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COLLEGE OF ARCHITECTURE AND PLANNING

DEPARTMENT OF BUILDING TECHNOLOGY

Performance of District Assembly Consultants on Common Fund Projects Based on Iso 9000

Quality Management Systems

KNUST

By

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requirements for a degree of MASTER OF SCIENCE in Construction Management

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## DECLARATION

I declare that I have wholly undertaken the research reported herein under supervision.

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KNUST

I declare that I have supervised the student in undertaking the research reported herein and I confirm that the student has effected all suggested corrections by the examiners.

Prof. J. Ayarkwa

SUPERVISOR

DATE

I confirm that the student has effected all the necessary correction pointed out by the examiners.

PROF. J AYAKWA

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DATE

## DEDICATION

This report is dedicated to my dear wife Rebecca and lovely kids, Kekeli and Shade who have had to endure my absence for long periods.

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## ABSTRACT

The quality of service delivered by consultants has not been a subject of thorough investigation because clients have underestimated the impact of substandard consultancy service to the success of a construction project. Many of the problems in construction can be traced to consultants. Consultants supervise projects on behalf of most District Assemblies in Ghana. Evaluation of project consultants is a means of ensuring that consultants are aware of their performance for continuous improvement. ISO 9000QMS certification guarantees benefits to both client and consultants.

The objective of this study was to assess the performance of District Assembly project consultants. In order to assess the performance of consultant, a list of roles of building consultants developed by Hong Kong Housing Authority, a public agent in Hong Kong was adopted as the roles of consultants. A questionnaire was administered to a sample of 80 District Assemblies by post and in person. An incremental scale was developed, system of weights and rating was used to assess the importance of each role.

Results showed that District Assemblies considered design solution, presentation of drawings, quality of tender documents, tender evaluation, supervision of contractors and quality of end product, final measurement and final account the most important roles of consultants within the list of roles used as the evaluation criteria. District Assemblies were of the opinion that consultants performed well in their recommendations, reports, design quality of tender documents, tender evaluation, handling of claims and final measurements. District Assemblies were also of the view that consultants performed poorly in their final drawings, presentation of drawings, collection of information during the design phase and cost estimates

during design and construction phase. Overall, consultants achieved a slightly above average performance composite mark of 62%.

Results also showed that of the documented benefits of ISO 9000 implementation, increasing accuracy of project budget estimation, saving cost, promoting communication with client, meeting clients' deadline and reducing time for responding to queries were considered important by the District Assemblies. There was also a significant difference in the expected benefits of ISO 9000 implementation and the level of benefits achieved from consultants.



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# CHAPTER ONE

## KNUST

### INTRODUCTION

#### 1.1 Background Information

The Oxford English Dictionary (2008) defines a consultant as a person who provides expert advice professionally. The Institute of Management Consultancy (IMC) define consultancy as “a service provided to business, public and the other undertakings by an independent and qualified person” (IMC cited in McLarty and Robinson, 1998). A consultant usually works for a consultancy firm or is self-employed, and engages with multiple and changing clients. In the construction industry, consultants refer to Engineers, Architects, Planners, Quantity Surveyors and Project Managers acting on behalf of clients on projects. Some clients are not wholly satisfied with the performance achieved on many of their projects, with the blame for failures often attributed to both consultants and contractors (Kometa and Olomolaiye, 1997). The quality of service delivered by contractors have been subject to so many investigations locally and internationally but the quality of service delivered by consultants have seldom been a subject of thorough investigation; as certain clients have under-estimated the impact of substandard consultancy service to the success of a construction project (Barber et al, 2000; Hattan and Lalani, 1997).

Indeed, many delays, cost overruns, reworks, variations resulting in claims and disputes can be traced back to erroneous design, poor contract administration and/or lax supervision of the client's representative- the consultant (Chini and Valdez, 2003). Deming (1982) argued that 85% of the problems in the delivery of goods and services are caused by the system, and firms which do not have a clear definition of responsibilities, and those which lack good communication and feedback channel.

Section 10 of the Local Government Act 462 of 1993 tasks District Assemblies (DAs) in Ghana to be the highest political and administrative body in the District with responsibility for the overall development of the District. Specifically, DAs are to, among other things, initiate and monitor the execution of basic infrastructural projects. Most projects of DAs are handled on their behalf by consultants because the DAs in many cases lack capacity to supervise (Osei Assibey, 2005). Osei Assibey (2005) further state that the District Assemblies' Common Fund (DACF) has contributed immensely to the provision of developmental projects in the districts. To improve on the quality of infrastructure at the district level, there is the need to evaluate the work of all the stakeholders involved including the consultants.

A major purpose of quality management is to improve systems and processes so that continual improvement of quality can be achieved. A Quality Management System (QMS) consists of a group or list of guidelines, disciplines and processes that together are aimed at achieving customer satisfaction or continuous improvement (Latham, 1994). Implementation of a QMS can minimize errors induced by a system (Latham, 1994). Among various QMSs available is the ISO 9000 Quality Management series of standards which is applicable to different sectors of industry and business. Although certification is not a compulsory requirement of the standard, it has been widely adopted by the construction industry of many countries (Ofori



and Gang, 2001; Henry, 2000; Landin, 2000). In some countries, all consultants must have certified ISO 9000-based QMS before they can bid for public construction projects (Hong Kong Housing Works Bureau, 2001).

In Ghana, it is not mandatory for a service firm to be ISO 9000 certified but implementation of ISO 9000-based QMS could improve the quality of the service rendered by firms, and hence their client's satisfaction, market share, revenue, and workers' morale (Caldwell and Hagen, 1994). In spite of the fact that some researchers claim that the primary reason for certain consultants to seek certification is to satisfy the mandatory requirement rather than taking the full advantage of ISO 9000-based QMS to enhance their practices on a continuous basis (Tang and Kam, 1999), evidence also suggest that there is an overall belief that there are benefits in implementing the ISO 9000 QMS.

As the business environment is becoming more competitive, the success of a consultant depends on the quality of professional service rendered to clients at different stages of a project and whether the client's interest is ensured throughout. Global and local competition, the drive to pursue international construction export, achieve higher client satisfaction and need for continuous improvement of the consultant make ISO 9000-based certification of consultant a necessity in Ghana. ISO 9000 (2000) places emphasis on customer satisfaction and continual improvement (Goetsch and Davis, 2002) which should be the primary focus of any consultant.

## **1.2 Problem Statement**

Osei Assibey (2005) in a study of a district in Ghana found that most projects were handled by consultants on behalf of the DA. Botchway (2000) also had earlier reported that DAs used

consultants because they had inefficient structures. They also lacked the capacity to monitor and evaluate their consultants. It thus can be inferred that DAs rely immensely on consultants because of inefficient structures.

According to Obolennsky (2001), the solution, for those who wish to become masters of implementation, is to be accurately aware of what is happening, so as to anticipate better the pitfalls. Love et al (1998) stated that continual improvement can only be realized if consultants are aware of their deficiencies and make corresponding adjustment to satisfy the expectations of their clients. Making up for identified deficiencies and the need for continual development are very relevant to the Ghanaian building consultant, and the DA, hence this study.

### **1.3 Aim**

The aim of this study was to evaluate the performance of consultants on DACF to improve quality of delivery.

### **1.4 Study Objectives**

The study sought to assess the overall satisfaction of DAs with the quality performance of consultants based on ISO 9000 Quality Management Systems(QMS) by undertaking the following assessments:

1. The roles of consultants in construction projects.
2. The performance of consultants on DACF projects.
3. The opinion of DA clients on the benefits of ISO 9000 QMS.
4. The overall satisfaction of DA with consultant's performance.

### **1.5 Research Questions**



The study sought to find answers to the following research questions:

1. Which roles of project consultants are most important to DA clients?
2. How have DA project Consultants performed on District Assembly Common Fund projects?
3. Is there any significant difference between the expected benefits of ISO 9000 QMS implementation and the actual benefits DAs derive from consultants?

### **1.6 Scope of Study**

The study covered DAs from all ten regions of Ghana and focused on District Assembly Common Fund (DACF) Projects. The DACF is the source of funds for most construction projects of DAs, and such projects have similar characteristics.

### **1.7 Research Process**

A comprehensive process was adopted for this research. It involved an initial preliminary survey by conducting informal interviews with experienced consultants and project staff of Kumasi Metropolitan Assembly. From this, the problem and the scope of the study were defined. A plausible theoretical framework for evaluation was also identified through literature after which the research was designed, data collected, analysed and interpreted.

The study focused on consultants of DACF projects. A combination of postal survey and face to face administration of the questionnaire was used to cover all ten regions of Ghana.

A system of relative weights representing the importance of the evaluation criteria to DAs and scores representing performance of consultants were combined to ascertain the performance of consultants. Analysis of Variance was employed to confirm whether significant

differences existed between the expected benefits of implementing ISO 9000 based QMSs and the actual benefits derived from consultants.

### **1.8 Presentation of Study**

The report is presented in a five chapter document. Details of the chapters are as follows:

- Chapter One - General introduction.
- Chapter Two - Review of existing literature on performance, consultants, clients' needs and satisfaction, quality management systems, the ISO 9000 series and District Assemblies.
- Chapter Three - Methodology.
- Chapter Four - Analysis /Discussion of Results.
- Chapter Five - Conclusion and Recommendations.

### **1.9 Value and relevance of study**

This study is of value to consultants who wish to know what their DA clients think about their performance. It is also of importance to consultants who wish to improve on their output and increase the satisfaction of their clients. The result of the study is also of value to building consultants in Ghana who wish to realize their deficiencies for continual improvement in their capacity.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.0 Introduction**

The subject of performance evaluation is encountering increasing interest in both the academic and managerial circles. This, for the most part, is due to the broadening spectrum of performances required by the present-day competitive environment and the new production paradigm (Dixon et al., 1990). The main driver behind this thinking is the need to optimise an organisation's performance both internally and externally within its respective marketplace. In construction, consultants are key stakeholders whose action and inactions have appreciable impacts on projects in the industry. In order to safeguard the interest of clients and promote efficiency within the industry, performance evaluations are necessary to ensure that projects meet clients' expectations in terms of cost, time and quality. District Assemblies in Ghana were set up to initiate and execute programmes and projects for the development of basic infrastructure in their areas. These Assemblies lack the capacity to solely supervise their development project, hence rely heavily on consultants. The performance of these consultants need to be evaluated regularly to ensure that they are delivering on their roles as well as improve their performance. The ISO 9000 Quality Management System (QMS) seeks to continually improve product quality and services in relation to requirements and improve the quality of operations to continually meet customers and stakeholders stated and implied needs.

#### **2.1 Performance Measures and Measurement**

The term 'performance' can take on different meanings depending on the context in which it is being used. Traditionally, it has been used to measure the effectiveness (doing the right thing) and efficiency (doing the right thing right).

A performance measurement system can be defined as the set of metrics used to quantify both the efficiency and effectiveness of actions (Neely, 1999). It is thus systematic way of evaluating the inputs and outputs in manufacturing operations or construction activity and acts as a tool for continuous improvements (Mbugua *et al.*, 1999).

Measures draw focus and attention to specific work processes and results. This focus and the resulting efforts to change will cause work processes to be improved and results to get better {Construction Users Round Table (CURT), 2005}.

### **2.1.1 Performance Indicators**

According to Mbugua *et al.*, (1999), performance indicators state the measurable evidence necessary to prove that a planned effort has achieved the desired result. In other words, when indicators can be measured with some degree of precision and without ambiguity they are called measures. However, when it is not possible to obtain a precise measurement, it is usual to refer to performance indicators. Performance measures are numerical or quantitative indicators (Sinclair and Zairi, 1995). In response to calls for continuous improvement in performance, many performance measurements have emerged in management literature.

Examples include:

Financial measures

Client satisfaction measures

Employee measures

Project performance measures (Mbugua *et al.*, 1999).

## **2. 1.2 Methods of Performance Measurements**

The methods of measurement of performance can be assessed in terms of the technical performance, commercial performance and overall performance. The areas of measurement are at the planning and design level, marketing level, manufacturing level, and the overall performance at the level of a firm or strategic business unit (Mbugua et al.1999).

### **2.1.3 Performance Dimensions**

Performances can be conceptually divided into two (Toni and Tonchia, 2001); these are:

(1) **Cost performances**, including the production costs and the productivity. The cost performances are distinguished for having a direct link, explicable by mathematical formulae with the final results of the firm, that is net income and profitability;

(2) **Non-cost performances**, regarding the time, flexibility and quality. The non-cost performances are generally measured by non-monetary units of measure, and as far as they influence the economic and financial performances (net income and profitability), the link with them cannot be calculated in a precise manner as for the cost performances:

Performances concerning quality can be differentiated into four kinds; these are:

- Produced quality;
- Perceived quality;
- In-bound quality (or the quality of the suppliers);
- Quality costs (De Toni et al., 1995)

### **2.1.4 Importance of Performance Evaluation**

What gets measured gets improved (CURT, 2005) is a summary of the importance of performance evaluation. Neely (1999) identified seven reasons why performance management has now become so important. These are:

- (1) The changing nature of work;
- (2) Increasing competition;
- (3) Specific improvement initiatives;
- (4) National and International awards;
- (5) Changing organisational roles;
- (6) Changing external demands;
- (7) The power of Information Technology

### **2.1.5 Trends in Performance Measurements**

Elattar (2009) identified three trends of measuring performance. These are:

#### **Project success-meeting objectives.**

This trend assumes that all projects stem from the needs or objectives of a client. It is obvious that if these objectives are achieved, the project is claimed to be successful. These objectives can be evaluated in terms of cost, schedule, and quality.

