



CHALLENGES FACING PUBLIC WORKS DEPARTMENTS IN CONSTRUCTION PROJECT DELIVERY WITHIN METROPOLITAN MUNICIPAL AND DISTRICT ASSEMBLIES IN GHANA

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Abstract

There is growing concern over the successful implementation of projects in various Public Works Department (PWDs) at Metropolitan, Municipal and District Assemblies (MMDAs). In recent times MMDAs are challenged with the issues of poor project delivery rendering. This has led to a low confidence in public service administration in terms of construction projects delivery. The aim of this study was to appraise the challenges faced by the PWDs in project delivery. Based on relative importance index analysis the trend of the challenges were weather and other environmental challenges, unrealistic timelines for project delivery, influence of processes by political heads, inadequate logistics and inadequate human resource to carry out supervision among others. The implication is that Local Government Ministry should put in place measures for updating, assessing and improving the knowledge base on contract management of projects teams within MMDAs.

Keywords: Public Works Departments (PWDs), Project Delivery, Metropolitan Municipal and District Assemblies (MMDAs), Projects

Introduction

The government of Ghana in its bid to have an all-inclusive governance have over the years set up various District, Municipal and Metropolitan based units. This is to help include more people at the community levels to participate in active governance and also to bring governance to the grassroots. The units have metamorphosed through what was called the 'Indirect Rule System' (IRS) where the local Government units were referred to as native authorities, then through local, urban and district councils and presently the Metropolitan, Municipal and District Assemblies (MMDAs) concept which was initiated in 1988. The MMDAs are an improvement on the previous set-ups established by Ghana's decentralization process as encapsulated in the Constitution. The District Assemblies have been chosen to be the highest legislating, planning, budgeting and political authority at the local level.

The Local Government Act (Act 462) of 1993 underpins the constitutional provision for the operation of these MMDAs. MMDAs have various departments that undertake planning, budgeting control of finances but the department that is most relevant to this research is the Public Works Department (PWD). This is because they are directly responsible for the physical implementation of the construction projects. Section 10 of the Local Government Act 462 of 1993 task MMDAs in Ghana to be the highest political and administrative body in the Districts, responsible for the entire development of the Districts. Specifically, PWDs under the MMDAs are to monitor as well as initiate to completion, the delivery of rudimentary infrastructural projects. The construction industry accounts for a significant portion of the world's Gross Domestic Product (GDP) (Basheka &

Tumutegereize, 2011). This was deep-rooted in the report of the Institute of Statistical Social and Economic Research (ISSER, 2008) that between 2006 and 2007, the construction industry contributed 0.7% and 1.0% respectively to GDP of Ghana. In the developing world, Basheka & Tumutegereize (2011), hypothesized that the construction sector provides a substantial source of direct and indirect employment to majority of citizens all over the world. In this sense, the sector serves as a pivot for many economies with its activities hinging on project delivery and the contractor who serves as the final producer of these entire infrastructural projects. Hence the importance of identifying the PWDs of the MMDAs as agents of construction work delivery and performance in the construction industry is evident throughout the economies worldwide. The consequences of which sometimes impact on the cost, time and quality of construction project completion and delivery (Kagioglou, Cooper & Aouad., 2000).

Despite the immense contributions of the construction industry with regards to resources and services, there have been relentless criticisms of the poor performance in terms of quality project delivery of the major players (Ali & Rahmat, 2010). These criticisms have in the recent past occasioned an interest in a number of studies that focused on assessing the factors affecting project delivery in the construction industry. The research gave qualitative confirmation of the foregoing. Ofori (1984), about three decades ago also revealed prevalent delay in the payments of contractors for work done. The study also revealed that there was lack of credit facilities for firms, poor communication structures and an unreliable material supply base (Amoah et al., 2011). Also, Laryea, (2010) using analogous qualitative method concluded that financial, political, organizational and economic issues are the main factors endangering project delivery in the industry. The Government of Ghana (GoG) through the Ministry of Finance and Economic Planning (MFEP) in 2007 set up a five-person task force to submit

