UNIVERSITY OF CAPE COAST

IMPROVING THE MANAGEMENT OF COUNCIL FOR SCIENTIFIC AND INDUSTRIAL RESEARCH INSTITUTES: THE ROLE OF DIRECTORS

BY

SAMPSON KWADWO BOATENG

DISSERTATION PRESENTED TO THE INSTITUTE FOR DEVELOPMENT STUDIES. UNIVERSITY OF CAPE COAST IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF A MASTER OF ARTS DEGREE IN HUMAN RESOURCE MANAGEMENT

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2009

DECLARATION

Candidate's Declaration

I hereby declare that this dissertation is the result of my own original work and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature: …… Date: ……..

Name: Sampson Kwadwo Boateng

Supervisor's Declaration

I hereby declare that the preparation and presentation of the dissertation were supervised in accordance with guidelines on supervision of dissertation as laid down by the University of Cape Coast.

Supervisor's Signature: …… Date: ……..

Name: Mr. Frederick Koomson

ABSTRACT

The Management of research organisations at all levels is in most cases in the hands of veteran agricultural research workers who have risen through the ranks. They are then made responsible for managerial activities in an extremely complex field, for which they have had little or no training. Administrative understanding is usually incidental and rarely present. This study focused on managerial challenges faced by directors of CSIR institutes and how they can be assisted to achieve managerial improvement.

The study covered 22 directors made up of 11 Directors and 11 Deputy Directors. 18 responded to the questionnaire, The data were analyzed using the SPSS Software and the results were summarized and presented as indicated in chapter four.

The study revealed that the major challenge faced by directors in managing the institute is managing the human resource. The results also showed that directors require training in human resource management and financial management. Also the majority of directors agreed to the urgent need for regular training in management skills for institute directors.

The study therefore recommends that the management of the CSIR should organize management training courses to equip directors with human resources and financial management skills.

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Lastly, I am grateful to the management of the Oil Palm Research Institute for the opportunity to pursue this course and to all those who in diverse ways have contribute to this work.

DEDICATION

To my wife Abena and my children Nana Afua, Ewura Ama and Nana Kwame for their support and endurance.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER ONE

INTRODUCTION

Background to the study

There has been a tremendous development of agricultural research in developing countries over the pasts few decades, during which time investment in agricultural research from both national and international assistance has increased significantly. With this development, the problems of hunger and malnutrition, it was expected, would fall to the march of science. But these agricultural organisations and resources did not meet the expectations. In identifying the problem the Food and Agricultural Organisation of the United Nations indicated that 'Management skills obviously were not adequate, and hence a constraint' (FAO, 1997).

According to Arnon (1968), the management of the research organisation at all levels is in most cases in the hands of veteran agricultural research workers who have risen from the ranks. However, here we have people who by training and inclination have usually been conditioned to averseness to administration in all its manifestations. They are then made responsible for managerial activities in an extremely complex field, for which they have had little or no training whatsoever and for which their only qualifications are their individual character

traits and standing with their research colleagues. Administrative understanding is usually incidental and rarely present.

From FAO's review and planning missions and recommendations arising from expert consultations and seminars, increasingly the message was that poor management of existing human, financial and physical resources was the greatest bottleneck to agricultural research in developing economies (FAO, 1997).)

In order to address this problem of inadequate management skills among directors of institutes, the CSIR in conjunction with the Ghana Institute of Management and Public Administration (GIMPA) has been organising courses in management for its top management personnel namely corporate directors and institute directors Orientation course is also organized for newly appointed directors to introduce them to their new role. Some directors of institute on their own attend seminars and, workshops to address their management knowledge or skill inadequacies. Another way of trying to improve the managerial capacity of directors is to appoint them to acting position initially. This it is hoped will give them the necessary managerial experience before they become the substantive director. The study is therefore to investigate managerial challenges faced by CSIR directors of Institutes and how they can be assisted to achieve managerial improvement.

The role of institute directors in the management of Institutes

Section 17 (3) of the Council for Scientific and Industrial Research Act, 1996 Act 521 states that the Council shall appoint a Director or a suitable person

to be in charge of each institute or organ under its control upon terms and conditions as the council may determine: subsection (4) states among other things that the person in charge of an institute shall be responsible for the day-to-day management of the institute. Therefore the Director is the manager of the Institute. As the manger of an Institute; the Director is involved in performing the general planning, organising, controlling and leading functions which all managers no matter where they find themselves must perform.

In the Daily Graphic, of Wednesday, June 11, 2008 vacancy announcement inviting suitable applicants to fill the vacant Director positions in two of the Council's Institutes; namely Plant Genetic Resource Research Institute, and Institute for Scientific and Technological Information indicated the role of the successful applicant as:

- Serve as the Head of the Institute and will be responsible for day-to-day Administration of the affairs of the Institute.
- Be responsible for establishing effective linkage with relevant institutions and agencies within and outside the CSIR.
- Be responsible for the co-ordination of prioritized research of the
- Institute under the broad guidance of the Director-General
- Promote the transfer of technology to industry/agricultural business.
- Co-ordinate research funding initiatives, and provide services and inputs to determine research priorities, as well as formulate and implement Science and Technology Plans.
- Be responsible for the overall management and development of the

- human resources base of the Institute

As Head of Institute responsible for the day-to-day administration of the Affairs of the Institute, the role requires the Director to plan, organize, lead and control the day-to-day activities of the organisation. The Institute's core business is the most important determinant of the key activities of the Institute. The Director communicates effectively the Institute's mandate mission and vision to all staff and show how effective performance of each and everyone's job will lead to the attainment of the objectives of the Institute.

In performing the role of the day to day management of the Institute, the Director delegates some of his responsibilities since it is impossible for him to perform all the functions necessary for efficient management of the Institute. The Director therefore delegates some of the functions to the Deputy Director and Heads of Division to perform. The Institutes are required to submit reports and other deliverables to government and other agencies both local and international. The Director ensures that everything possible is done to avoid default. He therefore maintains a permanent schedule of deliverables with internal and external deadlines, establishes an internal review system to improve quality, and submit on or ahead of time Annual reports, quarterly progress reports and responds to request for information promptly. The Director builds effective networks of contact to seek current information from many sources and stay well informed and uses this information to the advantage of his Institute.

In the research Institutes the research programmes are the main focus of activity. The Director formulates and implements research programmes relating

to mandate and national development. The Director ensures that the commitment of time and resources as well as output reflect the generation and application of knowledge for development. In this regard, he monitors projects against a clear plan with identifiable deliverables and output. Due to inadequate resources, holistic planning; prioritization and targeting are essential. The Director ensures good proposal writing skills to improve programme funding. He organizes seminars to improve the research environment, build balanced projects teams if possible, across divisions; including experienced as well as young researchers to provide a learning experience for the young researchers thereby building their capacity.

The commercialization programme of the institute is intended to give an application outlet to innovations and generated technologies and generate demand and income for the institute. Therefore Directors work on demand driven research that has the potential to strongly promote the organisation while providing solutions to national development. In order to promote the transfer of technology, the Director deals with problems of lack of capital and adequate funds to enable demonstrations or pilot projects to be mounted to entice the business community to adopt the technology or innovation.

The low level of government budgetary allocation given to CSIR institutes requires Directors to devise more aggressive and innovative ways of funding initiative for their Institute ways of increasing donor funding and raising internally generated funds to keep the core business of research to achieve

mandate on course Familiarity and implementation of financial regulations are important for the efficient financial management

of the Institute.

Human Resource Management at the Institute is at three levels: Senior members, senior staff and junior staff. In all these categories we have the core staff and the supporting staff.

The Director fosters team work among research staff and support staff so that each of these groups will feel it is needed in the achievement of the Institute's mandate He ensures that qualified and skilled personnel

are appointed, trained and retained in the Institute. The Director ensures that appropriate staffing levels especially of support staff are maintain in line with industry norm to avoid overstaffing which is costly. He also ensures that procedures for promotion and career development are transparent and clearly communicated.

Another area with regard to the management and development of the human resource base of the Institute is performance appraisal. The Director as manager of an Institute ensures that the performance of personnel matches up to predetermined target and if not take corrective measures to improve performance. He creates an environment in which the workers work together as a team with a sense of belonging and dedication. The Director is the Chief Disciplinarian of the Institute and therefore ensures that disciplinary action is administered without fear or favour.

The Director is responsible for the management of physical assets of the institute such as land and infrastructure including buildings, road, water supply facilities, office, laboratory equipments, office accessories and consumables. To ensure that the physical assets contribute to the achievement of the Institute's mandate. He maintains and improves these assets, provide security and protection for them and also match major assets to core business.

The role of the director of a CSIR institute as outlined variously above is bound to be complex and difficult. The head of a research organisation must be both a scientist and an administrator. The larger the organisation, the greater will be the demands for management skills and organisational ability (Arnon, 1968).

Statement of the problem

Directors of CSIR Institutes are generally accomplished Research Scientists with significant research output in terms of scientific publications and technical reports. These are scientists who spent greater part of their working life as research scientists. Most of these Directors were appointed from either the rank of Deputy Director, Acting Director, or Head of Division of an Institute to the Directorship position. It is therefore assumed that the Research Scientist would have acquired or gained a lot of experience whilst serving in those positions. However, most of them find the experience gained in those positions inadequate. On-the-job training alone is not sufficient for Research Scientists to enable them manage Institutes effectively. Without the skills to manage and

supervise effectively, the Director of an Institute could easily fail in carrying out his role.

According to Douglas (2003), it is an accepted truism that some people who are truly gifted from a scientific and technical point of view find their career progress checked by their fundamental difficulties with managing people. They cannot be blamed for their lack of facility in this area: their entire training has been based around acquiring the vigorous knowledge they need to succeed at a technical level in their profession or industry. Expecting them automatically to excel at managing people is at best naive and at worst quite unreasonable.

