Procurement issues in donor-funded international development projects

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ABSTRACT: This study investigates the critical procurement challenges faced by international development (ID) projects in Bangladesh. Initially, a framework of challenges is developed via literature review. We then rank the importance of these challenges and categorize them based on interview data and analytical hierarchy processing analysis. Interviews were conducted with procurement experts from three major ID project stakeholder groups: donor organizations, host country government policymakers, and project implementation units. The most important categories of challenges were those related to project management capacity/capability, and ethics. More specifically, the challenges deemed most important were those related to improper project planning, undue practices in procurement implementation, government bureaucracy and interference in procurement, and inexperienced procurement staff. This study contributes to the ID project procurement literature by identifying the critical challenges to procurement, which differ from those of other project-related areas. The findings may assist the multi-billion dollar ID project procurement industry in Bangladesh by highlighting the major issues that require effective
management by all stakeholders. Ultimately, this may improve procurement outcomes and overall project performance.

**Keywords:** International development, project, procurement, critical challenges, public project procurement, analytical hierarchy processing

**Introduction**

International development (ID) projects are conducted in developing countries where natural, political and/or social factors create a range of difficult environments (Golini et al. 2015). Through project and program management, ID organisations or international donor agencies deliver many public sector projects (such as infrastructure development, agricultural, water supply and sanitation, resettlement, basic health care, education, social welfare, and capacity building) in developing countries in Sub-Saharan Africa, North Africa, the Middle East, South and Southeast Asia, Central and Latin America, and Central Europe (Ahsan and Gunawan 2010; Hermano et al. 2013; Ika and Hodgson 2014; Khan and Rahman 2014). As in other developing countries, many donor agencies in Bangladesh sponsor the public social, environmental and infrastructure development projects of the Government of Bangladesh (GOB) in the form of ID projects. These ID projects are known as foreign aid projects (Khan and Rahman 2014) and are one of the main mechanisms through which the government development projects are conducted (Hermano et al. 2013). Since 1972 (just after Bangladesh became independent), the International Development Agency (IDA) of the World Bank (WB) has provided US$16 billion in support of policy reforms and projects (WB, 2016). From 1973-2016, the Asian Development Bank (ADB) provided US$18.3 billion in development loans (ADB_Factsheet 2016). More than two-third (67.7 percent) of these development aids was disbursed in the form of ID projects (Hossain, 2014). Every financial year, ID projects or project aid contribute a substantial portion towards the GOB annual development plan. For
example, in the fiscal year 2017-18 budget of the total annual development program, 59% are from internal resources (about US$12 billion), 37.2% (US$7.2 billion) are from project aid from donors, and the remainder is from other sources such as autonomous and semi-autonomous government agencies (Financial_Express 2018).

In most ID projects, procurement can represent a very high proportion of total project expenditure. For example, under the ADB, from January 1966 to December 2015, 63% of global project loan funds were spent on the procurement of goods, works, and related services (ADB 2015). In Bangladesh, around 40% of ADB loans (worth US$7.48 billion) were spent procuring goods and services from contractors and suppliers. The GOB also spends about one quarter of their annual national budget on procurement (about US$6 billion) for public sector projects and operations (WB 2016).

For ID projects procurement in Bangladesh, the World Bank rates the performance of public project procurement processes and contract management as mixed (WB 2013b). The World Bank reports (WB 2017) that there is a significant economic loss due to inefficient procurement and misappropriation of funds, which costs the country over 1.5% GDP growth per annum. Major issues include procurement delays, poor contract administration, lack of competition in contract bidding, inadequate project implementation monitoring, and capacity building (WB 2016). Bangladesh is particularly renowned for having long delays in awarding contracts, the World Bank reported that the maximum permitted number of days from bid invitation to award was 100 days in 2017 (WB 2017). These procurement delays lead to increased project costs and deferred benefits (TI 2013).

Research has been conducted on project procurement issues in general (Aliza et al. 2011; Hampton et al. 2012; de Araújo et al. 2017) and specifically that in public projects (Addo-Duah et al. 2014). However, known issues in project procurement are not necessarily applicable to ID project procurement in specific countries, because they are based on certain
assumptions which may not universally valid. Moreover, previous studies on ID projects have addressed only certain general procurement issues in the course of their research, and have reported that project donor and host country issues affect ID project procurement. For example, ID project donor procurement and disbursement systems often do not match local systems (Ika and Donnelly 2017), which can complicate procurement processes (Youker 2003; Khan and Rahman 2014). The bureaucratic process of the host country can lead to delays in procurement and increase the cost of ID projects (Ahsan and Gunawan 2010; Kagiri 2013; Keng’ara 2014; Carvalho et al. 2015). In many cases, the host country’s project procurement authority has inadequate knowledge of donor rules and regulations of procurement (Ahsan and Gunawan 2010; Ika and Donnelly 2017). Quite often, foreign donors interfere with the procurement process (Ika and Hodgson 2014; Parker et al. 2018). In the case of bilateral lending, procurement is often tied to firms from the donor country, and these firms may not always be competitive in price or offer the most appropriate products or services (Khan and Rahman 2014). Hence, it appears that procurement is a major component of ID project management and carries significant challenges.

Previous literature has identified some specific procurement challenges while conducting broader research on ID projects. It appears that procurement is an important process in ID projects, and that more attention should be given to this issue in Bangladesh, where no academic research has yet been done. Identifying the challenges of ID project procurement in Bangladesh could improve the management of procurement and of ID projects. It is important to systematically identify and categorize these challenges to pinpoint major issues and improve ID performance. With the aim of exploring ID project procurement issues in Bangladesh, this study will answer the following research questions (RQs):

RQ1: What are the major categories of challenges in ID project procurement?

