A Best Practice Framework for Public-Private Partnership Implementation for Public Construction Projects in Developing Countries: A Case of Ghana

Abstract

Purpose: The purpose of this paper is to develop a best practice framework for PPP implementation for public construction projects in Ghana.

Design/methodology/approach: This study adopted a multi-stage critical review and analysis of past studies on the attributes of PPP implementation (i.e. critical success factors (CSFs)/success criteria for PPP, reasons/drivers for adopting PPP, obstacles/implementation constraints in PPP and risks in PPP) with much focus in Ghana. Furthermore, other governments' and international PPP guidelines were reviewed for cross validation purposes. In addition, questionnaire survey with PPP experts in Ghana was conducted to validate the proposed best practice framework.

Findings: From the search, 16 publications in leading construction management journals were identified. A thorough content analysis of the identified papers produced 151 best practices for construction PPPs in Ghana. The best practices were then incorporated into the PPP process in Ghana to develop the best practice framework.

Research limitation: The major limitation lies in the fact that few publications were targeted for analysis; however, the findings are still useful for future reference because the PPP concept is still developing in Ghana, therefore few publications are found in leading construction management journals. Another limitation is that the best practice framework was not validated using real life-cases, thus it is suggested that future research will adopt the framework and test it on life projects to measure its effectiveness.

Originality/value: The outputs of this study considerably inform local practitioners in developing countries particularly Ghana and other African countries of the strategic measures that need to be carefully considered within the PPP process so as to implement successful construction PPP projects. The best practice framework also helps to standardize the practice of PPP in Ghana.

Keywords: Public-Private Partnership, Ghana, best practice, public construction project

Article type: Conceptual Paper

1.0 Introduction

During the last couple of decades, private sector participation in public infrastructure delivery has gained grounds globally (Li et al. 2005). Since the early 1990's, the private sector has been actively involved with the creation and operation of public infrastructure particularly in the developed economies/countries and this has therefore given rise to the term ''Public-Private Partnerships (PPP)' (Morrison, 2012). PPP has no standard definition; importantly, it has been defined in numerous ways by researchers, international organizations and governments (Abadie and Howcroft, 2004; Osei-Kyei and Chan, 2015). Apparently, the varying definitions come as a result of the diverse objectives and motives for implementing the policy (Cuttaree and Mandri- Perrot, 2011; Cheung et al. 2009). Notwithstanding, one significant feature that is common to all PPP definitions is the sharing of risks and responsibilities among parties (Ke et al. 2010). Unlike the traditional bid-build method, PPP allows risks to be allocated to the party with better mitigation techniques (Wibowo and Mohamed, 2010). In sharing responsibilities, the private sector is responsible for designing, financing, constructing and operating the public facility over an agreed period, whereas the government/ public partner acts as the facilitator and enabler by establishing sound legislation and institutional framework (Sengupta, 2006; Thomas, 2009). Essentially, the successful implementation of PPP in the developed regions including the Western Europe, Australia and North America (including United States and Canada) (Jacobson and Choi, 2008; Jefferies, 2006), has made PPP very attractive to governments in the developing regions (Nataraj, 2007; Thomas et al, 2006). In recent years, as some developing countries are making progress with the policy implementation, many others are yet to fully explore the opportunities and benefits that this new procurement method fetches (Sanni and Hashim, 2014). The identified reasons for the slow progress of PPP development in some developing countries include political instability, corruption, lack of appropriate skills and unattractive financial markets (Liu and Wilkinson, 2011; Demuijnck and Ngnodjom, 2011; Ismail and Haris, 2014).

Similar to other governments in developing countries, the Government of Ghana (GoG) has also shown considerable enthusiasm in the use of PPP for infrastructure delivery particularly for physical infrastructure projects (i.e. public construction projects) (Osei-Kyei and Chan 2016; Ministry of Finance and Economic Planning (MOFEP), 2014). Over the past decades, the private sector's involvement in Ghana's public infrastructure delivery has predominantly been the management and outsourcing of public services. Emphatically, the private sector has played very little role in the provision of physical infrastructure projects such as transportation projects, public housing, public hospitals and public recreational facilities (Awortwi, 2004; Asare and Frimpong, 2013; Berkoh et al. 2004; Akanbang, 2010). Considering the huge physical infrastructure funding gap of about US$1.5 billion per annum over the next decade (World Bank, 2012); the Ghanaian government has therefore attempted to employ the PPP policy in the construction industry with the introduction of a national policy in 2004 (Osei-Kyei and Chan, 2016).

However, since the introduction of the PPP policy, very few public construction projects have been implemented, with most of the initiated ones not progressing successfully (World Bank,

2012; Osei-Kyei and Chan, 2016). Importantly, the slow growth of construction PPPs in Ghana is attributed to the lack of understanding, skills and knowledge of local practitioners (both public and private sectors) on how best construction PPP projects could be procured within the local context and setting (Osei-Kyei and Chan, 2016; World Bank, 2012, Shendy et al. 2011). As a matter of fact, this manifested in the failure of the Ghana National Housing Project (GNHP) which was attempted in 2009 (Securities Africa, 2012; Kwofie et al. 2016). Therefore, there is an urgent need for a thorough investigation into the best practices of PPP for construction projects within the Ghanaian context.

Although, there is a strand of literature on the critical success factors (CSFs) in PPP in Ghana (e.g. Osei-Kyei and Chan, 2016; Kwofie et al. 2016; Ameyaw and Chan, 2016); majority of these studies nominated success factors without synthetizing it with the process of procuring PPP projects in Ghana. Though outputs of past related studies are still useful, they however do not provide in-depth insight into how success could be achieved within the PPP process in Ghana particularly for public construction projects. Against this background, the aim of this study is to develop a best practice framework for PPP implementation for public construction projects in Ghana based on review of past related studies conducted in Ghana as well as other governments' and international PPP guidelines.

This study contributes substantially to knowledge and practice by providing detailed measures and strategies which need to be carefully considered within the PPP process so as to implement PPP projects successfully in Ghana and developing countries in general. More specifically, the research outputs provide in-depth insights into how transparency, greater social benefits, high quality of service and private sector efficiency could be achieved when developing PPP projects in Ghana. The best practice framework developed will help standardize the practice of PPP in Ghana which in the end will foster the rapid development of PPP projects.

Following this introduction, the next section (i.e. Section 2) presents a thorough review of the development and process of procuring PPP projects in Ghana. The research methodology/approach is also presented in Section 3. The fourth section discusses the development of the best practice framework. The fifth section discusses validation of the best practice framework. The sixth section elaborates on the implications of the research and finally, the last section presents conclusion, limitations and recommendations for future research.

2.0 PPP development and process in Ghana

The PPP concept became a national policy in 2004 with the introduction of a policy guideline (MOFEP, 2011; Osei-Kyei and Chan, 2016). Basically, the concept was to encourage private sector participation in the delivery of physical public infrastructure which over the past years has received very little attention from private investors (Osei-Kyei and Chan, 2016). Because of the lack of understanding and skills of local practitioners on how this new policy could be implemented, the policy failed to be operationalized (World Bank, 2012). It was revitalized in

2011 with an introduction of a new policy guideline and the setting-up of an official PPP unit (MOFEP, 2011). Currently, very few public construction projects have been implemented with majority of the initiated one still at the preparatory stages (Osei-Kyei and Chan, 2016).

[Please Insert Figure 1 here]

Generally, the process of implementing public construction projects through the PPP scheme in Ghana can be grouped into four distinct but related stages. Figure 1 shows a flow diagram of the process of procuring PPP projects in Ghana. Apparently, the PPP process adopted in Ghana is quite similar to many other developing countries' process.

