Indigenous Contractors Involvement and Performance in Construction Procurement Systems in Nigeria

By Inuwa Ibrahim Ibrahim, Wanyona Githae & Diang'a Stephen

Jomo Kenyatta University of Agriculture and Technology, Kenya

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Keywords: *indigenous contractors, involvement and performance, nigeria, procurement systems.*

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INDIGENOUSCONTRACTORSINVOLVEMENTANDPERFORMANCEINCONSTRUCTIONPROCUREMENTSYSTEMSINNIGERIA

Strictly as per the compliance and regulations of :

Indigenous Contractors Involvement and Performance in Construction Procurement Systems in Nigeria

Inuwa Ibrahim Ibrahim [α], Wanyona Githae [σ] & Diang'a Stephen [ρ]

Abstract- The demand for contemporary procurement systems posea challenge to contractors. Yet, no study has been conducted on Nigerian indigenous contractors (NICs') involvement and performances in construction procurement systems. This research therefore sought to investigate NICs' involvement and performances in construction procurement systems. Questionnaires were administered to indigenous contractors and the data obtained were analysed forreliability and significance tests, as well as descriptive statistics. Subsequently, collective case study was used to probe the questionnaire responses. Result reveals that: public and private clients involves NICs' in traditional and non-traditional procurement system; public clients procure 75% of it projects through the tradititional systems, while private clients procure 78-100% of it projects through non-traditional systems; NICs' performances record high rates of time overruns (traditional: 34-146%; non-traditional: 45-60%) and cost overruns (traditional: 35-47%; non-traditional:31-36%). The research recommends NICs': apply project management techniques; employ competent personnel and embark on continuous training; invest in knowledge management and; clients and consultants adheres to project management procedures.

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I. Introduction

Construction procurement systems according to Oyegoke (2006), establishes the contractual framework that determines the nature of the relationship between the construction project team within the duration of their interaction. One of the key player in the construction project team is the Contractor (Usman, *et al.* 2012a; Idoro, 2011; Bennett, 2003). Construction contractorsare entrepreneurs involved in the management of construction projects (Inuwa *et al.* 2013; Harris & McCaffer, 2005). In Nigeria, construction contractors are categorised by several criteria: scope of operation (local, regional, national and multinational); specialization (building and engineering); size and category of contracts (small, medium and large); and the company's owners' nationality (foreign and indigenous) (Idoro, 2011; Idoro & Akande-Subar, 2008; Muazu & Bustani, 2004). The debate on project performance in the Nigerian construction industry (NCI) centres mainly on the performances of foreign and indigenous contractors (Idoro & Akande-Subar, 2008). Indigenous contractors are contracting firms that are fully-owned and managed by Nigerians; the nationality of the firms' ownership and management is exclusively Nigerian.

According to Uduak, (2006) and Ibrahim Y. (2012) the performance of projects managed by Nigerian Indigenous Contractors' (NICs') are better and claimed they can be entrusted with large and highly technical projects, whereas most studies reports that their projects performance is replete with: project abandonment, cost and time overruns, poor workmanship, poor management capability, financial difficulties, poor planning, poor mechanization and high frequency of litigation (Odediran *et al.* 2012; Oladimeji & Ojo, 2012; Muazu & Bustani, 2004; Achuenu, *et al.* 2000; Bala *et al.* 2009; Adams, 1997). Many researchers have attributed NICs' poor performance to incompetence, inexperience, poor innovation and dynamism, and the adoption of traditional management approaches amongst other things (Ekundayo, Jewell, & Awodele, 2013; Odediran, *et al.* 2012; Aniekwu & Audu, 2010; Muazu & Bustani, 2004; Achuenu, *et al.* 2000; Bala *et al.* 2009; Adams, 1997). These resulted in the few foreign firms, which constitute just 5% of the total number of contractors in the formal sector, control 95% of the major public projects in the construction market, giving the indigenous firms just 5% share of the market (Aniekwu & Audu, 2010; Oladapo, 2007; Muazu & Bustani, 2004). The outcome to the industry is: low income generation and redistribution due to expatriates repatriating their profits abroad, an insignificant value addition to construction and local industries supplying construction materials, and consistent contribution of 1% employment over the last decade as against the World Bank's average observation of about 3.2% in other developing countries (Aniekwu & Audu, 2010; Idrus & Sodangi, 2010; Jinadu, 2007).