**Project success-global approach.** Several classifications of the performance measures have evolved to achieve a global approach. One classification establishes a conceptual framework for measuring construction project success from both objective and subjective points of view.



Other classifications consider the "hard" and "soft" sides of project success criteria; with time and cost being "hard" and satisfaction being "soft."

**Project success-beyond project.** Apart from considering the goal attainment of project success, more emphasis is placed on the assessment of the positive effects brought about by the project to judge success. The success of a project can be assessed along by four distinct dimensions; project efficiency, impact on the customer, direct and business success, and preparing for the future. In addition, attainment of such goals as satisfaction, absence of conflicts, professional image, aesthetics, and educational, social, and professional aspects are considered indicators of project success.

#### **2.1.6 Performance Evaluation in the Construction Industry**

Construction project development involves numerous parties and various processes with the major aim being to bring the project to a successful conclusion. According to Wang (1994), as construction is becoming more complex, a more sophisticated approach is necessary to deal with initiating, planning, financing, designing, approving, implementing and completing a project. The level of success achieved on construction projects will depend heavily on the quality of the managerial, financial, technical and organisational performance of the stakeholders; taking into consideration the associated risk, the business environment, and economic and political stability (Takim and Akintoye, 2002).

The common assessment of the success of construction projects is that they are delivered on time, to budget, to technical specification and meet client expectation (Momani, 2000). However, criteria for success are in fact much wider, incorporating the performance of stakeholders, evaluating their contributions and understanding their expectations (Atkinson *et*

*al.*, 1997). Construction projects potentially typically have six sets of stakeholders; namely the client, consultants, contractor, suppliers, end-user and the community (Takim and Akintoye, 2002).

According to Atkinson, *et al.*, (1997), successful construction project performance is achieved, when stakeholders meet their requirements, individually and collectively. This includes performance by consultants.

## **2.2 CONSULTANTS AND CONSULTANCY**

It is generally accepted that business consultancy first appeared at the beginning of the twentieth century, when Frederic Taylor first published his treatise on Scientific Management in 1911 (Massey, 2003). Wikipedia (assessed 25 Oct 2010) also defines a consultant as an expert or a professional in a specific field who has a wide knowledge of the subject matter. The Institute of Management Consultancy (IMC) define consultancy as “a service provided to business, public and the other undertakings by an independent and qualified person” (IMC cited in McLarty and Robinson, 1998). Greiner and Metzger (1983) also define consultancy as “an advisory service contracted for and provided to organisations by specially trained and qualified persons who assist, in an objective and independent manner, the client organisation to identify management issues, analyse such issues, recommend solutions to them and help when requested in the implementation of solutions”. Studying Greiner and Metzger’s (1983) definition reveals that a consultancy or a consultant requires specific skills and a specific level of knowledge in order to help clients identify the problems encountered. Arnaud (1998) suggests that consultancy begins when an organisation expresses a ‘client-request’ before a professional.



### **2.2.1 Consultants and Consultancy in the Construction Sector**

Consultants have been in the construction sector for a long time. As reported by Stokes and Wilson (2006), the earliest forms of consultants were reported in the middle ages as men who directed resources provided by others and managed large projects such as cathedrals and castles for wealthy landowners. The technical and contractual intricacies of today's infrastructure and construction projects and regulations of some nations necessitates the appointment of project consultants to preserve the rights and interests of the client (Chow and Ng, 2007), thus the increasing trend of use of consultants to supervise projects on behalf of clients.

### **2.2.2 Importance of Project Consultants**

Consultants are key players in a construction project as they serve to uphold the interests of their client and prospective users throughout the whole project cycle (Chow and Ng, 2007). According to Cooley (1994), a competent and reliable project Consultant is crucial to the success of a construction project. They could bring genuine and long lasting values to the client through innovative, functional, safe, environmental-friendly design, well controlled budget and programme as well as ensuring an easy to maintain facility (FIDIC, 1997 and CIB 1997).

Additionally, the role of a consultant in dealing with the project from concept to commissioning is a vital component of project management and requires a total integration of consultancy services with the project management services as a key to the project's success (Keshav 2002). Chow and Ng (2007) stated that consultants should provide all the engineering services for the proper and efficient execution of the construction, from the time the client approves the design till the completion of the project. Consultants get involved in

all aspects of project implementation and are required to develop efficient control parameters of project management to provide deliverables at faster rate and in the most cost effective manner.

### **2.2.3 Types of Project Consultants**

In the construction sector, there are different types of professionals providing advisory services to help achieve the clients' goal. These professionals, depending on the procurement process being adopted by the client for the project execution, may be employed directly by the client in his organisation or as consultants, depending on the size, and complexity of the project, the clients' organisation and the national policy regulation (Chow and Ng, 2007). For a typical construction process, the services of the following experts may be required:

1. Architects
2. Quantity surveyors
3. Structural engineers
4. Services engineers
5. Mechanical and Electrical engineers.
6. Project Manager

Depending on the procurement process being used by the client, a single firm acting as the lead consultant will provide all these services from in-house resources or employ other sub-consultants to render these services or the client might request the services of different consultants from the different areas of speciality. There are other specialised areas in construction which require higher levels of specific expertise such as geomatic engineers, geological engineers whose expertise are required in very large and complex projects.

For the purpose of this study, a consultant will be defined as that firm or individual providing or facilitating the provision of the whole range of advisory services required by a client on a project.

#### **2.2.4 Performance Indicators for Construction Projects**

Key Performance Indicators (KPI) are factors critical to success. Different firms and clients have different indicators for measuring success (Takim and Akintoye 2002). The UK working group on Key Performance Indicators (KPIs) identified ten parameters for benchmarking projects in general, in order to achieve a good performance. These consist of seven project performance indicators and three company performance indicators. The project performance indicators are:

- Construction cost
- Construction time
- Cost predictability
- Time predictability
- Defects
- Client satisfaction with the product
- Client satisfaction with the service

Company performance indicators identified are:

- Safety
- Profitability
- Productivity

#### **2.2.5 Performance Indicators of Consultants**

Two sets of indicators were identified by the Consultants' Performance Indicator Report UK (2003) as being indicators of consultants' performance. The first set of indicators relate to

the client satisfaction with the consultant's performance in a number of areas (Client Satisfaction Indicators) and second set of indicators relate to the performance of the company or consultant (Company Indicators). The report lists the Consultants performance indicators relating to client as:

- Overall performance;
- Value for money;
- Quality of service;
- Timely delivery;
- Health and safety awareness;
- Technical innovation;
- Problem solving;
- Whole life issues;
- Environmental impact.

The report also list Consultants performance indicators relating to their firms as having:

- Quality management system
- Risk management system
- Performance management system
- Repeat business
- Successful fee proposals
- Productivity
- Training

Takim and Akintoye (2002) also stated the under-listed factors as indicators of performance by consultants during the complete project phase. These indicators are:

- Good working relationship;
- Competency;
- Consultation mode;
- Commitment;
- Strategic cost advice;
- Meeting functional requirements;
- Meeting technical specification;
- Proper communication;
- Team Management;
- Project interfaces;
- Coordination;
- Accountability;
- Conflicts management style;
- Communications and reporting;
- Quality control system;
- Quality assurance;
- Dispute resolution process;
- Profitability;
- Future Jobs;
- Learning and growth;
- Generated positive reputation;
- Harmony;
- Absence of any legal claims and proceedings;
- Increasing the level of professional;

Indeed, comparing these two sets of indicators reveal that there are a number of similarities, particularly with indicators that relate to client satisfaction.

## **2.3 QUALITY MANAGEMENT SYSTEMS**

### **2.3.1 Quality**

Quality is a confusing concept difficult to define. It has been described differently in many perspectives depending on the individual's perspective. A definition that is able to fundamentally capture most concepts is "quality is meeting or exceeding a customer's expectation" (Evans and Lindsay, 2008). ISO 8402 defined quality as the degree of excellence in a competitive sense, such as reliability, serviceability, maintainability or even individual characteristics. According to Noori (1990), quality is important for four reasons, namely cost, competitive advantage, reputation and sustainability. Evans and Lindsay (2008) report the under-listed responses by managers in Eastern America to describe of quality:

1. Perfection;
2. Consistency;
3. Eliminating waste;
4. Speed of delivery;
5. Complying with policies and procedures;
6. Providing a good and usable product;
7. Doing it right the first time;
8. Delighting the customer;
9. Total customer service and satisfaction.

### **2.3.2 Perspectives of Quality**



Quality as a concept can be viewed from many perspectives. Evans and Lindsay (2008) explained that there are at least five different perspectives from which quality can be viewed. These are:

**Judgemental perspective.** The judgemental perspective is often used by customers who associate quality with superiority or excellence. Judgmental perspective describes quality as both absolute and universally recognised as well as a mark of uncompromising standards and achievement.

**Product -based perspective.** The product based perspective defines quality as a function of some specific and measurable variable and that differences in the variable reflect differences in quality. Thus higher amounts of the variable reflect higher quality.

**User-based perspective.** This perspective of quality is based on the presumption that quality is determined by what the customer wants. Thus as customers have varying wants, they have different quality standards. Hence quality from the user-based perspective is defined as a fitness for purpose.

**Value based perspective.** This perspective links the quality of any item to value. It links the usefulness or satisfaction derived from the item to value. From this perspective, a quality product is one that is as useful as competing products and is sold at a competitive price.

**Manufacturing-based perspective.** This perspective views quality from the desirable outcome of engineering and manufacturing practice where conforming to specification is

deemed to be very important. Thus items are of good quality if they meet specification in manufacturing. In the service sector, quality would be seen as delivering a service on time.

Defining quality in manufacturing organizations is often different from that of services.

Manufacturing organizations produce a tangible product that can be seen and relies on conformance, performance, reliability and serviceability. However, in the service sector which produces intangible products, perceptual factors such as courtesy, friendliness and response to customer needs and complaints are used to judge quality (Reid and Sanders, 2007).

### **2.3.3 Quality Management – Definitions**

The following definitions were adopted for the purpose of this research:

**Quality.** Quality is defined as the measure of the fitness of the product and its parts to fulfil the purpose defined in the brief or “conformance to established requirements”.

**Quality Management.** Quality Management is that aspect of the overall management function of the project which determines and implements the quality policy. The quality policy hinges on achieving the client’s requirements (which are set in the brief, embodied in the project drawings and specifications). Quality management embraces all the actions which the project management takes to achieve its quality policy.

**Quality System.** This system is defined as a project organizational structure, responsibilities, procedures, processes and resources for implementing quality management.



#### **2.3.4 Evolution of Quality Management**

The concept of quality has existed for many years, but meaning has changed and evolved over time. Before the early twentieth century, quality management meant inspecting products to ensure that they met specifications (Reid and Sanders, 2007). This is evident in the Egyptian wall painting circa of 1450BC which showed evidence of measurement. Stones used in the pyramids which were cut so well that a knife could not go between them (Evans and Lindsay, 2008). According to (Reid and Sanders, 2007) around 1940s, during World War II, quality became more statistical in nature. Statistical sampling techniques were used to evaluate quality, and quality control charts were used to monitor the production process. In the 1960s, with the help of so-called “quality gurus,” the concept took on a broader meaning. Quality began to be viewed as something that encompassed the entire organization, not only the production process. All functions were responsible for product quality and shared the costs of poor quality. However, in the 1970s and 1980s many U.S. industries had to make changes to their quality policies when they lost market share to foreign competition particularly in the auto industry. Many hired consultants and instituted quality training programs for their employees (Reid and Sanders, 2007).

#### **2.3.5 Quality Management**

Quality management (QM) is a people focused management system that aims at continual increase in customer satisfaction at continually lower cost (Evans and Lindsay, 2008). Burati and Oswald (1993) describe QM as a journey, not a destination which requires a complete turnaround in corporate culture and management approach as compared to the traditional way of top management giving orders and employees merely obeying them. It is believed that the single most important determinant of the success of an organization in

implementing QM is its ability to translate, integrate, and ultimately institutionalize QM behaviours into everyday practice (Pheng and Teo, 2004). Motwani (2001) adds that implementing QM is a major organizational change that requires a transformation in the culture, process, strategic priorities and beliefs of an organization. In summary, QM is an approach to improving the competitiveness, effectiveness, and flexibility of a whole organization. It involves effort by everyone in an organisation to understand, meet and exceed the expectations of the customer.

### **2.3.6 Principles of Quality Management.**

Quality Management is based on three fundamental principles (Evans and Lindsay, 2008); these are:

1. Focus on customer and stakeholders;
2. Participation and teamwork by everyone in the organisation;
3. A process focus supported by continuous improvement and learning.