Professional education offered to scientist does not usually include management education. Also there is no systematic programme of instructions for Research Scientists in management that will provide the skills necessary for effective performance of their role as managers of research institute. For these reasons, research scientists lag behind in managerial knowledge, skills and attitudes necessary for effective management of the Institutes when appointed Directors. The study is to identify managerial challenges faced by CSIR Directors and how they can be assisted to achieve managerial improvement

Objectives of the study

The main objective of the study is to investigate managerial challenges faced by Directors of CSIR and how they can be assisted to achieve managerial improvement.

The specific objectives are:

- Describe the management process of CSIR Institutes
- Examine the management challenges faced by Directors
- Assess the training needs of Directors
- Make recommendations towards improving the managerial skills of Directors

Research questions

- How do Directors of CSIR manage the Institute?
- What challenges do Directors face in managing the Institutes?
- What training do Directors of CSIR Institutes need to enable them function effectively?
- How can managerial capacity building for Directors be strategically planned

Significance of the study

- It is hoped the study will contribute to improving the job performance of Directors of Institutes by identifying relevant managerial training to be given to Directors to enhance their role which will lead to efficient management of Institutes.
- The study will help make a smooth transition from Research Scientist to Director or Deputy Director position

- The study will help the CSIR to take stock of the management situation in Institutes with a view to improving management capabilities and competence through relevant training and development.
- It will provide valuable information on the benefit of giving relevant management training on the appointment of new management personnel who do not have management background.

Limitations of the study

The study encountered the usual limitations realised with the questionnaire method concerning distributions and collection of data such as interpretation of questions or items by respondents, honesty of respondents, willingness of respondents to answer questions and less than 100% return rate.

Organisation of study

The first chapter gives an introduction to the study. In chapter two, literature on management and management of research organisation was reviewed. The third chapter describes the methodology for the study. Chapter four focuses on data analysis and interpretations. Chapter five covered the summary, conclusions and, recommendations of the study.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter looks at relevant literature on concept of management and management functions, management of research organisations, role of the director of a research organisation, and management skills.

Classical foundations of management

The development of management principles has had a fairly long history. Most of the credits for developing these principles and views have been attributed to pioneers such as Frederick Winslow Taylor, originator of scientific management style, Henri Fayol who conceived the general and industrial administrative system and Max Weber, who believed in one best organisational structure. Classical management consists primarily of three streams of thought or theoretical foundations. The first is concerned with productivity and is most closely identified with Frederick W. Taylor's theory of scientific management. The scientific management theory emphasized the use of scientific methods to enhance worker productivity. Other pioneers of scientific management were the couple Frank B. and Lillian Gilberth. The Gilbreths worked together on work study and motion and on ways to improve welfare of the individual worker. The

concern of the second stream, administrative management, is administration. Contributors to this perspective identified principles of management that they suggested should be applied universally in a wide range of organisations including military, religious, and governmental agencies as well as business firms. This emphasis is most often identified with Frenchman Henri Fayol, although he was only one of many contributors to the administrative management stream. He felt strongly that, to be successful, managers had only to understand the basic managerial functions – planning, organising, leading and controlling and to apply certain management principles to them. He also developed fourteen management principles and suggested that managers receive formal training in their application. The third major stream, bureaucratic theory, which proposes that bureaucracy is the optimum form of organisation, is concerned with the structure of formal organisations and is identified primarily with Max Weber, a German scholar and author. Weber believed in one best organisation structure a highly formal and goal-oriented structure in which human emotions, personal bias, and charismatic leadership are subordinated to rational thinking and impersonal decision making. Weber proposed that this form was the most efficient and should be used in complex organisations. The contributions of classical management writers have the following three elements in common:

Firstly, concern for productivity: Classical writers were concerned with efficient production and distribution of goods and services. With a few notable

exceptions, the emphasis on production led to minimizing the value of individuals.

Secondly, a rational view of human nature: Classical thinkers were strongly influenced by Adam Smith, who is best known for his formulation of capitalistic economic theory and for the assumption that people choose the course of action, from among their choices, that maximizes their own self-interests. This view strongly influenced classical thought regarding how managers should motivate workers.

Thirdly, a Search for Universals: Classical thinkers were constantly searching for the one best way: for the most efficient work method the best principles of management, and the ideal organisation structure. That point of view is best understood by contrasting it with modern attempts to discover the work methods, management practices, and forms of organisation that are most effective in particular situations. Management today reflects the evolution of concepts and viewpoints and experience gained over many decades. These viewpoints are based on different assumptions about the behaviour of people in organisations, the key goals of organisations, the types of problems faced, and the methods that should be used to solve those problems.

The concept of management

Albanese (1988) defines management as the process of developing and maintaining work environments in which people can accomplish organisational and personal goals efficiently and effectively. According to Hellriegel and

Slocum (1996), Management involves planning, organising, leading, and controlling the people working in an organisation to achieve the organisation's goals. Daft and Marcic, (1998) also define management as the attainment of organisational goals in an effective and efficient manner through planning, organising, leading, and controlling organisational resources. Cole (2004), defines management as a collection of activities involving planning, organising, motivation and controlling.

According to Mullins (2005) Management is a generic term and subject to many interpretations. The variety of approaches to the theoretical background of management has produced a number of definitions of what is meant by the term management depending on what one wishes to emphasize. Rue and Byars (2005) explain management as a process of deciding how best to use a business's resources to produce goods or provide services.

Peter Drucker (1979) sees management as denoting a function as well as the people who discharge it, a social position and authority and also a discipline and a field of study. It is not easy to find agreement on the definition of management or of a manager. One approach is to analyse the nature of management and to identify common activities and principles (Mullins, 2005). According to Mullins (2005) if we look at how people at work actually spend their time we should be able to distinguish between those whose main occupation is to carry out discrete tasks and the actual doing of work and those who spend proportionally more of their time in determining the nature of work to be undertaken by other people, the planning and organising of their work, issuing

them with instruction and giving advice, and checking on their performance. By distinguishing managing from doing, the nature of managerial work can be summarized as planning, organising, leading and controlling. The classical function approach provides a clear and discrete method of classifying the thousand of activities that manager's carryout and the techniques they use in terms of the functions they perform for the achievement of goals (Carrol and Gillen, 1987).

A common theme which is therefore deduced from the above is, first, management as a function involves the acquisition and utilization of limited resources to achieve stated objectives. The ultimate aim of performing this function is to achieve a given level of output with the minimum utilization of available resources. Secondly, management as the group that carries out the function refers to the collective administrative heads who are responsible for conducting the affairs of the organisation.

It is hierarchically structured and descends through many levels with various degree of authority and responsibility for guiding the organisation to achieve its objectives

Managerial functions are the general administrative duties that need to be carried out in virtually all productive organisations. Fayol (1949) identified five managerial functions: planning, organising, commanding, coordination and controlling. Fayol claims that these five functions are the common denominators of all managerial jobs, whatever the purpose of the organisation However the main managerial functions of a manager would seem to revolve around planning,

organising leading and controlling which are important elements of the Directors job as a manager of an institute. A person who does not perform these functions is not a manager in the true sense of the word, regardless of title (Haimann, 1991).

Managerial functions

Managers in all organisations, from small business to large companies engage in some basic activities to achieve their objectives. These activities are planning, organising, leading and controlling.

Planning

According to Hellriegel and Slocum (1996), planning involves defining organisational goals and proposing ways to reach them. It is the primary management function and is inherent in everything a manager does. It is futile for a manager to attempt to perform the other management functions without having a plan (Rue and Byars, 2005). Planning is the process of deciding what objectives to pursue during a future time period and what to do to achieve objectives (Rue and Byars, 2005).

Hellriegel and Slocum (1996) suggest that managers plan for three reasons first to establish an overall direction for the organisation's future; secondly to identify and commit the organisation's resources to achieving its goals; and thirdly to decide which activities are necessary to do so.

Planning provides a means for actively involving personnel from all areas of the organisation in the management of the organisation. Involvement produces

a multitude of benefits (Rue, and Byars, 2005): First, input from the organisation improves the quality of the plans; good suggestions can come from any level in the organisation. Involvement in the planning process also enhances the overall understanding of the organisation's direction. Knowing the big picture can minimize friction among departments, sections, and individual.

Planning can also have positive effects on managerial performance. Studies have shown that employees who stress planning earn high performance rating from supervisors (Hemphill, 1964). They have also demonstrated that planning has a positive impact on the quality of

work produced. While some have proven inconclusive; several studies have reported a positive relationship between planning and certain measures of organisational success such as profits and goals (Schraeder, 2002).

DuBrin and Ireland (1989) have suggested that effective planning involves decision making about the strategies to implement to achieve intended objective, allocation of resources, scheduling to ensure timely completion of different plans and establishing the controls needed to make sure intended objectives are achieved.

Ideally all levels of management within an organisation develop plans. A plan orchestrated by top management of an organisation is usually called a strategic plan and deals with long-range time spans. Once the strategic plan has been developed, specific plans for the different parts of the organisation are derived from it. As the planning process moves down to lower levels in the organisation, it becomes narrower in scope and covers shorter time spans.

Furthermore, as plans cascade downwards through the organisation, they become more specific and detailed in nature.

The process of developing strategic plans and keeping them current as changes occur internally and in the environment is called strategic management. (Pearce and Robinson, 2003) define strategic management as the set of decisions and actions that results in the formulation and implementation of plans designed to achieve a company's objectives. It is through the strategic management process that top management determines the long-run direction and performance of an organisation by ensuring careful formulation, proper implementation, and continuous evaluation of plans. Although orchestrated by top management, successful strategic management involves many different levels in the organisation including supervisors. Unfortunately, many managers think that strategic management is just for top managers and of little concern for supervisors (Buhler, 1994). Engaging in the strategic management process allows supervisors to see the "big picture" by viewing the organisation as an integrated whole. A positive outcome of this exposure is that supervisors develop more conceptual skills and better decision making skills (Rue and Byars, 2005). Not only does this better prepare supervisors to make daily decisions but also prepare them to move up in the organisation.