As shown in the figure, the PPP process in Ghana involves four different stages; project inception stage, procurement stage, construction stage, operation and transfer stage.

2.1 The Project Inception Stage

The process of procuring a PPP project starts from the inception stage. The major activity at this stage is the identification of public project by the contracting authority (Metropolitan, Municipal and District Assemblies (MMDA) and Ministries, Departments and Agencies (MDA)). Often public projects are identified from the National Infrastructure Plan (NIP), National Public Investment Plan (NPIP), National Development Plan (NDP) and any other development plan of the contracting authority (MOFEP, 2011). In some situations, public projects are identified through the request of proposals from individuals and private developers. However, these unsolicited proposals must be a proposed project not identifiable in any of the development plan issued by the government.

Pre-feasibility and full feasibility studies are also undertaken at this stage. The contracting authority engages a private consultant who is referred to as Transaction Advisor (TA) to undertake the feasibility studies of the project (MOFEP, 2011). The feasibility studies examine the technical, financial, environmental, social aspects of the proposed project. However, unless the Public Investment Division (PID) unit within the Ministry of Finance and Economic Planning approves the feasibility studies, the public entity cannot proceed to the procurement stage. Moreover, the cost of the feasibility studies undertaken at this stage is initially borne by the government and later transferred to the successful bidder. In the case of unsolicited proposal, the cost of feasibility studies is borne by the private developer.

2.2 Procurement Stage

PPP process varies among jurisdiction; hence this stage could be referred to as implementation stage in other countries (Li, 2003). This stage involves the request for expression of interest, evaluation of tenders, negotiations of award and financial close. After the approval of feasibility studies, a request for expression of interest is issued through suitable medium including newspapers, government websites etc.

Similar practice is done in the Europe, where expression of interest is obliged to be advertised in the Official Journal of the European Union (Commission of the European Communities, 2000). Very often, the expression of interest is used as pre-qualification. This allows the public entity to eliminate any low standing bidder hence facilitating the shortlisting of prospective bidders for the proposed project.

Following the expression of interest; detailed technical and financial proposals are requested from shortlisted bidders. Upon the selection of the best bidder, negotiations are done to allow parties have a mutual agreement on the objectives and risks of the project. In a situation where a negotiation fails; the second highest bidder is selected for negotiation. The financial close follows the negotiation process and it is after the financial close that the private partner can begin construction. It should be mentioned that from the request of proposals to finalizing negotiations, all activities are approved by an approval committee set up by the sector ministry or assembly. Further, losing bidders are not compensated for their commitment as observed in other countries. However, in the case of unsolicited proposals, bidders are allowed to resubmit their proposals for consideration, if they were unsuccessful after a competitive bidding process.

2.3 Construction stage

At this stage, the private partner is required to construct the project according to the agreed output specification and quality. Essentially, construction should begin immediately after financial close. In Ghana, most PPP contracts normally have the construction schedule imbedded into the concession period. This is often done to ensure that the project is completed on time and more importantly, to ensure that construction and delay in completion risks are fully allocated to the investor.

Also, the private partner is often compelled in the partnership agreement to employ more local content and expertise during this stage. Emphatically, the construction of a PPP project is expected to create more job opportunities for local commuters, craftsmen and artisans, therefore investors are encouraged to adopt more local contents at this stage. In Ghana, the public entity through its Project Management Unit (PMU) provides annual reports and consistently monitors the progress of the construction. It should also be mentioned that this stage involves the commissioning of the completed project for operation.

2.4 Operation and Transfer stage

The operation and transfer stage includes the day-to-day running and management of the public facility. During operation, the private investor is expected to charge the user fees agreed during negotiations, that is if direct user fee payment was agreed. In some jurisdictions, particularly the developed countries, availability based payment is often adopted. This is where the investor is paid an annual fee based on the service quality and availability of the facility. This payment method is not often used in Ghana but instead the

direct user charges. In Ghana, the concession period granted to an investor depends on the type of PPP project and infrastructure sector. Nonetheless, averagely, concessions are granted for 25 years for road projects. Also at this stage, the PMU is expected to monitor the performance of the investor. Specifically, the PMU should ensure that the output requirements and service standards are met. At the end of the concession period the facility is reverted to the contracting authority at no cost (Coulson, 2005).

3.0 Research Approach/Methodology

This study adopted a four-stage comprehensive review process (Osei-Kyei and Chan, 2015; Yi and Wang, 2013) (see Fig. 2). The four stages include i) selection of relevant papers on the attributes of PPP implementation, ii) identifying publications with much focus in Ghana ii) identification of best practices and iii) incorporation of the best practices into the PPP process.

[Please Insert Figure 2 here]

First, a general search of publications on the attributes of PPP implementation (i.e. CSFs/Success Criteria for PPP, Risk factors in PPP, Obstacles/implementation constraints in PPP and Reasons for adopting PPPs) was conducted in the Scopus search engine. Scopus search engine was used because it covers a large range of areas and disciplines compared to other search engines such as Web of Science and Google Scholar (Osei-Kyei and Chan, 2015). Also, only publications on the attributes of PPP implementation were targeted because they often discuss and provide insightful implications which are very useful and relevant when deriving best practices for PPPs (see Chan et al. 2006). Under the "T/A/K (title/abstract/keyword)" field of the Scopus search engine, keywords such as "reasons", "drivers", "motivations", "Critical Success Factors", "success criteria", "obstacles", "implementation constraints", "risks" and "risk factors" were entered. The search was further limited to the area of PPPs using the keywords; "PPP" and "public-private partnership". Moreover, the search was restricted to papers published between 1990 and 2017. The search results revealed 348 publications from different academic disciplines and journals.

In the second stage, a thorough search on the title and abstract of the 348 publications was conducted in order to select papers that focus more on Ghana. In total, 14 publications that have identified and discussed any of the attributes of PPP implementation within the Ghanaian context were identified and selected. Two papers which are 'in press' in leading construction management journals and focus on PPPs in Ghana were also added. This increased the total number to 16. Though the number of selected publications is small (i.e. 16), it is still considered adequate for further analysis because the PPP concept is still developing in Ghana; therefore many researchers have not contributed much compared to other countries including South Africa and Nigeria. Notwithstanding, majority of the selected papers have been published in leading construction management journals, thus they were considered adequate and valuable for analysis. Table 1 presents the selected publications.

[Please Insert Table 1 here]

The second stage involved a thorough visual examination and in-depth content analysis of the selected publications in order to derive relevant best practices for PPP implementation within the Ghanaian context. For the purpose of cross validation, the best practices suggested by the GoG guidelines (i.e. Ghana National Policy on PPP and Draft Ghana PPP Bill), the World Bank guideline for PPP practice in Ghana (World Bank, 2012) and other neighbouring countries' PPP manuals (including South African Treasury's PPP manual) were also reviewed and incorporated into the list of best practices derived from the academic literature. This validation process was necessary to ensure that the best practices derived are comprehensive and logical within the Ghanaian context and setting.

In the last stage, the best practices derived were incorporated into the process of procuring PPP projects in Ghana. This implies that for each stage of the PPP process in Ghana, best practices were proposed. Essentially, this will make it easier for practitioners to utilize the best practice framework effectively.