### **2.3.7 Philosophies and Frameworks of Quality Management Systems**

A discourse through literature reveals that there are a number of luminaries who have developed and shaped the concept of quality management. Notable among them are the Deming, Juran, Crosby, Feiigenbaum, Ishikawa and Taguchi who developed their own philosophies about Quality Management principles (Evans and Lindsay, 2008);

#### **2.3.7.1 The Deming Philosophy**

Throughout literature, no individual has had more influence on quality than Dr W Deming (Evans and Lindsay, 2008). The main philosophy of Deming stated that variation is the chief culprit of poor quality (Deming, 1986). Deming developed the chain reaction theory

that stated that improvement in quality led to lower costs which led to less re-works fewer delays and hence better use of time and materials. This in turn led to productivity improvements, and higher market share as a result of better quality. This ultimately led to lower prices consequently helping a firm to stay in business.

#### **2.3.7.2 The Juran Philosophy**

Juran proposed fitness for use as a definition of quality. He did not propose major cultural changes in organisations but rather sought to improve quality by working within the system familiar to the managers. Juran's philosophy focused on three major quality processes called the quality trilogy. These were:

1. Quality planning, which he defined as the process of preparing to meet quality goals;
2. Quality control the process of meeting quality goals during operations; and
3. Quality improvement the process of breaking through to unprecedented levels of performance.

Juran believed it was very important for employees to know who was using their goods be it the customer or the next production line. Identifying customer needs, translating it into specifications and developing products that respond to those needs are important (Evans and Lindsay, 2008).

#### **2.3.7.3 The Crosby Philosophy**

The essence of Crosby's quality philosophy was embodied in what he called " Absolutes of Quality Management and the basic elements of improvement". These are listed below:

1. Quality means conformance to requirements and not elegance;
2. There is no such thing as a quality problem. Problems must be identified by those who cause them;

3. There is no such thing as the economy of quality; doing the job right the first time is always cheaper. Quality is free. What cost money are all the actions that involve not doing jobs right the first time;
4. The only performance measurement is the cost of quality, which is the expense of non-conformance;

Crosby's elements of improvement were in determination, education, and implementation and was hinged on top managements determination to take quality improvement serious and educating everyone to understand than absolutes and the implementation process (Evans and Lindsay, 2008).

#### 2.3.7.4 Feigenbaum's Philosophy

Feigenbaum is best known for coining the phrase Total Quality Management. He viewed quality as a strategic business tool that requires involvement from everyone in the organisation (Evans and Lindsay, 2008). Feigenbaum's philosophy is summarised in three steps to quality. These are:

1. **Quality leadership.** Feigenbaum proposed a continuous management emphasis grounded on sound planning rather than reaction to failures.
2. **Modern quality technology.** According to Feigenbaum, the traditional quality department cannot resolve 80-90% of quality problems. This task requires the integration of office staff as well as engineers and shop floor workers in the process who continually evaluate and implement new techniques to satisfy customers in future.
3. **Organisational commitment.** The last step of Feigenbaum's philosophy is continuous training and motivation of the entire workforce as well as an integration

of quality in business planning to indicate the importance of quality and provide means for including in all aspects of the firms activities .

## **2.4 ISO 9000 SERIES**

The International Organization of Standardization (ISO) is a global federation of 130 National Standards Bodies. The ISO seek to promote standardization and the development of related activities worldwide to facilitate the international exchange of goods and services, and cooperation in the spheres of intellectual, scientific, technological and economic activities (Chow-Chau et al, 2003). The ISO 9000 defines quality systems standards based on the premise that certain generic characteristics of management practices can be standardised and that a well designed well implemented and carefully managed quality system provides confidence that the outcome will meet customer expectation and requirements (Evans and Lindsay, 2008).

### **2.4.1 Objectives of ISO 9000 Series**

The standards were created to meet five objectives; these are:

- Achieve maintain and seek to continually improve product quality and services in relation to requirements;
- Improve the quality of operations to continually meet customers and stakeholders stated and implied needs;
- Provide confidence to internal management and other employees that quality requirements are being fulfilled and that improvement is taking place;
- Provide confidence to customers and other stakeholders that quality requirements are being achieved in the delivered product;
- Provide confidence that quality system requirements are fulfilled.

The standard prescribes documentation for all processes affecting quality and suggests that compliance through audit leads to continual improvement (Evans and Lindsay, 2008).

#### **2.4.2 Structure of ISO 9000:2000 Standard**

The ISO 9000 standards focus on developing, documenting and implementing procedures to ensure consistency of operation and performance in production and service delivery process.

The standard consists of three documents. These are:

**ISO 9000 – Fundamental and vocabulary.** This provides fundamental background information and establishes definitions of key terms used in the standards.

**ISO 9001 - Requirements.** This document provides the specific requirements for a quality managements system to which users must conform in order to obtain third party certification. The requirements are organised into four main sections namely:

- Management responsibility;
- Resource management;
- Product realisation and measurement;
- Analysis and improvement.

**ISO 9004 - Guidelines for performance Improvement.** This document provides guidelines to assist organisations in improving their quality management system beyond the minimum requirements in ISO 9001 , but does not prescribe any requirements that must be



followed. The requirements provide a structure for basic quality assurance system namely management responsibility, resource management and product realisation.

These requirements are intended to apply to all kinds of businesses (Chow-Chua et al, 2003). The ISO 9000 standards series is now widely accepted as the minimum standard of a quality system for companies (Marquardt, 1992). In essence, this is a set of quality system standards that prescribes good quality practices, without mandating how a company should achieve them. Nowadays, many countries have either embraced ISO 9000 or used it as the basis of their national quality certification systems (Chow-Chua et al, 2003). Thus, meeting ISO standards is becoming a requirement for international competitiveness (Evans and Lindsay, 2008). The Ghana Standard Board is a member of the ISO and subscribes to the ideals and principles of the ISO 9000 series.

### **2.4.3 ISO 9000 Quality Management Principles**

According to the official website of ISO ([www.iso.ch](http://www.iso.ch)), there are eight quality management principles that an implementing firm should comply with. The principles are expanded below.

#### **2.4.3.1 Principle 1: Customer Focus**

Applying the principle of customer focus typically leads to the following:

- Researching and understanding customer needs and expectations;
- Ensuring that the objectives of the organization are linked to customer needs and expectations;
- Communicating customer needs and expectations throughout the organization;
- Measuring customer satisfaction and acting on the results;
- Systematically managing customer relationships;

#### **2.4.3.2 Principle 2.- Leadership**

Leaders establish unity of purpose and direction of the organization.

The benefits of good leadership are:

- People will understand and be motivated towards the organization's goals and objectives;
- Activities are evaluated, aligned and implemented in a unified way;
- Miscommunication between levels of an organization will be minimized;

Applying the principle of leadership typically leads to :

- Considering the needs of all interested parties including customers, owners; employees, suppliers, financiers, local communities and society as a whole;
- Establishing a clear vision of the organization's future and Setting challenging goals and targets;
- Creating and sustaining shared values, fairness and ethical role models at all levels of the organization, establish trust and eliminating fear;
- Providing people with the required resources, training and freedom to act with responsibility and accountability and inspire, encourage and recognize people's contributions.

#### **2.4.3.3 Principle 3: Involvement of People**

People at all levels are the essence of an organization and their full involvement enables their abilities to be used for the organization's benefit.

Key benefits associated with this principle are:

- Motivated, committed and involved people within the organization;
- Innovation and creativity in furthering the organization's objectives;



- People being accountable for their own performance;
- People eager to participate in and contribute to continual improvement;

Applying the principle of involvement of people typically leads to:

- People understanding the importance of their contribution and role in the organization;
- People identifying constraints to their performance;
- People accepting ownership of problems and their responsibility for solving them;
- People evaluating their performance against their personal goals and objectives;
- People actively seeking opportunities to enhance their competence, knowledge and experience;
- People freely sharing knowledge and experience;
- People openly discussing problems and issues;

#### **2.4.3.4 Principle 4: Process Approach**

The organisations should develop a process approach towards production and issues.

Key benefits of a process approach are as follows:

- Lower costs and shorter cycle times through effective use of resources;
- Improved, consistent and predictable results;
- Focused and prioritized improvement opportunities.

#### **2.4.3.5 Principle 5: System Approach to Management**

Systems approach to management implies identifying, understanding and managing interrelated processes as a system contributes to the organization's effectiveness and efficiency in achieving its objectives.

Key benefits of a systems approach include:

- Integration and alignment of the processes that will best achieve the desired results;
- Ability to focus effort on the key processes;
- Providing confidence to interested parties as to the consistency, effectiveness and efficiency of the organization.

#### **2.4.3.6 Principle 6: Continual Improvement**

Continual improvement of the organization's overall performance should be a permanent objective of the organization.

Key benefits: associated with this principle are:

- Performance advantage through improved organizational capabilities;
- Alignment of improvement activities at all levels to an organization's strategic intent;
- Flexibility to react quickly to opportunities.

#### **2.4.3.7 Principle 7: Factual Approach to Decision Making**

Effective decisions are based on the analysis of data and information.

Key benefits of having a factual approach to decision making include:

- Making informed decisions;
- An increased ability to demonstrate the effectiveness of past decisions through reference to factual records;
- Increased ability to review, challenge and change opinions and decisions.

#### **2.4.3.8 Principle 8: Mutually Beneficial Supplier Relationships**

An organization and its suppliers are interdependent and a mutually beneficial relationship enhances the ability of both to create value.

Key benefits of having mutually beneficial supplier-relationship include:

- Increased ability to create value for both parties;
- Flexibility and speed of joint responses to changing market or customer needs and expectations;
- Optimization of costs and resources;

#### **2.4.4 Benefits of implementing ISO 9000 Series**

The two most common benefits of certification reported in the literature are increase in productivity and access to overseas markets. Most companies have experienced an increase in the overall sales after certification (Kantner, 1997). Supporting this, Calingo et al. (1995) found that ISO 9000 implementation yielded better quality systems, customer satisfaction, competitive advantage and reduction of quality problems. Haversjo (2000) also reported that ISO 9000 certified companies have better earnings (rates of return) than similar non-certified companies, largely due to increased sales. Casadesus and Gimenez (2000) have reported that 65 per cent of the certified companies have experienced high levels of internal (human resources management, operations management), external (external customer satisfaction, less complaints, repeat purchases), and financial benefits (e.g. market shares, sales per employee, return on sales and return on assets). This is consistent with Kaye (2000) who also reported benefits such as better documentation, greater quality awareness of employees, better internal communication, and an increase in operational efficiency.

#### **2.4.5 Quality Management in the Construction Industry**

The construction industry is one industry that needs to take up the concept of Quality Management seriously. This is because it is associated with a patchy reputation and public belief that many projects run late and are over budget (ISE, 1991). Quality management is increasingly being adopted as an initiative to solve these problems to meet the needs of the final customer (Wong, 1998). Indeed, Arditi and Gunaydin (1997) state that there is a potential for quality improvement in the construction process. Arditi and Gunaydi, (1997) indicated that commitment of the construction industry to Quality Management is low compared to the manufacturing industry but admits that the concept is gaining importance.

Osei Assibey (2005) lists the following as the importance of QMS on projects.

1. There is a proven test of commitment and pursuit to which the product or service has been subjected to;
2. Results in better designs;
3. Ensures effective planning;
4. Improves quality;
5. Results in fewer delays and disruptions;
6. Cost effective way of obtaining a product of known quality, recognised performance and value for money;
7. Efficient handling of problems;
8. Increases project performance;
9. Results in fewer delays and repair works;
10. Provision of feedback for continues development;

Ng (2005) also lists the following as the benefits of quality management system.

- Enhancing organisation's quality image;
- Improving quality of engineering design;
- Improving quality of engineering study recommendations;
- Promoting better communication with the client;
- Saving cost via systematic engineering design and well defined design criteria;
- Shortening the period for obtaining approval from authorities;
- Increasing accuracy of project budget estimation;
- Increasing reliability of project programme;
- Meeting client's deadline;
- Reducing time to respond to queries and complaints;
- Minimising risk through improved tender documents;
- Improving the management of achieving continuous improvement;

#### **2.4.6 Drawbacks of ISO 9000 Certification**

Despite these reported benefits of ISO 9000 implementation, there are residual disadvantages/drawbacks associated with ISO 9000-certified quality systems. Chileshe (1996) showed that most organizations in the construction industry were reluctant to implement QM because they did not want to subject their employees "cultural shock.". Others were of the opinion that there were other pressing issues to consider, such as survival. In addition, Love (2000) noted that organizations in the construction industry have abstained from implementing QM practices because they feel that the short-term benefits are relatively minimal.

Some criticize the implementation of ISO 9000 in construction as costly and time-consuming, which has also discouraged small companies from choosing this route. Also, training,

employee turnover, keeping documents up to date, more paperwork and additional costs are the other disadvantages of ISO 9000-certified quality systems (Kwok, 1997). Implementing a quality system is a long-term exercise and may require 5-8 years for employees to accept as part of their routine (Bradley, 1998). Considering the normal project cycle, very few projects last for that length of time. That coupled with the high turnover of workers on construction projects make implementation of ISO unattractive in the construction sector.