recommendations that would subsequently help to improve upon the general performance of project delivery in the construction industry (Taskforce Report, 2007). The Taskforce with support from Ministry of Finance and Economic Planning (MFEP) held about eight awareness meetings with the participants in the industry such as consultants, client organizations and contractor associations, in both the northern and southern sectors of the country. Remarkably amongst the concerns stipulated at the stakeholders' awareness meetings was the quality performance in project delivery, negative perceptions about project delivery, the creation and improvement of socioeconomic infrastructure in the country and improving the delivery of social services by the MMDAs (Taskforce Report, 2007). The private sector has over the years shown its appreciation for the need for quality service. Meanwhile, their counterparts in the public sector are seen to hold a seeming contrasting view or they are at least seen not to be very worried about quality service delivery. The status quo has remained unchanged for so many years, perhaps as a result of the fact that, organizations under the public sector do not generally face competition in their activities by competitors providing similar services. The situation makes doing business of any sort with public institutions non-attractive. This attitude gives bureaucracy a bad name, as evident by poor services offered by many of these public institutions. When public institutions fail to meet the expectations of consumers in service delivery, the ripple effects result in grave consequences on political, social and economic growth of a state. The 2012 Auditor General's Report indicated that a substantial amount of government projects failed in achieving the specified quality. If the trend continues there will be general apathy towards government projects and especially those managed by the local administration that is the MMDAs. Hence, the aim of this study is to identify the challenges facing PWDs on construction project delivery in MMDAs.

Overview of the Construction Industry and PWDs

Frimpong et al., (2003), postulated that the success of a project is cramped to the project's goals and set objectives within an explicit project scope. A project is administrated by many characteristics; however, a completed project which meets its technical requirements, required quality and intended duration clearly defines the success of a project. Shaban (2008), specified that projects basically revolve around three areas, these are completing a project in time, within an estimated budget based on a defined quality with the aim of getting value for money.

The Bank of Ghana (2009) affirmed that the Ghanaian construction industry represents 10.30% of Ghanaian's GDP, signifying that the construction industry impacts the economy of Ghana. It also indicates that owing to the contribution of the construction industry into the economic well-being of Ghana, the Ghana Government invests in construction as a form of sustaining and governing the economy. The construction industry is gigantic, cutting across the building sector to civil engineering works. However, it is beset with non-standardization, lack of expertise in project management and delivery which continually affect the objectives of a project by causing failures in the delivery time and cost (Royal Institute of Chartered Surveyors, 2013). The challenge of poor project delivery and performance in the construction industry is because construction projects were unable to meet their set objectives as identified by Al-Moumani, (2000).

The Association of Project Managers (2006) and Arditi & Pattanakitchamroon (2006) also found that another challenge associated with the construction industry is interruption. Their study further stated that delay is witnessed in all construction projects nevertheless; however the degree of delay varies from project to project. Whether the interruption occurs for a couple of days or years, it still negatively affects the progress of the project in cost, time, quality as well as the delivery times of projects (Arditi & Pattanakitchamroon, 2006). Delivery and closing is where all contracts between client and other parties terminate by default, by which time the

project would have been handed over to the client to occupy. During this time the defect liability would have been exhausted and all other claims would have been settled. Smith (2011) also corroborates the Association of Project Managers (2006) and Arditi & Pattanakitchamroon's (2006) contentions that, delay in project delivery times are often associated with construction projects. Smith (2011) further argues that interruption can occur as a result of the default of the contractor, client, consultants or other situations beyond the control of the parties involved. Moreover, these delays have led to monetary consequence on a project and at times lead to legal suits among parties to the contract.

The involvement of PWDs cuts across various sectors of development including corporate and public infrastructure for international relations, national security and national development. Being the basic unit of development, its activities are evident throughout the country including the very remote areas. The PWDs are the core drivers of physical construction and other developments that are usually supported financially by the federal administration for the general good. Public works projects include dams, bridges, highways and hospitals. Projects of that nature are funded by the state, federal or local annexations. However, the department is in charge of co-ordination and programming of reintegration, reconstruction as well as the maintenance of government funded estates and housing units of public infrastructure (Eden *et al*, 2005). The PWDs which is under the Ministry of Housing and Public Works (MHPW), forms the forerunner in the construction sector of Ghana. More than two centuries now, Public Works Department can successfully set the standard as well as the trend in Ghana's infrastructural expansion (Mwale, 1997). PWDs play a critical role in the application of projects funded by the government in the construction industry. It has the required expertise and professional workforce constituting a multi-disciplinary team of mechanical, electrical and civil engineers who execute their tasks hand in hand with