Effective management demands optimum use of organisations resources. The manager entrusted with the management of both employees and physical resources of the organisation and has at his/her disposal equipment, tools, and materials. How all these resources are used are primary responsibility and the

basis on your managerial performance is judged. Only by planning will the manager be able to make the best possible use of these resources.

Organising

When goals have been established, a manager creates a way to accomplish them. In other words through organising he or she develops a system in which people can perform tasks that lead to the desired results (Kinard, 1988). Most work today is accomplished through organisation. An organisation is a group of people working together in some type of concerted or coordinated effort to attain objectives (Rue and Byars. 2005). As such, an organisation provides a vehicle for implementing strategy and accomplishing objectives that could not be achieved by individuals working separately.

According to Daft and Marcic (1998), organising involves the assignment of tasks into departments, and allocation of resources to departments. Organising is the process of creating a structure of relationships that enables employees to carry out management plans and meet its goals. By organising effectively, managers can better coordinate human and material resources. Organising is not primarily concerned with specifying goals and tasks. However, the way things are organized will have a bearing on the tasks which can be attempted and the degree to which they can be achieved (Smith, 2007).

Organising involves setting up departments and job descriptions (Hellriegel and Slocum, 1996). In this sense, staffing proceeds directly from planning and organising. The Staffing function of management involves hiring

and retaining a suitable workforce for the organisation both at managerial as well as non-managerial level. It involves the process of recruiting, selecting, training, developing, compensating and evaluating employees, and maintaining this workforce with proper incentive and motivation. The goal of staffing is to attain the best available people for the organisations and to develop the skills and abilities of those people.

According to Rue and Byras (2005), one of the primary reasons for organising is to establish lines of authority. Clear lines of authority create order within a group. Absence of authority almost always leads to chaotic situations where everyone is telling everyone else what to do. Secondly, organising improves the efficiency and quality of work through synergism. Synergism occurs when individuals or groups work together to produce a whole greater than the sum of the parts. For example synergism, results when three people working together produce more than three people working separately. Synergism can result from division of labour or from increased coordination, both of which are products of good organisation. A final reason for organising is to improve communication. A good organisation structure clearly defines channels of communication among members of the organisation. Such a system also ensures more efficient communication.

Organising also involves the assignment of each grouping to a manager with the authority necessary to supervise the people performing the activities. Thus, delegation of authority is a major part of organising function. Both organising and delegating are duties that a successful supervisor must master (Rue

and Byars, 2005). An organisation's success depends largely on management's ability to utilize resources efficiently and effectively

Authority in the Research Organisation

Authority is power derived from the rights that come with a position and represents the legitimate exercise of power. Authority can be viewed as a function of position, flowing from top to bottom, through the formal organisation. Thus, authority is one source of power for a manager. The lines of authority are established by the organisation structure and link the various organisation units together. Unclear lines of authority can create major confusion and conflict within organisations.

The concept of authority transmitted from basic social institutions to individual executives and which derives from the position held is called formal authority (Malinowski, 1960). Personal authority is an essential complement to official authority. It is based on intelligence, experience, leadership ability and professional standing, itself based on past services (Arnon, 1968). Functional authority refers to the technical competence to make decisions.

In research organisations the conflict between formal authority and technical competence is more apparent than real. The needs of specialization are taken care of in establishing the organisational pattern, the division of work and the delegation of authority. The hierarchical positions are filled by people with the requisite scientific competence. Potential discrepancies between formal authority and competence become most apparent at the top of the hierarchical

ladder. This is, however, a built-in defect which cannot be overcome by authority giving way to competence. At these levels a formal authority is required to co-ordinate between specialist groups. Key hierarchical posts have to be occupied by generalists, without whose mediation the warfare among experts might perhaps be fierce and produce less rational behaviour (Kaufman, 1962).

An analysis of the administration of research clearly indicates that there are distinct differences in the nature of authority exercised by the 'research line' at each level. At the top level, the director and his associates do not usually conduct research themselves; their responsibility is mainly administrative; formulation of research policy, selection of personnel, and the allocation of resources. As a rule this does not involve any direct interventions in the actual conduct of research by the individual scientist. Gross (1964) mentions the fallacy, rooted in 'organisation chart psychology', of thinking of the director of research as the man standing on top of a pyramid, who 'dominates' the organisation. Whilst the director retains the formal authority to approve a decision, in the formulation of the decision he/she usually depend to a large extent on consultation and persuasion.

At the head of department level, the responsibility is mainly one of co-ordination between divisions and ensuring the appropriate and effective framework for departmental research. It is only at the level of heads of divisions or laboratories that direct intervention in the conduct of research may be necessary and legitimate. This is the level at which there is practically no discrepancy between technical competence and authority and yet this is the type

of authority that is most likely to be resented by research workers. In general, it can be stated that authority and responsibility in the research organisation are diffuse; authority and dependence have an entirely different connotation than in other types of organisations (Arnon, 1968).

Delegation of authority in research organisation

In the research organisation, authority is centered in a chief executive. However, the manifold and complex duties of directors make it impossible for them to accomplish all their duties single-handed. It is therefore imperative for them to delegate authority to a number of associates by delegating authority; the director will find time and freedom to handle adequately the functions which devolve on him alone. A further need for delegation of authority arises from the requirement to divide the research organisation into a number of departments, each responsible for a certain field of activities, and subdivide these into division and laboratories. This obviously also entails delegation of authority without which, decentralization, which characterizes the research organisation, would be impossible (Arnon, 1968).

Substantial authority for making various decisions independently is therefore delegated to department and division heads, project leaders, and administrative executives. This results in a situation which grants a considerable degree of autonomy to the individual units of the organisation, with their specialized areas. Once granted, delegation of authority should not be partial or subject to continuous control. The incumbent should be given wide latitude in

performing his duties independently, on the tacit understanding that he is carrying out, in good faith, agreed policies, and is not acting in opposition to the views and wishes of his director. In case of doubt, it is obligatory to consult his director before making a decision.

Delegation of authority can be specific or general, but is always clearly defined. Authority is delegated as close to the point of action as it is possible, in order to obtain sound decisions (Karger and Murdick, 1963). The administrative authority for specific research projects, for instance, gets right down to the project leader; each researcher has authority to expend the funds allocated to him, without reference to higher authority, provided he stays within the broad lines of the approved allocation. He also takes the decisions in relation to technical assistance, the use of research facilities, related to his daily work.

Communication within the research organisation

One of the most important organisational requirements is the establishment of efficient channels of communication. Without effective communication, the individual research units will tend to become self-centered, co-ordination becomes difficult if not impossible, and instead of an organisation we have a loose collection of small units, located near each other but isolated from one another (Arnon, 1968). Communications are essential for co-ordination and co-operation at all levels within research units, between research units, and between research and administration.

Effective communication is no less important in the research organisation than in industrial enterprises. Information usually flows from the director to the researchers and administrative staff, side wards at each level, and upwards, in a feedback system.

Leadership

Leadership is an influence relationship among leaders and followers who intend real changes and outcomes that reflect their shared purpose (Rost, 1993). Leadership at work is a dynamic process whereby one individual in a group is not only responsible for the groups results, but actively seeks the collaboration and commitment of all the group members in achieving group goals in a particular context against the background of a particular culture (Cole, 2004). Leadership is the ability to influence people to willingly follow one's guidance or adhere to one's decision (Rue and Byars, 2005).

Leadership involves influence, it occurs among people, those people intentionally desire significant changes, and the changes reflect purposes shared by the leader and his followers. Leadership is related to motivation, the process of communication, the activities of groups and the process of delegation and empowerment (Mullins, 2005).

Theories of leadership

The leading theories of leadership that have been proposed over the past fifty years are generally classified under the traits theories, Styles theories and contingency theories. These will be examined in turn.

Traits theories

Early efforts to understand leadership success focused on the leader's personal traits. Traits are the distinguishing personal characteristics of a leader, such as intelligence, honesty, self-confidence, and appearance. Fundamental to this theory was the idea that some people are born with traits that make them natural leaders. The traits approach sought to identify the traits that leaders possessed that distinguished them from people who were not leaders. Generally, research found only a weak relationship between personal trait and leader success (Daft, 2002). Thus, the research in this area has generally been fruitless. Largely because the traits related to leadership in one case usually did not prove to be predictive in other cases (Rue and Byars, 2005). In general, it can be said that traits may to some extent influence the capacity to lead. But these traits must be analyzed in terms of the leadership situation (Rue and Byars, 2005).

Observations by managers and human resource specialist, as well as dozens of research studies indicate that leaders have certain personality traits. These characteristics contribute to leadership effectiveness in many situations as long as the leader's style fits the situation reasonably well. The qualities or traits approach gives rise to the questions: whether leaders are born or made; and

whether leadership is an art or a science. The important point, however, is that these are not mutually exclusive alternative. Even if there are certain inborn qualities which make a good leader, these mutual talents needs encouragement and development. Even if leadership is something of an art, it still requires the application of special skills and techniques (Mullins, 2005).

Leadership styles theories

According to (Mullins, 2005), a leadership style is the way in which the functions of leadership are carried out, the way in which the manager typically behaves towards members of the group. The attention given to leadership style is based on the assumption that subordinates are more likely to work effectively for managers who adopt a certain style of leadership than they will for managers who adopt alternative styles. This approach draws attention to the kinds of behaviour of people in leadership situations. One of the most extensive research studies on behavioural categories of leadership was the Ohio State leadership studies undertaken by the Bureau of Business Research at Ohio State University. The focus was on the effects of leadership styles on group performance. Results of the Ohio State University studies indicated two major diversions of leadership behavior labeled consideration and initiating structure.