RQ2: Which challenges are most critical in ID project procurement?
We investigate critical challenges of ID project procurement from different ID project stakeholder viewpoints in the context of Bangladesh, which is a developing country where many ID projects are run by government with the support of foreign donors. The output of the research may help ID project professionals, donor organizations, and host countries to identify problems in ID project procurement and public procurement so that they can develop strategies for further development.

The rest of this paper is organized as follows. First, we provide a contextual background to the study, followed by a review of the literature and a framework of ID project procurement challenges. The next section discusses the research methodology and present results and analysis. This is followed by a discussion of the findings and the paper concludes with theoretical and managerial contributions, limitations and future research direction.

**Contextual Background to the Research**

As background information to this research, we provide an overview of ID projects, explain how ID projects work within a complex network of stakeholders, and discuss ID project procurement issues in developing countries such as Bangladesh.

ID projects are conducted in developing countries in a range of difficult environments determined by various natural, political, and social factors (Golini et al. 2015). Through project and program management, ID projects deliver many “hard” and “soft” public sector projects in developing countries (Golini and Landoni 2014; Ika and Donnelly 2017). Hard projects include agriculture, infrastructure, water supply and sanitation projects. Examples of soft projects include resettlement, basic health care, education, social welfare, and capacity building projects.

Usually, ID project stakeholders include the lender or donor, the ministry of finance/planning of the host country, and a project management or coordination unit (Ahsan 2012; Khan and
The performance of the ID project depends largely on the involvement of these stakeholders (Ika and Hodgson 2014; Ika 2015). Funding agencies or donors pay for projects but do not receive any project deliverables; the client is normally a sectorial ministry or institution of the host country working directly with the donor for loan approval and negotiation. The project implementation unit (PIU) of the host country is involved in project and procurement execution with a project manager and project team, while contractors carry out the physical implementation of most project components and activities. The target beneficiaries receive direct or indirect benefits from the projects (Ahsan and Gunawan 2010; Ika and Donnelly 2017). The ID project donors are influential as they finance the project (Hernandez 2013). Major ID project donors are the World Bank Group, the Inter-American Development Bank, the ADB, the African Development Bank and the European Bank for Reconstruction and Development, the European Bank for Reconstruction and Development, and the Organization for Economic Co-operation and Development (OECD).

For social, environmental, and infrastructure developments, many donor agencies sponsor public projects of the GOB in the form of ID projects. These ID projects have related to procurement. The country procurement assessment report prepared by the World Bank (CPTU 2017) identified the following issues in the procurement system of Bangladesh: (i) no legal framework to govern public sector procurement, (ii) complex bureaucratic procedures which cause delays, (iii) lack or absence of planning, (iv) multiple layers of approval and review processes, (v) lack of adequate professional competence of the staff that manage procurement, (vi) ineffective contract management, and (vii) lack of adequate mechanisms to ensure transparency and accountability. Hence, procurement reform was identified as one of the priorities for the public sector governance improvement agenda. With the aim of improving public procurement, the World Bank conducted the Public Procurement Reform Project (2002 in Bangladesh during 2002–2005 (WB 2016; WB 2017). Although Bangladesh
has made good progress in establishing the foundations for an effective public procurement system by introducing necessary legislation and regulatory institutions, the procurement performance results (CPTU 2017) show that overall, the system’s performance rating remains poor to average.

**Literature Review and Challenge Framework Development**

Typically, ID projects follow transactional processes and strict guidelines that are laid down by donor agencies to ensure that rigor and transparency are maintained in the awarding of contracts and the performance of tasks (Ika 2012). Furthermore, as ID projects are public policy implementation projects run by a host country (Ogunlana 2010; Venugopal 2018), these projects must also follow the host country’s public procurement rules, requirements, and regulations for fair, ethical, and transparent governance, to ensure that the solicitation of vendors proceeds in a fair manner (Correia et al. 2013). We presume that management efficiency and effectiveness in procurement plays a key role in achieving ID project objectives and can be considered an important area in the project procurement management knowledge area. In the following, we review the literature to identify the key challenges facing ID project procurement, and categorize them systematically.

**Framework for ID project procurement challenges**

Previous research placed ID project challenges into three categories: (i) contextual problems, (ii) institutional problems, and (iii) organizational or management problems (Kwak 2002; Ika 2012; Nanthagopan et al. 2016; Ika and Donnelly 2017). Contextual problems are related to host country contexts or problems arising from the contextual background of the project. Contextual issues include the political situation and political influence of the host country, the sociocultural issues of the host country, and issues related to demographic and environmental aspects (Ika and Donnelly 2017). Institutional problems include issues relating to project governance and implementation institutions/bodies. Institutional issues include corruption,
insufficient support and institutional capacity to deliver projects, insufficient implementation
capacity between donors and recipients, the bureaucracy of the host country, and
incompatibility between the host country’s and the donor’s management systems (Rondinelli
et al. 1983; Youker 1999). Organizational or management issues are related to improper
project management (Ika 2015). The majority of these issues are related to project
management areas which include imperfect project design, unclear project objectives, and
delays between project identification and initiation (Kwak 2002). As procurement is one of
the vital components of ID projects, it is important to systematically identify and categorize
the issues and challenges related to ID project procurement, which will improve ID
performance.

As such a categorization does not yet exist, we propose an ID project procurement challenge
framework. The proposed framework adopts the main categories of ID project issues outlined
by Kwak (2002) and (Ika and Donnelly 2017) and groups them into four categories:

(i) project sponsor issues (institutional),
(ii) host country issues (institutional and contextual, management),
(iii) project management issues (organizational project management capacity),
(iv) ethical issues (institutional and contextual).

To our knowledge no previous study has considered ID project procurement challenges in
such depth. Each of the challenges and their four categories are outlined in Figure 1 and
discussed in the following.