architects from the Architectural Department. Over the years, PWDs have developed a strong base of standards, are proficient and therefore the foremost option among other astute clients for other construction project types in Ghana. Notwithstanding the aforementioned assertion, Voigt (2015 cited in Owusu-Diatuo, 2016) postulated that, it lies in the mission of the PWD to form part of an integral body in our community so as to improve the quality of life by means of using the foremost practices of management to maintain infrastructure in the Metropolis. Hence, concentration is laid on the execution of the aforementioned services so as to enhance both fiscal and economic duty. This is realized by a dedicated team of professionals in the public works who assist the customer in an efficient, timely and effective execution of public services (Heggie, 1999; Lamptey & Elle, 2000).

Challenges Facing Construction Project Delivery

Although every project, whether construction or other non-infrastructure projects come with their own peculiar challenges, those in the construction industry are quite similar and repetitive. One would think that construction projects ought to be easier with experience, however, these flaws continue to occur over and over again especially at the local government level. Many including technical staff of the PWDs have cited various reasons and challenges for the inability of projects under the PWDs to be executed within cost to the right quality and most importantly without delay.

Contractor Selection/Procurement Procedure

The practices and procedures for selecting contractors and awarding contracts in the construction industry is based on those used in the public sector (*Holt et al.*, 1994; Herbsman & Ellis 1992; Merna & Smith 1990; Moore 1985). These involve systems of bid evaluation dominated by the principle of acceptance of the lowest evaluated price (Nguyen, 1985). Many now believe that the public-sector system of bid evaluation, concentrating as it does solely on bid price, is one of the major challenges of project delivery problems (Holt et al., 1994; Ellis & Herbsman 1991; Bower 1989). Contractors, when faced with shortage of work are

more likely to submit low bids simply to stay in business in the short term and with the hope of somehow raising additional income through 'claims' or cutting costs to compensate for their low bids (Hatush & Skitmore, 1998).

Contractors' Financial Difficulties

Zagorsky (2007) specified that financial difficulty is said to be the situation where the credit of an individual is affected. The financial difficulties of a contractor as a result of unavailability of funds by the client (in this case the MMDAs) can affect the execution of the project. Situations where a contractor will require funding include payment for materials, the salary of labourers and the equipment used for the works. According to Thornton (2007), slow collection, low profit margin and insufficient capital constitutes three major causes of financial difficulties faced by contractors in rendering the necessary projects to be delivered. This assertion is endorsed by Arshi & Sameh (2005), Majid & McCaffer (1998), Frimpong *et al.* (2003), Sambasivan & Yau (2007) and Mansfield *et al.* (1994). The authors further established that clients' delay to pay contractors for work done would lead to the contractor facing financial difficulties and thereby affecting the delivery times of project. It tails that the succeeding works cannot be executed amidst the financial difficulties. The inadequacy of profit also contributes to the financial difficulties faced by contractors on project delivery. Coulter & Kelley (1992) affirms this and further indicate that the insufficiency of profit is overwhelming because it is warranted by economic conditions. Coulter and Kelley (1992) and Thornton (2007) both advocated that insufficient capital creates a major cause of financial difficulties faced by contractors to adequately complete their tasks on times, within budget and deliver it to their lawful owners. However, Liu (2010) also affirms and posits the assertion that, poor control of cost by the contractor can also contribute to inadequate capital and therefore, there will be massive debt on the contractor which will cause them to experience financial difficulties.

Labour shortage

Labour shortage according to Bruce & Dulipovici (2001) can be explained as the struggle involved in locating the right people with the requisite ability to

execute the work available. Labour scarcity is caused by numerous factors. Trendle (2008) indicated that the lack of skills in labour is an antidote of labour shortage and hence increase the demand for labour. It is instigated when the goods and services are in high demand. In the circles of construction, the increase in the purchasing power of clients increases the rate at which buildings are constructed to meet the demand. In that sense the demand for labour increases. Another contributing factor to labour shortage is the cost of foreign labour. Wang (2010) asserts that the economic crisis that is being experienced globally is another factor contributing to shortage in labour and thereby hindering the success of project delivery in the industry. He states further that people are comfortable living in low cost cities than high cost cities because of the cost involved in residing in high cost cities. Sweis et al. (2008) also stated manpower shortage as another contributor of labour shortage. This was also confirmed by Sambasivan & Yau (2007) who also found in their study that labour shortage is a dominating factor for project delivery time delays in the Malaysian construction industry.