More to the numerous challenges confronting the NICs' is the demand for contemporary construction procurement systems on contractors; their roles goes beyond their traditional role as integrators in a design-bid-build procurement system (Mbamali & Okotie, 2012; Gollenbeck, 2008), to more complex roles in either management oriented systems, integrated systems or, discretionary contracts (Mathonsi & Thwala, 2012;

Authors α σ ρ: Department of Construction Management, Jomo Kenyatta University of Agriculture and Technology, Nairobi-Kenya. e-mail: inuwaibrahimibrahim@yahoo.com

Babatunde. *et al.* 2010; Harris & McCaffer, 2005). These have obviously add to the problems militating against effort towards developing the NICs' to meet international best practice. Yet, none of the studies conducted on NICs' investigated their involvement and performances in construction procurement systems in Nigeria (Idoro, 2012; Odediran, *et al.* 2012; Oladimeji & Ojo, 2012; Aniekwu & Audu, 2010; Idoro & Akande-Subar, 2008; Uduak, 2006; Muazu & Bustani, 2004; Saleh, 2004; Achuenu, *et al.* 2000; Bala *et al.* 1999; Adams, 1997). Understanding the indigenous contractors' involvements and performances in the various procurement systems will provide an insight on their weaknesses, and will assist in proffering solution to that effects. This research therefore, sought to investigate NICs' involvement and performances (cost and time) in construction projects procurement systems in Nigeria.

II. Procurement Systems Application and Performances in Nigeria

Construction procurement systems are broadly classified into traditional and non-traditional (for detail see: Mathonsi & Thwala, 2012; Babatunde *et al.* 2010; Harris & McCaffer, 2005). Several studies have shown that both traditional and non-traditional procurement systems are currently embraced in Nigeria (Idoro, 2012b; Mbamali & Okotie, 2012; Babatunde *et al.* 2010; Ikediashi *et al.* 2012; Ibrahim 2008; Ojo, Adeyemi, & Fagbenle, 2006). According to Ojo *et al.* (2006) direct labour, which is a traditional system, was mainly used during the colonial era all through the 1960s in the execution of construction projects in Nigeria and to date (Ibrahim, 2008), direct labour is still minimally used across the three tiers of government (Federal, States and Local government), primarily for maintenance and new works of minor nature. However, direct labour projects are said to be ineffectively managed resulting in cost and time overruns (Mbamali & Okotie, 2012)

The oil boom in Nigeria and the need for reconstruction and rehabilitation works to mend the havoc resulting from a fratricidal war that ended in 1970, usher in the use of the design-bid-build (DBB) procurement system (traditional) into the NCI (Mbamali & Okotie, 2012; Ojo *et al.* 2006). This system was also used by the National Housing Policy (NHP); a policy enacted into law in 1991 by the Nigerian government to provide decent housing accommodation at affordable cost for the country, in adherence to the campaign launched by the United Nation (UN) tagged 'Housing for All by the year 2000'. Though, the DBB method was later discovered to bring long delays in project conception and delivery thus leading to high project cost (Mbamali & Okotie, 2012; Ojo *et al.* 2006 citing Osemenam, 1992). Despite the criticism of the performance of DBB system in Nigeria, the system is still use by government establishments and some uninformed private clients

(Ojo *et al.* 2006). The short comings of the traditional systems (Direct labour and DBB) in Nigeria brought about the emergence of the non-traditional procurement systems amongst which is the design and build (DB) method (Mbamali & Okotie, 2012; Ikediashi*, et al.* 2009 cited in Ikediashi, *et al.* 2010). The DB option according to Babatunde *et al.* (2010), is one of the procurement systems that have gained prominence in the NCI, however, its application in Nigeria records high time and cost overrun (Idoro, 2012b).