Figure 1 about here

Overview of ID Project Procurement Challenges

Project Sponsor Issues
In ID projects, the sponsors are the lender or donor organizations, which are major project stakeholders and play vital roles in managing ID project procurement. Sponsor issues related to ID project procurement are institutional problems (Rondinelli et al. 1983; Ika and Donnelly 2017). They include the lack of coordination between donors and key stakeholders, donors’ incompatible rules and regulations on procurement, and complex loan approval and disbursement processes.

(i) Lack of coordination between donors and key stakeholders: The complex network of relationships between stakeholders is one of the most challenging issues in the management of ID projects (Khan and Rahman 2014; Parker et al. 2018). There can be a lack of consensus on project objectives among key stakeholders and, sometimes, contradictory agendas (Ika and Donnelly 2017). At times, the interests of “heavyweight” and influential donors carry more weight in decision making than the interests of recipients (Lim and Vreeland 2013).

(ii) Donors’ incompatible rules and regulations on procurement: The donor is exclusively involved in the process of project identification, design, and development (Khan and Rahman 2014). Donors also have their own strategies specific to their countries and guidelines, which host country project procurement objectives should match (Ahsan and Gunawan 2010; Keng’ara 2014; Bourguignon and Platteau 2015). However, a donor’s lengthy, donor exclusive and complicated procurement rules and regulations are often incompatible with those of the host country (Botha 2014; Keng’ara 2014).

(iii) Complex loan disbursement processes: Disbursement of funds is defined as the donor’s release of approved funds to an appointed beneficiary of the borrower—that is, the PIU—for implementation of project activities such as procurements or major transactions (Keng’ara 2014). ID project sponsors have complex loan disbursement systems for reviewing the summaries of expenditure submitted by PIUs, which often affect procurement (Bourguignon and Platteau 2015).

Host Country Issues
The host country is the real owner of an ID project; hence, their role is very important in ID project procurement. Host country issues are related to contextual and institutional problems such as political and institutional capacity, and bureaucracy.

(i) Political instability in the host country: Political issues in the host country may delay the initiation of ID projects, delay procurement execution, and directly affect project success (Williams 2017). Political instability refers to issues at national and regional levels such as inconsistency in policies, procurement laws and regulations, restrictions on fund repatriations, and import restrictions (Ozorhon et al. 2007). Political instability may result in frequent changes of government policies which adversely affect the success of development project objectives (Ika and Donnelly 2017).

(ii) Government bureaucracy in procurement: The bureaucratic administrative systems of a host country (approvals, procurement, personnel, and release of funds) may require lengthy interpretation by a project implementation unit to ensure conformity with government regulations (Khan and Rahman 2014). In such bureaucratic systems, every document must typically pass through several stages before final decisions are made. Such processes may slow down the project implementation process and they are also subject to influence by corrupt decision-makers tempted to make decisions in their own favor (Williams 2017).

(iii) Frequent move/transfer of key project officials: The PIU of the host country government runs an ID project, and the PIU works mostly under a matrix organization (Youker 1999), where there are issues of project and functional managers. Project managers ID project (mostly high-ranking national civil servant), appointed by the government of the beneficiary country, often need to move or transfer to other projects of other ministries (Ika and Donnelly 2017). This frequent transfer of key project personnel may slow down essential decision making for a project, as well as slow the procurement implementation process (Ahsan 2012).
(iv) *Delay in key staff hiring:* The host or beneficiary country government often tries to start ID project work with the existing high-ranking civil servant (Ika and Donnelly 2017). The host country government may be reluctant to appoint a project manager until foreign funding is completely approved, which may mean a year or more can be lost during key staff hiring (Youker 1999). This delay in key staff hiring of the host country may also hinder the ID project procurement process and increase the cost of the project (Ahsan 2012).

**Project Management Issues**

Project management environments in developing countries are often difficult due to poor infrastructure and a lack of resources, which adds to the complexity of these projects (Landoni and Corti 2011). Management issues of the host country are related to organizational project management capacity (Nanthagopan et al. 2016) such as PIU include frequent scope changes, project design changes, improper planning, and a lack of project and procurement management skills at the PIU level.

(i) *Frequent scope change:* The beneficiaries of ID projects are often not included in the project design phases, leading to unrealistic project planning that does not match the host country’s needs (Ika 2012; Keng’ara 2014). Hence, project scope changes are inevitable and occur frequently. The tendency of the sponsor or host country to frequently widen or change the project—and therefore procurement scope—can create changes to task and resource scheduling which may lead to missed deadlines (Ahsan and Gunawan 2010).

(ii) *Improper planning:* The World Bank’s post-implementation evaluation reported that ID project management issues are related to a lack of detailed, realistic, and current project plans on schedule, budget, and procurement; and poor or no analysis of major risk factors and relevant contingency planning (Ahsan and Gunawan 2010). The planning of ID projects is typically undertaken and approved by the donor before the borrower obtains the loan for the
project, and the project manager is involved in project implementation (Ika and Saint-Macary 2012).

(iii) Frequent project design changes: Frequent changes of project design affect procurement. At the implementation phase, it is typical that project designs require modification due to having imperfect plans and unclear objectives (Kagiri 2013). At the implementation stage, the project manager of an ID project is mostly involved in redefining, reshaping, or “re-planning” the projects (Ika and Saint-Macary 2012; Ika and Hodgson 2014). This is mostly due to ID project managers being uninvolved in the actual planning.

(iv) Incompetent procurement staff at PIUs: Effective implementation of an ID project procurement plan depends largely on a trained skilled workforce at the PIU level (Appiah 2011). Analysts have found that most ID project host countries do not have adequate institutional capacity, competent procurement staff, or personnel trained to plan and implement projects effectively (Golini et al. 2015). In many cases at the PIU level, project procurement staff or authorities do not have the knowledge of donor rules and procurement regulations (Keng’ara 2014).

