survey data was determined using the Kendall's concordance analysis. This analysis was important because respondents from different sectors (i.e. public, private and academic) participated in the survey; thus, it is essential to test the level of consistency among responses within each respondent group (i.e. Ghana and Hong Kong). The mean score analysis was performed to assess the level of importance of each implementation constraint in PPP. The scores formed the basis for ranking. Mann–Whitney U test was conducted to identify the significant differences on the ranking of factors between the two respondent groups. This non-parametric test tool was considered appropriate because of the unequal sample sizes of the two independent groups. More importantly, the data set is not assumed to follow any distribution pattern (Sheskin, 2011). Lastly, to examine the similarities on the rankings of factors by respondents from the two jurisdictions, quartile grouping analysis was adopted. The mean scores of factors were grouped into upper and lower quartiles for each respondent group. Based on the groupings, the factors with similar rankings were identified.

4. Results and discussions

4.1 Test on consistency of responses

Kendall's coefficient of concordance (W) was performed at a significance test value of 0.05 for each group. As shown in Table III, the W value for the ranking of factors are 0.398 (Ghana) and 0.574 (Hong Kong), with significance value of 0.00 for each group. However, because the number of attributes exceeds seven, the chi-square is rather referred than the W value (Chan et al., 2010a). According to the degree of freedom (i.e. 14), the critical value of chi-square is 23.685 for the two respondent groups; this is below the computed chi-square values of 429.405 and 213.993 for Ghana and Hong Kong, respectively. Therefore, the assessment by respondents in each group of respondent is proved to be consistent. This reaffirms the validity of the survey responses for analysis.

4.2 Mean ranking and significant difference(s) on rankings of the implementation constraints in PPP in Ghana and Hong Kong

Table IV shows the mean scores and ranking of the implementation constraints in PPP for Ghana and Hong Kong. From the table, it is observable that the mean values range between 2.32 and 4.51 (Ghana) and 2.08 and 4.2 (Hong Kong). This suggests that, in general, the Hong Kong respondents rated the implementation constraints in PPP much lower than their Ghanaian counterparts. Further, the total variations in responses are 2.19 and 2.54 for Ghana and Hong Kong, respectively. This also indicates that respondents from Ghana rated the set

Table III.
Results of Kendall's
coefficient of
concordance test

Characteristics	Ghana	Hong Kong	Ghana and Hong Kong
Number of survey respondents (N)	77	26	103
Kendall's Coefficient of Concordance (W)	0.398	0.574	0.352
Chi-square	429.405	209.038	507.623
Degree of freedom (df)	14	14	14
Critical value of chi-square	23.685	23.685	23.685
Asymp. Sig.	0.00	0.00	0.00
Note: $\alpha = 0.05$ (95% confidence interval)			

Implementation
constraints in
PPP

Implementation constraints in PPPs	Ghana		Hong Kong		Ghana and Hong Kong		Mann–Whitney U test		
	Mean	Rank	Mean	Rank	Mean	Rank	U statistics	Z	p value
Lengthy delay in finalizing negotiations	4.31	2	4.62	1	4.39	1	802	−1.69	0.09
Lack of experience and appropriate skills in PPP project delivery	4.51	1	3.81	5	4.33	2	495	−4.224	0.00*
Lengthy delay due to political debate	3.79	4	4.04	3	3.85	3	852	−1.2	0.23
Unstable economic and commercial conditions	4.01	3	3.23	11	3.82	4	470	−4.34	0.00*
Complex contractual negotiations	3.69	6	3.96	4	3.76	5	812.5	−1.588	0.11
High cost of project financing	3.70	5	3.46	8	3.64	6	812	−1.575	0.12
Misallocation and incomplete transfer of risks	3.06	12	4.58	2	3.45	7	185.5	−6.448	0.00*
Lengthy delay due to public opposition and agitations	3.38	8	3.65	6	3.45	8	808	−1.614	0.11
Absence of comprehensive and clear policy guidelines and procedures	3.56	7	2.81	12	3.37	9	550.5	−3.629	0.00*
High end user fee charges	3.30	9	3.50	7	3.35	10	865.5	−1.113	0.27
Weak public institutional structure and capacity	3.23	10	3.42	9	3.28	11	863.5	−1.116	0.27
Negative public perception on PPP transactions	2.94	13	2.73	13	2.88	12	860.5	−1.177	0.24
Immature financial market	3.10	11	2.08	15	2.84	13	436	−4.482	0.00*
High participation and transaction costs	2.43	14	3.31	10	2.65	14	363	−5.253	0.00*
High use of unsolicited proposals	2.32	15	2.46	14	2.36	15	852.5	−1.26	0.21