Material shortage

Majid & McCaffer (1998) accentuated that the deficiency of materials stems from poor material planning, unreliable suppliers, inefficient communication and late delivery. According to Mochal (2003) an important mistake in project management is poor planning. Notwithstanding the aforementioned assertions, the authors further postulated that poor communication is another factor that contributes to material shortage. Another factor contributing to delay in delivery of materials is as a result of “unreliable suppliers”. According to Dada *et al.* (2003, 2007), an unreliable supplier is one who supplies materials short of the quantity ordered. When the materials ordered is not supplied to the right quantity, there is a clear case of material shortage and hence it affects successful project delivery.

Poor Communication

Dunkelberger (2009) reckoned that communication is an essential factor for the success or failure of projects ranging from the inception to completion for every business entity. Communication is thus a very important element and the failure to communicate

effectually affects a project. A misapprehension of what is being communicated between contractors and suppliers can lead to interruption in the delivery of materials.

Poor Site Management

The management of site by project managers is crucial to the success or otherwise of the project. Poor coordination of activities is a major contributor to delay of projects. Ineffective site management may occur in cases where the contractors do not have sufficient experience and the required knowledge to manage the project team (Kadir *et al.*, 2005). There is therefore the high expectation that project managers work onsite, this includes monitoring progress and the management of the administrative work of the project. It is important that the manager manages the work and workforce very well. The failure to manage the site effectively can lead to delay of the project delivery time (Yang & Ou, 2008; Sweis et al. 2008).

Unavailability and High Cost of Equipment and Tools

The contribution of tools and equipment involved in construction are either acquired through leasing or direct investment mainly by the contractor (Chang *et al.*, 1991). Some also acquire this equipment using a hybrid of the above methods. It is therefore important that the usage of the above be planned so that they are used to capacity. This has to be done according to the methods and the programme of the project. This is because leased equipment would have to be returned after the lease period. Yet again Joyce (2006) added that, there is a rise in the number of high rise buildings that are being constructed in recent times. This is due to the entrance of cranes in the construction industry. This has however contributed to shortage mainly because there are not enough crane suppliers to meet the demand for them. Another contributing factor is the high cost in outright purchase and even hiring. It is therefore not likely for contractors to increase the lease period when they are due. This is a perfect indication that the lack of effective planning of the usage of plant and equipment will cause shortages and affect the delivery time of the project. In the Russian construction industry, theft is a major contributor to shortage of equipment (Wendle, 2008). Shree (2007) accentuated that the renting cost for plants and equipment have increased by 30% to 40% within

some few years. The intensifying costs have affected contractors massively because of the financial difficulty they experience. This has therefore led to the shortage of tools and equipment and its associated effect on the quality and delivery time of projects to clients.

Management Problems

There are several parties engaged in construction projects. It ranges from owners through contractors to suppliers. However, the harmonization of these parties can be problematic. The difficulty in managing these parties can lead to delay in the final delivery stage of projects (Assaf *et al.*, 1995). Agreeing to the statement by Ali *et al.* (2008) and Kadir *et al.* (2005) also indicated that the incompetence to coordinate these parties can lead to construction project delivery delays. An example is where revised drawings are not released early enough for the contractor. This can lead to mistakes which will have to be rectified subsequently. This can lead to rework and hence an extension of the construction period and consequently its delivery time. Thus, an important ingredient to early project completion is the coordination of the parties involved.

Construction slipups and defective works

Failure to work to specification is a major cause of mistakes and defective works (Gerskup, 2010). The eminence of projects constructed in the Zambian construction industry is questionable due to poor workmanship by contractors (Zanis, 2010). Moreover, Kedikilwe (2009), also specified that poor workmanship contributes hugely to defective structures. Using low standard materials is one indicator of poor workmanship. Several structures collapse in countries that experience light earth quakes because of the poor-quality materials they are made of (Binici, 2007). It was also found that the reinforcement bars used in such structures had corroded and hence a reduction in their strength (Binici, 2007). A typical example is the shopping mall that collapsed in the capital city of Ghana some few years ago. Thomas (1991) indicated that where works are found to be defective, it has to be rectified but the rectification always leads to an extension of the project duration. Lack of precision in measurement from plans and specifications can also lead to mistakes in construction and extension of the project duration (Thomas, 1991; Table 1: Summary of challenges).