4.0 Developing the best practice framework

Through a critical content analysis of the selected 16 publications as well as other guidelines including the Ghana National Policy on PPP, Draft Ghana PPP Bill, World Bank's guideline for PPP practice in Ghana and South Africa Treasury's PPP manual, 151 best practices which are applicable within the Ghanaian context are derived. Table 2 shows the list of best practices with their relevant sources. The best practices are then incorporated into the process of procuring PPP projects in Ghana. Therefore, at each stage, practitioners are given clear instructions on how they should act in order to implement a successful construction PPP project in Ghana. Also, the best practices are grouped under each sector of PPP (i.e public or private). Essentially, this will help in the easy implementation of the best practice framework. Moreover, it will inform each of the major stakeholders of the actions that need to be taken to ensure a successful implementation of a PPP project in Ghana. Figures 3, 4, 5 and 6 show Stages 1, 2, 3 and 4 of the best practice framework for PPP implementation in Ghana respectively.

[Please Insert Table 3 here]

As presented in Figure 3, Stage 1 which involves project identification, prefeasibility and full feasibility studies consist of 33 best practices; 28 for the public sector and 5 for the private sector. Essentially, the best practices cover effective management measures which need to be given critical attention by both the public and private sectors at the inception stage of PPP implementation. At Stage 1, practitioners particularly the public sector needs to ensure proper

identification and feasibility studies of PPP projects (Osei-Kyei and Chan, 2016). In addition, extensive external stakeholder consultation and engagement with opposition political parties are also important measures which need to be carefully considered. Though traditionally, PPP projects are initiated by the public sector, in some instances the private sector can also proposes and develops a PPP project. In such situation, the private proponent should consider projects which have outstanding intellectual property and innovation. Further, the private proponent should be ready to finance the pre-feasibility and full feasibility studies of the proposed project.

[Please Insert Figure 3 here]

[Please Insert Figure 4 here]

[Please Insert Figure 5 here]

[Please Insert Figure 6 here]

In Stage 2 of the best practice framework, 57 best practices are suggested. Importantly, among the four stages of the framework, Stage 2 is the one with quite a number of best practices. This is because the procurement stage of a PPP process involves a lot of activities and more importantly, it is the stage in which most of the critical decision and agreement in PPP arrangement are made (Liu et al. 2014). Therefore, practitioners need to be mindful of their actions and inactions at this stage because they can have serious positive or negative repercussion on the outcome of the PPP process. The best practices in this stage covers effective strategic measures which ensures a competitive, transparent, fair and open tendering process. Further, the best practices proposed attempts to eliminate unwanted delays usually arising from lengthy political debate. Also, measures which encourage local private participation in PPPs are proposed. It is believed that the best practices at this stage will ensure a substantial reduction in the allegations of corruptions and maximize social benefits of PPP projects.

Stage 3 of the best practice framework involves the financing, designing, construction and commissioning of the PPP project. This stage consists of 25 best practices; 12 for the public sector and 13 for the private sector. It is the stage with the least practices and this is because of the little participation of the public sector at this stage. Essentially, the private sector plays major role in Stage 3 and therefore has more responsibilities. The best practices proposed for this stage cover management measures which eliminate construction delays. Further, they ensure timely completion of the PPP project and adherence to the output standards of the project. At this stage, coordination between the public and private sectors is crucial, thus strategies which will enhance the effective cooperation and coordination among project parties including external stakeholders are also proposed.

The last stage of the best practice framework involves the operation, maintenance and transfer of the PPP project. This stage comprises of 36 best practices; 17 for the public sector and 19 for the private sector. The best practices proposed at this stage will ensure a consistent monitoring of the performance of the private partner as well as a reliable service delivery.

Notably, private investors are known to provide better service delivery compared to the public sector (Osei-Kyei et al. 2014). In this regard, measures which will enhance the private sector's service delivery to the general public are proposed. In addition, considering the lengthy nature of the operational period of PPP arrangements, strategies which will ensure a long term relationship and coordination among projects parties are proposed. It is therefore hopeful that the best practices at this stage will reduce public agitations and demonstrations in PPPs during their operational period.

5.0 Validation of the Best Practice Framework

Validation is an important final step in a research cycle (Hu et al. 2016). It is mostly done to test the credibility and acceptability of the research outputs or models (Ameyaw, 2015; Cheung, 2009). More importantly, validation is conducted to assess the extent to which a model or system fulfils user needs (Gupta, 1991; Hu et al. 2016). Yeung (2007) also mentioned that validation is vital in research studies in order to measure the appropriateness, objectivity, practicality, reliability and suitability of systems or frameworks.

Essentially, in this study, a qualitative approach was used to validate the best practice framework. Six validation questions which relate to four validity aspects were designed and used as an instrument to assess the credibility and quality of the best practice framework. The four validation aspects include external validity, internal validity, construct validity and content validity.

External validity is concerned with the generalizability of the research outputs or model (Hu et al. 2016). This actually assess whether the best practice framework could be generalized in Ghana. Internal validity is also concerned with causality. Lucko and Rojas (2010) explained that internal validity is preoccupied with the derivability of relations within data. This validity assess whether the best practice framework is easily understandable for practice. Construct validity is concerned with the operationalization of theoretical constructs (Lucko and Rojas, 2010). It assess whether the research efforts measure what it ought to measure (Hu et al. 2016). Specifically, it evaluates the comprehensiveness and appropriateness of the best practice framework. Lastly, content validity evaluates whether the content of the study fairly represents the reality (Lucko and Rojas, 2010). Importantly, content validity assess whether the identified best practices could ensure a successful PPP implementation in Ghana if they are rightfully observed (Ameyaw, 2015).

5.1 Design of validation questionnaire and expert survey

To validate the credibility and quality of the best practice framework, questionnaire survey was conducted with experienced PPP experts in Ghana. The validation questionnaire consisted of four sections. The first section solicited for the general background information of experts. The second section presented the process of procuring construction PPP projects in Ghana (see Fig. 1). The third section presented the best practice framework (see Fig. 3, 4, 5 and 6), and the fourth section solicited for experts' opinion on the level of satisfaction for

each of the six validation questions which relate to the four validity aspects (i.e. external validity, internal validity, construct validity and content validity). The extent of satisfaction was assessed based on a five-point Likert scale, where 1=poor, 2=average, 3= good/satisfactory, 4= very good and 5=excellent (Cheung, 2009).

Respondents for the validation process were selected based on three criteria. First, the respondent should have followed very closely to the development of PPP in Ghana. Second, the respondent should have at least seven years of industrial and/or research experience in PPPs in Ghana. Lastly, the respondent should be in a senior level authority and position in his/her organization (Cheung, 2009; Ameyaw, 2015).

Based on these criteria, potential respondents were sourced and identified from relevant peer-reviewed publication and dedicated public and private institutions. Overall, six potential experts from the academic and/or industrial sectors were identified and invited to validate the best practice framework. Table 4 shows the background of experts.

[Please Insert Table 4 here]

From the table, it is observable that all the six experts possess adequate PPP experience in Ghana. Further, the experts are in senior level positions in their various institutions. Also the experts are from different sectors (i.e. academic, public and private sectors) which render the genuineness and authenticity of the validation responses.

5.2 Validation results

Table 5 shows the results of the validation questionnaire survey. As mentioned previously, six validation questions which relate to four validity aspects were asked.

[Please Insert Table 5 here]

As shown in the table, all the six validity questions have mean values equal to or above 4.00. This implies that in general, the experts considered all the four validation aspects (i.e. external validity, internal validity, construct validity and content validity) of the framework as very good.