The use of management contracting (MC) in Nigeria, spanned back to the era of the defunct Petroleum (Special) Trust Fund (PTF) mass rehabilitation of key public infrastructure across the country in 1994-1999 (Hassan, 2004 in Ibrahim, 2008). Babatunde, *et al.* (2010) also reported that management oriented contracts and PPP/PFI are among the methods use in the execution of construction projects in metropolitan Lagos, but not as much as the DBB method. According to Ibrahim and Musa-Haddary (2010) the immediate past (1999-2008) and present governments (2008 to date) at various levels/tiers in Nigeria encourage the introduction of public-private partnerships (PPPs) as a way of promoting active private sector involvement in the provision of public infrastructure and services, in an attempt to contain the infrastructure deficits in the country. According to Mbamali and Okotie (2012) partnering which is a discretionary procurement system has also evolved in Nigeria. All the studies reviewed elicited vital information on the application of procurement systems and their performances in the NCI, yet, none of the studies focused entirely on NICs' involvement and performances in construction procurement systems in the NCI.

III. Research Methodology

This study used descriptive (questionnaire) and explanatory survey method (collective case study). The study targeted medium and large indigenous contractors in the northern geo-political zones of Nigeria. The zones constitute 3 of the 6 geo-political zones of Nigeria (North-central, north-east and north-west), and slightly more than half of Nigeria's 36 states and its Capital (19 states and Abuja), representing almost 80% (744,249.08 sq. km) of Nigeria's total land size (NPC, 2010). It has a population of over 75 million people, representing 54% of Nigeria's total population (NPC, 2010). A structured questionnaire was employ to elicit information from indigenous contractors on: demographic profiles, involvement and performances (cost and time) in the various construction procurement systems. Afterwards, an explanatory method through collective case study approach was used to follow up the questionnaire responses to ascertain whether the involvement and performance of indigenous contractors in construction procurement systems followed the same

6

pattern in Northern Nigeria (McNabb, 2009). This method allows for more extensive probe on specific issues identified in the main questionnaire responses (Guthrie, 2010; McNabb, 2009).

A total of 150 questionnaires were evenly administered through purposive sampling technique to indigenous contractors. The contractors' construction/ project managers' were used to respond on behalf of their respective company in the cities of Abuja, Bauchi/Gombe (two cities merged) and Kano respectively. These cities are located in the north-central, north-eastern and north-western geopolitical zones of Nigeria respectively and have the highest concentration of construction activities and contractors in their respective zones (Usman *et al.* 2012; Ameh & Odusami, 2010). The choice of purposive sampling was informed by: non availability of an authoritative sampling frame of active indigenous contractors in Nigeria (Muazu and Bustani, 2004; Achuenu, *et al.* 2000; Adams, 1997), and the ability to target specific contractors who are best able to respond to the research issues (Ibrahim A. D. 2011). The study record an overall response rate of 46% (69). This rate is higher than other studies in the construction industry: 25.4% (Emuze, 2011); 33.5% (Olatunji, 2010); and 35% (Adams, 1997). Subsequently, SPSS version 17 was used to run reliability test using Cronbach's Alpha, significance test, and frequencies and percentages (descriptive statistics) to analyse the data obtained from the questionnaire responses. Stratified random sampling technique was then applied on the returned questionnaires to select 15 contractors for the case study; five from each city. The documents used for the case study are project files in the custody of the contractors' clients representing all correspondence during the contracts execution.

a) Research Hypotheses

The research tested the following null (H_o) and alternative (H_1) hypotheses:

i. H_0 : There is disproportionate distribution in the frequencies of responses among indigenous contractors to a question on their level of involvement in various building procurement systems in Nigeria.

H_1: There is no disproportionate distribution in the frequencies of responses among indigenous contractors to a question on their level of involvement in various building procurement systems in Nigeria.

ii. H_0: Indigenous contractors do not underperformed in terms of cost and time in building procurement systems in Nigeria.

H_1 : Indigenous contractors' underperformed in terms of cost and time in building procurement systems in Nigeria.

IV. Data Analysis

a) Reliability and Hypotheses Tests

Table 1 : Result of X^2 Hypotheses Test

Attribute	Confidence level	Computed p-value	DF	Significance	Decision
Procurement systems	0.05	0.72	2	Not Significant	Accepted
Time and cost overrun	0.05	0.00	1	Significant	Rejected

Cronbach's alpha test used to test the reliability and consistency of the questionnaire construct, shows items in the contractors involvement and performances in building project systems to be 0.83 and 0.92 respectively , signifying high reliability and consistency in a scale of 0-1; with a cut off value of 0.7 (A.D. Ibrahim, 2011; Ogwueleka, 2011).