## **2.5 INTERNATIONAL FRAMEWORKS FOR EVALUATING PERFORMANCE**

### **2.5.1 European Foundation for Quality Management (EFQM) Excellence Model**

The European Foundation for Quality Management (EFQM) Excellence Model is a self-assessment framework for measuring the strengths and areas for improvement of an organisation across all of its activities. While its origins lie in the private sector, public and voluntary sector organisations can also benefit from using the Excellence Model. It is non-prescriptive and does not involve strictly following a set of rules or standards, but provides a broad and coherent set of assumptions about what is required for a good organisation and its management (Evans and Lindsay, 2008)

There are nine 'big ideas' or criteria in the Model that underpin this premise and attempt to cover all an organisation's activities. These nine ideas are separated into Enablers and Results. The Enabler criteria are concerned with how the organisation conducts itself, how it manages its staff and resources, how it plans its strategy and how it reviews and monitors key processes. They are:

1. Leadership
2. People
3. Policy and strategy
4. Partnerships and resources



## 5. Processes

The organisation's Results are what it achieves. These encompass the level of satisfaction among the organisation's employees and customers, its impact on the wider community and key performance indicators. They are:

1. People results
2. Customer results
3. Society results
4. Key performance results ([www.bqf.org.uk/ex\\_framework.htm](http://www.bqf.org.uk/ex_framework.htm)).

### 2.5.2 The Malcolm Baldrige National Quality Award

The Malcolm Baldrige National Quality Award is a national programme for recognizing and promoting excellence in business in the US. It provides criteria which enables organisations to measure their performance and to target improvements in their performance.

The American Quality Society in Blaze (2008) outlines the Baldrige Award criteria as follows:

1. Leadership;
2. Strategic Planning;
3. Customer and Market Focus;
4. Measurement, Analysis and Knowledge management;
5. Workforce Focus;
6. Process Management;
7. Results.

Each of these criteria and the accompanying sub-criteria are weighted and scored based on performance of an organisation.

### **2.5.3 The Deming Award**

The Subcommittee of the Implementation Award for the Deming Prize, 1992 identified 10 criteria which are assessed for the award of the Deming Prize. These are:

1. Policy;
2. Organisation and its management;
3. Education and dissemination;
4. Collection, dissemination and use of information on quality;
5. Analysis;
6. Standardization;
7. Control;
8. Quality assurance;
9. Results;
10. Planning for the future (Evans and Lindsay, 2008).

## **2.6 FRAMEWORKS FOR EVALUATING PERFORMANCE OF CONSULTANTS.**

The intrinsically sophisticated, dynamic and uncertain nature of building engineering projects necessitates the appointment of capable expert consultants to ensure that the clients' interests are duly observed (Hattan and Lalani, 1997). Hattan and Lalani (1997) further advocated that by selecting an appropriate consultant, the chance of delivering a project on time and within budget increase. While the accuracy and relevancy of the consultant's design and recommendations could have profound impacts on the subsequent work quality and claims, evidences reveal that lax control during the construction stage could also lead to

dissatisfaction and project failure (Kasma, 1987). Cooley (1994) summed up that good consultants should bring genuine and lasting value to organisations they serve.

A literature review has revealed that the FIDIC (1997), World Bank (1997), and clients in the United States, the United Kingdom, Australia and Hong Kong have developed their own consultant evaluation frameworks to improve the transparency of evaluation. The importance of consultant evaluation has also given rise to several research studies which focused on the process of consultant selection (Avila, 1995); the use of task and contextual performance criteria for evaluating design and build consultants (Ling, 2002; Ling et al., 2000), and the establishment of multi-attribute models for selecting design and build (Ling, 2002), and architectural consultants (Cheung et al., 2002).

Ng and Chow (2005) in a research conducted to identify consultants' performance criteria for general capabilities evaluation for consultants' selection identified the following as important in their selection.

- (1) Technical capabilities,
- (2) Management capabilities,
- (3) Financial capabilities, and
- (4) Quality assurance and control

Technical capability of a consultant according to Ng and Chow (2005) could be evaluated based on the past performance and number of successful projects completed by a consultant. Indeed most agencies would consider the past performance of a consultant in terms of technical and management capabilities before the award of any project but few evaluate their performance whiles the project is ongoing.

The consultant's contract is the basic reference point against which performance must be measured. Clarity of expression in the consultant's contract, and in its interpretation, are thus of vital concern (FIDIC, 2001). Performance of a consultant should be measured against stated objectives specified in the Consultant's Contract. Though certification and awards may be a general means of evaluating the performance of consultants in terms of quality, many organisations have other different means of evaluating their consultants.

Some jurisdictions have developed frameworks for evaluating consultant's performance. From a review of literature, FIDIC, the Colorado Transportation Department and Ng (2005) have frameworks for evaluating consultants' performance. These frameworks are discussed below:

### **2.6.1 FIDIC Guidelines for the Evaluation of Consultants Performance**

FIDIC (2001) proposes the evaluation of project consultants along three broad criteria; namely technical, managerial and project objectives. Details of these evaluating criteria are listed below.

**Technical Criteria.** Under technical criteria, the following are evaluated:

- Quality of documentation;
- Constructability;
- Degree and cost of required changes;
- Economy of design;
- Initiative;
- Flexibility;
- Innovation;

- Appropriateness of technology;
- Cost Estimate(s) reliability.

**Managerial Criteria.** Under managerial criteria, the following are evaluated:

- Written presentation(s);
- Oral presentation(s);
- Construction contract(s) management;
- Communications effectiveness;
- Client liaison;
- Technology transfer;
- Cultural adaptation;
- Professional staff;
- Project management;
- Adherence to commitments;
- Senior management accessibility.

**Overall output criteria.** Under general output, the following are evaluated:

- Timeliness of performance;
- Quality of performance;
- Adherence to budget;

These criteria were developed by FIDIC for international consulting, but can be used for assessing local consultants.

## 2.6.2 Colorado Transport Authority

Colorado transport authority lists the following as the criteria for the evaluation of its consultants.

- Knowledge of department's needs;
- Cooperation with department, public and other agencies;
- Adequacy of personnel, supervision and management;
- Prosecution and submission of work;
- Clarity of work;
- Support calculations, data, and reports;
- Completion of work within contract budget;
- Accurate billing records;
- Overall quality, accuracy and competence;
- Prudent plans/creative design.

### **2.6.3 NG, 2005- Evaluation criteria**

Ng (2005) lists the following as the criteria for the evaluation of engineering consultants during the different phases of public projects in Hong Kong. The criteria were developed by the Hong Kong Housing Authority (HKHA). This framework is based on the list of roles of public sector consultants in the different phases of a project as shown below:

**Planning phase.** During the planning phase, the following are evaluated:

- Collection and appreciation of background information on project;
- Methodology and analysis;
- Comprehensiveness and imagination in alternative considered;
- Quality of final recommendation;



- Adequacy of cost estimates;
- Cost estimates;
- Presentation of report;

**Design phase.** During the design phase, the following are evaluated:

- Collection and interpretation of information;
- Design solution;
- Presentation of drawing;

**Tender phase.** During the tender phase, the following are evaluated:

- Quality of contract documents;
- Tender assessment;

**Construction phase.** During the construction phase, the following are evaluated:

- Recruitment, supervision and administration of site staff;
- Administration of the contract;
- Supervision of contractors and quality of end product;
- Financial control of contracts, including expenditure forecast;
- Handling of claims;
- Post construction phase;
- Finalization of measurement and final account;
- Finalization of record drawings and other records;

**General roles.** The following general roles are also evaluated:

- Appreciation of client's requirements;
- Programme, progress reports and financial forecasts;
- Management of sub-consultants;
- Achievement of objectives;

- Effectiveness in surmounting problems;
- Public relations;
- Relationships with the client;
- Competence and conduct of consultant's staff;
- Responsiveness of principals;
- Programming and target achievement;
- Claims attitude.

#### **2.6.4 Comparism of Evaluation Criteria**

The Colorado Transportation department evaluation criterion was designed for the special needs of a Transportation Department but can be amended to suit the needs of any agency seeking to develop its own evaluation criteria. It however does not particularly fit the evaluation of consultants on building projects. Specific parts of it like prudent plan, cooperation and knowledge of department's need may be adapted in the evaluation of building consultants by public agents. Ng (2005) and FIDIC (2001)'s criteria are based on general roles of a consultant on any engineering project hence can be considered for use more appropriate than that of the Colorado Department. Ng's (2005) framework for evaluating consultants is based on the roles of the consultant during the different phases of a project namely the planning, design, tender, construction, post construction phases and general role of consultants. The framework identified 28 different evaluating criteria from all the distinct phases of project lifecycle. Similarly, FIDIC's framework focus on three major criteria; namely the technical, managerial and general output criteria for evaluation. Though very important, these broad areas do not show the roles of the consultant in each phase of the project but rather a broad generalisation. Performance in some phases of a project life is critical than others but it is important that the performance is known for all phases.

Ng (2005)'s framework and criteria covers a wider range of roles of the consultant than the evaluating criteria from FIDIC (2001). It lists the specific roles of the consultant in each phase of the project and gives the evaluator the opportunity to first rank the criteria in order of importance from their perspective before using the ranking in the evaluation. The FIDIC framework assumes equal importance for all the criteria and does not give clients the opportunity to rank the criteria in order of importance.

FIDIC (2001) provides for evaluation on a three point scale of exceptional, satisfactory and unsatisfactory whiles Ng's framework allows for clients to evaluate on a five point scale of 1 to 5, with 1 representing the least performance and 5, the best possible performance. This gives evaluators a wider opportunity to express their views.

Additionally, the FIDIC evaluation framework is designed to include the consultant in the process whiles that of Ng (2005) does not include the consultant in the process. The client singlehandedly evaluates the consultant. This is similar to our research work.

Finally, the project based roles listed by Ng (2005) are relevant to the building consultant and clients in Ghana. Hence this framework is adopted for further use in the study for evaluation of building consultants.

Literature review and enquiries from practising consultants and public administrators revealed that as of date, there is no formal evaluation criteria used for the evaluation of consultants in Ghana.

## **2.7 DISTRICT ASSEMBLY CONCEPT IN GHANA**

### **2.7.1 Introduction**

The concept of Local Government in Ghana dates back to 1850s when the Colonial Government issued the Municipal Ordinance to cover the Cape Coast and its environs (Osei Assibey, 2005). This introduced public service in the then Gold Coast. This system of governance continued until after independence when the Nkrumah government introduced the Local Government Act 54 in 1961 to fully decentralise governance in Ghana, but this was not implemented. The Mill-Odoi Commission on Decentralisation in 1967 recommended a decentralised system of governance similar to the one being practised today. This was also not implemented by the National Liberation Council or the Second Republic of Ghana that followed. The Acheampong regime in 1974 implemented the recommendations of the Mills – Odoi Commission setting up 65 District Assemblies but with limited powers. In 1988, the PNDC Law 207 was passed to ensure greater decentralisation of governance. This law was further strengthened by the Local Government Act 462 of 1993 which established the DAs in the Fourth Republic of Ghana repealing previous laws (Botchway, 2000).

As of June 2011, there were 170 Metropolitan Municipal and District Assemblies across Ghana. According to Section 162 of Act 462 of 1993, the term “District Assemblies” include Municipal and Metropolitan Assemblies while District Chief Executives include Metropolitan and Municipal Chief Executives. This study adopts this definition of District Assemblies to include Metropolitan and Municipal Assemblies.

### **2.7.2 Reason for Establishment of District Assemblies**

According to Osei Assibey (2005), over two thirds of the population of Ghana live in rural areas. For the effective administration and development of these areas, there was the need to decentralise governance so that locals could be involved in governance and evolve activities and programmes that met their needs and aspirations.

The District Assembly is thus the entity for legal recognitions, administration, local political activity, policy formulation at the district level, development planning and budgeting and plan implementation (Botchway, 2000)

### **2.7.3 Composition of District Assemblies**

District Assemblies are composed of at least 11 decentralised departments (Botchway, 2000);

These are:

- Education;
- Social Welfare and Community development;
- Works department;
- Physical planning department;
- Finance Department;
- Natural and Resource Conservation;
- Central Administration;
- Trade and Industry;
- Disaster Prevention Department;
- Health Department;
- Department of Agriculture.

Checks at some assemblies and experienced consultants revealed that there are Project Implementation and Monitoring committees composed of personnel from different departments to monitor projects.

### **2.7.4 Structure of the District Assembly**

All DAs are composed of elected and nominated members. Two-thirds of members are elected by popular vote from the various zones of the district while a third are appointed by government. A presiding member elected from among the assembly members. The District assembly is headed by the District Chief Executive which is an executive position appointed by the President of the Republic of Ghana and approved by the assembly members. Key administrative personnel in the DA concept are the District Coordination Director, Finance Officer, Planning Officer and Project Officer. An executive council is responsible for the day to day administration of the Assembly.