Two validity questions which relate to the external validity of the framework were asked; they are Questions 1 and 6. Question 1 has a mean index of 4.00 (*very good*), which implies that the proposed best practices are reasonable within the context of Ghana. Also Question 6 has a mean index of 4.17 (*very good*). This implies that the overall suitability of the best practice framework for PPP implementation in Ghana is very good. With respect to the internal validity of the best practice framework, Question 2 was asked. This question received a mean score of 4.33 (*very good*), which implies that the best practice framework is easily understandable and can be used effectively by both public and private sector organizations. To measure the construct validity of the framework, Questions 3 and 4 were asked. Each

question received a mean index of 4.33 (*very good*). This signifies that the comprehensiveness of the best practice framework is very good. In addition, the appropriateness of the best practices within each stage is also very good. To measure the content validity of the framework, Question 5 was asked. This question scored a mean index of 4.00 (*very good*). Clearly, the score indicates that the tendency to achieve success is very good, if practitioners carefully follow the best practice framework when implementing PPP projects. Overall, the high scores received for the four validation aspects of the framework show that the best practice framework is reliable, comprehensive, objective, replicable, appropriate and suitable for implementing construction PPP projects in Ghana.

6.0 Implications for PPP practice in Ghana and Developing countries

The outputs of this study offer useful management strategies and procedures for PPP practice in Ghana and developing countries in general. First, they inform local practitioners in Ghana and developing countries of the measures which need to be considered at every stage of the PPP process in order to achieve successful outcome. Specifically, at the inception stage of the PPP process, right project identification and in-depth feasibility studies should be ensured. In addition, local practitioners should ensure that extensive external stakeholder consultation and engagement of opposition political parties are done. At the second stage of the PPP process, transparency is very crucial. In addition, there should be adequate measures to ensure fairness and competition with the award of the PPP contract. The third stage of the PPP process requires consistent monitoring by the contracting authority and adherence to output specifications on the part of the investor. Private investors should avoid construction delays and also employ enough local contents. At the final stage of the PPP process, reliable and efficient service delivery should be the key priority of the private partner. In addition, the contracting authority should consistently monitor the performance of the private partner.

This study also provides a framework which will help standardize the practice of PPP in Ghana. This will indeed accelerate the development and progress of PPP projects and also ensures that practices are in line with international standards. Lastly, the best practice framework serves as a theoretical framework for the formulation of relevant hypothesis for for further empirical research. Essentially, the framework could be adopted and tested on a life-case or project in Ghana or any developing country to examine its effectiveness and efficiency.

7.0 Conclusion

This paper developed a best practice framework for PPP implementation in Ghana by means of a methodical literature review. The review covered past studies that have discussed and focused on the CSFs/success criteria for PPPs, reasons/drivers for adopting PPP, obstacles/implementation constraints in PPP and risk factors in PPP with much emphasis in Ghana. In total, 16 relevant publications were identified with majority of them emanating from leading construction management journals. Through a thorough content analysis, 151 best practices were identified. Further, the best practices were incorporated into the process

of procuring PPP projects in Ghana. At each stage of the PPP process, practitioners (i.e. both public and private sectors) were given clear management measures that should be adopted in order to implement a successful PPP project in Ghana. To ascertain the validity and adequacy of the best practice framework, six experts with adequate industrial and/or academic experience in PPP in Ghana were invited to review the proposed framework in four validation aspects (i.e. external validity, internal validity, construct validity and content validity). Essentially, all the four validation aspects had a score above 4.00 (very good), which suggests that the best practice framework for PPP implementation in Ghana is comprehensive, reasonable, replicable, practicable and has a high tendency for practitioners to achieve success, if it is carefully observed. The outputs of this study considerably informs local practitioners in developing countries particularly Ghana of the best practices that should be carefully observed at each stage of PPP process when implementing PPP projects. In addition, this study expands the existing but limited knowledge on the effective ways of practicing PPP for public construction projects in Ghana and developing countries in general. It is hoped that local practitioners in developing countries particularly Ghana, will employ the best practices proposed at each stage of the PPP process in order to ensure a successful PPP implementation and also expedite the implementation of construction PPP projects.

One major limitation of this study lies in the fact that few publications on PPPs in Ghana were targeted. Certainly, a large number of publications would have helped increased the number of best practices. However, considering that the PPP practice is still growing in Ghana and the fact that few researchers have contributed to PPP discussions in Ghana in leading construction management journals, the number of publications identified were considered adequate and satisfactory for analysis. Nonetheless, the identified best practices were cross validated with guidelines issued by the GoG and other international organizations including the World Bank, thus the results are valid for future reference. Another major limitation is that the best practice framework was not validated using life-case projects. Apparently, this would have given better assessment results of the validity of the framework. In this regard, it is suggested that future research studies should adopt the best practice framework and test it on a PPP project throughout its lifecycle. The outcome of the project that followed the best practice framework should be compared with projects that did not follow the best practice framework. Alternatively, the best practice framework can be tested on a well-established successful PPP project. The applicability of the best practices at each stage can be evaluated by project participants on a Likert scale in the successfully implemented project.

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Table 1. List of selected/targeted publications on the attributes of PPP implementation in Ghana

No.	Writers	Journal	Year	Attributes of PPP implementation
1	Osei-Kyei, R., Chan A.P.C	Engineering Construction and Architectural Management	2017*	CSFs/Success Criteria
2	Osei-Kyei, R., Chan A.P.C	International Journal of Construction Management	2016	CSFs/Success Criteria
3	Ameyaw, E.E., Chan A.P.C	Journal of Facilities Management	2016	CSFs/Success Criteria
4	Kwofie T.E, Afram, S., Botchway, E.	Built Environment Project and Asset Management	2016	CSFs/Success Criteria
5	Osei-Kyei, R., Chan A.P.C	Project Management Journal	2017*	CSFs/Success Criteria
6	Osei-Kyei, R., Chan A.P.C	ASCE's Journal of Infrastructure Systems	2017	CSFs/Success Criteria
7	Ameyaw C., Adjei-Kumi, T., Owusu-Manu, D.	Journal of Financial Management of Property and Construction	2015	CSFs/Success Criteria
8	Osei-Kyei, R., Ayirebi, D., Ofori-Kuragu J.K.	International Journal of Construction Management	2014	Reasons/Drivers
9	Osei-Kyei, R., Chan A.P.C	Journal of Facilities Management	2017	Obstacles/Implementation constraints
10	Osei-Kyei, R., Chan A.P.C	Construction Innovation	2017	Risks
11	Ameyaw, E.E., Chan A.P.C	Expert Systems with Application	2015	Risks
12	Ameyaw, E.E., Chan A.P.C	Journal of Facilities Management	2015	Risks
13	Ameyaw, C., Alfen, H.W.	Journal of Facilities Management	2017	Risks
14	Ameyaw, E.E., Chan A.P.C	Journal of Facilities Management	2013	Risks
15	Ameyaw, E.E., Chan A.P.C	Construction Management and Economics	2015	Risks
16	Ameyaw, E.E., Chan A.P.C	ASCE's Journal of Infrastructure Systems	2016	Risks

*'article in press'