Note: *Significance value of 0.05

Table IV.
Mean ranking and
significant test results
of the implementation
constraints in PPP in
Ghana and Hong Kong

of implementation constraints more similarly than their Hong Kong counterparts. Overall, seven constraints emerged as critical (i.e. mean values ≥ 3.50) in each respondent group's ranking.

The significance test results on rankings of the implementation constraints in PPP among the two independent groups are shown in [Table IV](#) (see last column). The test is conducted at a significance level of 0.05, with a hypothesis that no significant difference exists on the importance of an implementation constraint among respondents from the two groups. A factor (i.e. implementation constraint) with p -value less than 0.05 rejects the null hypothesis, suggesting that respondents from Ghana and Hong Kong view the importance of that factor differently and vice versa. As presented in the table, 6 of the 15 constraints are significantly different. This is quite understandable because developing and developed economies/countries have different PPP markets, and thus, the challenges faced in their markets vary ([Osei-Kyei and Chan, 2015a](#)).

Essentially, the constraints with significant differences, which are ranked higher in Ghana and lower in Hong Kong directly relate to the general investment climate of PPP projects (i.e. ecological conditions of PPPs). They include lack of experience and appropriate skills in PPP project delivery, unstable economic and commercial conditions, absence of comprehensive and clear policy guidelines and procedures, and immature financial market. These findings are consistent with previous related studies including [Babatunde et al. \(2015\)](#), where barriers related to the socio-political and economic conditions of PPP projects emerged as critical in Nigeria.

Lack of experience and appropriate skills in PPP project delivery is ranked first in Ghana, whereas their Hong Kong counterparts ranked it fifth. This is unsurprising considering the fact that the PPP concept emerged in Ghana in 2004, and since then the policy has failed to operationalise because of the lack of experience and understanding on how it should be successfully implemented (Osei-Kyei and Chan, 2016). Thus, few projects have so far been fully implemented, with many others at the preparatory stage. Importantly, this is similar in other developing countries, particularly those in the sub-Saharan African region (Osei-Kyei and Chan, 2015b). Due to the lack of PPP experience, some contracting authorities accept responsibilities and risks which are beyond their capacity. Also, others engage in contract agreements which undermine the general public's interest. These were seen in the GNHP, which was initiated in 2009 by the Government of Ghana but was not implemented. In the GNHP project, the government accepted many responsibilities and provided unrealistic guarantees and supports towards the partnership. These therefore resulted in agitations and demonstrations from civil society groups and political parties [Ghana News Agency (GNA), 2010]. Similarly, in the Lekki toll road project in Nigeria, Osei-Kyei and Chan (2015b) reported that the lack of experience and knowledge, which was demonstrated by the absence of competition and transparency, resulted in countless demonstrations from opposition parties and local commuters.

Unlike Ghana and other developing economies/countries, Hong Kong has a very enviable experience when it comes to private sector participation in public infrastructure delivery. In essence, the PPP ideology has been used since the early 1960's for tunnel projects including the Cross Harbour Tunnel, Western Harbour Crossing and Eastern Harbour Crossing (Tam, 1999). Therefore, the PPP concept is not completely new to practitioners in Hong Kong as seen in Ghana and other developing economies/countries.