### **2.7.5 Functions of District Assemblies**

The DA is the highest political and administrative body in the district with legislative and executive functions. Sections 10 of Act 462 (1993) list the functions of the District Assemblies. These are:

- To ensure that development plans of the district and budget support are worked out for approval by the Ministry of Finance;
- Formulate and execute plans and programmes and strategies for the effective mobilisation of resources;
- Promote and support productive activity and social development in the district and remove any obstacles to initiative and development;
- Initiate programme for the development of basic infrastructure and provide municipal works and service in the district;
- Promote and encourage other persons or bodies to undertake projects under approved development plans;



- Monitor the execution of projects under approved development plans and assess and evaluate their impact on the people's development in the local, district and national economy.

#### **2.7.6 Project Implementation at the District Assembly**

In line with the DA's mandate of developing its area, projects are identified or proposed by the DA, local communities or government. Projects are either executed by Works Department of the DA or by agents of the DA (contractors and consultants) depending on the size, cost, duration of the project, manpower and skill required (Botchway, 2000). In addition to the Works Department, a monitoring and evaluation team composed of members from different departments of the Assembly monitor progress of work on projects.

#### **2.7.7 Selection of Consultants**

Public Organisations like the DA are expected to select their consultants according to the provisions of the Public Procurement Law, Act 663. Osei- Assibey (2005) list competitive tender, recommendation as well as previous experiences with the consultants as some of the criteria used by DA to select consultants.

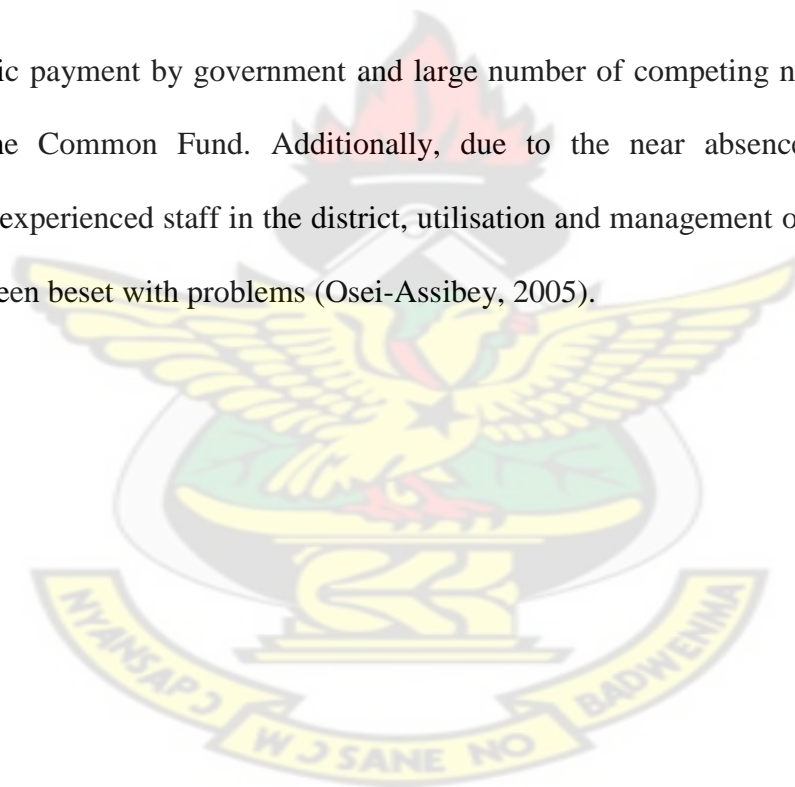
#### **2.7.8 The District Assemblies Common Fund**

The District Assemblies' Common Fund (DACF) was created by Section 252 of the 1992 Constitution of Ghana. Act 455 of 1993 states that not less than 5% of the total government revenue is to be paid into the DACF for development of the Districts across the country. The DACF is the most important source of funding for DAs and covers between 80 - 90% of an assembly's annual expenditure (Banful, 2009). While there are broad regulatory guidelines,

DAs are free to use the funds as they wish if the intended use is in their budgets furnished to the DACF Administrator prior to disbursements (Banful, 2009).

The DACF has provided finance for development in the areas of health and sanitation, education, potable water, residential and office accommodation, rehabilitation of roads and provision of community facilities (Osei Assibey, 2005). This fact is further emphasised by the World Bank report (2004) on the DACF which stated that the Fund is a suitable mechanism for providing resources to the Districts to provide basic infrastructure in the fields of education, health and water which hitherto have been neglected.

However, erratic payment by government and large number of competing needs put a lot of pressure on the Common Fund. Additionally, due to the near absence of technically competent and experienced staff in the district, utilisation and management of Common Fund projects have been beset with problems (Osei-Assibey, 2005).



# KNUST

## CHAPTER THREE

### RESEARCH METHOD AND DESIGN

#### 3.0 Introduction

This chapter gives the detail procedure used for the study. Roles of consultants in the different phases of a project were identified from literature and interaction with experienced project consultants. The documented potential benefits of ISO 9000 QMs were also identified from literature. These were developed into a questionnaire used for the study.

Quantitative analytical tools were used to analyse the results. Quantitative approaches are more specific and result oriented and it involves the collection of numerical data in order to explain, predict and control the phenomenon of interests (Mojaheed, 2005).

#### 3.1 Survey

A survey was conducted on selected DAs. Officials of District Assemblies were asked in a questionnaire to rank in order of importance to them the roles of consultants during the

different project stages and also indicate for the same factors how well they perceived their consultants had performed in the same roles for Common Fund projects. The officials were also asked to rank the importance of the documented benefits of ISO 9000 QMS and also indicate how well their consultants have helped their organisation achieve the stated benefits. Projects funded through the District Assembly Common Fund were chosen as the basis of the study because they provided a common platform with similar characteristic for all Assemblies.

### **3.2 Design of Questionnaire**

The questionnaire was structured and consisted of close ended questions. It was divided into three parts;

Part 1 was to solicit information about the profile and characteristics of the District Assemblies.

Part 2 was in two sections. The first section sought the respondents' ratings of different roles of a consultant in the different project phases on a scale of 1 to 4.

The criteria used in this section were based on an evaluation framework developed by a public agent in Hong Kong (HKHA) and cited in Ng (2005).

The second section sought to determine DAs assessment of the consultants performance. The rating was on a scale of 1-5 with 1 being the least and 5 being the highest.

Part 3 of the questionnaire sought DAs views on the importance of the documented benefits of the ISO 9000 QMS to them. It was also in two sections. The first section sought DAs views on the documented benefits of ISO 9000 QMS and asked them to rate the importance of the benefits to their organisations on a scale of 1-5.

The second section also sought to determine from DA on a scale of 1-5, the perceived benefits to their organisation of the documented benefits of ISO 9000 QMS as a result of their association with their consultants.

The questionnaire was pre-tested in a pilot with five experienced Consultants in Kumasi and Project Staff at Kumasi Metropolitan Assembly and their comments included in the final design.

### **3.3 Sampling Technique and Sampling Sizing**

According to Bartlett et al (2001), the minimum sample size for a population of 200 is 74. A sample size of 80 DAs from the total population of 170 DAs was selected for the study. This represented 47% of the total population. This sample size of 80 for a population size of 170 was considered as adequate. Regions of Ghana were considered as strata from which District Assemblies were selected. This method was chosen because it ensured that views of DAs from all ten regions of Ghana were included in the study. Eight DAs from each region of Ghana were selected randomly. For each stratum, systematic sampling was used to select their sample used in the survey. To select the sample, a sampling fraction was calculated for each stratum by dividing the sampling frame by sample size to give a value which is rounded to the next whole number  $n$ . The first sample was randomly chosen within the first  $n$  samples in the sampling frame after which every  $n$ 'th sample was chosen until the desired sample size was achieved. The samples from each stratum (region) were added to give the final sample used for the study. This sample was used for the study on the assumption that there exists a link between the characteristic of the sample and the population, allowing a series of referrals to be made within a circle of acquaintances (Berg, 1988). The current list of District Assemblies was obtained from the official Government of Ghana website and used for the

sampling. As of May 2011 when the survey was conducted, there were 170 Metropolitan, Municipal and District Assemblies in Ghana.

### **3.4 Administering of Questionnaires**

Some of the questionnaires were administered to the respondents by postal survey. A self addressed envelope with a stamp and copy of the questionnaire was posted to sixty nine DAs. Current addresses were obtained from the website [www.ghanadistricts.com](http://www.ghanadistricts.com). Eleven questionnaires were administered personally to some DAs in the Ashanti, Eastern and Greater Accra Regions which were within easy reach of the researcher. Of the 80 questionnaires sent out, 45 responses were received. Two of the questionnaires received were not responsive and excluded in the analysis resulting in a response rate of 53%.

### **3.5 Data Analysis**

The first part of the questionnaires involving the profile of the DAs and respondents was analysed using percentages.

The second part of the questionnaire involving the determination of the relative importance of the evaluation criteria and performance of consultants was analysed using a combination of mean weights derived from the raw scores which was used to construct an incremental scale from the mean weights and mean ratings. To reconfirm whether the weightings used for computing the overall performance of DAs consultants was acceptable to the DAs, the mean weighting for each evaluation criterion was first established. To convert the mean scores into a weighting scale of 1-4 required the computation of the incremental scale. An incremental scale was developed with the highest and lowest mean scores. The highest and lowest mean importances were 3.58 and 2.58 respectively, showing a difference of 1.0. This was divided into four giving an incremental range of 0.25. Thus any mean score from 3.58 to 3.33 was



assigned a weight of 4; 3.32- 3.08 was assigned a weight of 3; 3.07 to 2.83 was assigned a score of 2 and 2.82 to 2.58 was assigned a weight of 1.

The third part of the questionnaire was analysed by comparing the values of the expected benefits and the actual benefits. As stated in Ng (2005), the client's satisfaction can be portrayed by comparing the mean values of the expected and actual benefits. In order to adequately confirm whether there exists a significant difference between the means, one-way analysis of variance (ANOVA) was used to determine whether there was a disparity in the sample means of the expected and actual benefits.

The logo of KNUST (Kwame Nkrumah University of Science and Technology) is centered in the background. It features a yellow eagle with spread wings perched on a shield. Above the eagle is a red and black torch. The shield has a green base and a yellow top. The entire emblem is set against a light grey background.

## **CHAPTER FOUR**

### **RESULTS AND DISCUSSION**

#### **4.0 Introduction**

The purpose of this study was to assess the performance of District Assembly project consultants in their role as consultants and also establish whether there was the need for ISO 9000 certification of consultants in Ghana using analytical tools. This chapter presents the results and interpretation of the study. The results are analysed in three parts. The first part is on the profile of the respondents, the second part is an evaluation of consultants on their roles and the third part on respondents views on the benefits of ISO 9000 QMS.

#### **4.1 Profile of Respondents**

This section presents the results on the profile of the respondents in order to confirm the suitability of the respondents for the study.

#### **4. 1.1 Period of existence of DAs**

District Assemblies in Ghana have been in existence for varying periods. Indeed, some DAs have been in existence longer than others. It was considered important to know the period of existence of DAs who took part in the study. This was used as an indicator of how long they have dealt with consultants. Table 4.1 gives the period of existence of the DAs that were surveyed.

**Table 4.1 Period of existence of District Assemblies**

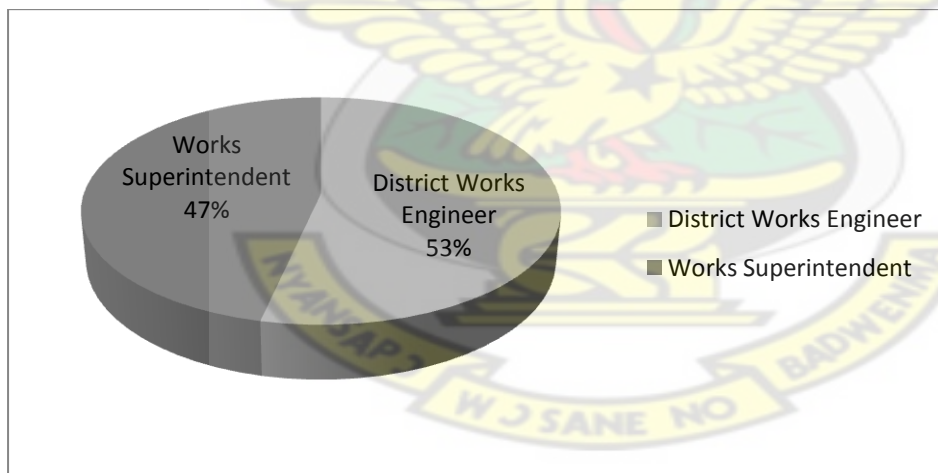
<b>Age of District Assemblies</b>	<b>No of respondents</b>	<b>% of respondents</b>
Less than 5 years	11	25.6
6-10 years	4	9.3
11-15 years	5	11.6
More than 15 years	23	53.5
Total	43	100

Twenty six (26%) of DA in the study had existed for less than 5 years. However 74% of the DAs surveyed had existed for over five years. Thus majority of respondents has existed for over five years, a period long enough to give reliable information about the performance of consultants.