Table 2. List of best practices for PPP implementation in Ghana

No.	Best Practices for PPP Implementation in Ghana	Sources															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Select project with accepted need by the general public					X	X										
2	Identify projects from the National Infrastructure Plan (NIP) and/or District Development Plan (DDP)	X		X	X												
3	Consider large market projects for PPP		X														
4	Bundle two or more smaller projects as one contract								X								
5	Select projects for PPPs with value more than 180,000USD/ 750,000GHC only	X							X								
6	Select projects with near-monopoly	X								X							
7	Select projects with lengthy operational periods	X				X	X										
8	Select projects that allows for innovation and technology transfer	X							X								
9	Select projects in consultation with the traditional council and trade unions				X						X						
10	Seek the general public views on proposed projects				X												
11	Consider supporting large-scale projects with the Viability Gap Fund	X									X						
12	Build consensus with opposition political parties	X		X							X	X			X		
13	Minimize the use of unsolicited proposals	X								X	X	X	X				
14	Communicate with local media on the proposed PPP project	X	X								X						
15	Appoint a competent officer to lead the set-up of a Project Management Unit (PMU)	X									X						
16	Follow the registration process for the proposed project	X								X			X				
17	Develop a detail project time table and keep to it	X				X	X			X							
18	Select Transaction Advisor with good track record									X							
19	Ensure a stable macro-economic condition	X			X						X			X			
20	Ensure clear legal requirements on tariffs and rates									X		X					
21	Consider to decentralize the PPP unit	X															
22	Ensure that the TA engages the general public		X		X												
23	Ensure a detailed feasibility studies	X			X												
24	Consider design build finance operate (DBFO) model with direct payment for transport and market projects		X														
25	Seek approvals for both prefeasibility and full feasibility studies according to the project timeframe						X			X							
26	Consistently follow-up on approvals					X				X							

27	Keep a database of persons that will be affected by the proposed project		X									
28	Assure and convince affected persons of reasonable compensation claims	X	X				X					
29	If unsolicited proposals are requested, submit proposals which has outstanding intellectual property	X				X						
30	Ensure that there exist no competitive market for your unsolicited proposal	X					X	X				
31	Ensure that your unsolicited proposal is not stated in the NIP		X									
32	Ensure that your unsolicited proposal is in line with national development agenda	X	X	X								
33	Finance both prefeasibility and full feasibility studies for unsolicited proposals							X				
34	Collaborate with any relevant statutory corruption unit to draw-up ethical and probity plans	X						X	X		X	
35	Cooperate with any relevant statutory corruption unit to independently observe the procurement process and submit a report at the end	X						X				
36	Ensure that the PMU and TA maintain an arm's length business relationship with bidders	X							X		X	X
37	Consistently follow up on approvals		X				X					
38	Conduct a comprehensive market testing before EOI		X				X					
39	Encourage more local investors to submit their EOI	X					X	X				
40	Ensure enough publicity for the request for EOI	X					X		X			
41	Use the request for EOI as a pre-qualification process						X	X				
42	Set-up a competent evaluation team for EOI and RFP	X	X									
43	Include an independent private expert in the evaluation team		X	X			X					
44	Ensure that the private expert only offers advisory services	X		X								
45	Ensure that the evaluation team declare any potential conflict of interest	X	X	X							X	
46	Have clear criteria for evaluating EOI and RFP		X				X				X	
47	Short-list at most four tenderers for the RFP stage	X						X				
48	Consider at least one local consortium for the RFP stage	X	X			X						
49	Inform unsuccessful tenderers for the EOI and allow for feedback		X	X								
50	Give sufficient access to comprehensive information to pre-qualified bidders						X	X			X	
51	Provide clear output specifications to pre-qualified bidders	X					X					
52	Avoid setting out detail terms in the RFP documentations	X					X					
53	Ensure a single point of communication with pre-qualified bidders		X	X								
54	Consider to support local pre-qualified bidders with independent advisors	X	X			X						

55	Avoid ambiguity and conflicting project information	X							X											
56	Consider the PSC/ Value for money assessment model when evaluating bids						X													
57	Select one preferred bidder and a reserve	X								X		X								
58	Communicate the progress of the procurement process to the public	X	X		X															
59	Set-up a negotiation team with no more than six persons		X						X	X										
60	Ensure that the negotiating team leader has the authority to negotiate	X	X																	
61	Include a legal advisor in the negotiating team								X											
62	Keep to timelines during negotiations		X						X											
63	Ensure to appropriately allocate and share risks with the private partner									X				X			X		X	X
64	Agree on the best approach to resolve disputes and complaints		X						X	X										
65	Consider to support the selected consortium through guarantees	X	X		X															
66	Avoid political and public debate	X							X											
67	Consider providing tax rebates and holidays	X						X												
68	Agree on a high percentage (i.e. at least 70%) of local labour force in the project delivery		X				X		X											
69	Seek timely approvals for agreed negotiations	X	X						X											
70	Maintain a stable-macroeconomic conditions		X		X						X									
71	Announce the successful consortium to the general public and relevant stakeholders		X							X										
72	Form a consortium of both local and international firms to bid for national projects		X				X		X											
73	Pure local consortia should bid for projects at Municipal and District levels		X																	
74	Ensure that the consortium consists of committed parties		X							X										
75	Develop in-house ethical and probity plan and comply with them	X								X	X									
76	Develop a detailed plan for revenue sharing among parties		X																	
77	Build trust and respect among parties within the consortium	X					X													
78	Communicate and share information frequently among parties in the consortium		X					X												
79	Conduct feasibility studies considering the views of potential users	X	X																	
80	Employ advanced innovative approaches in your proposal						X	X												
81	Demonstrate the affordability and value for money viability of your proposal					X	X	X												
82	Ensure to seek clarification on any unclear objectives from the designated public officer	X							X											
83	Ensure to request for further explanation if unsuccessful at EOI and RFP stages	X								X										

84	Accept only design, construction, operation, maintenance and demand risks							X					X	X
85	Adopt direct user payment for market and transport projects		X				X							
86	Consider both equity (i.e. 30%) and debt (70%) financing for the project	X	X											
87	Ensure to demonstrate the bankability of the contract to financiers	X	X											
88	Consider the local financial market and public banks when raising funds	X	X						X					
89	Make good use of government guarantees and surety bonds to raise funds	X	X											
90	Ensure to reach financial closure early		X				X							
91	Ensure that the PMU is the only point of contact with the consortium	X					X	X						
92	Keep close relationship with the consortium	X	X											
93	Ensure stable macro-economic condition			X				X	X					
94	Terminate contract if it was won through fraudulent means	X					X	X						
95	Ensure that the consortium adhere to ethical and probity requirements		X	X				X						
96	Ensure compliance with contract terms and agreements		X											
97	Ensure that all compensation claims have been paid	X	X											
98	Allow the private partner to handle compensation claims		X				X							
99	Ensure that output specifications are met	X					X							
100	Prepare periodic report on the progress of works		X											
101	Communicate progress report to the general public, media and relevant stakeholders		X	X		X								
102	Commission projects even if they are completed before their expected date		X				X		X					
103	Pay reasonable compensation fees to affected persons		X											
104	Comply with the output specifications		X		X	X								
105	Adhere to contract terms and agreement					X								
106	Use more local materials for construction		X				X							
107	Select one senior personnel to be the single point of contact to the public partner	X	X											
108	Employ innovative and advanced techniques				X			X						
109	Avoid too many variations						X							
110	Unavoidable variations should be communicated to the public authority	X					X							
111	Ensure to follow in-house ethical and probity guidelines							X		X				
112	Build close links with the public authority		X		X									