Unstable economic and commercial condition is ranked 3rd in Ghana and 11th in Hong Kong. Specifically, it has a very high mean value in Ghana (i.e. 4.01) than in Hong Kong (i.e. 3.23). As explained by Osei-Kyei and Chan (2015b), economic and commercial indicators which affect PPP projects include interest rate, inflation rate, exchange rate and consumer price index. These economic indicators considerably influence the financial projection of PPP projects as well as the user fees. In essence, unstable economic condition does not enable private investors to make realistic and accurate forecast of their investment returns and, more importantly, it increases the overall cost of projects (Chan *et al.*, 2010a; Li *et al.*, 2005a). In the past couple of years, Ghana and other developing countries including Nigeria and South Africa have had unstable macroeconomic indicators particularly for exchange and interest rates. This has substantially affected private sector investments in PPP projects. For example, in the Lekki toll road project in Nigeria, Osei-Kyei and Chan (2015b) reported that due to the rapid depreciation of the Nigerian Naira currency, the project parties were compelled to increase toll fees, which contributed to several public agitations and demonstrations. Similarly, in the Inkosi Albert Luthuli Central Hospital, which is South Africa's first PPP project, the exchange rate fluctuation caused an increase in the overall project cost and user charges. This was because a large number of the project components were imported from overseas at a foreign rate (Wits Business School, 2007).

Unlike Ghana, Hong Kong and many other developed economies/countries including Australia, Canada and the UK have very stable economic and commercial condition. Essentially, such a condition is very conducive for PPP investments. Hong Kong is an international business hub, which hosts the head offices of many large private organisations from China and Europe. This has contributed to rapid development of Hong Kong's economy and a stable economic and commercial condition for PPP investments. It is therefore

understandable as to why unstable economic and commercial condition is not considered to be a challenge in PPP in Hong Kong by the respondents.

The absence of comprehensive and clear policy guideline and procedure is 7th in Ghana and 12th in Hong Kong. It has a very high mean value in Ghana (3.56) than in Hong Kong (2.81). This finding supports the outputs of previous studies including [Ismail and Haris \(2014\)](#), where the lack of clear government guidelines and procedures emerged as a critical constraint in PPP project implementation in Malaysia. PPP policy guideline defines the roles and responsibilities of public institutions and private investors in PPP implementation. Further, it stipulates the investor's rights in the partnership and how disputes should be resolved ([World Bank, 2009](#)). Although, the Ghana government has launched a policy guideline on PPP, the adequacy and comprehensiveness of the policy guideline is certainly not enough, when it is compared to the PPP policy guide in other economies/countries including Hong Kong [[Ministry of Finance and Economic Planning \(MOFEP\), 2011](#)]. This has made many local practitioners, particularly those from the public departments and agencies, very reluctant to procure PPP projects ([Osei-Kyei and Chan, 2016](#)). Ideally, the existence of either a comprehensive policy guide or PPP law is likely to boost the confidence of practitioners in the Ghanaian PPP market.

With respect to Hong Kong, the efficiency unit has released several revised editions of PPP policy guidelines for local practitioners from both the private and public sectors ([Efficiency Unit, 2003, 2008](#)). Although, a PPP law is not in place, the policy guideline on PPPs in Hong Kong is very comprehensive and adequate to assist public departments throughout the procurement process. The recent edition details out the major steps and responsibilities of the various concerned public institutions. More essentially, the policy guide establishes how risk should be allocated and mitigated, whilst drawing on international experiences particularly from the UK and Canada ([Efficiency Unit, 2008](#)). Importantly, the Hong Kong policy guide on PPP is an ideal example of a comprehensive and clear guideline for PPP, where governments in developing countries, particularly Ghana, can emulate.

Immature financial market is ranked 11th in Ghana, whereas Hong Kong respondents 15th. Specifically, it has a large mean difference of 1.02 [i.e. 3.10 (Ghana) and 2.08 (Hong Kong)]. Clearly, this suggests how the importance of this implementation constraint varies in the two jurisdictions. As explained by [Chan *et al.* \(2010b\)](#), financial market is the major source of project financing for private sector investments. A well matured financial market enables private investors to raise funds for project investments at a much lower cost ([Cheung *et al.*, 2012](#)). Undoubtedly, the financial market in Ghana is still immature and has not developed up to the level where private investors can raise funds for PPP projects. In most cases, because of the immaturity of the local financial market, local investors are not able to engage in PPP projects because of the difficulty in raising funds. It is the foreign companies who are often engaged in PPP arrangements. This is seen in some recent completed water treatment plant PPP projects: the Asutsuare Water Treatment Plant and Accra Reverse Osmosis Desalination Plant.