Consideration describes the extent to which the leader establishes trust, mutual respect and rapport with the group and shows concern, warmth, support and consideration for subordinates. This dimension is associated with two-way communication, participation and the human relations approach to leadership.

Initiating structure referred to the extent to which the leader defines and structures group interactions towards the attainment of formal goals and organizes group activities. This dimension is associated with efforts to achieve organisational goals (Mullins, 2005).

Consideration and initiating structure were found to be uncorrelated and independent dimensions. A high consideration, high structure style, appears to be generally not effective in terms of subordinate satisfaction and group performance, but the evidence is conclusive and much seems to depend on the situation (Mullins, 2005)

Another major research study was carried out at the University of Michigan, Institute for Social Research at the same time as the Ohio State University studies. The study analyzed a number of variables between managers of high producing groups, and managers of low producing groups. The objective was to see if any significant differences could be identified, thus providing some clues to leadership behavior. In many respects, in terms of age, sex, marital status there were no such differences between the two groups. However, one significant difference that was noticed was that the supervisors in charge of the high producing groups tended to be employee related while their opposite members in the low-producing groups tended, ironically, to be production centered.

Likert (1961) who has summarized the findings of the University of Michigan studies, used the terms employee-centered and production centered supervisors. The employee-oriented supervisors paid more attention to relationship at work, exercised less direct supervision and encouraged employee

participation in decision making. Production oriented supervisors were more directive and more concerned with task needs than people need Both the Ohio and Michigan studies appear to support the idea that there is no single behavior category of leadership which is superior. There are many types of leadership behavior and their effectiveness depends upon the variable in a given situation.

McGregor's X and Y Theory

One of the most important leadership theories is that of Douglas McGregor, often referred to as McGregor's X and Y Theory. The way in which managers approach the performance of their jobs and the behaviour they display towards subordinate staff is likely to be conditioned by predispositions about people and human nature and work.

McGregor put forward two suppositions about human nature and behaviour at work. He argues that the style of management adopted is a function of the manager's attitude towards people and assumptions about human nature and behaviour. The two suppositions are called Theory X and Theory Y; and are based on polar assumptions about people and work. According to McGregor (1987), the central principle of Theory X is direction and control through a centralized system of organisation and the

exercise of authority. A theory X manager makes decisions unilaterally and does not consult with members of the organisation. Therefore the autocratic style of leadership minimizes the degree of involvement by subordinate. At the other extreme to Theory X is Theory Y which represents the assumptions consistent

with current research knowledge. The central principle of theory Y is the integration of individual and organisational goals. McGregor (1987) implies that a Theory Y approach is the best way to elicit cooperation from members of an organisation.

The two views of Theory X and Theory Y tend to represent extremes of the natural inclination of managers towards a particular style of behaviour. In practice, however, actual style of management behaviour adopted, however, will be influenced by the demands of the situation (Mullins, 2005)**.** Where the job offers a high degree of intrinsic satisfaction or involves a variety of tasks, and element of problem solving and the exercise of initiative, or where output is difficult to measure in quantitative terms, an informal, participative approach would seem to be more effective. It is more likely to lead to a higher level of staff morale. In many cases this would apply to work of a scientific, technical or professional nature. However, even if a manager has a basic belief in Theory X assumptions there may be occasions when it is necessary; or more appropriate to adopt a Theory Y approach.

Robert Tannenbaum and Warren Schmidt (1973) have argued that there is a continuum of leadership behaviour that may be employed, depending on the particular situation. Tannenbaum and Schmidt (1973) suggest that three important forces must be considered in determining what leadership style is most effective: forces in the leader in the subordinates, and in the situation.

The key to successful leadership, according to Tannenbaum and Schmidt, (1973) is for the supervisor to be keenly aware of these factors and to behave

appropriately in light of them. Successful leaders accurately understand not only themselves but also the other persons in the organisation and social environment, and they are able to behave correctly in light of these insights.

Fiedler's contingency studies of leadership

The leadership studies discussed so far is similar in that they did not specifically address complex difference between groups and their influences on leader behaviour. To imply that a manager should exhibit concern for both production and people does not say much about what the manager should do in a particular situation. Nor does it offer much guidance for daily leadership situations. As a result, the contingency approach to leadership focused on the style of leadership that is most effective in particular situation. One of the first studies using the contingency approach was conducted by Fred Fiedler. The major proposition in the contingency theory is the leader-match concept: leadership effectiveness depends on matching leaders to situations in which they can exercise more control (Dubrin, 1995).

Task motivated leaders perform better in situations that are highly favourable for exercising control, because they do not have to be concerned with the task. Instead they can work on relationships. In moderate favourable situations, the relationship-motivated leader works well because he or she can work on relationship and get involved in over managing. The contingency model demonstrates that there are many forms of leadership. Within an organisation different individual may fulfill the functions of leadership and there are many

different styles of leadership. A potential danger with the contingency approach is that the manager may appear to lack consistency in leadership style (Mullins, 2005).

Effective leadership is at the core of effective management (Kinard, 1988). The functional approach believes that the skills of leadership can be learnt develop and perfected (Mullins, 2005). From the view of organisational effectiveness, it is desirable for the manager to also be the leader. Thus it is essential to learn what other qualities and what other prerequisite must prevail to be a leader as well as a manager (Mullins, 2005).

Leading and developing employees are in many ways the core connection among planning and strategizing, organising, controlling and creating incentives (Hill and McShane, 2008). Without skilled leaders, strategy may fail. The organisation may become bureaucratic, control may

be lost, employees will lack incentives and motivation, and organisation may suffer insufficient human capital (Hill and Mcshane, 2008).

Patterns of leadership in research organisation

Neither the master apprentice relationship based on scientific superiority nor the boss subordinate relationship based on hierarchy is a suitable model for the agricultural research organisation. On the other hand, the view that high research achievement is possible only when research workers are left entirely to their own devices is also untenable. Too much independence may deprive the

young researcher of the stimulation that a competent chief can provide, whilst too close dependence may stifle individual initiative.

Arnon (1964), citing a study carried out by the University of Michigan, which investigated the relationship between supervision and research performance. It was found that frequent stimulation and encouragement from supervisors contribute to high research performance. At the same time it was concluded that subordinates should be given considerable freedom to make their own decisions and exercise their own initiative. Freedom for the researcher to carry out his work as he sees fit is generally regarded as a primary requirement that should not be curtailed. Petz (1956) distinguishes among three patterns of leader subordinate relationships; a 'directive,' autocratic type, a 'participatory', democratic type; and a laissez-faire pattern. In the 'directive' or 'authoritarian' leadership style, the leader dictates policy, techniques and work association, gives detailed instructions and maintains close supervision. All the members of his group are assistants who are doing work for the boss. It is usually leaders with a feeling of insecurity who tend to be authoritarian and to restrict the autonomy of their subordinates as far as possible. This approach is possible only with submissive, ineffectual individuals lacking in initiative and drive. More able research workers react to this type of leadership with hostility and frustration and will usually leave the organisation. Autocratic leadership therefore has no justification in a research organisation that aspires to maintain a high scientific level (Arnon, 1968).

In the participating, democratic type, initiative is encouraged, whilst help and advice are given freely. Glaser (1965) sees in the participatory type, an integrated work relationship between research supervisor and his group, the typical 'colleague authority' based on joint consultation and decision, especially regarding work assignments and problems. This relationship does not threaten the subordinate's autonomy. He feels that he gets help and advice from his leader whilst retaining a measure of influence on the research activities of his group and sufficient freedom for original thought. This approach emphasizes a relationship of working together without the inequality in status constituting a disturbing factor. The reciprocity in this relationship, the mutual helpfulness and the maintenance of individual autonomy ensure the stability of this relationship. Glaser (1965) stresses that supervisors highly competent in research are necessary for this relationship. It is not always possible to find research supervisors with the necessary high scientific competence needed for a satisfactory participatory leadership pattern. Nor is it easy to maintain a balance between taking an active interest in the work of a subordinate without undue intervention in its implementation. The University of Michigan research mentioned above indicated that in this case it was best for the supervisor to adopt a laisser-faire pattern, in which he practically abdicates his formal authority. Notwithstanding the high value that research attach to personal autonomy, they do not really favour laisser-faire leadership, in which the leader devotes most of his time and energies to his own scientific work with little or no contribution to the professional formation and scientific work in his group. Out of the three patterns of leadership in research

organisations, ‘directive’ or autocratic leadership has always been found to be the least effective (Arnon, 1968).

A ‘soft’ leader also has a bad effect on the morale of his group and of its productivity. Most leaders cannot be unequivocally classified within one of the three patterns described, but are usually a composite, in different degrees, of all three patterns, with one or another dominating.

It is even desirable for the individual leader to use the different leadership patterns according to circumstances and to adjust them to the individual researchers who work with and under him (Arnon, 1968). Whilst the participatory type of leadership is, as we have seen, the most appropriate for a research organisation, there remain certain functions which are the leader’s own responsibility.

Controlling

Once the planning, organising and leading activities are underway, then they must be monitored and measured, that is, controlled Hellriegel and Slocum (1996) define controlling as the process by which a person, group, or organisation consciously monitors performance and takes corrective action. Controlling means monitoring employees’ activities, determining whether the organisation is on target toward its goals, and making corrections as necessary (Daft and Marcic, 1998). The primary aim of control functions of management is to measure performance against aims, objectives and standards with a view to enabling

corrective actions to be taken, where necessary, to keep plans on course (Cole, 2004).