Ethical Issues

Ethical issues in project procurement include conflicts of interest, bid shopping, collusive tendering, bid cutting, and corruption in payment processes (Schwartz 2009; TI 2013). The following sub-sections discuss the major ethical challenges faced by ID projects, including bias in developing a procurement plan, unfairness in procurement contracting and bidding, and undue practices in procurement implementation processes.

(i) Bias in developing a procurement plan: It is important to govern project procurement processes—especially at the plan procurement stage—to ensure accountability and transparency of decision-making processes (Aliza et al. 2011). Many ID projects become prime targets for political manipulation by donors and political leaders who advocate their
own projects for political gain (Khang and Moe 2008; TI 2013). In preparing an ID project procurement plan, donor organizations sometimes intentionally put conditions on the procurement of goods and services in such a way that the host country must buy from a monopoly source that may not always be competitive in price (Khan and Rahman 2014).

(ii) Unfairness in procurement contract and bidding: The process of selecting contractors and awarding ID project contract is often biased and inconsistent (Ahsan and Gunawan 2010). During the tendering and contract awarding stages there may be manipulation of listed procedures on tendering and bidding, kickbacks for supply contracts, politician-led influence on the choice of contractors (Williams 2017). Informal payments are a common practice in developing countries, where firms pay approximately as much as 1% of the contract amount to secure government purchases (Estache and Iimi 2008).

(iii) Undue practices in procurement implementation: During the contract execution phase, a number of corrupt practices may be evident in ID procurement processes. These include, for example, delivery of inferior materials, lowering of specifications to allow sub-standard construction work, works inspectors and consultants concealing the sub-standard work of contractors, payment of claims which cannot be accounted for, and payment of contingency sums without any tangible basis (Osei-Tutu et al. 2010; Williams 2017).

Research Methodology

Based on a framework developed from the literature, we interviewed three major stakeholder groups. We used the analytic hierarchy process (AHP) to rank the 14 identified procurement challenges and determine the critical challenges to ID project procurement.

Case Study and Respondent Selection

This study considers three major stakeholders. Each stakeholder group is considered as a case, and under each case we interviewed participants. The stakeholders were the donors, host
country governments, and PIUs of ID projects. Participants from each stakeholder group were non-randomly selected from ID projects through the use of purposeful sampling and snowballing techniques (Biernacki and Waldorf 1981). Selection of respondents was based on their position, current role in project procurement, work experience, and background knowledge. We visited websites of donor organizations, government ministries, and major public organizations related to ID project procurement, identified key professionals, and approached them through telephone calls, emails, and the business-oriented social networking tool LinkedIn. Upon confirmation of participation, we sent AHP questionnaires to the participants to familiarize them with the interview questions prior to the structured interviews. We interviewed ID project procurement professionals from major stakeholder groups working in development projects in Bangladesh. After approaching 20 potential participants from the various stakeholder groups, nine respondents confirmed they would participate. A questionnaire was developed to collect respondents’ opinions on the relative importance of the various challenge-categories and challenges. Respondents were high- and mid-level procurement professionals who had 6–15 years’ experience in the field of ID projects and procurement. All requested anonymity. An overview of the stakeholder groups is provided below, and a summary of respondents’ experience and roles is provided in Table 1. For privacy reasons, we have not disclosed the names of any stakeholder organizations.

(i) Host country government: In this study, the host country government is the GOB. The relevant departments were the Ministry of Planning and the Central Procurement Technical Unit (CPTU). The CPTU exists within the Implementation Monitoring and Evaluation Division of the Ministry of Planning. The CPTU usually conducts procurement monitoring, coordination and management plans for overall sectoral governance.

(ii) Donor organization: Two major international donor organizations were selected for this study. Their roles were to support GOB projects by providing aid and loans. These donors
also helped in capacity building in project procurement. In Bangladesh, both donor organizations emphasized rapid procurement and consultant recruitment, and compliance with financial management requirements. They worked with the GOB to help develop Bangladesh’s power and energy supply, education and training institutions, water and municipal services, the rural sector, and access to finance. In Bangladesh, their presence as sponsors of ID projects was very strong. In total, both donors provided around US$34 billion for ID projects.

(iii) Project implementation unit of ID project: The PIU selected in this study was one of the major public sector construction organizations of the GOB. The PIU consisted of full-time officials from different sectoral ministries, technical staff members, public sector organizations, and some temporary staff members hired for particular projects. The PIU ran development projects for the GOB, conducted major procurement activities for projects, and liaised with the donor and the GOB.

Table 1 about here

The AHP Model for Ranking Critical Challenges

The AHP is a multi-criteria decision-making approach that helps in breaking down a complex, unstructured problem into its component parts with a hierarchical structure. We used AHP as a suitable approach for identifying the critical challenges of procurement in ID projects.

The approach helps decision makers prioritize and rank alternatives through pair-wise comparisons of conflicting objectives based on subjective judgements. Weights or priorities are calculated by the eigenvector method (Saaty 1987). The AHP is also capable of calculating group decision weights by summarizing the geometric means of individual judgement weights (Jaberidoost et al. 2015; Shojaei et al. 2016). The AHP method outperforms the simple rating method, as it helps to ascertain the consistency of
responses (Cheng and Li 2001). In AHP, sample size does not matter if the respondents are representative of experts and provide consistent answers (Saaty 1994). Previous research has investigated the sample adequacy issue and concluded that AHP is a subjective method that focuses on specific issues where a large sample is not mandatory (Wong and Li 2008). It appears that while studies employing AHP are usually conducted with few responses from experts who are knowledgeable with the issue under investigation (Lee and Ross 2012), the results of the AHP-based analysis are not influenced by a small sample size (Sambasivan and Fei 2008).