Table 1: Summary of challenges

Item	Challenges	Reference
1	Contractor Selection based on lowest bid	Russel and Skibnieswki (1998), Nguyen (1985), Holt et al (1994), Ellis and Herbsman (1991), Bower (1989)
2	Contractor's financial difficulties resulting from unavailability of funds by the Client to execute the project	Bestowing and Thornton (2007), Arshi and Sameh (2005), Majid and McCaffer (1998), Frimpong <i>et al.</i> (2003), Sambasivan and Yau (2007), Mansfield <i>et al.</i> (1994), Coulter and Kelley (1992)
3	Labour Shortage	Bruse and Dulipovici (2001)
4	Material Shortage	Majid and McCaffer (1998), Mochal (2003), Dada <i>et al.</i> (2003; 2007)
5	Poor communication	Dunkelberger (2009)
6	Poor Site Management	Kadir et al (2005), Toor and Ogunlana (2008), Sweis et al (2008)
7	Unavailability and high cost of Equipment and Tools	Wendle (2008), Shree (2007)

8	Management Problems	Assaf et al (1995), Ali et al (2008) Kadir et al (2005)
9	Construction Slipups and Defective Works	Thomas (1991)

Methodology

The research adopted a mixed methodology approach, thus qualitative and quantitative paradigms were the underpinning philosophies considered. The qualitative approach involved the use of semi-structured questions among top industry players including contractors, consultants and clients. The reason for the use of the semi-structured interview was to triangulate literature review findings in order to improve and expand the depth of the results. This was done by elaborating and exploring the experience of the practitioners in relation to the phenomena under consideration. This helped in achieving variables that were peculiar to conditions pertaining to the Ghanaian construction industry. The second stage considered quantitative technique which involved the collection of primary data based on the nineteen (19) identified variables in the previous stage. The sample for the data collection consisted of professionals at the MMDAs thus, representing the population of people who work at PWDs in relation to project delivery. The questionnaire utilized closed-ended questions to challenges of PWDs on construction project delivery at MMDAs. This was done by measuring respondents' perceptions on the level of severity using a Likert scale, where: 1 = lowest (challenge); 2 = low; 3 = high; 4 = higher; and 5 = highest. Thus, the numerical representation, statistical analysis and subjectivity were the underlying individuals' perceptions.

Sample Size and Sampling Technique

The study focused on the professionals at PWDs within MMDAs in the following regions: Central, Brong Ahafo and Volta. The main reason for using this category of people was that their activities directly have a bearing on project delivery within the study area which is the scope for the study. The

researcher decided to undertake the research in only the three regions mentioned due to resource constraints. In this study a total number of 30 professionals were targeted in each of the three selected regions namely: Brong Ahafo, Central and Volta regions, thus, certifying the central limit theorem which states that 30 is an adequate sample in a survey research context (Kar & Ramalinga, 2013). Hence, a total number of ninety (90) professionals were considered for the study. In all, six PWDs were considered for each region, for each, five professionals were considered which included: An engineer (2), planner (1), director (1) and a contractor. This gave a total number of five (5) professionals per each selected PWD (See Table 2). In addition, the study adopted purposive and snowballing sampling techniques. The purposive sampling technique helped the researcher to exercise his or her own judgement about who will provide the best perspective of the area under consideration (Polit & Hungler, 1999). Hence, the study intentionally invited specific professionals who work directly in PWDs within the MMDAs in the selected regions. This study was further accomplished through the use of snowballing technique due to the difficulties encountered in having access to the respondents using purposive sampling. According to De Vos (1998), snowball sampling is valued in research as it is focused on individuals hard to find. Employing this method, some likely respondents were known and then asked whether they know any other respondent with the characteristics that we are looking for in the research. This technique was employed to identify hard-to-get respondents. Professionals who were easy to locate in the municipality/region were contacted to give lead to other professionals with the same characteristics. Respondents had enough working experience with MMDAs as 29% had 1-5years' experience, 31% had

worked with the assembly between 6-10 years, while 26% had 11-15years experience and the remaining 15% had above 16 years working experience. In addition, these respondents had high educational backgrounds with 23% having Higher National

Diploma, 42% with Bachelor Degree, 21% with Master of Science Degree and 14% with Masters of Philosophy indicating the level of credibility with the data collected.