The Hong Kong respondents ranked immature financial market very low possibly because of the experiences of past projects. Most past projects in Hong Kong including the Cyber Port project and Asia World Expo project were funded by locally based investors, who raised the funds from the local financial market. But that notwithstanding, Hong Kong as an international business hub hosts many large financial institutions and organisations; thus, their financial market is very strong and matured compared to that of Ghana and other developing countries.

The remaining two implementation constraints with significant differences are ranked higher in Hong Kong and lower in Ghana. Emphatically, they directly relate to the project organisation and negotiations. These include misallocation and incomplete transfer of risks and high participation and transaction costs. Misallocation and incomplete transfer of risks is ranked 1st in Hong Kong, whereas their Ghanaian counterparts ranked it 12th. In essence, it has a large mean difference between the two respondent groups (i.e. 1.52). Proper identification and allocation of risks are important in PPP project implementation and they substantially influence success (Li *et al.*, 2005b; Osei-Kyei and Chan, 2015a). In Hong Kong, the misallocation of risks has been a major setback in some PPP projects implemented by the government. Taking the Western Harbour Crossing as an example, in that project the demand/market risk was allocated to the private sector. Thus, if demand falls, the private operator had to increase the toll fees as a measure to mitigate that risk. Meanwhile, there were alternative routes which motorists could use. So, if the private investor increases toll fees when demand falls, motorists will therefore have an option and are likely to be compelled to use the alternative routes. This arrangement between parties has caused serious financial loss to the private investors since its implementation (Tam, 1999). Ideally, the demand/market risk should have been retained by the public partner or shared among parties as seen in other PPP projects including the Hong Kong Disneyland Theme Park.

Although respondents from Ghana ranked misallocation and incomplete transfer of risks lower, it does not mean that risk allocation in PPP arrangements in Ghana is done perfectly well. However, the results imply that constraints related to the organisation and arrangements of PPP projects are not as critical as the ones related to the general investment climate of PPP projects. More importantly, very few projects have been implemented in Ghana; therefore, the full outcome of risk allocation has not been realised compared to Hong Kong, where majority of PPP projects have been implemented and are at the operational stage.

Lastly, high participation and transaction cost is ranked 10th in Hong Kong and 14th in Ghana. Similarly, it has a large mean difference of 0.88. The participation and transaction cost in PPP projects include the costs of conducting feasibility studies, hiring transaction advisors, preparing and submitting proposals and project monitoring (Chan *et al.*, 2010a). A high cost of transaction and participation affects the overall cost of projects and may have a negative impact on securing value for money (Chan *et al.*, 2010a; Cheung *et al.*, 2010). Although generally it is acknowledged that the participation and transaction cost of PPP projects is high, in Hong Kong, it can be very high considering a lot of factors such as project complexity, protracted procurement process and high standards and expectations by the public partner (Cheung *et al.*, 2010). The complexity of projects and high expectations often require well experienced and competent professionals to offer consultancy services. Certainly, both investors and public partner will pay high rates for engaging the services of these professionals.

As previously mentioned, Ghana has implemented very few projects; therefore, high participation and transaction cost has not become an issue. Notwithstanding, most public departments do not give high standards or have high expectations in PPP arrangement as seen in Hong Kong PPP practices. Therefore, it has not become necessary for practitioners to engage high profiled professionals for consultancy services as seen in Hong Kong. For instance, the participation and transaction cost of a market PPP project in Ghana will definitely not be the same as the transaction cost of a world class exhibition centre in Hong Kong. This is because the project complexities and standards are different; thus, different expertise will be required to offer consultancy services.