#### 4.1.2 Position of Respondents

The questionnaires were completed by individuals working in the Assemblies on behalf of the Assembly. It was considered necessary to know the positions of the respondents who actually completed the questionnaire because a wide array of staff work in the DAs; some of whom are better placed to provide accurate information on project than others. Fig 4.1 below shows the positions of individuals who completed the questionnaire.

**Position of Respondents**



**Figure 4.1 Position of respondents**

Fifty three percent (53%) and 47% of the questionnaires were completed by District Works Engineers and Works Superintendents respectively. Indeed, these are officials in the Districts directly involved in construction works and by extension work directly with consultants at the

District Level. Respondents who completed the questionnaires were therefore in a good position to provide reliable and accurate information on consultants' performance.

### 4.1.3 Experience of Respondents

In addition to the position of the individual respondents, it was considered important to determine the length of time the respondents had been involved in project management. It is widely accepted that officials gain more experience in a field as their length of service increases. Table 4.2 gives the years of experience of the individual respondents.

**Table 4.2 Experience of Respondents**

Respondents years of experience	No of respondents	% of respondents
Less than 5 years	6	14.0
6-10 years	6	14.0
11-15 years	22	51.1
More than 15 years	9	20.9
Total	43	100

Over 75% of the respondents had over five years working experience in Construction Management at the District level, hence are very likely to have the knowledge, skills and judgement to be able to differentiate between good and bad performance. They were therefore in a good position to comment on the performance of the consultants.

#### 4.1.4 Use of Consultants by District Assemblies

The use of consultants by DAs on their projects is done for a myriad of reasons. Table 4.3 below shows the results for the reasons for DAs use of consultants.

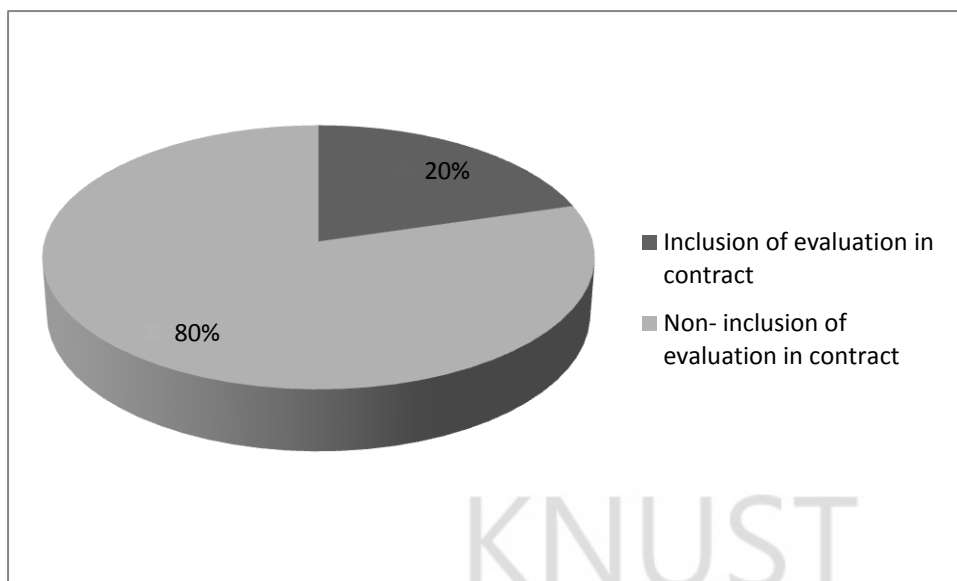
**Table 4.3 Reasons for use of Consultants**

Reason	No of respondents	% of respondents
Value of project	11	25.6
Funding source	4	9.3
Expertise required for project	22	51.2
Work Load	13	30.2
Government regulation	9	20.9
Others( Lack of capacity)	1	2.3

DAs surveyed were of the view that consultants were employed mainly because DAs did not have the required expertise for supervision of projects. Other significant reasons were their work load and value of projects. Indeed, this is significant because some of the DA that took part in the study do not have the capacity to carry out supervision of all construction works within their District . This is consistent with the work of Osei-Assibey (2005).

#### 4.1.5 Inclusion of Evaluation in Assemblies Contracts with Consultants

Regular evaluation is one of the means of improving performance. A primary step in this line is the inclusion of evaluation in contracts. In order to determine whether evaluation of consultant is institutionalised in the DAs, respondents were required to provide information about the inclusion of evaluation in their contracts with consultants. Figure 4.2 gives a picture of the proportion of Districts who included or did not include evaluation clauses in their contracts.



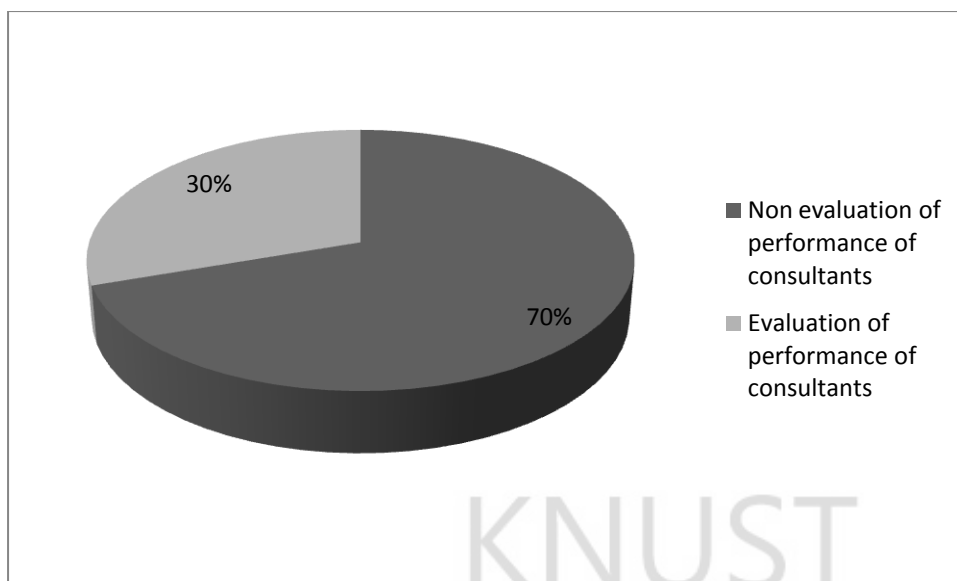
**Fig 4.2**  
**Proportion of**  
**District**  
**Assemblies**  
**including**  
**Evaluation in**  
**contract with**  
**Consultants**

The results show that only 20% of the DA surveyed included in their contract with consultants, the evaluation of the work of consultant during and after execution of common fund projects. Thus for a vast majority, there was no mention of evaluation of consultants, hence not likely to be any formal evaluations.

#### **4.1.6 Evaluation of Consultants Performance by District Assemblies**

As a follow up to the inclusion of evaluation in contracts, the questionnaire sought to determine the proportion of respondents surveyed who actually evaluated their consultants. Figure 4.3 shows the proportion of DAs who actually evaluated their consultants.



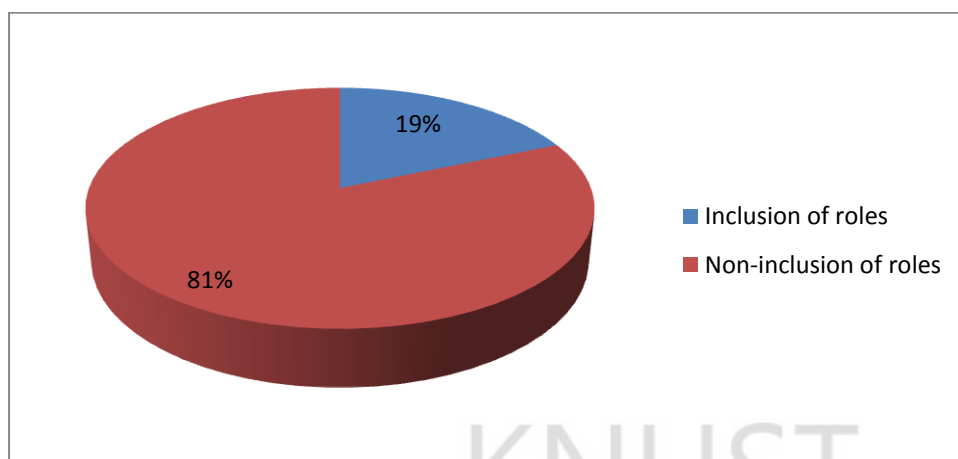


**Fig 4.3 Evaluation of Consultants' Performance by District Assembly**

Seventy percent (70%) of DAs surveyed did not evaluate the performance of their consultants. This is consistent with the previous result which showed that most DAs did not include evaluation performance of their consultants. Indeed, it was surprising that DAs who did an evaluation of the consultants on projects were more than those who actually included it in their contract with the consultants. However, the reason for this may be that informal and mental evaluation may be done by officials on any contract and this may account for the result. Additionally, District Assemblies may not be formally evaluating performance of consultants because they have other opportunities to evaluate consultants during their selection for other projects.

#### **4.1.7 Inclusion of Roles of Consultants in Contracts**

As identified in literature, the basic document on which consultants can be evaluated is their contract. In order for any meaningful evaluation to be done, these roles must be explicitly stated. Fig 4.4 shows the number of DA surveyed who included the roles of consultants in their contract with consultants.



**Fig4.4 District Assemblies stating roles of Consultants in Contracts**

Results showed that 81% of DAs respondents did not include detailed roles of consultants in their contract with them. This might be because DAs perceive consultants to be experts. Additionally, during the selection of consultant, their terms of reference state their general roles. Finally, as they have the right certification for their trade, the DAs might not want to repeat in details their specific roles, hence the large number of respondents declining to state detail roles.

#### **4.1.8 Respondents Knowledge of ISO 9000 QMS**

As the ISO 9000 QMS is a relatively unused standard in Ghana, an attempt was made to determine respondents' familiarity and extent of knowledge of the ISO 9000 standards. Table 4.4 below is a summary of respondents' knowledge of the ISO 9000 standard.

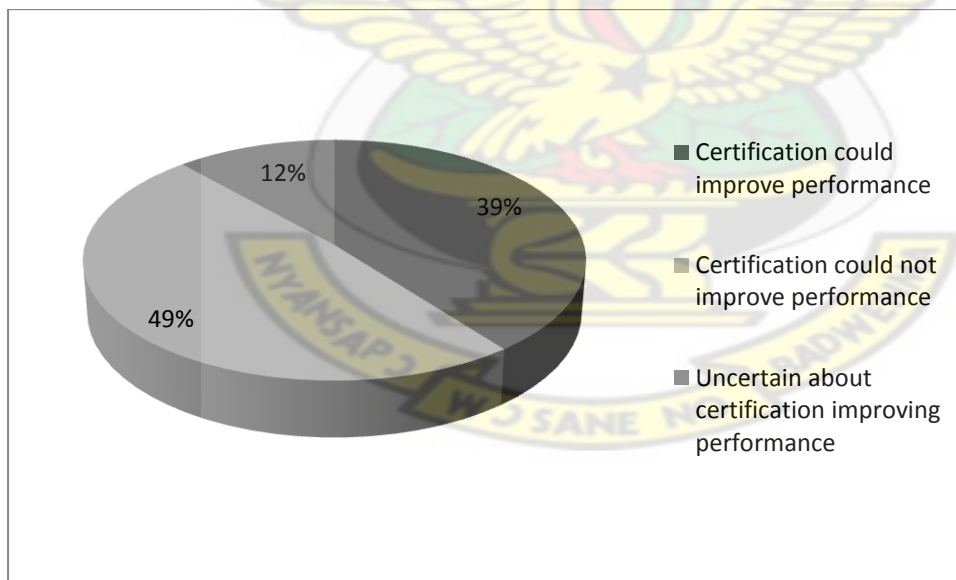
**Table 4.4 Respondents Knowledge of ISO 9000 QMS**

Knowledge of ISO9000QMS	No of respondents	% of respondents
Good knowledge of standard	9	20.9
Little to no knowledge of standard	34	79.1
Total	43	100

It was surprising that 79% of officials who took part in the study on behalf of the DA had little or no knowledge of ISO 9000 QMS. This might be so because Quality Management Systems in Ghana is mainly practiced and enforced in the manufacturing sector and not in the services and construction sector. Indeed in Ghana, the Ghana Standard Board apart from certification of construction products is not involved in the quality management in the service sector. The Ghana Standards Board should focus more on ensuring standards in the Ghanaian construction industry in order to increase the knowledge of stakeholders in the industry and the quality of the output of the industry.

#### 4.1.9 ISO 9000 QM Certification and Improvement of Consultants' Performance

Respondents were to state their opinion on the likelihood of ISO 9000 QMS ability to improve the output of consultants. Figure 4.5 reports the answers of the respondents on this.