The research used non-parametric one-sample chi-square (X^2) test to test the two research hypotheses. Table 1 above shows the details of the research X^2 hypotheses test. The one-sample X^2 test is used when a study has questions about the distribution of responses in data taken from a sample (McNabb, 2009). The first null hypothesis was accepted because the computed p-value of 0.720 at 2 degree of freedom (DF) is greater than 0.05 confidence level for the test (McNabb, 2009). The second null hypothesis was rejected because the computed p-value of 0.00 at 1 degree of freedom is less than 0.05 confidence level (McNabb, 2009).

Table 2 : Contractors Demographic Profiles

Contract Registration Category		
Category	Frequency	%
B (₦5-₦15M)	15	21.7
C (₦15-₦50M)	21	30.4
D (Over ₦50M)	33	47.8
Total	69	100
Business Registration Category		
Category	Frequency	%
Sole proprietorship	8	11.6
Partnership	30	43.5
Private company	28	40.6
Public company	3	4.3
Total	69	100
Construction/Project Managers' EducationalQualification		
Qualification	Frequency	%
Higher National Diploma	10	14.5
Bachelor of Science	37	53.6
Masters	22	31.9
Total	69	100
Project Managers'Educational Specialization		
Specialization	Frequency	%
Architecture	13	18.8
Building	19	27.5
Engineering	12	17.4
Estate management	1	1.4
Quantity surveying	15	21.7
Project management	6	8.7
Land surveying	1	1.4
Business Administration	2	3
Total	69	100

Project Managers' Experience				
Experience (yrs.)	Mid value (X)	Frequency(F)	FX	% F
≤ 5	2.5	8	20	11.6
5-10	7.5	29	217.5	42.0
10-15	12.5	17	212.5	24.6
≥ 15	15	15	225	21.7
Total		69	675	

Mean years of experience = FX/F= 675/69 = 9.78 years

Note : Naira (₦)-Nigerian currency; $1= ₦160
Source : Field survey (2013)

Table 2 above portray contractors' demographic profiles. Fifty two percent of the contractors are medium sized contractors according the Federal government of Nigerian registration category (category B & C), while the remaining 48% are large contractors (category D). This result reveals that the respondents are almost evenly represented. Substantial number of the contractors are into partnerships (43.5%) and private company (40.6%), followed by sole proprietorship (11.6%), while few are public companies (4.3%). Almost eighty six percent of the contractors' construction/ project managers' hold Bachelor's Degree and Masters, while 14.5% (10) hold Higher National Diploma. Almost all (94.2%) of the respondents specializes in core construction disciplines (Ameh & Odusami, 2010): architecture, building, engineering and quantity surveying. Virtually half (46.3%) of the respondents have over 10 years' experience, with all respondents having a mean experience of 9.8 years. Findings from the contractors demographic profilereveals thatthe respondents' are well experienced and educated enough to respond to this research enquiry.

8

Table 3 : Contractors Construction Procurement Systems Involvement

Details of Procurement Systems Involvement according to Client's Types								
Public Clients'								
Contract Category	DBB	MC	CMC	DMC	DCC	DB	Total	%
> ₦50M	59	2	4	7	2	1	75	54.35
₦15-₦50M	22	1	3	0	1	0	27	19.57
₦5-₦15M	26	0	7	2	0	1	36	26.08
Total	107	3	14	9	3	2	138	100
% Total	77.54	2.17	10.14	6.52	2.17	1.45	100	100
Private Clients'								
Contract Category	DBB	MC	CMC	DMC	DCC	DB	Total	%
> ₦50M	4	4	2	2	2	7	21	45.65
₦15-₦50M	5	4	4	2	1	3	19	41.30
₦5-₦15M	1	1	2	1	1	0	6	13.04
Total	10	9	8	5	4	10	46	100
% Total	21.74	19.57	17.39	10.87	8.69	21.74	100	100