The proposed ID project procurement challenge framework was structured hierarchically with qualitative challenge categories, and sub-categories that required decision makers to assign subjective priority weights of judgement. Since AHP is capable of dealing with qualitative criteria with subjective judgements (Subramanian and Ramanathan 2012), we considered it an appropriate approach for identifying the critical challenges to ID project procurement. Moreover, use of AHP with the nine experts opinion are considered appropriate, as the experts were considered to be representative of each stakeholder group, and experts opinion will be checked for consistency.

**AHP Application for Critical Procurement Challenges**

We applied AHP to rank the identified critical challenges to ID project procurement. The process of AHP involves the following three steps:

*Step 1 – Identification of key challenges and AHP structuring:* The first step involves the identification of the ID project procurement challenges and their categories. Identification and classification of these determinants was accomplished with a literature review. We considered the objective (Level 1), four major categories of challenges (Level 2), and identified 14 challenges (Level 3) from the literature. The hierarchical structure is shown in Figure 1.
Step 2 – Pair-wise comparison of criteria: At this stage, challenges at each level were compared pair-wise in terms of their importance relative to a category in the next-higher level. Starting at the top of the hierarchy and working down, a number of preference (square) matrices were generated in the process of comparing challenges at a given level. Categories of challenges under Level 2 were compared under the objective (Level 1). Afterwards, challenges (Level 3) under each Level 2 category were compared pair-wise in terms of their importance to a challenge at that level. The scale used for pair-wise comparisons in AHP is a one-to-nine scale based on five attributes equal (scale 1), moderate (scale 3), strong (scale 5), very strong (scale 7), and extremely strong (scale 9). For a set of $n$ criteria in a matrix, $(n^2 - n)/2$ judgments are needed and the remaining judgments are reciprocals ($a_{ji} = 1/a_{ij}$). We interviewed nine experts from three stakeholder groups. We asked each participant to rate the relative importance of the four major challenge categories, and the challenges in each category. In total, five matrices were generated: one for challenge categories at Level 2, and four for challenges at Level 3 of the problem hierarchy.

Step 3 – Determination of critical challenges and consistency of judgements: In the third and final step of AHP, the preference matrices generated in Step 2 were translated into largest eigenvalue problems. Afterwards, eigenvalues are solved for unique and normalized vectors of weight to criteria in each level of hierarchy. The overall weights of the challenges were determined by aggregating the weights throughout the hierarchy. The AHP analysis also provided a direct measure of the consistency of judgments elicited by the decision makers. Saaty (1990) proposed a consistency ratio (CR) to describe the degree to which decision makers adhere to the rank order specified. It also measures the extent to which an established preference is kept. A $\text{CR} \leq 0.1$ is recommended as acceptable (Saaty and Kearns 1985). If CR $> 0.1$, it is suggested that the decision makers re-evaluate their judgments. Homogeneity of determinants/categories within each cluster of determinants, smaller number of determinants
in the cluster, and better understanding of the decision problem would improve the consistency index (Saaty 1993).

**Results and Analysis**

Using the decision-support software *Expert Choice for AHP*, the relative and global priority weights of the challenge categories and challenges were calculated.

**Identification of Critical Challenges**

(i) *Analysis of local priority weights of challenges under each challenge-category:* Based on the interviews and following Step 2 of AHP, we initially determined the local priority weights of the challenge categories and challenges for each respondent. Afterwards, as per AHP, using the geometric mean (Hsu et al. 2010; Jaberidoost et al. 2015), we aggregated the respondents’ local priority weights for the opinions under each group of stakeholder: host country government (Govt.), donor organization (Donor), and PIU (Table 2). From Table 2, we can see that under the ‘project sponsor issues’ challenge category, both ‘Donor’ and ‘PIU’ considered ‘lack of co-ordination’ as an important challenge. Their local priority weights were 0.716 and 0.434, respectively. The Govt. stakeholder group considered ‘complex loan disbursement process’ to be a major challenge (weight = 0.51). Under the ‘host country issues’ category, all three stakeholders identified government bureaucracy in procurement as a major challenge. For the category of ‘project management issues’, Donors considered ‘incompetent procurement staff at PIU’ (weight = 0.504) as a critical challenge, Govt. stakeholder group respondents considered the most critical challenge to be ‘frequent project design change’ (weight = 0.306), while and ‘PIU’ identified ‘improper planning’ (weight = 0.500). Lastly, under the ethical issues category, all three-stakeholder groups emphasized ‘undue practices in procurement process’ as a critical challenge.

The overall CR for each group of stakeholders shows that respondents’ opinions on local priority weights within the group were consistent. For example, the calculated overall CR for
the Donor group was 0.08, where the CR was $\leq 0.1$ and within the acceptable limit (see Table 2).

(ii) Determination of global procurement challenges from different stakeholder group perspectives: Using Step 3 of AHP, we further determined the global priority weight and rank order of challenges for each stakeholder group (Figure 2).

Experts from the government stakeholder group considered ‘government bureaucracy in procurement’ (weight = 0.116) as the most critical challenge and placed less importance on ‘lack of co-ordination between donor and other stakeholders’ (weight = 0.029). The Donor group considered the most critical challenge to be ‘incompetent procurement staff at PIU’ (weight = 0.197) and was less critical of the ‘complex loan disbursement process’ (weight = 0.012). The PIU group considered the most critical challenge to be ‘undue interference in procurement process’ (weight = 0.193) and a less critical challenge to be ‘political instability in host country’ (weight = 0.031).

Overall, the global priority weights given to the challenges by each stakeholder group were very similar (Figure 2). On many issues, respondents from the different stakeholder groups came up with very similar opinions. The only exceptions were for the challenges of ‘incompetent procurement staff’ and ‘donor’s complex loan disbursement process’. The Donor group considered the ‘incompetency of procurement staff’ in Bangladesh as an important challenge. On the other hand, the GOB group considered ‘donor’s complex loan disbursement process’ as a challenge in implementing ID project procurement in Bangladesh.
(iii) Rank order of challenges: To determine an aggregated overall ranking of the challenges for all the stakeholder groups together, we considered the geometric mean of the nine individual respondents’ local priority weights (Hsu et al. 2010; Jaberidoost et al. 2015) given to all the challenge categories and challenges. Details of calculated local priority weights of all challenge categories and challenges are shown in the hierarchical model of Figure 3. Subsequently, following Step 3 of AHP, we calculated the global weight and priority rank order of challenges (Figure 4). The overall CR of judgements are calculated which is consistence as CR <0.1.