**Fig 4.5 Respondents View on ISO 9000 QM Certification**

On respondents views as to whether ISO 9000 QMS could improve the quality of consultants performance, there was a mixed response. Thirty nine percent (39%) said the standard could,

49% said the standard could not and 12% were uncertain. This result was expected because it was difficult to predict the outcome of a process when one knew little about the process. Indeed, this was evident from the response to previous question on knowledge of ISO 9000 which showed that most respondents had little knowledge on ISO 9000 QMS. Thus, the proportion of respondents who thought ISO 9000 could improve performance might have guessed so or believed that because it was an international standard organisation, it might lead to improved performance. It is however significant that over 48% stated that ISO 9000 QMS could not improve the performance of consultants.

## 4.2 PERFORMANCE EVALUATION OF CONSULTANTS

This part reports the DA rating of consultants roles and consolidates their raw scores to obtain a score for their performance.

### 4.2.1 Importance of Roles of Consultants

Table 4.5 below shows relative weights of the evaluation criteria developed from the lowest and highest mean importance. The mean importance was calculated from respondents ranking of each criterion. The mean score was calculated as shown below:

Mean score =  $(n_1 + 2n_2 + 3n_3 + 4n_4) / (n_1 + n_2 + n_3 + n_4)$  where  $n_1, n_2, n_3$  and  $n_4$  are the number of respondent who chose rankings of 1, 2, 3 or 4 respectively.

The highest mean importance was 3.58 and the lowest was 2.58 giving a difference of 1.0. This difference was divided into four to give the incremental scale and the weight. Mean importance from 2.58 to 2.82 were assigned a weight of 1; 2.83 to 3.07 were assigned a weight of 2; 3.08 to 3.32 were assigned a weight of 3; and 3.33 to 3.58 were assigned a weight of 4.

**Table 4.5 Weights for Evaluation Criteria**

Evaluating Criteria	Ranking						
<u>Planning Phase</u>	1	2	3	4	Total	Mean importance	Weighting
Collection and appreciation of background information	7	9	12	15	43	2.81	1
Methodology and analysis	4	13	23	3	43	2.58	1
Feasibility studies and assessment of options	8	2	17	16	43	2.95	2
Quality of Final Recommendation	1	6	28	8	43	3.00	2
Adequacy of Cost Estimates	2	9	13	19	43	3.14	3
Presentation of Report	4	9	17	13	43	2.91	2
<u>Design Phase</u>							
Collection and interpretation of information	4	8	12	19	43	3.07	2
Design solution	1	2	21	19	43	3.35	4
Presentation of drawings	5	2	4	32	43	3.47	4
Cost estimates	2	12	15	14	43	2.95	2
<u>Tender phase</u>							
Quality of tender documents	2	2	12	27	43	3.49	4
Tender evaluation	1	2	11	29	43	3.58	4

**Table 4.5 Weights or Evaluation Criteria (Cont'd)**

<u>Construction phase</u>							
Recruitment, supervision and administration of site staff	2	5	19	17	43	3.19	3
Administration of the contract	1	9	10	23	43	3.28	3
Supervision of contractors and quality of end product	1	1	13	28	43	3.58	4
Financial control of contracts, including expenditure forecast	5	3	19	16	43	3.07	2
Handling of claims settlements	5	5	20	13	43	2.95	2
<u>Post Construction phase</u>							
Final measurement and final account	2	4	9	28	43	3.47	4
Final drawings and other records	1	13	16	13	43	2.95	2
<u>General</u>							
Appreciation of client's requirements	2	5	22	14	43	3.12	3
Programme, progress reports and	5	6	12	20	43	3.09	3

financial forecasts							
Management of sub-consultants	9	9	9	16	43	2.74	1
Achievement of project objectives	5	3	10	25	43	3.28	3
Effectiveness in surmounting problems	5	10	15	13	43	2.84	2
Public relations	1	11	24	7	43	2.86	2
Relationship with the client	3	10	13	17	43	3.02	2
Competence and conduct of consultant's staff	3	2	17	21	43	3.30	3
Responsiveness of consultants( principals)	4	4	14	21	43	3.21	3

From the above table, in evaluating the roles of DA consultants, respondents rated the following roles as very important:

- Design solution;
- Presentation of drawings;
- Quality of tender documents;
- Tender evaluation;
- Supervision of contractors and quality of end product;
- Final measurement and final account.

This is consistent with the trend of construction management in Ghana, where mainly the drawings, tender documents and evaluation, supervision and the quality of end product are perceived to be the most important by many project stakeholders.

Respondents also rated the under-listed as the least important of the roles of consultants:

- Collection and appreciation of background information;
- Methodology and analysis;
- Management of sub-consultants;
- Cost estimates during design phase.



These roles, perceived as not so important are background roles of the consultant required for good performance. They do not directly impact to a large extent on the client's day to day activities. It was however very surprising that respondents weighed the collection and appreciation of background information as not important. This suggests that DA clients do not consider their input in the initial designs of projects as important.

The most surprising role that was deemed not to be important was the cost estimates during the design phase. Indeed, this is at variance with industry practice worldwide. This view might be due to the recurrent inability of District Assemblies to execute projects within budget and time. Thus, District Assemblies may have accepted the constant phenomena of cost and time overruns on projects hence its perceived non-importance.

#### 4.2.2 Consultants Quality Performance as rated by District Assemblies

Table 4.6 below shows the mean rating of consultants by respondents for each criterion. The mean rating was calculated as shown below:

Mean rating =  $(n_1 + 2n_2 + 3n_3 + 4n_4 + 5n_5) / (n_1 + n_2 + n_3 + n_4 + n_5)$  where  $n_1, n_2, n_3, n_4$  and  $n_5$  are the number of respondent who chose rankings of 1, 2, 3, 4 or 5 respectively

**Table 4.6 District Assemblies Ratings of Consultants**

Project phase	Ranking					Total	Mean rating
	1	2	3	4	5		
<u>Planning Phase</u>							
Collection and appreciation of background information	2	19	10	4	8	43	2.93
Methodology and analysis	3	12	12	12	4	43	3.05
Feasibility studies and assessment of options	3	11	12	12	5	43	3.12
Quality of Final Recommendation	2	6	13	16	6	43	3.42
Adequacy of Cost Estimates	4	7	22	9	1	43	2.91
Presentation of Report	1	7	15	19	1	43	3.28
<u>Design Phase</u>							

**Table 4.6 District Assemblies ratings of Consultants (Cont'd)**

Collection and interpretation of information	5	19	8	6	4	42	2.64
Design solution	3	9	14	13	4	43	3.14
Presentation of drawings	6	10	17	9	1	43	2.74
Cost estimates	2	14	17	9	1	43	2.84
<u>Tender phase</u>							
Quality of Tender documents	1	3	6	16	17	43	4.05
Tender Evaluation	4	5	11	18	5	43	3.35
<u>Construction phase</u>							
Recruitment, supervision and administration of site staff	9	7	14	9	4	43	2.81
Administration of the contract	5	8	14	13	3	43	3.02
Supervision of contractors and quality of end product	10	12	14	4	3	43	2.4.9
Financial control of contracts, including expenditure forecast	8	11	11	9	4	43	2.77
Handling of claims settlements	1	3	19	12	8	43	3.53
<u>Post Construction phase</u>							
Final measurement and final account	2	4	5	13	19	43	4.00
Final drawings and other records	16	17	5	2	3	43	2.05
<u>General</u>							
Appreciation of client's requirements	5	4	19	8	7	43	3.19
Programme, progress reports and financial forecasts	9	12	11	8	3	43	2.63
Management of sub-consultants	4	5	22	6	6	43	3.12
Achievement of project objectives	4	5	18	14	2	43	3.12
Effectiveness in surmounting problems	1	3	22	15	2	43	3.33
Public relations	0	10	26	5	2	43	2.98
Relationship with the client	1	3	23	7	9	43	3.47
Competence and conduct of consultant's staff	5	8	14	13	3	43	3.02
Responsiveness of consultants( principals)	4	5	14	14	6	43	3.30

The study showed that Consultants performed very well in the under-listed project related roles:

- Quality of recommendation;
- Presentation of report;

- Design solution;
- Quality of tender documents;
- Tender evaluation;
- Handling of claims;
- Final measurements and final accounts.

The results also showed that consultants performed poorly in the following project related roles;

- Final drawings;
- Presentation of drawings;
- Collection of information during the design phase.

Under the general roles of the consultants, the respondents from the DA were of the opinion that the consultants performed well in the following:

- Effectiveness in surmounting problems;
- Relationship with clients;
- Responsiveness of consultants.

It must be noted that design solution and presentation of drawings were identified as very important roles of consultants by the DAs. Hence the inability of the consultants to perform satisfactorily in these roles implied that consultants output fell short of the expectations of DAs

#### **4.2.3 Consultants Quality performance from District Assemblies perspective**

Table 4.7 below is a summary of the overall quality performance of consultants as analysed the results. This is calculated by finding the sum of the products of the rating and weight for

each criterion. The answer is divided by the total possible score which is obtained by the sum of the product of the maximum possible rating with each weighting.

**TABLE 4.7 Consultants Evaluated Performance**

Evaluation of Consultant performance			
<u>Planning Phase</u>	Rating (a)	Weight (b)	Weighted score =(a)x(b)
Collection and appreciation of background information	2.93	1	2.93
Methodology and analysis	3.05	1	3.05
Feasibility studies and assessment of options	3.12	2	6.24
Quality of Final Recommendation	3.42	2	6.84
Adequacy of Cost Estimates	2.91	3	8.73

**TABLE 4.7 Consultants Evaluated Performance (cont'd)**

<u>Design Phase</u>	(a)	(b)	(c)
Collection and interpretation of information	2.64	2	5.28
Design solution	3.14	4	12.56
Presentation of drawings	2.74	4	10.96
Cost estimates	2.84	2	5.68
<u>Tender phase</u>			
Quality of Tender documents	4.05	4	16.20
Tender Evaluation	3.35	4	13.40
<u>Construction phase</u>			
Recruitment, supervision and administration of site staff	2.81	3	8.43
Administration of the contract	3.02	3	9.06
Supervision of contractors and quality of end product	2.4.9	4	9.96
Financial control of contracts, including expenditure forecast	2.77	2	5.54
Handling of claims settlements	3.53	2	7.06
<u>Post Construction phase</u>			

Final measurement and final account	4	4	16.00
Final drawings and other records	2.05	2	4.10
Total		51	158.58
<u>General Roles</u>			
Appreciation of client's requirements	3.19	3	9.57
Programme, progress reports and financial forecasts	2.63	3	7.89
Management of sub-consultants	3.12	1	3.12
Achievement of project objectives	3.12	3	9.36
Effectiveness in surmounting problems	3.33	2	6.66
Public relations	2.98	2	5.96
Relationship with the client	3.47	2	6.94
Competence and conduct of consultant's staff	3.02	3	9.06
Responsiveness of consultants( principals)	3.3	3	9.90
Total		22	158.58

**Table 4.8 Overall satisfaction of District Assemblies.**

Scores	Project related score	General roles score
Maximum score	255	110
Received score	158.56	68.42
% score received	62.18	62.2

Consolidating the weights and mean scores of each criterion together, consultants scored a mark of 62% in both project related roles and general roles. The performance of the consultants on DACF projects can be described as average and acceptable.

#### **4.3.1 Benefits of ISO 9000 QMS to District Assemblies**

Table 4.9 below give respondents views on the importance of the benefit of ISO 9000 implementation. Mean scores for each stated benefits is calculated. The mean score was calculated as follows:

$$\text{Mean score} = (n_1 + 2n_2 + 3n_3 + 4n_4 + 5n_5) / (n_1 + n_2 + n_3 + n_4 + n_5)$$

where  $n_1, n_2, n_3, n_4$  and  $n_5$  are the number of respondent who chose of 1,2, 3, 4 or 5 on the benefits score scale respectively.

**Table 4.9 Respondents Assessment of Benefits of ISO 9000 QMS**

Benefits of ISO 9000 QMS	Scores					Total	Mean score	Standard Deviation
	1	2	3	4	5			
Enhancing organisations quality image	1	4	5	23	10	43	3.86	0.96
Improving quality of engineering design	1	6	11	12	13	43	3.70	1.10
Improving quality of engineering study recommendation	0	12	13	5	13	43	3.44	1.20
Promoting better communication with client	0	3	3	21	16	43	4.16	0.84
Saving cost	1	0	5	12	25	43	4.40	0.88
Increasing accuracy of project budget estimation	0	0	0	17	26	43	4.60	0.94
Increasing reliability of project								0.49

**Table 4.9 Respondents Assessment of Benefits of ISO 9000 QMS (Cont'd)**

Meeting client's deadline	0	0	5	19	19	43	4.13	0.77
Reduced time for responding to queries and complains	0	1	4	34	4	43	3.95	0.68
Improve the management of sub consultants	1	5	7	13	17	43	3.93	1.12
Minimising risk through improved tender documents	0	1	2	28	12	43	4.19	0.63
Achieve continuous improvements	0	0	12	23	8	43	3.91	0.68

The study results showed that DAs were of the opinion that all the potential benefits of ISO 9000 QMS implementation were important. They considered the under-listed very important:

- Increasing accuracy of project budget estimation
- Saving cost
- Promoting communication with client
- Meeting clients deadline and reducing time for responding to queries



### 4.3.2 Level of benefits achieved by District Assemblies from consultants

Table 4.9 presents a summary of the level of benefits achieved by DAs from consultants.