113	Complete the project within budget				X	X					
114	Complete the project before schedule				X	X					
115	Prepare periodic reports to financiers							X			
116	Monitor the achievement of key performance indicators	X				X					
117	Provide periodic reports on the service delivery		X								
118	Ensure that the consortium adhere to output specification				X	X					
119	Have regular meetings with consortium	X	X								
120	Ensure stable macroeconomic condition			X							
121	Encourage users to report any dissatisfaction					X	X				
122	Periodically conduct user satisfaction surveys	X				X	X				
123	Comply with the agreed dispute resolution mechanism	X	X								
124	Seek the users concern before adjusting user fees		X					X			
125	Ensure that the consortium comply with health and environmental safety control measures	X			X	X					
126	Consistently follow up on approvals for large contract variations	X						X			
127	Minimize changes in the contract agreement	X						X			
128	Follow the steps agreed in the contract agreement before termination	X									
129	Ensure that political officials do not interfere in the delivery of the project			X				X		X	
130	Allow the transfer of equity within the consortium	X									
131	Ensure to take possession of the facility upon expiry date at no cost		X								
132	Consider to retender the provision of service to new operators							X			
133	Comply with service delivery standards				X	X	X				
134	Charge the agreed user fees	X	X					X			
135	Consider giving discounts to low income earners or deprived commuters		X			X					
136	Ensure high standard of health and environmental safety control measures	X			X						
137	Employ highly skilled and competent workmanship	X						X			
138	Establish a 24-hour customer care unit				X	X					
139	Ensure that changes in shareholdings do not affect operational performance	X	X								
140	Periodically provide financial and audit reports to the public authority		X					X			
141	Have periodic meetings with public authority		X	X							

142	Have close links with other external stakeholders		X		X	X		X		
143	Ensure to rectify reported operational problems on time				X				X	
144	Adhere to the agreed disputes resolution mechanism	X							X	
145	Offer other communal services/opportunities	X	X							
146	Ensure to keep to operational cost					X	X			
147	Adopt a planned preventive maintenance schedule	X							X	X
148	Employ enough security monitoring in revenue collection	X							X	
149	Seek timely approvals for large variations and tariff adjustment								X	X
150	Transfer any facility/asset in good condition upon expiry	X	X							
151	Seek for contract extension upon expiry date	X								

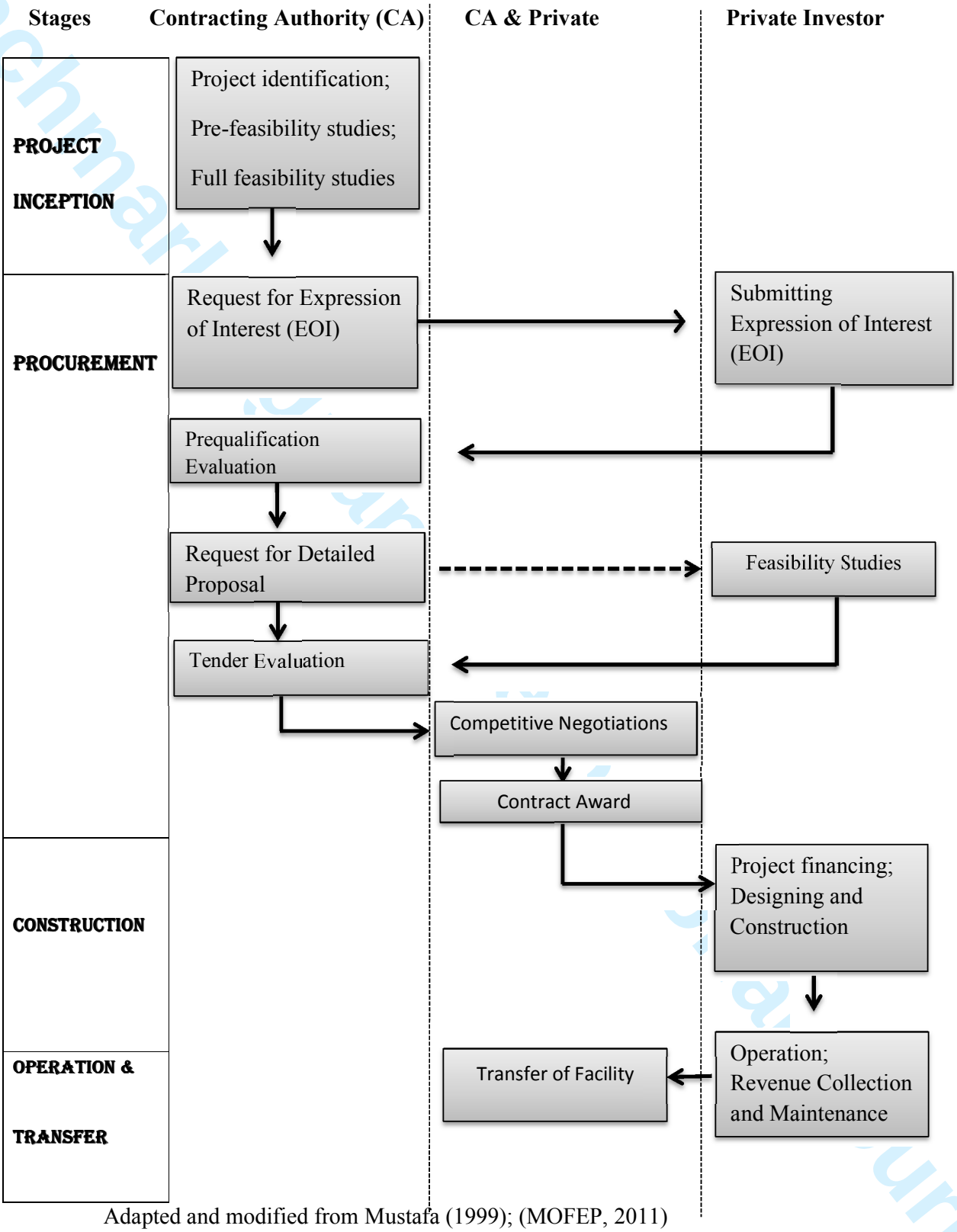
Table 4. Background of experts

ID	Position	Institution	Sector	Years of Experience
EXP1	Senior Lecturer	Local University	Academic	15 years
EXP2	Chief Engineer	Ministry of Roads and Highways	Public	8 years
EXP3	Director of Contracts	Ghana Highways Authority	Public	10 years
EXP4	Programme Manager (Project Analyst)	Non-Governmental Organization	Public and Private	10 years
EXP5	Senior Lecturer	Local University	Academic	12 years
EXP6	Senior Lecturer/Project Consultant	Local university/ Local construction firm	Academic/ Private	7 years

Table 5. Validation results of the best practice framework

No.	Validation Aspects/Questions	Experts responses						Mean
		EXP1	EXP2	EXP3	EXP4	EXP5	EXP6	
1	Are the selected best practice codes for construction PPP projects implementation in Ghana reasonable?	5	4	4	3	4	4	4.00
2	Is the best practice framework easy understandable and can be used by both public and private organizations	5	4	4	4	5	4	4.33
3	Are the best practice codes within each stage appropriate?	5	4	4	3	5	5	4.33
4	Is the best practice framework comprehensive?	5	3	5	4	4	5	4.33
5	Can practitioners achieve a successful implementation for construction PPP projects, if the best practice framework is carefully followed?	5	4	4	3	4	4	4.00
6	Overall suitability of the best practice framework for construction PPP projects implementation in Ghana	5	3	4	4	5	4	4.17

Figure 1. Flow diagram of PPP Process in Ghana



Adapted and modified from Mustafa (1999); (MOFEP, 2011)