Summary of Contractors Procurement Systems Involvements				
Contract Category	Frequency of Procurement Systems			% of contract category
	Traditional	Non-Traditional	Total	
> ₦50M	63	33	96	52.17
₦15-₦50M	27	19	46	25.00
₦5-₦15M	27	15	42	22.83
Total	117	67	184	100
%	63.59	36.41	100	100

Note: DBB-design-bid-build; MC-management contract; CMC-construct & management contract; DMC-design & management contract; DCC-design-construct contract; DB-design-build; ₦-Nigerian currency-Naira: $1 = ₦160

Source: Field survey (2013)

Table 3 above depict NICs' building procurement systems involvement. Datawere collected from a total of 184 building projects executed within 2008-2013. Seventy five percent of the projects were procured by public clients, while 15% were procured by private client. The frequency of the involvement of contractors in the various procurement systems by public clients were: 77.54% (DBB); 2.17% (MC); 10.14% (CMC); 6.52% (DMC); 2.17% (DCC); and 1.45% (DB). For private clients, their frequency of involvement were: 21.74% (DBB); 19.57% (MC); 17.39% (CMC); 10.87%

(DMC); 8.69% (DCC); and 21.74% (DB). Almost 74% of the contractors contracted by public clients were medium sized contractors, while 26% were large contractors. Private clients contracted most of their projects (87%) to medium sized contractors, while only few (13%) were contracted to large contractors. Summarily, 63.59% of the projects were procured through the traditional procurement systems, while 36.41% were procured through the non-traditional procurement systems: MC, CMC, DMC, DCC, and DB.

Table 4 : Percentage Time Overrun (TO)

DBB (% TO)	Mid value (X)	Frequency (F)	FX	% mean time overrun (∑FX/∑F)
≤ 25	12.5	15	187.5	
25-50	37.5	15	562.5	
50-75	62.5	11	687.5	
75-100	87.5	5	437.5	
≥ 100	100	9	900	
Total		55	1875	34.09
MC (% TO)	X	F	FX	
≤ 25	12.5	7	87.5	
25-50	37.5	11	110	
50-75	62.5	5	312.5	
75-100	87.5	3	262.5	
≥ 100	100	9	900	45.12

	X	F	FX	
Total		35	1672.5	
CMC (% TO)	X	F	FX	
≤ 25	12.5	7	87.5	
25-50	37.5	9	337.5	
50-75	62.5	2	125	
75-100	87.5	1	87.5	
≥ 100	100	4	400	47.79
Total		23	1037.5	
DMC (% TO)	X	F	FX	
≤ 25	12.5	1	12.5	
25-50	37.5	5	187.5	
50-75	62.5	2	125	
75-100	87.5	2	175	
≥ 100	100	3	300	61.54
Total		13	800	
DCC (% TO)	X	F	FX	
≤ 25	12.5	4	50	
25-50	37.5	-	-	
50-75	62.5	1	62.5	
75-100	87.5	-	-	
≥ 100	100	3	300	51.56
Total		8	412.5	
DB (% TO)	X	F	FX	
≤ 25	12.5	1	12.5	
25-50	37.5	2	75	
50-75	62.5	-	-	
75-100	87.5	-	-	
≥ 100	100	1	100	
Total		4	187.5	46.88

Source : Field survey (2013)

Table 4 shows the percentage time overruns of the contractors' performances in the various procurement systems. The contractors recorded TOs' in all the procurement systems. The DMC system records the highest % mean TO of 61.54%, then DCC (51.56%), the CMC (47.79%), DB (46.88%), MC (45.12%), and the least 34.09% (DBB).

Table 5 : Percentage Cost Overrun (CO)

DBB (% CO)	Mid value (X)	Frequency (F)	FX	% mean cost overrun (ΣFX/ΣF)
≤ 25	12.5	20	250	
25-50	37.5	10	375	
50-75	62.5	8	500	
75-100	87.5	10	875	
≥ 100	100	5	500	
Total		53	2500	47.17
MC (% CO)	X	F	FX	
≤ 25	12.5	15	187.5	
25-50	37.5	14	525	
50-75	62.5	3	187.5	
75-100	87.5	-	-	
≥ 100	100	2	200	
Total		34	1100	32.35
CMC (% CO)	X	F	FX	
≤ 25	12.5	9	112.5	
25-50	37.5	9	337.5	
50-75	62.5	2	125	
75-100	87.5	1	87.5	
≥ 100	100	2	200	
Total		23	862.5	37.50