With respect to goals, an overall rank order of 14 critical challenges was obtained (Figure 4). The top seven critical challenges were: improper planning (weight = 0.120), undue practices in procurement process (weight = 0.116), government bureaucracy in procurement (weight = 0.096), incompetent procurement staff at PIU (weight = 0.088), lack of coordination between donors and other major stakeholders (weight = 0.083), frequent project design change (weight = 0.082), and unfairness in procurement contracts and bidding (weight = 0.064). Whereas, the challenges given lowest priority were: bias in developing procurement plan (weight = 0.034), political instability in host country (weight = 0.034), and a donor's complex loan disbursement process (weight = 0.045). The results of the AHP analysis also show that the respondents’ opinions were consistent in determining critical procurement challenges (CR = 0.01).

Sensitivity Analysis of the Rank Order of Challenges

Sensitivity analysis was used to investigate whether small variations (e.g. a 10% increase) in the priority weight assigned to a challenge-category would affect the rank order of the major
challenges. We investigated the impacts of changes of the priorities of two major challenge-categories (project management issues and ethical issues) on the top-seven critical challenges (Table 3).

With a decrease (10%) in priority weight from 0.289 to 0.26, three challenges (government bureaucracy in procurement, frequent project design change, and unfairness in procurement contract and bidding) remained in their initial position. The other four challenges only changed their rank order. Overall, there were no new challenges within the top seven ranks. With an increase (10%) in priority weight of the ‘project management issues’ (from 0.289 to 0.317), the top-seven challenges remained the same. Four challenges remained in their initial positions, but ‘frequent project design’ moved from rank 6 to 5, and ‘lack of coordination between donors and key stakeholders’ moved down from 5 to 6.

By changing the priority weight of the ‘ethical issues’ challenge-category, we further investigated the sensitivity of the rank order of the initially-determined challenges. Table 3 shows that changing the weight of ‘ethical issue’ from 0.281 to 0.252 (a 10% decrease), had no impact on the ranks of the initially-determined top-six challenges. The only impact we observed on the rank order was for ‘unfairness in procurement contract and bidding’, which moved down to rank 11 from rank 7; and the ‘frequent scope change’ challenge, which moved from 8 up to 7. Changing the weight of ‘ethical issue’ (10% increase) from 0.281 to 0.309 only had a very slight impact—only the ‘improper planning’ challenge increased from rank 2 to rank 1—while the rest of the rank order remained unchanged. However, the top seven challenges remained the same.

Sensitivity analysis shows that the identified critical challenges were robust to changes in the priority weights assigned to the major challenge-categories of ethical issues and host country issues.
Table 3 here

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22
Discussion

Through AHP analysis we identified seven most critical challenges of ID project procurement. These seven challenges are mainly from three broad categories: project management, host country bureaucracy and ethical issues. In the following we discuss these issues from the contextual perspective and compare with existing literature.

Respondents from each stakeholder group identified improper project planning as a critical issue in ID project procurement in Bangladesh. In Bangladesh, ID project plans are usually made by sectoral ministry in line with donor’s criteria and requirements of project grant or loan. Planning for ID projects as well as project procurement is undertaken long before the project implementation phase, where project manager is usually not involved. Moreover, beneficiaries of the projects are also not involved at planning stage. This front-end planning is often based on unclear scopes and objectives. Planning based on unclear scopes and objectives leads to series of changes by host country or sponsor in implementation stages which may cause delay or budget overrun or scope creep in later stages of the project. Like ID project procurement, mega projects also consider improper project planning as a possible challenge of poor projects performance (Carlos and Ashish 2017). Perhaps, ID project planning methods can be changed with the option of other planning methods such as rolling wave or adaptive planning (PMBOK 2017).

The second most important challenge of ID project procurement is identified as the undue practices in the procurement implementation process which is influenced by host country business culture or environment. During procurement implementation in Bangladesh, undue practices include approving defective or non-existent work or out of scope activities or fraudulent performance, and in paying a witness, expert, or judge in dispute resolutions in order to give a favourable opinion or verdict. The socio-cultural environment in developing countries like Bangladesh is often challenging, and many ID projects need to deal with these
Previous research on construction development projects in least-developed countries also emphasise that undue practices in the implementation phase can lead to poor performance or inefficiency of development projects, and seriously impact the host country’s aid utilisation capacity and aid effectiveness (Ngacho and Das 2014).

The third most important challenge related to ID projects procurement is government bureaucracy in procurement which is contextual to the host country. In ID project procurement, bureaucratic systems can lead to procurement delay due to lengthy interpretation procedures to conform to government regulations, governmental interference in recruiting consultants (or consulting firms), procedural rigidities of procurement and funds release, lengthy administrative process in obtaining multiple-level government clearances, out-dated rules and regulations, and lack of knowledge of procurement processes (WB 2013a). These government bureaucracies consume extra resources in terms of time and money. Previous literature identifies that the bureaucratic administrative systems of a host country government may significantly influence project delivery performance (Kagiri 2013; Carvalho et al. 2015). However, it is hard to change the existing bureaucratic system of a country. Host country government systems like Bangladesh work at their own speed, and project procurement-related decisions are no exception.