Figure 2. Research approach/framework for the study

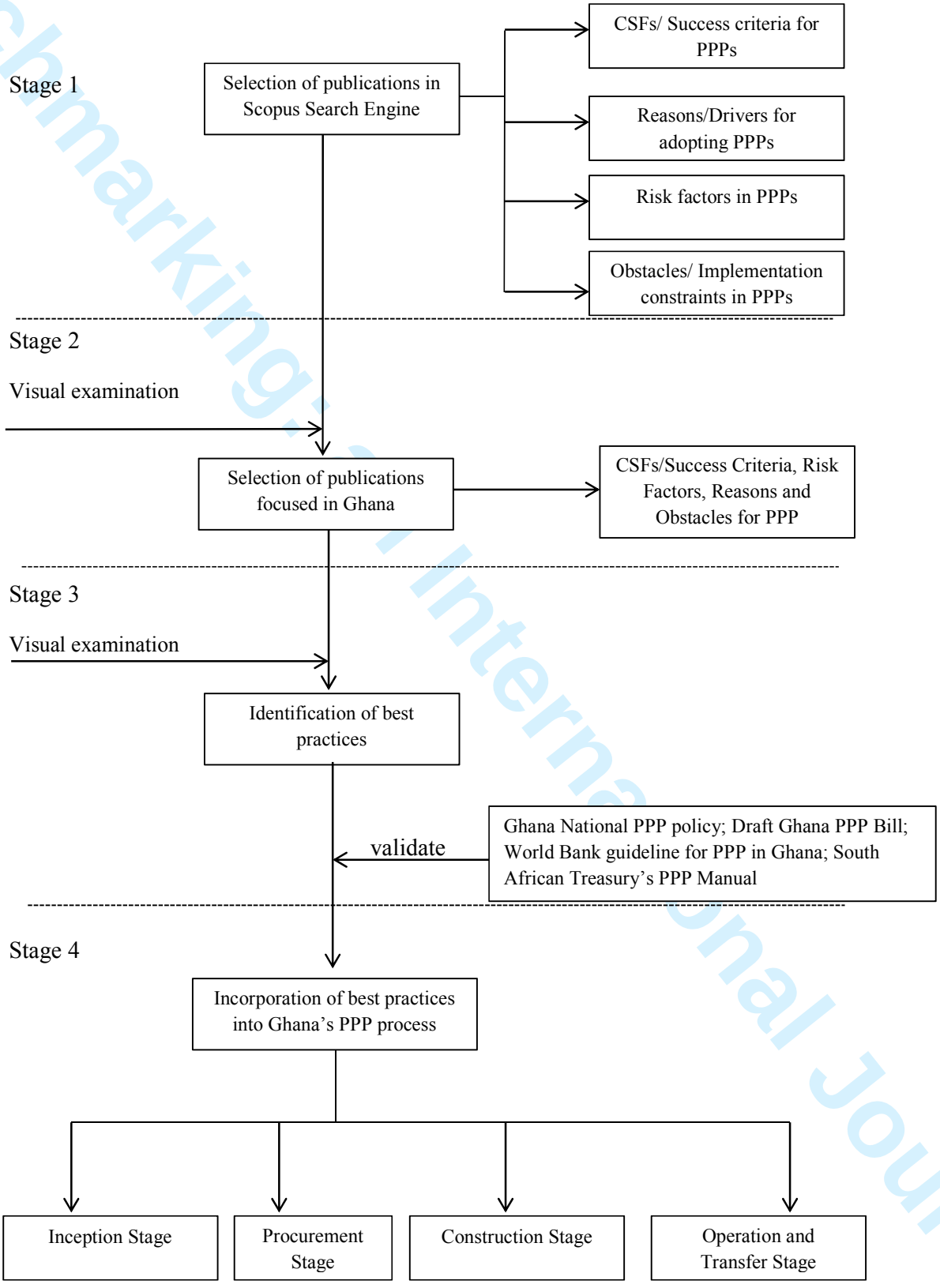


Figure 3. Stage 1 of the best practice framework

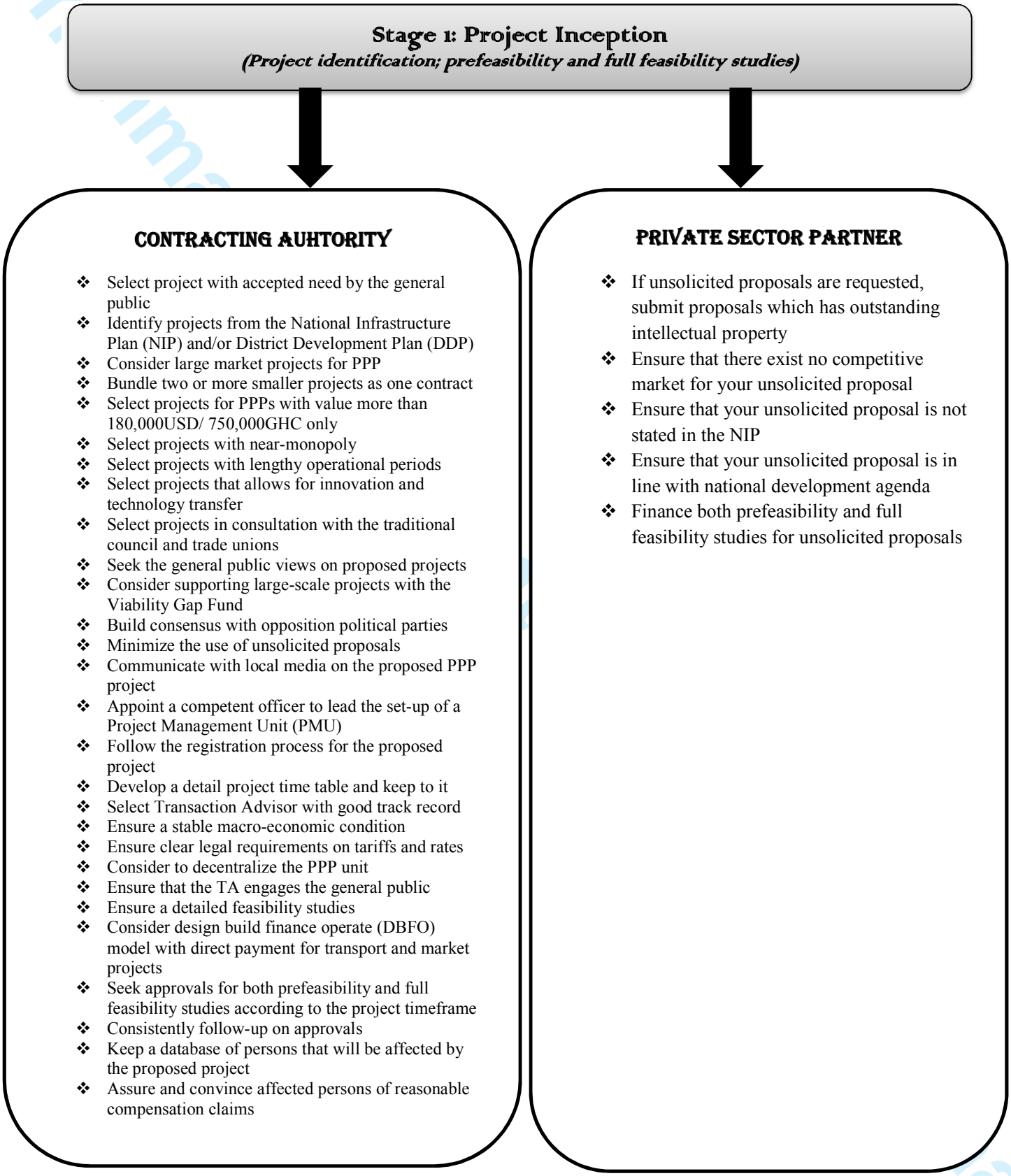