4.3 Similarities on the ranking of implementation constraints in PPP among respondents from Ghana and Hong Kong

Table V shows the quartile groupings for each group of respondent. The implementation constraints are grouped into upper and lower quartiles to identify the similarities in the top and bottom rankings among the two independent groups. The upper quartile subsets of both Ghana and Hong Kong contain the 25 per cent highest mean values of implementation constraints in PPPs, whereas the lower quartile subsets contain the 25 per cent lowest mean values of factors. The cut-off values for the upper quartile subsets are 3.79 and 3.96 for Ghana and Hong Kong, respectively. Further, the lower quartile cut-off values are 3.06 for Ghana and 2.81 for Hong Kong.

The upper quartile subsets of both countries contain four factors, with mean values ranging from 3.79 to 4.51 and 3.96 to 4.62 for Ghana and Hong Kong, respectively. Two implementation constraints appeared in the subset of both jurisdictions; these include lengthy delay in finalising negotiations and lengthy delay due to political debate. In essence, the two implementation constraints also fall within the top four ranking of each respondent group. The implementation constraint "lengthy delay in finalising negotiation" is ranked second in Ghana and first in Hong Kong. This suggests that this implementation constraint is critical irrespective of cultural and geographical differences. This finding is consistent with outputs of previous studies including Cheung *et al.* (2010), where lengthy delays in negotiation was identified to be critical in three developed economies/countries (i.e. Hong Kong, Australia and the UK). Similarly, Ismail and Haris (2014) identified this constraint as critical in Malaysia, which is a developing country. Delay in finalising negotiations affects the project schedule and cost. It occurs when the project parties are not clear with some terms in the contract agreement. Because PPP is a long-term arrangement, most of the times project parties would want to be very clear on the conditions of contract and bargain for favourable terms. Negotiations in PPP arrangement can take two or more years. A typical example is seen in the Hong–Kong–Zhuhai–Macau Bridge. In that project, Chan *et al.* (2010a) reported

Quartiles	Ghana	Mean	Hong Kong	Mean
	Implementation constraints in PPPs		Implementation constraints in PPPs	
Upper Quartile (Q_3) _{Ghana} = 3.79 (Q_3) _{HK} = 3.96	Lack of experience and appropriate skills in PPP project delivery	4.51	Lengthy delay in finalizing negotiations	4.62
	Lengthy delay in finalizing negotiations	4.31	Misallocation and incomplete transfer of risks	4.58
	Unstable economic and commercial conditions	4.01	Lengthy delay due to political debate	4.04
	Lengthy delay due to political debate	3.79	Complex contractual negotiations	3.96
Lower Quartile (Q_1) _{Ghana} = 3.06 (Q_1) _{HK} = 2.81	Misallocation and incomplete transfer of risks	3.06	Absence of comprehensive and clear policy guidelines and procedures	2.81
	Negative public perception on PPP transactions	2.94	Negative public perception on PPP transactions	2.73
	High participation and transaction costs	2.43	High use of unsolicited proposals	2.46
	High use of unsolicited proposals	2.32	Immature financial market	2.08

Note: Quartiles cut-off values are calculated using the Quartile function in MS Excel

Table V.
Quartile groupings of
implementation
constraints in PPP in
Ghana and Hong Kong

that it took more than two decades for a final decision to be made as to whether it will be suitable through PPP.

Lengthy delay due to political debate is ranked fourth in Ghana and third in Hong Kong. It has very close mean values. Similarly, this result is in line with previous studies including [Cheung *et al.* \(2010\)](#), where this constraint in PPP emerged as the most critical in Hong Kong. Further, [Ismail and Haris \(2014\)](#) identified this constraint to be critical in Malaysia. PPP as a public policy definitely has some political influence. Political debate arises when there is lack of transparency and accountability in the procurement process. Opposition parties will try as much as possible to probe the government on the transparency and accountability of the project. Emphatically, political debate could lead to cancellation of the PPP arrangement. This was seen in the GNHP initiated in 2009. Opposition political parties were strongly against the terms and conditions of the contract. Their major claim was that the Ghana government had given lot of incentives and favourable terms to the private partner [[Ghana News Agency \(GNA\), 2010](#)]. Similarly, in Hong Kong, [Cheung *et al.* \(2010\)](#) reported that the debate among the Legislative Council (LegCo) caused a delay of the West Cultural Kowloon District project for several years. The LegCo criticised the government for not being clear on the long-term policy and objectives of the cultural development project. In addition, the issue of whether the project was suitable through PPP or the traditional-bid build approach was also a concern to some Council members.