**Table 4.10 Benefits achieved by district assemblies from consultants**

Benefits of ISO 9000 QMS	Scores						Mean Score	SD
	1	2	3	4	5	Total		
Enhancing organisations quality image	5	11	21	5	1	43	2.67	0.97
Improving quality of engineering design	1	3	28	9	2	43	3.19	0.73
Improving quality of engineering study recommendation	4	10	19	9	1	43	2.84	0.95
Promoting better communication with client	1	5	32	3	2	43	3.00	0.63
Service cost	1	1	24	15	2	43	2.27	0.72

**Table 4.10 Benefits achieved by district assemblies from consultants (Cont'd)**

Increasing accuracy of project budget estimation	0	14	17	11	1	43	2.98	0.82
Increasing reliability of project program	1	2	17	21	2	43	3.49	0.76
Meeting client's deadline		6	19	17	1	43	3.30	0.73
Reduced time for responding to queries and complains	4	1	5	31	2	43	3.60	0.97
Improve the management of sub consultants	1	7	28	4	3	43	3.02	0.80
Minimising risk through improved tender documents	1	3	32	3	4	43	3.14	0.77
Achieve continuous improvements		9	25	3	6	43	3.14	0.84

### 4.3.3 Expected and Actual Benefits.

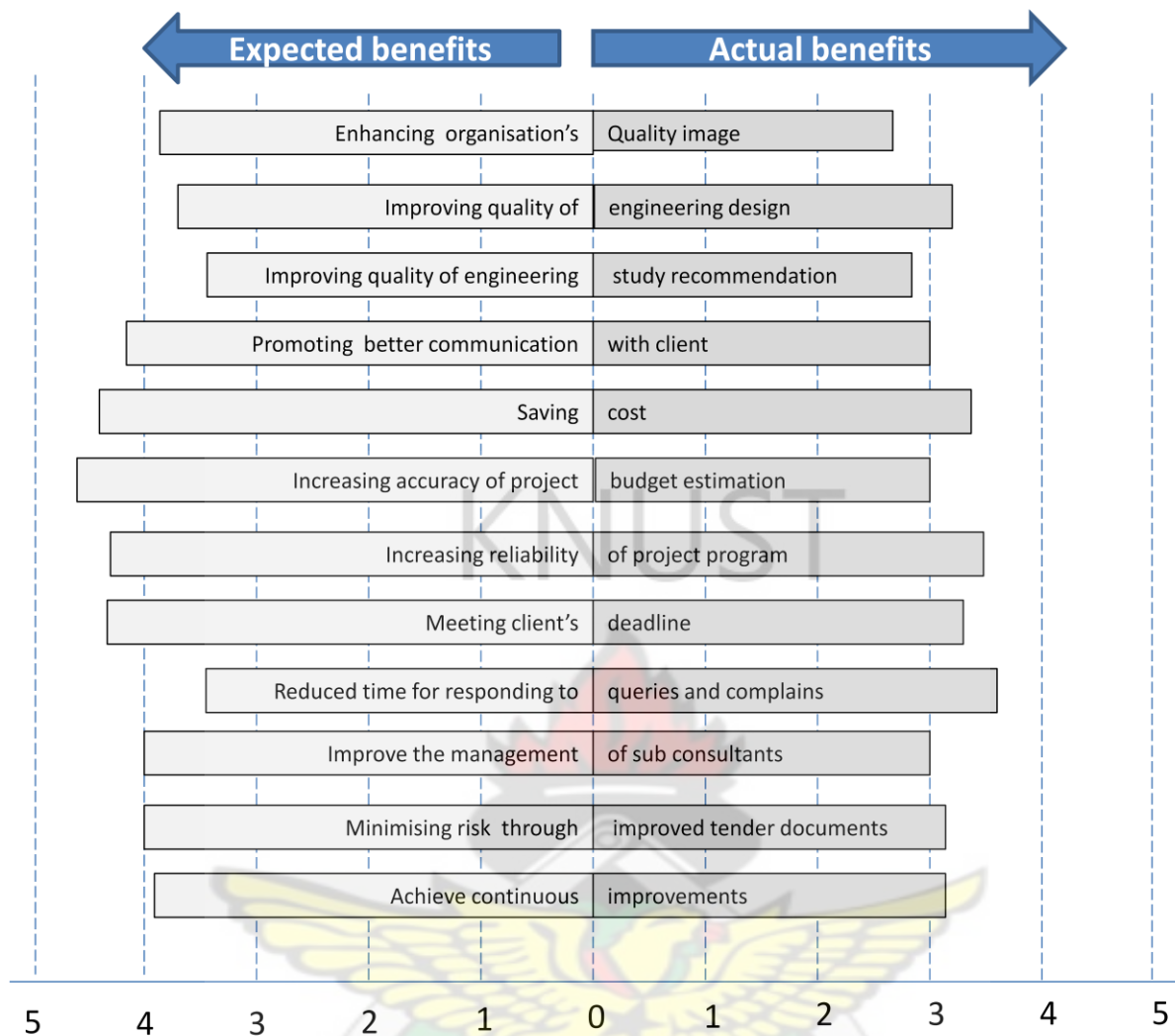
Table 4.11 is a summary of the scores for expected and actual benefits.

**Table 4.11 Mean Expected and Actual Benefits**

Benefits	Mean expected score	Mean actual Score
Enhancing organisations quality image	3.86	2.67

Improving quality of engineering design	3.70	3.19
Improving quality of engineering study recommendation	3.44	2.84
Promoting better communication with client	4.16	3.00
Saving cost	4.40	3.37
Increasing accuracy of project budget estimation	4.60	2.98
Increasing reliability of project program	4.10	3.49
Meeting client's deadline	4.13	3.30
Reduced time for responding to queries and complains	3.95	3.60
Improve the management of sub consultants	3.93	3.02
Minimising risk through improved tender documents	4.19	3.14
Achieve continuous improvements	3.91	3.14

A comparism of the mean expected and actual benefits as shown in table 4.10 above reveal that the mean expected scores are higher than the mean actual benefits for all benefits. This shows that on a face value, it can be concluded that benefits derived from consultants are lower than DAs expectations. Figure 4.6 further illustrates pictorially, the values of the expected and actual benefits.



**Fig 4.6 Expected and Actual Benefits**

#### 4.3.4 Analysis of Variances

A one-way analysis of variance was used to establish statistically if there were differences between the expected benefits and actual benefits. Table of 4. 12 show the results of the analysis.

**Table 4.12 Analysis of variance in Expected and Actual Benefits**

Benefit of ISO9000 QMS implementation	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Enhancing organisations quality image	30.244	1	30.244	34.053	9.8E-08	3.955
Improving quality of engineering design	5.628	1	5.628	6.255	0.01433	3.955
Improving quality of engineering study recommendation	7.860	1	7.860	6.706	0.01133	3.955
Promoting better communication with client	29.070	1	29.070	48.974	5.9E-10	3.955
Saving cost	22.512	1	22.512	34.808	7.4E-08	3.955
Increasing accuracy of project budget estimation	56.977	1	56.977	121.919	4.9E-18	3.955
Increasing reliability of project program	14.244	1	14.244	24.020	4.6E-06	3.955
Meeting client's deadline	22.512	1	22.512	44.481	2.6E-09	3.955
Reduced time for responding to queries and complains	2.616	1	2.616	4.211	0.04327	3.955
Improve the management of sub consultants	17.686	1	17.686	18.624	4.3E-05	3.955
Minimising risk through improved tender documents	23.547	1	23.547	47.461	9.6E-10	3.955
Achieve continuous improvements	12.663	1	12.663	19.413	3.1E-05	3.955

Statistical difference between two sets of data can be determined by comparing the P-values generated from the analysis of the variances. At 5%, p values less than 0.05 imply a difference in the data and p- values greater than 0.05 imply no difference. From table 4.11, all the p-values are less than 0.05 meaning that there are significant differences in all the data sets. The expected benefits are statistically different from the actual benefits for each benefit.

By referring to F ratios, the benefits that exhibited the greatest difference or similarity can be identified. A large F value implies a large difference while a small F value implies a small difference. Very large F ratios were recorded for the following benefits meaning very large differences:

- Increasing accuracy of project budget estimation.
- Meeting client's deadline.
- Minimising risk through improved tender documents.
- "Increasing accuracy of project budget.

The largest F ratio of 121 was in the benefit "Increasing accuracy of project budget estimation" meaning it was the benefits that had the widest gap between the actual and expected benefits. This may be so because of the very high budgets overruns incurred by the DAs. Consultants do not help DAs much in executing their projects within budget. Thus consultants have to improve on their project budget estimation. Other benefits like "meeting client's deadline" and "minimising risk through improved tender documents" had high F ratios of 44.46 and 47.46 respectively, also suggesting that consultants need to take a critical look at meeting deadlines and minimising risks on behalf of DAs. The benefits with the least F ratios were "reduced time for responding to complaints" and "queries and improved quality of their designs" with ratios of 4.21 and 6.25 respectively. These were the only benefits where the expectations were close to the actual benefits.

## CHAPTER 5

### CONCLUSION AND RECOMMENDATIONS

#### 5.1 Introduction

This chapter presents the conclusion and recommendation of the study on the performance of District Assembly project Consultants on District Assembly Common Fund projects. This

evaluation is based on the list of roles of consultants listed by the HKHA (2002) and the responses of District Assemblies in Ghana as discussed in previous chapters.

## **5.2 Conclusion**

This section summarises the main findings of this report in the light of research questions set in the first chapter of this report. Below are the answers to each specific research questions.

### **5.2.1 Research question 1- Which roles of the project consultants are most important to DAs?**

It can be concluded from the study that the District Assemblies were of the opinion that the under listed roles of consultants were most important to them:

- Design solution
- Presentation of drawings
- Quality of tender documents
- Tender evaluation
- Supervision of contractors and quality of end product
- Final measurement and final account

### **5.2.2 Research Question 2- How have DA project consultants performed on DACF projects?**

District Assemblies achieved an overall grading of 62% in both project related and general roles of consultants. It can be concluded from the study that District Assemblies were not excited about the overall performance of their project consultants. The performance of DAs consultants on DACF projects can be described as average. Consultants of DA projects however perform well in the following project based roles:

- Quality of recommendation;



- Presentation of report;
- Design solution;
- Quality of tender documents;
- Tender evaluation;
- Handling of claims;
- Final measurements.

Districts Assemblies were of the opinion that the consultants performed well in the following general roles:

- Effectiveness in surmounting projects;
- Relationship with clients;
- Responsiveness of principals

District Assemblies were also of the opinion that Consultants did not perform well in the following:

- Presentation of drawings.
- Collection of information during the design phase.
- Cost estimates in both planning and design phase.
- Supervision of contractors.

**5.2.3 Research Question 3** – Is there any significant difference between the expected benefits of ISO 9000 QMS implementation and the actual benefits DAs derive from consultants?

At 5% level of significance, there were significant differences between the expected benefits of ISO 9000 implementation and the actual benefits the District Assemblies derived from their consultants. This provides a basis to advocate for the introduction and implementation of compulsory certification of public sector consultants in Ghana.

#### **5.2.4 Other Conclusions**

It can also be concluded that most District Assemblies do not include evaluation of the output of their consultants in their contract with the consultants. Additionally, they also do not evaluate the work of their consultants on common fund projects. It can also be concluded that only a few professionals at the DA Works Departments have good knowledge of ISO 9000 QMS.

#### **5.2.5 Performance of Consultants**

The performance of Consultants of DAs that took part in the study can be graded as average. Consultants have to do more to significantly improve their work for DAs to achieve greater satisfaction.

#### **5.3 Recommendations**

For consultants to meet their clients expectation and clients also achieve the satisfaction they require, the following are recommended:

- District Assemblies should include evaluation of their building consultants in their contract with their consultants.
- District Assemblies should evaluate their consultants on all projects in order to ensure performance and provide much needed feedback for consultants.
- Consultants should embrace the idea of evaluation by their clients in order assess their performance to identify areas requiring improvement.
- Consultants should improve in the following roles:
  - Presentation of drawings.
  - Collection of information during the design phase.

- Cost estimates in both planning and design phase.
- Supervision of contractors
- Capacity and knowledge of building professionals at the District Assemblies should be improved on contemporary issues.

#### 5.4 Further Study Areas

To realise the full potential benefit of this study, it is recommended further studies be conducted in the following:

- Developing a model for evaluation of consultants' performance on public projects acceptable to both consultants and clients.
- Performance evaluation of consultants of private clients in Ghana.
- Implementation of ISO 9000 QMS in Ghana; merits and demerits.
- Towards improving the performance of consultants on public and private projects.
- Further studies on the Performance of DA consultants on a region by region basis to complement this study because of the low response rate achieved in this study.

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## APPENDIX A- QUESTIONNAIRE



## APPENDIX A- QUESTIONNAIRE

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