Management control is a systematic effort to set performance standards with planning objectives, to design information feedback systems to compare actual performance with these predetermined standards, to determine whether there are any deviations and to measure their significance, and to take any corrective action required to assure that all corporate resources are being used in the most efficient way possible in achieving corporate goals (Mockler, 1984).

According to Stoner, Freeman and Gilbert (1995) the controlling function of management involves establishing standards of performance, measuring current performance, comparing this performance to established standards, and taking corrective action if deviations are detected. These elements are confirmed by (Cole, 2004) when he says that the basic elements of control are establish standards of performance, measure performance, compare actual results against standards, take corrective action where required. Controlling is an essential managerial function for all managers at all levels in the organisation. Its purpose is to make certain that performance is consistent with plans, controlling ensures that the organisational and departmental goals and objectives are achieved.

The controlling function is closely related to the other four managerial functions, but it is most closely related to the planning function. Planning involves the establishment of organisational objectives and the development of strategies, while controlling establishes standards of performance and compares

actual results with the planned results to determine whether operations are being performed according to plan (Boone and Kurtz, 1992).

This is how planning decisions affect controls and how control decisions affect plans, illustrating the circular nature of the management process. Although the relationship between planning and controlling is particularly close, controlling is interwoven with all managerial functions. The better the manager plans, organizes, staffs, and influences, the better the supervisor can perform the controlling function, and vice versa Without controlling supervisors are not doing a complete job of managing (Haimann, 1991).

Organisation failure can occur when managers are not serious about control or lack control information (Daft and Marcic, 1998). The failure to support goals and. strategies and plans with adequate controls often accounts for ineffective managerial performance (Albanese,1981) At top management levels, a problem occurs when the organisation's goals are not being met. At middle and lower levels a problem occurs when the objective for which the manager is responsible are not being met. All forms of managerial controls are designed to give the manager information regarding progress. The manager can use this information to prevent crisis, standardized outputs, and appraises employee's performance and update plans.

Although controls are an absolute requirement in any organized activity, one must keep in mind that in behavioral terms control means placing constraints on behavior so that what people do in organisations is more or less predictable. Control systems are designed to regulate behavior, and this implies loss of

freedom. People react negatively to loss of freedom. The amount of control will determine how much freedom of action an individual has in performing the job. Complete absence of control, however, does not maximize the human perception of freedom. The reason for this is that controls not only restrict a person's behavior, but also the behavior of others toward him or her.

A certain amount of control, therefore, is essential for any organisational freedom. Neither the extremes of tight control nor complete lack of control, however, will bring about the desired organisational effectiveness. What is needed is a mixture between the two extremes that will take into consideration the amount of decentralization in the organisation, management styles, motivational factors, the situation and the professional competence of the employees (Haimann, 1991).

Managerial roles

Managers perform the four basic managerial functions of planning, organising, leading and controlling while playing a variety of managerial roles. Managerial roles are specific behaviours associated with the task of management (Hellriegel and Slocum, 1996). According to (Daft and Marcic (1998), a role is a set of expectations for a manager's behaviour. A role is an organized set of behaviour. Managers adopt the roles to achieve the basic functions of management.

Mintzberg (1973) studied various managerial jobs to arrive at the ten most common managerial roles. They may be grouped into three categories:

Interpersonal, managing through people, informational, managing by information; and decisional, managing action. Each role represents activities that managers undertake to ultimately accomplish the functions of planning, organising, leading, and controlling.

Interpersonal roles

Interpersonal roles pertain to relationships with others. In their roles as figurehead, leaders, liaisons, and managers relate directly to other people. The figurehead role involves handling ceremonial and symbolic activities. The manager represents the organisation in his formal managerial capacity as head of the organisation. The Director who attends a durbar at the District Assembly is performing duties of the figurehead role necessary to the Institute image and success. Although figurehead duties may not seem important, they are expected of managers because they symbolize management's concern for employees, customers, and the community.

The leader role encompasses relationships with subordinates, including motivation, communication and influence. Since the manager is responsible for the activities of his subordinates he must motivate them to perform better. He must be an exemplary leader so that his subordinate follows his direction and guidelines with respect and dedication. Liaison role pertains to the development of information sources both inside and outside. In addition to the manager's constant contact with his subordinates and peers, the manager must maintain a network of outside contact in order to assess the external environment of

competition, social changes or changes in governmental rules and regulation. This can be achieved by attending meetings, professional conferences, personal phone calls through mail and email.

Informational roles

Informational role describes the activities used to maintain and develop information network. Effective managers built network of contacts – The many contacts made while liaison performing figurehead and liaison roles give managers access to important information. Because of these contacts, managers are nerve centres of their organisations. Three roles- monitor, disseminator and spokesperson – comprise the informal aspects of managerial work. The monitor role involves seeking current information from many sources. The manager acquires information from others and scans written materials to stay well informed. In the disseminator role, the manager shares information with subordinates and other member of the organisation. The manager shares information regarding changes in policies or other matters to their subordinates, peers, and other members of the organisation. Successful managers do a good job of deciding which and how much information will be useful to others.

Finally, the spokesperson's role involves the manager as formal authority in transmitting information to people outside the organisation, such as board of director and other supervisors and the general public such as suppliers, customers, government departments and the press (Mullins 2005).

Decisional roles

Decisional roles pertain to those events about which the manager must make a choice and take action. Decisional roles are perhaps the most important of the three classes of role (Hellriegel and Slocum, 1996). As entrepreneurs, disturbance handlers, resource allocators, and negotiators, managers are at the core of the organisation's decision-making system. Entrepreneurial role is the manager's function to initiate and plan controlled change through exploiting opportunities or solving problems, and taking action to improve the existing situation. The manager may play a major part, personally, in seeking improvement, or may delegate responsibility to subordinates.

The disturbance handler role involves the manager in reacting to involuntary situations and unpredictable events. When an unexpected disturbance occurs the manager must take action to correct the situation.

The manager is constantly involved as an arbitrator in solving differences during subordinates or the employees' conflict with management. The resource allocator role pertains to decisions about how to allocate people, time, equipment, budget, and other resources to attain desired outcomes. The negotiator role is participation in negotiation activity with other individual's or organisations, for example a new agreement with a trade union. Because of the manager's authority, credibility, access to information and responsibility for resource allocation, negotiation is an important part of the job.

The ten roles suggest that the manager is in fact a specialist required to perform a particular set of specialized roles (Mullins, 2005). Mintzberg argues

that empirical evidence supports the contention that this set of roles is common to the work of all managers.

Managerial skills

Whatever the role of the manager or whether in the private or public sector, in order to carryout the process of management and the execution of work, the manager requires a combination of technical competence, social and human skills, and conceptual ability, (Katz, 1974). Also according to Boyatzis (1982), to fulfill these roles managers must possess several competencies- skills, values and motivational preferences that allow them to perform their job effectively and become proficient at planning, organising, controlling and leading Skills are specific abilities that results from knowledge, information, practice, and aptitude (Mullins, 2005). A manager's job requires a range of skills. Although some management theorists propose a long list of skills, the necessary skills critical to effective management of an organisation can be summarized in three categories: Technical, human and conceptual. The application of these skills changes as managers move up in the organisation.

Technical skills

Technical skills are the understanding of and proficiency in the performance of specific tasks. Technical skills basically involve the knowledge, methods and techniques and the ability to use these techniques in performing a job effectively. Many managers get promoted to their first management job by

having excellent technical skills. However, technical skills become less important than, human and conceptual skills as managers move up the hierarchy (Rue and Byars, 2005).

According to Douglas, (2003), it is an accepted truism that some people who are truly gifted from a scientific and technical point of view find their career progress checked by their fundamental difficulties with managing people. Also, according to Rue and Byars (1999), good technical skills and a good work record do not necessarily make a person a good supervisor in this case a good Director

Human skills

Human skills refer to interpersonal relationships in working with and through other people, and the exercise of judgment. Whatever the nature of the work and organisation, a manager achieves results through the performance of other people. The most valuable resource of any organisation is the people who work there, the human resource. The best utilization of the human resource of the organisation greatly depends on the managerial ability and understanding of the supervisor as manifested by his or her expertise in influencing and directing them (Haimann, 1991) The efficiency of staff, their commitment to the aims of the organisation, and the skills and attitudes they bring to bear on the quality of service offered are fostered by good human relationship and effective human resource management practice (Mullins, 2005). The effective management of people is influenced by the philosophy of top management and the attitudes which they bring to bear on relationship with staff, and the problems which affect them.

A distinctive feature of management is the ability to secure the effective use of the human resources of the organisation (Mullins, 2005). This skill is demonstrated in the way a manager relates to other people, including the ability to motivate, facilitate, coordinate, lead, communicate and resolve conflicts (Mullins, 2005). A manager with human skills allows subordinates to express themselves without fear of ridicule and encourages participation. It involves patience, trust, and genuine involvement in interpersonal relationships. This skill helps the manager in effectively interacting with others, which is truly conducive to high moral and necessary for organisational success In a study of thousands of managers at International Business Machines (IBM) Lacent, Pepsi Co, British Airways and hundreds of other diverse organisation by Spencer and Spencer, (1993) revealed that human skills are more important than technical and conceptual skills for managers across a wide range of managers.

In a study of functional specialists who have been appointed managers, Hill, (1992) notes that the most demanding issues managers enumerate in their first year on the job all had to do with “people challenges .They had to learn how to influence subordinates, peers, and their own bosses to get things done, and they to establish trust and credibility with subordinates, peers and bosses before they could influence them. The managers in Hill’s sturdy discovered that they had two sets of responsibilities, agenda setting for their teams and network building within the organisation

Conceptual skills

Conceptual skills are the skills managers use to think and conceptualize about abstract and complex situation (Robbins and Coulter, 2007). Conceptual skill involves the manager's thinking, information processing and planning abilities to develop the concepts appropriate for shaping a vision for the organisation and formulating and implementing strategic plans. Conceptual skills are especially important to the manager's decisional roles of entrepreneur, disturbance handler, resource allocator, and negotiator – all of which require an ability to scan the environment for trends. Conceptual skills are needed by all managers but are especially important for managers at the top. Top managers must perceive changes in the organisation's environment and respond to them promptly.