In the lower quartile section, “negative public perceptions on PPP transactions” and “high use of unsolicited proposals” fall within each group’s subset. Specifically, these implementation constraints were ranked very low by respondents from both jurisdictions, and they fall within the last four ranking of each respondent group. Clearly, this suggests that irrespective of the cultural and geographical differences, these implementation constraints are not critical in PPP. This is unsurprising considering that over the years, the general public, particularly those in developing countries such as Ghana, have realised the importance of private sector involvement in public infrastructure delivery. Although a section of the populace may have formed negative opinion on private investments in public infrastructure because of past experiences, essentially, this does not impede the progress of PPP projects. For Hong Kong and many other developed economies/countries like the UK, Canada and Australia, the PPP concept has been used and proven to be beneficial; thus, majority of the populace may have positive perception on PPP arrangements.

Soliciting for proposals from private investors is one approach of initiating PPP projects. However, it has been internationally recognised that this approach could undermine value for money in PPPs, if not handled properly ([World Bank, 2014](#)). In Ghana’s PPP practice, unsolicited proposals are not normally entertained by public departments because of past experiences. A notable example is the experience of the GNHP. In situations where projects are initiated using unsolicited proposals, it is mandatory to conduct competitive tendering process and thorough value-for-money assessment. Similarly, in Hong Kong, unsolicited proposals are not often used unless the project requires unique service delivery and has exceptional intellectual property value. An example of such project is the Hong Kong Disneyland Theme Park developed by the Disney Company. Nonetheless, unsolicited proposals undergo thorough value-for-money assessment and competitive bidding process ([Efficiency Unit, 2008](#)).

5. Conclusions

This paper has empirically compared the constraints to successful PPP projects in developing and developed economies/countries using Ghana and Hong Kong as examples. Questionnaires were distributed to experienced practitioners from both the academic and

industrial sectors in Ghana and Hong Kong. Preliminary statistical analysis using the Kendall's coefficient of concordance demonstrated the consistency of the responses within each respondent group. This affirmed the validity and genuineness of the survey responses for further analysis. The mean score analysis was performed to assess the level of importance of each constraint in each country. Further, Mann–Whitney U test was conducted to identify the significant difference (s) on the ranking of factors (i.e. implementation constraints) among respondents for both countries. The test results indicate that respondents from Ghana and Hong Kong view the importance of 6 of the 15 implementation constraints differently. The large number of significant differences confirms the differences in the characteristics and features of PPP markets in the developing and developed countries. Four constraints with significant differences are ranked higher in Ghana than in Hong Kong, and they relate to the general investment climate of PPP projects (i.e. ecological conditions of PPP). These include lack of experience and appropriate skills in PPP project delivery, unstable economic and commercial conditions, absence of comprehensive and clear policy guidelines and procedures and immature financial market. The other two constraints are ranked higher in Hong Kong than in Ghana, and they also relate to the project organisation and negotiations. These include misallocation and incomplete transfer of risks and high participation and transaction costs. Quartile grouping analysis was used to identify the similarities in the top (upper quartile) and bottom (lower quartile) rankings among the two jurisdictions. The results show that lengthy delay in finalising negotiations and lengthy delay due to political debate are critical constraints in both countries. On the other hand, “negative public perceptions on PPP transactions” and “high use of unsolicited proposals” are of less challenge in the practice of PPP in both countries. Essentially, the outputs are consistent with previous studies including [Cheung *et al.* \(2010\)](#) and [Ismail and Haris \(2014\)](#).

The findings of this study contribute to knowledge on the international best practice framework for PPP implementation. Further, they inform international investors and governments who are yet to adopt the PPP policy of the possible challenges in PPP in both developing and developed countries. This will enable practitioners to plan properly when engaging in PPP transactions in any part of the world.

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