DMC (% CO)	X	F	FX	
≤ 25	12.5	8	100	
25-50	37.5	2	75	
50-75	62.5	1	62.5	
75-100	87.5	2	175	
≥ 100	100	2	200	
Total		15	612.5	40.83
DCC (% CO)	X	F	FX	
≤ 25	12.5	3	37.5	
25-50	37.5	4	150	
50-75	62.5	1	62.5	
75-100	87.5	2	175	
≥ 100	100	-	-	
Total		10	425	42.50
DB (% CO)	X	F	FX	
≤ 25	12.5	2	25	
25-50	37.5	1	37.5	
50-75	62.5	1	62.5	
75-100	87.5	-	-	
≥ 100	100	-	-	
Total		4	125	31.25

Source : Field survey (2013)

Table 5 above shows the percentage cost overruns of the contractors' performances in the various procurement systems. The contractors recorded COs' in all the procurement systems. The DBB system records the highest % mean CO of 47.17%, then DCC (42.50%), the DMC (40.83%), DMC (37.50%), CMC (32.35%), and the least 31.25% (DB).

Table 6 below shows detail of the collective case studies conducted on building projects executed by indigenous contractors. The cases studied are building projects executed between the periods 2003-2013 (10 years), representing 15 number case studies (CS01-CS15). This research used the external and internal criticism test to test the validity and reliability of the document used for the case study (Guthrie, 2010). The external criticism technique which is a validity test, is concern with ascertaining the genuineness of a data from a source (Guthrie, 2010). To ensure the genuineness of the data obtained from the clients' custody, all the materials used as a source of data for the research case study bears (Guthrie, 2010): letter heads; titles; file numbers; official stamps; dates; and official signatures. While the internal criticism technique is a reliability test concern with the meaning of a documentary data; whether it present the full picture and whether there is a balance view (Guthrie, 2010). This test was satisfied by the research. All the project files used for the study were in the custody of the clients representing all correspondence of the parties involved during the execution of the building contracts.

Fifty three percent (8) of the projects were contracted to large contractors (category D), while 47% (7) were contracted to medium sized contractors (category B & C). Both traditional (80%) and non-traditional procurement systems (20%) were used to procure the projects.

The cases studied reveals that 73.33% (11) of the clients' were public clients', while the remaining 26.67% (4) were private clients'. The contractors were involved in both traditional and non-traditional procurement systems. Eleven (73.33%) of the twelve (100%) projects procured through the DBB systems were procured by public clients, with just one (26.67%) out of the twelve procured by private clients. Only three of the cases studied were procured through the DB non-traditional procurement systems, and all were procured by private clients. All the cases studied record time overruns, while all but one records cost overruns. The contractors' record a mean % time overrun of 146% in the DBB systems (traditional), and a mean % time overrun of 60.42% in the DB system (non-traditional). The contractors' record a mean % cost overrun of 35.5% in the DBB systems (traditional), and a mean % cost overrun of 36.42% in the DB system (non-traditional). The total cost of the cases studied was ₦2.04 billion, with an initial estimated total contract periods of 176 months. In all, the cases studied overran their time and cost by 100.57% (352 months) and 43.02% (₦876, 040, 000) respectively. The result from the case study shows that indigenous contractors' involvement and performances in building procurement systems follow the same pattern and reveals that the responses from the questionnaires truly reflect to some extent the responses obtained from the questionnaires on NICs' involvement and performances in building project procurement systems.

V. RESULT DISCUSSION

This research finding shows that both public and private clients involved NICs' in traditional and non-traditional procurement systems. Public clients procure 75% of their projects through the DBB traditional procurement systems as against private client who procure 78-100% of their projects through the non-tradtional procurement systems. This result conforms to Ojo *et al.* (2006) findings that DBB systems are mostly used by public and uninformed private clients in Nigeria. Result shows that public clients has the largest share of the projects procured in the industry. This is in line with Mbamali and Okotie (2012), and Iro *et al.* (2012) reports that the Government in Nigeria (public client) has almost 75% of the total construction share in the country.