Effective managers are essential to the performance of all organisations whether they have the ability to plan, organize, lead, and control business operation effectively can determine a firm's ultimate success or failure (Kinard 1988). But more important good management practices can be learned and applied. Management success depends both on a fundamental understanding of the principles of management and on the application of technical, human and conceptual skills (Kinard, 1988). How does the manager acquire these very important managerial skills? The standard managerial skills can be learned (Haimann 1991). The skills involved in managing are as learnable and trainable as the skills involved in playing tennis (Haimann, 1991).

The role of the Director of research organisation

The research organisation is a complex and dynamic structure, and therefore the job of the director is bound to be complex and difficult. The basic objective of the director is to achieve an organisation that is efficient in attaining its objectives (Arnon, 1968). The functions of the research director are: planning, based on decision-making, organising for the most efficient implementation of the plan; ensuring effective communication within the organisations, coordinating the research effort; directing and administering and representing the organisation.

Planning

It has been shown that the ultimate responsibility for the research programme is in the hands of the Board or Council as is the case of the C S I R, Ghana. It is, however, the duty of the research director to screen the individual draft proposals of this programme, to submit them to the board of governors, research committee or other formal agency to obtain approval and support for his proposals (Arnon, 1968). Subsequently, the director of research has to solve the problems involved in carrying out the plan, and at the same time maintain the general scientific level of his organisation and the job satisfaction of his researchers. It is the director's responsibility to plot a general course and then to adjust, whenever necessary, its direction according to the changes in the general agricultural policies with which he should be familiar.

Organising

The principal function of the director is holding the research organisation together as a functional working unit and initiating reappraisal of the organisation in the light of changing programmes and policies. He is responsible for the organisation of the extremely diverse activities of a heterogeneous group of researchers (Campbell, 1953).

Co-ordinating and keeping in proper balance the various units of the research organisation is one of the main responsibilities of the research director. The objective is to ensure that the different parts of the organisation complement each other so that maximum productivity of the organisation is achieved.

It is the director's responsibility to ensure that the researchers have the personnel and equipment available that is needed to carry out adequately their research obligations. He establishes basic procedures and regulations to ensure an orderly functioning of the organisation, whilst at the same time holding in check excessive demands of the administrative personnel for paper-work by researchers. He reviews the estimates for research work, and will make the final assessment of budgetary proposals. He submits the formal report on achievements of the organisation to the appointing authority. It is his duty and prerogative to supervise the recruitment of scientific staff and the selection of senior administrators.

There are many occasions on which the director represents his organisation, and this may take up a considerable part of his time. He maintains frequent contacts with the highest echelons in the ministry, the national scientific council and farmers' organisations. He attends conferences, both national and

international, and a member of various boards, co-ordinating committees, ad hoc committees, scientific societies

Delegation of authority

It is a basic tenet of administration theory that the head of a large organisation should not be directly in charge of any of the major activities of the organisation, so that he is not handicapped in his ability to act as coordinator, to determine policy and to plan for the future (Arnon, 1968).

In the agricultural research organisation, there are two principal deputies: one for research, the other for administration (Arnon, 1968). The deputy or vice director for research comes immediately under the director in the organisational hierarchy. He has primary authority for the conduct and co-ordination of research, helping in the selection of research staff, determining the relative needs in personnel and equipment of individual research projects. He advises on the possibilities of collaboration between units within and outside the organisation. He reviews the scientific papers based on the research findings of the organisation.

He, in turn, delegates authority for a number of these activities to an assistant for research projects, and to a number of committees. The assistant director for administration assists the director with budgetary, control and personnel policies. He is in charge of the development of plant facilities, the running of the agricultural experiment stations, discipline and labour relations. He, in turn, is assisted by administrative personnel, each in charge of one of the

many fields of administrative activity; head of personnel, head of services, treasurer, superintendent of regional stations. The next question which then arises is: If every specialized function in the organisation is delegated to someone else, what is there left for the head of the organisation to do? As Braybrooke (1964) mentions, it would appear that, in a smoothly running organisation, the head would have practically nothing to do but approve the decisions of those who are in charge of the different activities of the organisation, and in all.

Transition from research work to research administration

The journey into management typically begins when people are successful at a specialist task for which they were initially hired. After promotion they may find themselves in charge of other people. At this point their management skills are just as important as their technical skills to fulfilling their responsibilities (Hill and McShane, 2008) People who cannot get things done through other people will not advance further (Hill and McShane, 2008).

In the research organisation 'leadership' consists of a combination of scientific and administrative work that may be, and usually is, a source of conflicts that increase as the administrative responsibility increases in relation to the scientific work (Arnon, 1968).

At the lower levels – as head of a research project, a laboratory or even a research division – the administrative responsibility is not a serious burden on the researcher. It is mainly a tool by which he can further his scientific work. The furtherance of his career is almost entirely dependent on his scientific

contributions; any irritations and apparent time-loss involved in his administrative activities are more than offset by the authority and prestige that are concomitant with his administrative standing.

With the next step upward in the administrative ladder, as head of a department, of a large interdisciplinary team or of a regional experiment station, the role conflict may assume serious proportions. The time and energy the researcher must devote to administrative functions increase, much of his effort is devoted to furthering the scientific work of his colleagues, whilst his own becomes more and more curtailed.

He becomes more concerned with coordinating and furthering the scientific activities of other specialists, with which he may be familiar but of which he is not the scientific leader-a dichotomy results between his role as scientist and his role as administrator.

It is the third level which really constitutes the point of no return, when an able scientist is called upon to head a large research institute or the agricultural research organisation as a whole. He usually has little understanding of the new role awaiting him, and even has negative feeling about it. Milberg (1957) calls attention to a certain inability on the part of scientists to define the research management task. He states that as the vagueness of terminology and conceptualization with which scientists describe the job of scientists that move to a managerial function, is highly uncharacteristic of the attitude of scientists to other matters.

On accepting a managerial appointment, the scientist is not immediately aware of a loss of professional activity, and may even delude himself into believing that he will be able to continue, albeit on a limited scale, his professional work. He soon realises that adequate attention to research, to writing and to keeping up with professional literature can be maintained only at the expense of his administrative responsibility (Arnon, 1968).

By the time he realises that he has actually made a choice between scientific endeavour and administration; he will find that the bridges behind him have already been burnt. It depends on how he faces this conflict on whether a good scientist has been sacrificed to obtain a bad, mediocre or an unhappy administrator (Gross, 1968) or whether he is able to overcome the emotional shock and to find his new occupation a challenge and a source of satisfaction

In a sturdy by Harvard Business School Professor, Linda Hill, of functional specialist who have been appointed into management positions, Hill (1992) conclude that the managers must see themselves not as technical experts or functional specialists, but as Leaders and network builders, not as bosses who get things done through command and control, but as people who get things done through their ability to influence and persuade others.

Training for administrative responsibilities

Cole (1997) defines training as any learning activity which is directed towards the acquisition of specific knowledge and skills for the purposes of an occupation or task.

Training is the planned and systematic modification of behavior through learning events programmes and instructions which enable individuals to achieve the levels of knowledge, skills and competence needed to carry out their work effectively (Armstsrong, 2003).

Most scientists undertaking the duties of director of a research organisation do not even realise how abysmally ignorant they are of the basic principles of management, and that learning administration science can help them to solve the innumerable administrative problems with which they will be faced in their ‘new career’, such as supervision of people, decisions on scientific programmes, and the budgeting of time, money and effort (Lorge 1957).

There are directors who deny the need for their fulfilling a managerial role and who insist that their main responsibility is to guide and direct the scientific work of the institution and to provide inspiration for its researchers (Lorge, 1957). Such a role is possible at the lower levels of research administration; at the level of director, this attitude is possible only if someone else assumes responsibility for the administrative role. If this ‘someone else’ is a scientist, we are simply begging the question; if he is a non-scientist, nothing remains of the axiom that the man who effectively directs the organisation should himself be a scientist. People trained exclusively in general management, without a research background, do not understand the potentialities of research, the idiosyncrasies of the researcher or how research has to be cared out.

In order to facilitate the transition from his vocation as a researcher to the administrative duties he assumes, educational programmes have been designed

which help scientists acquire the knowledge needed to carry out their new administrative responsibilities effectively (Arnon, 1968).

From the discussions above it is clear the Director of an Institute who is a scientist is involved in all the activities discussed so far in the management of an organisation. To succeed the Director will require other skills other than competence in technical skills. They who have always considered competence as an essential for a successful career should realise that they must also acquire competence in management if they are to be successful in their new and vital role. The first and basic innate quality required of the research administrator is leadership and ability to deal with a wide range of people (Arnon 1968).

CHAPTER THREE

METHODOLOGY

Introduction

This chapter deals with the various methods used in the study. These include a description of the study of organisation, the design, target population, sampling procedures, instrument, data collecting procedures and statistical technique for data analysis.

Study organisation

The Council for Scientific and Industrial Research (CSIR) was re-established in its present form by the CSIR Act 521 on November 26, 1996. The functions of the organisation as spelt out in the CSIR Act are to pursue the implementation of government policies on scientific research and development.