The fourth most important issue identified in this research relates to incompetent procurement staff at project implementation unit, which is due to lack of organizational procurement related capacity in host country. ID project procurement staff at the PIU level require the skills for dealing with donor rules and regulations, in preparing documents related to project procurement, in handling special contracts that required distinct equipment, and in international supplier involvement or the procurement of items from international suppliers. In ID projects, in the absence of a specific procurement officer, other available existing
professionals or government officials on deputation on an ad-hoc basis look after procurement activities. Because their core roles are not project procurement, they often lack the necessary skills and experience to process procurement activities in many ID projects. Hence, to manage ID project procurement properly, host country (such as Bangladesh) needs a skilled and experienced procurement workforce. Our findings on importance of competent procurement professionals for ID project procurement corroborates the observations in construction projects in developing countries (Banihashemi et al. 2017) and in public sector projects (Mahamadu et al. 2018).

The lack of co-ordination between ID project donors and key stakeholders is identified as the fifth most important challenge of procurement. ID projects require substantial procurement of goods and services and there are many stakeholders involved in procurement decision making. Major stakeholders of ID projects include donors of the project, state and local government authorities, PIU procurement team, and relevant public-sector institutions. These stakeholders are involved in many decision-making on ID project procurement issues such as tender preparation, supplier or consultant selection, supplier evaluation, contract awards, and disbursement of allocated funds for procured goods or services. The World Bank project completion report identifies that a lack of communication between stakeholders creates serious points of contention among PIU, donors, and the host country, and delays procurement and funds release (WB 2012; WB 2016). The academic literature also shows that a collaborative relationship for co-ordination in decision making between ID project donors with major stakeholders is important to improve the effectiveness and efficiency of development project planning and delivery (Bourguignon and Platteau 2015; Parker et al. 2018).

We observe that frequent project design change is the sixth most critical challenge for ID project procurement. In ID projects in Bangladesh, frequent project design changes are the
Changes in project design are perhaps an effect of improper project scope planning. ID project are designed on unrealistic ground (Mishra 2016). The scope may be unclear, causing later plans to become unrealistic and requiring project design change in the implementation phase. Moreover, project managers in ID projects are only involved in project execution and not in planning. Once a project manager is hired, one of the major tasks of ID project managers is to work on changing project design or subsequent change management activities. Previous research ascertains that during the project implementation phase, changes in design are common in infrastructure development projects in developing countries like Kenya (Kagiri 2013).

Unfairness in procurement contract and bidding is the seventh most critical challenge of ID project procurement. These undue practices may include winning a project contract from the project owner’s representative, illegitimate payments made to a project designer who then designs a project in such a way that inopportunely favours one bidder over others, bids accepted with faulty or forged documents, single sourcing of suppliers rather than putting a contract out to competitive tender and removing the potential for a conflict of interest, poor advertising of calls for bids or tenders, short bidding periods, poor specifications, non-disclosure of selection criteria, contract awards by lottery, negotiations with bidders and rebidding without adequate grounds, and corruption involving the donor agency (WB 2013d; WB 2013c). These undue practices can disrupt the procurement implementation process, lead to poor project performance, and seriously impact the country’s aid utilization capacity (Ika and Donnelly 2017; Williams 2017). For example, due to unfair practices in the bidding process, Bangladesh’s spending for each kilometre of road track is higher than in China (Bdnews24.com 2017).

Summarizing the above discussion on critical challenges of ID project procurement, we proclaim that major challenges are particularly related to project management issues
improper planning, incompetent procurement staff and frequent project design change), and ethical issues related to national environment (undue practices in procurement implementation and unfairness in procurement contract and bidding). Our findings are comparable with the findings from a cross country and cross industry research conducted on non-ID projects in Brazil, Chile and Argentina (Carvalho et al. 2015). Carvalho et al. (2015) emphasizes that for project performance, national environment is more important than project management methodology. In ID project procurement research, we identify that project management issues such as improper project planning need to be addressed as a first priority. We contend many ID project procurement issues can be resolved by placing greater emphasis on proper project management practices, such as the proper planning, coordination between stakeholders, and cultivation of procurement management skills. In our research, ethical issues are also identified as important issues. ID project procurement is conducted in a developing country environment. In developing countries weak institutional culture (incorporating ethics, shared understanding, regulations, and norms) can lead to weak enforcement of procurement rules and codes of conduct. We contemplate that ethical issues in ID project procurement may be resolved after improving the project management issues.

Conclusions, Limitations, and Future Research

This study identifies critical challenges to ID project procurement in Bangladesh from major stakeholders’ perspectives. Amongst the major procurement issues, the most critical challenge is related to improper project planning. Six other critical challenges were identified as: undue practices in procurement implementation, government bureaucracy, inexperienced project procurement staff, a lack of coordination between donors and other major stakeholders, frequent project design changes, and unfairness in procurement bidding and awarding of contracts. These critical challenges are robust to changes in the priority weights of the challenge-categories.
This study is one of the first attempts in the ID project literature to conduct an in-depth analysis of unexplored procurement issues of ID projects from a developing country perspective. The theoretical contribution of the research is the development a comprehensive framework based on contextual, institutional, and organisational issues of projects. The framework is detailed with four challenge categories and 14 challenges. Most of the challenges are identified from the ID project literature from different country contexts. The categories and many of the identified challenges are common in ID projects and in public-sector development projects in other countries. Hence, the framework can be applied to identify the major challenges of ID project procurement issues in Bangladesh and in other countries which receive substantial foreign donations to complement development activities or aid projects. The findings from this study advance the understanding of ID project procurement issues. Our ranking of challenge factors may help donor agencies or multi-lateral donor organisations (such as the World Bank, the Asian Development Bank, and European Union, Australian Aid, the US Aid) to work with host country to resolve major procurement issues and improve appropriate risk allocation or measures before designing or approving funds for ID projects.