The performancesof NICs' in both the traditional and non-traditional procurement systems reveal high rates of time overruns (traditional: 34-146%; non-traditional:45-60%) and costoverruns (traditional: 35-47%; non-traditional:31-36%).These findings agrees with the findings of: Idoro (2012); Mbamali and Okotie (2012); Babatunde *et al.* (2010); Ikediashi *et al.* (2012); Ibrahim (2008); Ojo *et al.* (2006).

VI. CONCLUSION AND RECOMMENDATION

This research sought to investigate NICs' involvement and performances in building projects procurement systems using descriptive and explanatory methods in northern Nigeria. This was informed by the numerous challenges confronting the NICs' and above all, absence of a study that investigated the NICs' involvement and performances in various procurement systems in the NCI. This research finding shows that NICs' are involved by both public and private clients in both traditional and non-traditional procurement systems and their performances in both of the systems reveal high rates of timeoverruns (traditional: 34-146%; non-traditional:45-60%) and costoverruns (traditional: 35-47%; non-traditional:31-36%). The research reveals that public clients procure 75% of their projects through the DBB traditional procurement systems as against private client who procure 78-100% of their projects through the non-tradtional procurement systems. In addition, the research result reveals that the government (public clients) has the largest share of the projects procured in the industry.

This research recommended that NICs' should: adopt and apply project management techniques in their operations; employ competent personnel and embark on continuous training; keep abreast with global construction trend through investment in knowledge management and; clients and consultants adheres to project management procedures. Though, this research is delimited to NICs' involvement and performances in building projects procurement systems in northern Nigeria. More studies can be conducted to investigate the causes of NICs' underperformances in time and cost in the various building procurement systems in Nigeria.

Table 6: Collective Case Study

Case study	Type of building	Year	Location	Client's	Procurement Type	Cost (₦000,000)		Cost overrun	Time overrun (months)		Time overrun
						E	F	%	E	F	%
CS01	Hospital	2009-2012	Abuja	Public	DBB	248.62	421.04	69.35	6.5	30	361.54
CS02	Administrative block	2003-2012	Abuja	Public	DBB	282.56	712.87	152.29	54	117	117
CS03	Mega shopping plaza	2008-2010	Abuja	Private	DB	572.35	680.02	18.81	14	21	50
CS04	Administrative block	2005-2009	Abuja	Public	DBB	249.12	297.79	19.30	15	28	86.67
CS05	Shops & offices	2009-2010	Abuja	Private	DB	23.42	33.76	44.15	5	7.5	50
CS06	Lecture hall	2011-2013	Bauchi/Gombe	Public	DBB	47.20	57.20	21.19	7.5	16	113.33
CS07	Office blocks	2007-2009	Bauchi/Gombe	Public	DBB	13.05	15.31	17.32	3	21	600
CS08	Classroom blocks	2005-2006	Bauchi/Gombe	Public	DBB	23.68	31.97	35	4.5	8.5	88.89
CSO9	Classrooms & Residential	2010-2011	Bauchi/Gombe	Public	DBB	190.05	226.05	18.94	15	22.5	50
CS10	Residential	2010	Bauchi/Gombe	Public	DBB	18.22	21.85	19.92	2	5	150
CS11	Library extension	2006-2007	Kano	Public	DBB	87.12	87.12	0.00	9	14	55.56
CS12	Lecture theatre	2003-2004	Kano	Public	DBB	87.77	114.80	30.80	14	20	42.86
CS13	Offices/classrooms	2005-2006	Kano	Public	DBB	163.01	170.44	4.60	8.5	10.5	23.53
CS14	Residential	2004-2005	Kano	Private	DB	10.00	14.63	46.30	8	14.5	81.25
CS15	Shops & offices	2010-2011	Kano	Private	DBB	20.00	27.36	36.80	9.5	16.5	73.68
					TOTAL	2036.17	2912.21	43.02	175.5	352	100.57

Note: E- estimation; F-final; DBB-*design-bid-build*; DB-*design-build*; ₦-Nigerian currency-Naira: $1 = ₦160

Source: Field survey (2013)

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