The headquarters of the CSIR is in Accra but its 13 full-time Research Institutes are spread out through Ghana. The majority of the Institutes are agriculture based. The list is presented below:

- Animal Research Institute
- Building and Road Research Institute
- Crops Research Institute
- Food Research Institute

- Forestry Research Institute
- Institute of Industrial Research
- Institute for scientific and technological information
- Oil Palm Research Institute
- Plant Genetic Resources Research Institute
- Savanna Agricultural Research Institute
- Soil Research Institute
- Science and Technology Policy Research Institute
- Water Research Institute.

Governance Structure

The CSIR organisational structure comprises

- 21 member governing Council
- Director-General as Chief Executive
- Deputy Director-General, Research and Development
- Corporate Directors/Institute Directors

The corporate Directors are:

- Director of Administration, who is also secretary to Council
- Director of Finance
- Director of Commercialization
- Director of Internal Audit

All the 13 Institutes of the CSIR are managed by Directors, namely:

Vision and mission statements

The vision statement of the CSIR is to transform the power of science and technology for wealth creation, its mission statement is to become the force for accelerated social and economic development of Ghana through examining, exploring and creating science and technology Catalysis for public and private wealth creation. This will be achieved through development and transfer of technologies and provision of services, scientific research and enquiry, and scientific publications.

Mandate

The CSIR is mandated to carry out Government policies on research into scientific and technological issues pertaining to national development. Its role ultimately is to provide inputs for sustainable socio-economic development through its research programmes, and to operate to ensure conservation of natural resources and promote sound environmental management.

Functions

The functions of the Council as stated by Act 521: The Council for scientific and Industrial Research Act, 1996 among others are:

- To conduct scientific and technological research and transfer technologies generated for national socio-economic development.

- To co-ordinate S & T research generally nationwide.
- To advise the Government of Ghana on current scientific and technological developments of importance to national socio-economic development.
- To cooperate and liaise with international and local bodies and organisations on matters of research.

The Council is a policy-making body overseeing the operations of 13 research institutes and a head office. The Chief Executive Officer is the Director-General to who the Directors of the various research institutes report.

The CSIR Act, Act 521 of 1996 empowers the Council to appoint a Management Board for each Institute. The Board is comprised of a Chairman, the Director of the Institute and five members from identifiable bodies.

Research design

According to Burns and Bush (1998) a research design is a set of advance decisions that make up the master plan specifying the methods and procedures for collecting and analyzing the needed information, For the purpose of this study, the quantitative approach was used. The focus and the kind of data the study intends to obtain, will allow for the use questionnaire as the method of collecting data. The study attempted to describe, analyse, and interpret the issues related to the role of CSIR directors in the management of institutes.

The population and sample size

According to Sarantakos (1998) a population is the entire set of objects and event or group of people which are the object of research and about which the researcher wants to determine some characteristics. Population refers to the people, organisations, events, or items that are relevant to the research problem (McGivern, 2006). The target population of the study was the Directors and Deputy Directors of all the thirteen (13) research Institutes of the Council for Scientific and Industrial Research (CSIR). Moser and Kalton (1971) make a distinction between the target population and the survey population. The target population is the population from which the results are required; the survey population is the population actually covered by the research.

The total population was twenty six (26) made up of 13 Directors and 13 Deputy Directors. This class of staff was selected because they are the two major categories of managers of CSIR Institutes and the performance of their role determines to a large extent the efficient management of the Institutes.

The researcher used a sample of twenty two (22) for the study. This was made up of eleven (11) Directors and eleven (11) Deputy Directors. The participants were chosen on the basis that they were managers of the Institutes. However, out of the twenty two sampled respondents, eighteen completed and returned the instrument.

Data collection methods

The instrument for data collection was the questionnaire. Polgar and Shane (1998) define a questionnaire as a document designed with the purpose of seeking specific information from the respondents. Questionnaires are commonly used with the survey design (Polgar and Shane, 1998). The purpose of using the questionnaire for collecting primary data was based on the fact that the target groups for the study were top management personnel who did not have much time at their disposal. Questionnaires are effective way of reaching people who would not otherwise take part in a research because they are hard to reach in person (McGivern, 2006). The questionnaire was specifically designed for the directors of Institute. It was meant to seek information on management problems faced by directors of CSIR Institutes and how to achieve managerial improvement to enable them perform their role effectively as managers of CSIR Institutes.

The questionnaire was divided into seven sections. Section A contained biodata that included age, sex, educational level and the number of years on the job, Section B captured the nature of managerial functions and roles performed. Section C looked at managerial importance. Section D measured managerial effectiveness; Section E was on training before appointment as director whilst Section F looked at training before appointment as director. The last section G was devoted to assessing trainings needs of directors. In all twenty nine (29) questions were used for the survey.

The data collection instrument for the study was made up of questionnaire, interview schedule and discussion with the Head of Human Resources

Development, CSIR Headoffice. These were designed to enable the researcher to generate relevant data necessary for the study.

The Directors were informed of the date of the visit of the researcher. The researcher personally visited all the Institutes in Accra and Kumasi and distributed the questionnaire directly to the Directors. With regard to one Institute which is located at Nyankpala in the Northern Region, the questionnaire was sent through the internal CSIR mail system. The researcher had to make a number of trips to the field to collect the questionnaire. This is not surprising as the Directors are very busy people. Frequent visits were also made to the CSIR Head office for discussion, interviews, explanation and clarification. Out of the twenty-two questionnaires distributed, eighteen were completed and returned to the researcher, given a response rate of 81.8%. The remainder could not be retrieved despite several attempts by the researcher.

Pilot study

A sample questionnaire was administered to two (2) directors and two (2) deputy directors randomly selected to text the clarity of items on
the questionnaire. The two (2) participants are not part of the Twenty two that the researcher used for the study. After the questionnaire had been completed they were interviewed by the researcher and where there were problems about questions, corrections were done to make them easier to understand.

Data analysis procedures

The questionnaires were analyzed by first designing a coding manual based on the range of responses given by the respondents. The questionnaires were then numbered serially for the purpose of identifications after which the responses to the various questions were assigned values or codes as the case may be. The statistical product and service solutions (SPSS) version 15was then used to define and capture the responses for analysis. The results were presented using simple percentages and frequencies.

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

The chapter discusses findings from the study collected from the field. The presentation used descriptive analysis through organized tables in the form of frequencies and percentage. Issues discussed include profile of respondents, managerial roles and responsibilities, perceived importance of managerial functions, perceived effectiveness in performing managerial function and training before and after appointment and training needs.

Profile of respondents

A total number of eighteen directors responded to the questionnaire. Out of this number, sixteen (88.9%) were males and two (11.1%) were females. This is an indication of the high number of male directors within the CSIR Institutes and therefore male scientists. The study also found that the respondents had attained high levels of education. Fifteen (83.3%) had Doctor of Philosophy Degree and three (19%) were Masters Degree holders who have served at least one year as Head of Division or Deputy Director, before becoming a director or Deputy Director. The majority of the directors (83.3) were within the age range of 48 – 60 years.

Managerial functions performed

Directors were asked to list the managerial functions that they perform to enable the researcher assess whether they perform the traditional functions. A person who does not perform these functions is not a manager in the true sense of the word regardless o his title (Haimann, 1991) It can be observed from Table 1 that the total number of responses is 63. This is because there were multiple responses. Seventeen of the responses related to the managerial function of planning. This confirms the traditional theory of planning being the primary managerial function. According to Hellriegel and Slocum (1996) planning is the primary management function and inherent in everything a manager does. It is futile for a manager to perform the other management functions without having a plan (Rue and Byar, 2005). It also confirms Zukerman et al (1962) that planning cannot be separated from managerial performance.

Organising and leading followed with sixteen responses each; followed by the controlling function which had the least of fourteen responses. Information from Table 1 indicates that the control function is the least performed managerial function. The failure to support goals, structure and plans with adequate controls often accounts for ineffective managerial performance (Albanese, 1981). According to Daft and Marcic (1998) organisational failure can occur when managers are not serious about control or lack control information.

Table 1: Managerial functions performed

Function	Frequencies	Percent
Planning	17	27.0
Organising	16	25.4
Leading	16	25.4
Controlling	14	22.2
Total	63*	100.0

*Multiple responses exist

Source: Field work, 2009

Managerial roles performed

Concerning managerial roles and responsibilities, sixteen (88.9%) described their roles and responsibilities as managing people and task together, whilst two (11.1%) indicated their role and responsibilities as managing people. This clearly indicates that the majority of directors are aware of their managerial roles and responsibilities and this finding is similar to Hill's (1992) study, where the managers discovered that they had two sets of responsibilities. Agenda setting for their teams and network building within the organisation.

According to Mullins (2005) the manager's work is determining the nature of work to be undertaken by other people, the planning and organising of their work, issuing them with instructions and given advice and checking on performance.

On difficulties managing research scientists, comments such as 'some of them have poor attitude to work which does not promote teamwork and those of similar grade who are not in management position are not cooperative were made by the Directors. Comments such as 'poor attitude and commitment to work', 'absenteeism, and some of them need to be supervised before they carry out their duties' were some of the responses obtained when the researcher wanted to find out if the Directors were facing any difficulties managing supporting staff. The details of the responses are presented in Tables 2 and 3.

Table 2: Difficulties in managing Scientists

Responses	Frequency	Percent
Poor attitude to work and commitment of staff	11	61.1
Difficulty in time management	3	16.7
Difficulty in interpersonal relations	4	22.2
Total	18	100.0

Source: Field work, 2009

Table 3: Difficulties in managing supporting staff

Responses	Frequency	Percent
Poor attitude to work and commitment of staff	7	53.8
Difficulty in interpersonal relations	6	46.2
Total	13*	100.0

*Thirteen Directors responded

Source: Field work 2009

The responses from Tables 2 and 3 clearly indicate that there are real difficulties faced by directors in managing the human resource of their Institutes. This confirms the claim by Douglas (2005) that some people who are truly gifted from a scientific and technical point of view find their career progress checked by their fundamental difficulties with managing people. The human resource is the most important asset of any organisation and its proper management is the key to the success of any organisation (Haimann, 1991).