Table 2: Targeted Respondent at MMDA's in Selected Regions

Region	MMDA's	Professionals targeted per MMDA	Targeted no. per MMDA	Total respondents per region
Central	1. Assin South District			
	2. Assin North District	Engineers (2)		
	3. Asunafo South	Planners (1)	5	30
	4. Cape Coast Metropolitan	Directors (1)		
	5. Abura Asebu Kwamankese	Contractors working in the District (1)		
	6. Gomoa West			
Volta	1. Ho Municipal	Engineers (2)		
	2. Ketu North	Planners (1)	5	30
	3. Krachi West	Directors (1)		
	4. Krachi East	Contractors working in the District (1)		
	5. Kadjebi			
	6. Nkwanta South			
Brong Ahafo	1. Asunafo South			
	2. Asutifi South	Engineers (2)		
	3. Kintampo North Municipal	Planners (1) Directors (1)	5	30
	4. Nkoranza North	Contractors working in the District (1)		
	5. Sunyani Municipal			
	6. Sunyani West			
Total	18 MMDA's	5 per Each		90

Data Analysis

This section of the paper present analysis of the data collected from the field. The nineteen (19) challenges identified were analysed using both mean and Relative Importance Index (RII) to determine the level of severity in terms of importance to project delivery (see Table 3).

$$RII = \frac{\sum P_i U_i}{Nn}$$

N (n) Where RII = Relative importance index

P_i = respondent rating of severity of the challenges

U_i = respondent 's placing identical weighting or rating

N= sample size; n =the highest attainable score

Table 3: Challenges to Project Delivery

Challenges	Mean	RII	Rank
<i>Weather and other environmental challenges</i>	4.26	0.851	1st
<i>Equipment and Tool Shortage</i>	3.77	0.754	2nd
<i>Labour Shortage</i>	3.68	0.735	3rd
<i>Poor Site Management</i>	3.50	0.700	4th
<i>Material Shortage</i>	3.45	0.690	5th
<i>Unrealistic timelines for project delivery</i>	3.42	0.683	6th
<i>Contractors' Financial Difficulties</i>	3.40	0.680	7th
<i>Inadequate logistics</i>	3.40	0.680	7th
<i>Inefficient Contractor selection methods and procedure</i>	3.40	0.680	7th
<i>Lack of coordination and cooperation of other stakeholders</i>	3.40	0.680	7th
<i>Influence of Processes by Political Heads</i>	3.37	0.674	11th
<i>Inadequate Human Resource to carry out supervision</i>	3.35	0.671	12th
<i>Changes in the scope of work and un-workable designs.</i>	3.29	0.658	13th
<i>Non-involvement of technical personnel during design and planning of projects</i>	3.29	0.658	13th
<i>Delays in Disbursement</i>	3.26	0.651	15th
<i>Construction Slipups and Defective Works</i>	3.24	0.648	16th
<i>Insufficient revenue mobilization.</i>	3.13	0.625	17th
<i>Poor Project Management</i>	3.048	0.609	18th
<i>Policies regulating the work of technical personnel of the PWD's</i>	2.967	0.593	19th

Discussion

Weather and Other Environmental Challenges

Weather and other environmental challenges with relative index of 0.851 were ranked first as the extremely important cause of delay by respondents. Weather and its attendant environmental challenges act as a great deal of a challenge to project delivery. Ghana as a developing country is faced with a myriad of problems in project delivery. The meteorology department is ill-equipped to predict weather events with a high degree of accuracy. Even with the most sophisticated technology available, forecasts are still subject to wide variability and questionable accuracy in the developed world. Therefore, this poses a challenge to PWDs in effective and efficient delivery on projects without time and cost overruns. According to Muir (2005), construction managers remain at the mercy of the weather. It is particularly wearisome to those engaged in heavy civil work, site development and activities that involve earthwork or other weather sensitive operations.

Unrealistic Timelines for Project Delivery

From the findings of the study, it was realized that unrealistic timelines for project was a huge challenge in project delivery amongst PWDs in Ghana. This the respondents attributed to other challenges such as inadequate designs, poor estimates etc. One of the interview participants argued that:

“Sometimes contractors are made to go to site without design drawings to begin with. This situation leads to projected project duration which were too low to begin with”.