Figure 4. Stage 2 of the best practice framework

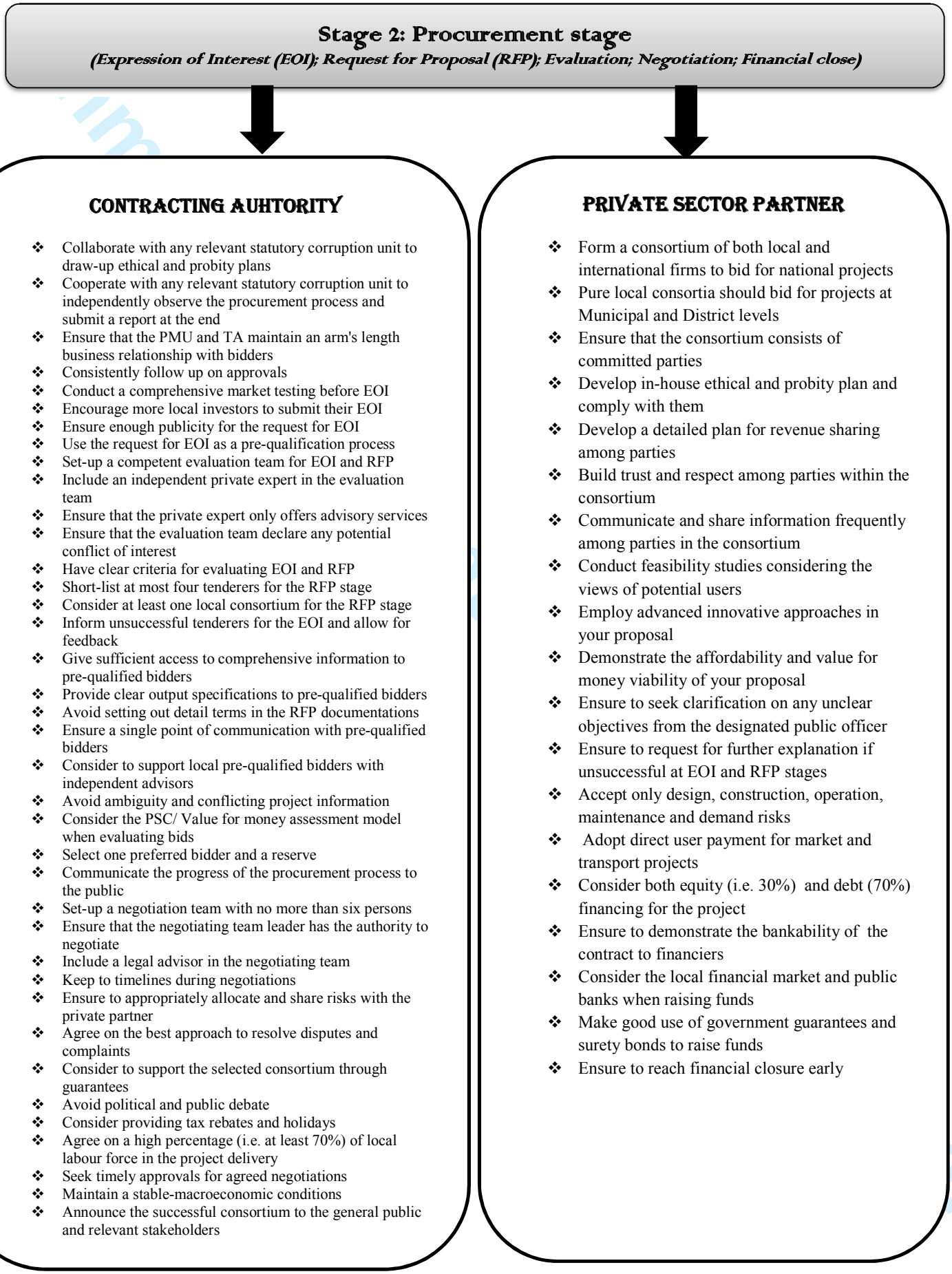


Figure 5. Stage 3 of the best practice framework

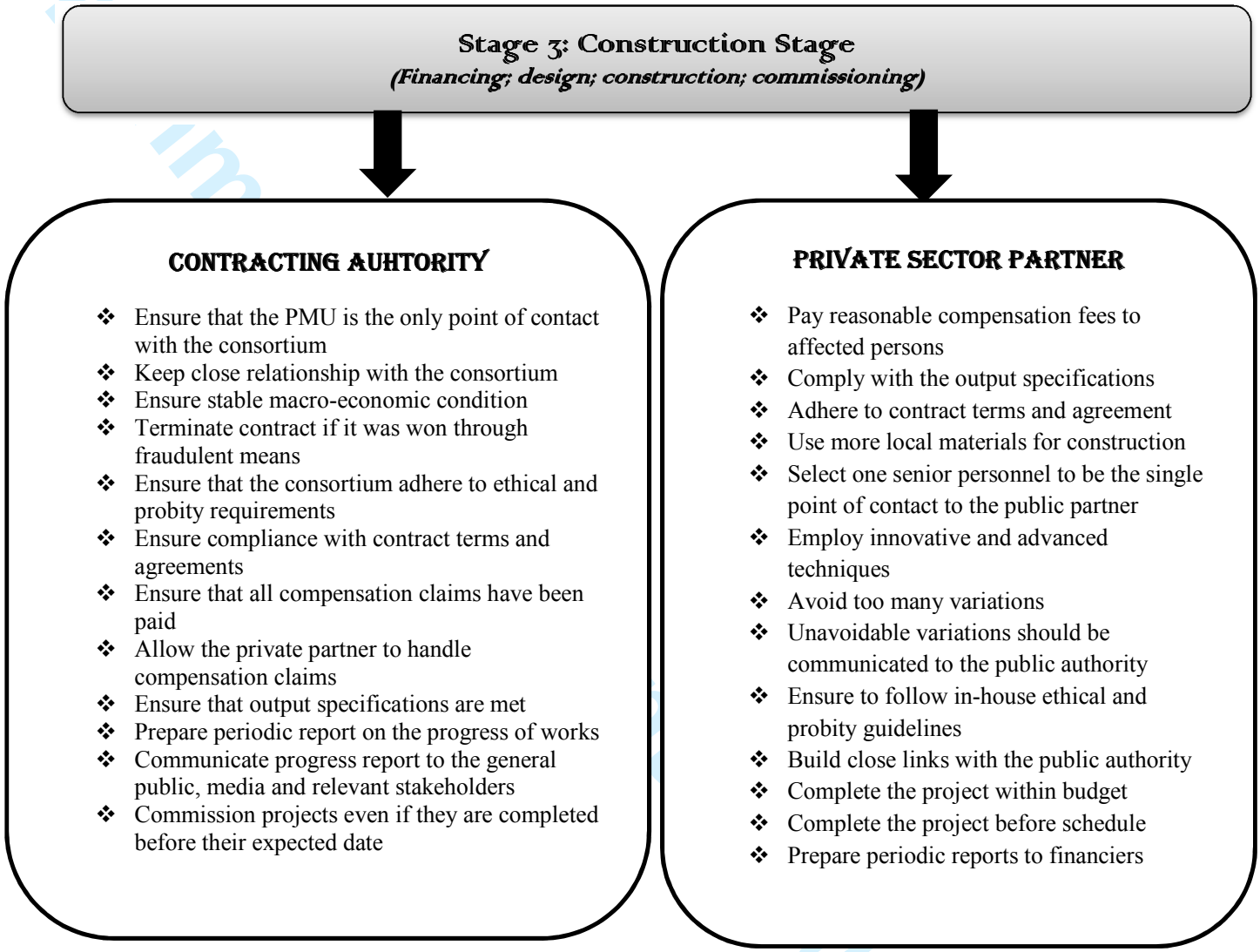


Figure 6. Stage 4 of the best practice framework