Despite the contributions mentioned, this study has some limitations and hence has room for improvement. The study takes into consideration procurement issues of all types of ID projects such as size of project, or type of project (such as infrastructure development project, social development projects, environmental sustainability projects). There may exist some specific challenges for a specific type of project, hence in the future this research can be extended in this direction. This study used AHP to identify critical procurement challenges from three major stakeholder group’s perspectives. The number of respondents used was justifiable for AHP. However, there might be some error in judgment in choosing non-randomly selected experts from ID projects through the use of purposeful sampling and
snowballing techniques. Researchers believe that they obtained a representative sample by using sound judgment. Moreover, the use of purposeful sampling to identify experts from three stakeholder groups may prove to be effective as there are limited numbers of experts in some stakeholder groups. The use of snowballing techniques helps to identify the possible respondents or participants otherwise it is difficult to identify participants in developing countries. Lastly, we identify and rank order the critical challenges of ID project procurement, and further research can be conducted to investigate how the identified critical procurement challenges influence ID project performance.

References


Nanthagopan, Y., Williams, N. and Page, S. (2016) Understanding the nature of Project Management capacity in Sri Lankan non-governmental organisations (NGOs): A


Challenges of ID project procurement

- Project sponsor issues
- Host country issues
- Project management issues
- Ethical issues

- Lack of co-ordination between donors and key stakeholders
- Donor’s incompatible rules and regulations on procurement
- Complex loan disbursement process
- Political instability in host country
- Government bureaucracy in procurement
- Frequent move/transfer of key project officials
- Delay in key staff hiring
- Frequent scope change
- Improper planning
- Frequent project design change
- Incompetent procurement staff at PIU
- Bias in developing procurement plan
- Unfairness in procurement contract and bidding
- Undue practices in procurement implementation

**Figure 1:** ID project challenge categories and challenges in Analytical Hierarchy Process

**Figure 2:** Global priority weights of critical challenges for each stakeholder groups
Figure 3: Local priority weights of the procurement challenge categories (L- means local weight)

Figure 4: Overall priority ranking of the procurement challenges (CR = 0.01)
**Table 1:** Job titles and years of experience of the participants interviewed

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Stakeholder group</th>
<th>Position, experience and roles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondent 1</td>
<td>Donor</td>
<td>Project procurement specialist of a renowned international donor organisation/bank, more than 6 years’ experience in project procurement, and member of the Chartered Institute of Procurement and Supply (CIPS).</td>
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<td>Respondent 2</td>
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<td>Senior procurement specialist and contract administration professional of a donor organisation/bank, more than 10 years’ experience in development project procurement, and member of CIPS.</td>
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<td>Respondent 3</td>
<td></td>
<td>Procurement specialist of a donor organisation/bank, more than 10 years’ experience in developing international projects.</td>
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<td>Respondent 4</td>
<td></td>
<td>Five years’ experience in overseeing procurement policy development for the government sector. Currently working at Ministry of Planning and overseeing development project budget planning.</td>
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<td>Respondent 5</td>
<td>Host country government (Govt.)</td>
<td>Government bureaucrat with around 20 years’ experience in developing/overseeing development projects and relevant procurement activities.</td>
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<tr>
<td>Respondent 6</td>
<td></td>
<td>Assistant project director, working for Ministry of Planning, more than 7 years’ experience in dealing with development project from host country government perspective.</td>
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<tr>
<td>Respondent 7</td>
<td>Project implementation unit (PIU)</td>
<td>Executive engineer and procurement specialist of a government construction organisation. More than 16 years’ experience. Oversees many development projects in terms of developing project scope, tender evaluation, selection of suppliers or consultants, and performance monitoring.</td>
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<tr>
<td>Respondent 8</td>
<td>Retired chief engineer and procurement consultant. More than 25 years’ experience in development projects run by Government of Bangladesh in conjunction with other donor organisations.</td>
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<tr>
<td>Respondent 9</td>
<td>Retired chief engineer and procurement consultant, extensive experience (more than 26 years) in managing international development projects from PIU.</td>
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**Table 2:** Relative weights of procurement challenges identified by different stakeholders

<table>
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<tr>
<th>Major challenge category</th>
<th>Sub-categories of challenges</th>
<th>Stakeholder (3 respondents)</th>
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<td>Project sponsor issues</td>
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<td>Donor’s incompatible rules and regulations on procurement</td>
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<td>Complex loan disbursement process</td>
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<td>Host country issues</td>
<td>Political instability in host country</td>
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<td>Government bureaucracy in procurement</td>
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<td>Frequent move/transfer of key project officials</td>
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<td>Delay in key staff hiring</td>
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<tr>
<td>Project management issues</td>
<td>Frequent scope change</td>
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<td>Improper planning</td>
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<td>Frequent project design change</td>
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<td>Incompetent procurement staff at PIU</td>
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<td>Ethical issues</td>
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<td>Issue Description</td>
<td>Value 1</td>
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<td>Bias in developing procurement plan</td>
<td>0.131</td>
<td>0.115</td>
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<td>Unfairness in procurement contract and bidding</td>
<td>0.375</td>
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<td>Undue practices in procurement implementation process</td>
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<td>0.606</td>
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<td>ID project procurement challenges</td>
<td>Initial ranking</td>
<td>New rank order of challenges for change of weight for ‘project management issues’</td>
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<td>from 0.289 to 0.260 (10% decrease)</td>
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<td>Improper planning</td>
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<td>1</td>
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<tr>
<td>Government bureaucracy in procurement</td>
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<tr>
<td>Incompetent procurement staff at PIU</td>
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<td>5</td>
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<tr>
<td>Lack of co-ordination between donors and key stakeholders</td>
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<td>Frequent project design change</td>
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<td>Unfairness in procurement contract and bidding</td>
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<td>Frequent scope change</td>
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<td>Delay in key staff hiring</td>
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<td>Frequent move/transfer of key project officials</td>
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<td>Issue Description</td>
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<td>Complex loan disbursement process</td>
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