This assertion is in line with Agyeman et al., (2016) who argue that within the Ghanaian road sector some contracts were signed without project designs. The designs were prepared after the contractor had moved to site. This situation resulted in design errors as engineers were under pressure to produce the designs. These errors were not detected earlier resulting in project delays and costly reworks.

Influence of Processes by Political Heads

Political influence is a major challenge to project delivery within PWDs. Political heads try to influence the processes by bringing in party-faithful for the award of contracts. This is a major challenge to project delivery as most of them are not competent to carry out these works. On the other hand, when there is a change of government projects are sometimes repackaged and given to the new contractors. In the worst-case scenario, projects are sometimes abandoned all together for new projects. According to Asante (2014) *“In many areas of business, success comes down to who you know rather than what you know. This is especially true of government contracts where political affiliations can make all the difference in securing a contract. Political pressures influence contract decisions such as awarding many contracts to a particular contractor at a time; not based on competition and also awarding contracts without making budget allocations”*

Inadequate Logistics

Logistic supply challenges in the government sectors remain a common phenomenon in all MMDAs. The general assertion has been that government’s work generally delays. This inadequacy has the tendency to affect project delivery, as any delay will influence the cost, time and quality. Effective logistics management is one of the major factors for productivity increase, as such the need for efficient project delivery (Abdulmohsen & Janaka, 2011). Logistics therefore should be planned and coordinated efficiently; however, its achievement in terms of the materials, tools and equipment is a difficult task (Jha & Iyer 2006). Furthermore, an improvement in logistics systems in the project delivery will lessen the cost sustained in low productivity and reduce unnecessary cost associated with transportation and handling of construction materials (Shakantu *et al.*, 2003). Inadequate logistics in the construction processes in various MMDAs have brought most construction projects to a standstill. Further indication in the industry shows that this trend will continue, as policy makers are reluctant in planning before any development project start. Public Procurement Act 663 of 2003 section 21 stipulates that ‘all procurement entities including MMDAs, shall prepare a procurement plan to support its approved programmes’ including contract packages. However, according to the Public Procurement Authority (2010; 2011) 66 out of the 1000, and 32 out of 1,046 entities

respectively submitted their plans, rendering inadequate logistics management.

Inadequate Human Resource to Carry Out Supervision

Human resource is an integral part of the construction processes, thus in every construction process the initiator, spear-header and driver is the human resource involved. Successful project delivery among other factors is dependent on the human resources managing the projects. Furthermore, effective human resource management enables workers to increase the level of productivity in achieving the company’s aim and visions. In the construction industry, it remains a vital ingredient when it comes to project delivery as effective and efficient supervision rides on their shoulders. The success of a project invariably depends on the level of supervision of the project or the managerial skills of the project manager or the site supervisor (Zwikael, 2009). MMDAs’ inability to supervise construction projects effectively has resulted in a lot of conflicts, variations and poor site co-ordination. These results stem from the inadequate knowledge base of professionals who are meant to be in-charge of the construction processes.

Conclusion

From the findings and the discussions of this study, it was noted that there are a considerable number of challenges associated with construction project delivery among professionals working in the PWDs within MMDAs. Challenges that were found and ranked according to their levels of severity includes weather and other environmental challenges, equipment and tools shortage, labour shortage, poor site management, material shortage, unrealistic time lines for project delivery, contractors’ financial difficulties, inadequate logistics, inefficient contractor selection methods and procedure, lack of coordination and cooperation of other stakeholders. These were the most ranked challenges according to the data obtained from respondents and discussed in the previous sections of this study. The following are recommended based on the findings of the study:

- There is the need for central government and other managers of the economy to put the needs of PWDs high on the priority list and provide them better incentives and logistics for them to be able to perform their roles effectively;
- In addition, there should be a policy that will regulate when governmental agencies and

organisations should embark on infrastructural projects;

- Furthermore, PWDs must follow the procurement laws and rules for contractors, consultants or service providers' selection so as to procure very suitably qualified personnel for projects.
- Issues such as resources, technological abilities, finances and experience should be key determinants of who shall be engaged to ensure slip-ups are kept to the minimum in project delivery; and
- Finally, it is also recommended that, further studies should be done to establish the specific roles of the professionals at the PWDs. This is because the researcher observed that there were many professionals whose roles were not well defined. This will enhance and contribute to better performance by the PWDs in managing projects and contribute to better construction project delivery in the Ghanaian Construction Industry.

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