With regard to managing financial resources five (5) respondents did not answer this question. About 23.1% had no difficulty due to lack of financial management knowledge. The remainder of 76.9% had difficulties. From the data gathered it seems generally that directors were satisfied with their level of financial management in the Institutes. On the management of physical resources seven (7) respondents failed to answer this question. Generally the remainder of eleven (11) was satisfied with their level of management of physical resources.

The difficulty was mainly lack of funds. The details are presented in Tables 4 and 5.

Table 4: Difficulties in managing financial resources

Responses	Frequency	Percent
Inadequate research funds	10	76.9
Lack of financial knowledge	3	23.1
Total	13*	100.0

*Thirteen responded to the question

Source: Field work 2009

Table 5: Difficulties in managing physical resources

Responses	Frequency	Percent
Lack of maintenance	5	45.5
Limited financial resources	2	18.2
Limited land for expansion	4	36.4
Total	11*	100.0

*Eleven responded to the question

Source: Field work 2009

Perceived importance of managerial roles performed

The data for the study showed that 88.9% of the respondents perceived the managing people aspect of their job as very important and 11.1% perceived it as

important. Therefore it can be said that all the respondents perceived their managing people aspect of their job as at least important. Whatever the nature of the work organisation, a manager achieves results through the performance of other people (Mullins, 2005). Also according to Arnon (1968) the first and basic innate quality required of the research administrator is leadership and the ability to deal with people.

The reactions of respondents on managing task are no different. All of them (18), indicated that at least it was important. About 38.9% said it was important and 61.1% said it was very important. This confirms Hill's study that managers had two sets of responsibilities, managing people and task.

Perceived importance of managerial functions

Table 6 indicates how respondents perceive the importance of various managerial functions that they perform. 88.9% ranked planning very important, 38.9% rank organising very important and 72.2% ranked leading very important. The results from Table 6 revealed that planning and leading were perceived as being the two very important functions performed. Organising and controlling were perceived as being important. The data also revealed that apart from organising which all respondents perceived at least to be important, some respondents 5.6% perceived planning not to be important. About 11.1% perceived leading not to be important and another 11.1% perceived controlling not to be important. The four interrelated management functions of planning organising, leading and controlling together results in the integration of resources

into viable growing organisations (Mullins, 2005). From the data, directors seem to suggest that effective planning followed by effective leadership would lead to the accomplishment of goals.

This seems to support Kinard's (1988) assertion that effective leadership is at the core of effective management. But this seems not to be in line with the traditional management philosophy which states that the four interrelated functions of planning, organising, leading, and controlling together result in the integration of resources into viable growing organisation (Mullins, 2005). Planning, organising and leading are the preparatory steps for getting the work done. Controlling is concerned with making sure that the work is properly executed. Without controlling managers are not doing a complete job of managing (Haimann, 1991). Control remains necessary whenever supervisors assign duties to subordinate, since the supervisor cannot shift the responsibilities they have accepted from their superiors.

Table 6: Perceived importance of managerial functions

Response	Planning		Organising		Leading		Controlling	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Not important	1	5.6	0	0	2	11.1	2	11.1
Important	1	5.6	11	61.1	3	16.7	14	77.8
Very important	16	88.9	7	38.9	13	72.2	2	11.1
Total	18	100.0	18	100.0*	18	100.0	18	100.0

*There multiple response Source: Field work, 2009

Perceived effectiveness in performing managerial functions

Effective managers are essential to the performance of all organisations whether they have the ability to plan, organize, lead and control business operations effectively can determine a firm's ultimate success or failure (Kinard, 1999).

Respondents were asked to indicate how they perceived their own effectiveness in carrying out their managerial functions. The results are indicated in Table 7. Functions that are perceived to be performed less effectively than others can be natural choice for management training programmes.

About 66% of respondents perceived the performance of the planning function as very effective while 38.9% described the performance of the organising function as very effective. Forty four percent perceived their performance of the leading function as very effective and another 11.1% describe performance of their control functions as very effective.

Table 6 indicates that directors consider organising and control as important and not very important combined with their not being very effective in performing these functions suggest that they need to spend some time on increasing their effectiveness in performing the organising and controlling functions. The failure to support goals, strategies, and plans with adequate controls often accounts for ineffective managerial performance (Albanese, 1981). Organisation failure can occur when managers are not serious about control or lack control information (Daft and Marcic 1998).

Training prior to appointment as director of institute

Training is very important for anyone assuming a new position for which he has little or no knowledge Training is the planned and systematic modification of behaviours through learning events, programmes and instructions which enable individuals to achieve the levels of knowledge, skills and competencies needed to carryout their work effectively (Armstrong, 2003). The majority (61.1%) of the Directors 61.1% had some training before their appointment, whilst 38.9% did not have any training before their appointment. This suggests that there is no training plan in management for scientist before they become directors. According to Lorge, (1957) most scientists undertaking the duties of director of a research organisation do not even realise how abysmally ignorant they are of the basic principles of management and that learning administrative science can help them to solve the innumerable administrative problems in which they would be faced in their new career such as supervision of people, decisions on scientific programmes and the budgeting of time, money and effort. Result from the study confirms Lorge's (1957) report, since 38% of directors did not have any training in management before they assumed their position.

On reasons for training the majority (52.4%) indicated that they were given training to acquire managerial knowledge and skills. Another 38.1% received training to prepare them to assume greater responsibility and 9.5% were given training to correct operational problems. The findings confirm Lorge's (1957) report that scientists undertaking the duties of directors of research organisations are ignorant of basic principles of management. This also confirms

Arnons (1968) findings that the management of the research organisation is in most cases in the hands of veteran agricultural research workers who have had little or no training whatsoever in management.

In a discussion with the Head of Human Resource Development, CSIR Head office, on management training for institute directors, he indicated that there was a plan for training but because of lack of funds training is offered when funds were available.

On the usefulness of the training to their current jobs, the majority (54.5%) indicated it was useful to a large extent. Again 90% of those who had training before appointment as director indicated that the performance of their role as director improved after the training. This supports Arnons (1968) findings that in order to facilitate the transition from his vocation as a researcher to the administrative duties he assumes, educational programmes have been designed to help scientist acquire the knowledge needed to carry out their administrative duties effectively. The head of a research organisation must be both a scientist and an administrator. The larger the organisation, the greater will be the demands on managerial skills and organisational ability (Arnon, 1968).

Training after appointment as director of institute

When an able scientist is called upon to head a large research Institute, or the agricultural research organisation, he usually has little understanding of the new role awaiting him and even has negative feelings about it (Lorge, 1957). It is

therefore imperative for him to be given the relevant managerial training. Concerning training after appointment, 50%

Of the respondents had training in management after appointment as director and another 50% have had no training after appointment. This contradicts Arnons (1968) recommendation that in order to facilitate the transition from his vocation as a researcher to the administrative duties he assumes, educational programmes should be provided to help scientists acquire the knowledge to carry out their new administrative responsibilities effectively. Out of those who were given training, 55.6% confirmed they had encountered difficulties in performing their jobs before the training while 33.5% had no difficulty and 11.1% did not respond. The majority (88.9%) of directors who had training after appointment indicated that the training improved the performance of their job. This confirm Arnon‘s (1968) report of the benefits of given managerial training to scientist to enable them carry out their new administrative responsibilities effectively.

On whether the training was adequate for the effective performance of managing institutes, the majority (55.6%) said it was adequate and 44.4% said it was not adequate. Though the majority said it was adequate, considering the number of directors who said it was not adequate it would be necessary to look at the content and duration of the training programme.

Concerning suggestions that respondents would want to make to the CSIR to improve managerial skills, and ability of Institutes Directors, respondents were unanimous in their response that there should be regular training programmes in

management to refresh and update skills. Results from the study also showed that directors were concerned about the duration and contents of the course. They requested for training in personnel or human resource management and financial management and also requested the courses to be regular.

Training needs of directors

Gross (1964) draws attention to the fact that an excellent scientist may become a wretched administrator, an unhappy man and a lost expect if he does not have the natural attributes needed for his new position, and if he does not acquire the necessary basic knowledge of administrative procedure. According to Kinard (1988), management success depends both on a fundamental understanding of the principles of management and on the application of technical, human, and conceptual skills. Haimann, (1991) has indicated that the standard managerial skills can be learned. The study therefore requested respondents to rank their managerial training that they require to enable them in order to perform effectively, in order of importance. Leadership skills, managing and motivating staff and finance were ranked as the most preferred skills, followed by effective communication and interpersonal skills. The results from Table 7 revealed that directors are more interested in training programmes that will address their people related skill needs than those of task related nature. This confirms Douglas' (2003) findings that personnel with adequate scientific and technical skills would have to acquire people management capability and skills,

and knowledge of how to work with maximum effectiveness as part of a team if they want to be effective managers.

This supports Haimann, (1991) report that any supervisory position requires both professional technical skills and standard managerial skills. Mere technical and professional skills may not be sufficient. This is also in line with the literature review which indicates that as managers reach the top level of management such as the director of an Institute they require more of people or human skills than technical skills (Rue and Byars, 2005).

Table 8: Managerial training needs

Responses	Frequency	Rank
Leadership skills	16	1
Managing and motivating staff	16	1
Financial management	16	1
Effective communication	11	2
Interpersonal skills	8	3
Training and development of employees	7	4
Time management	6	5
Information and communication Technology (ICT)	6	5
Conflict resolution	5	6
Improving one's overall work	3	7
Appraisal of subordinates	2	8
Supervising skill	2	8
Total	98*	

*Multiple responses exist

Source: Field work, 2009

Concerning present management training being adequate to enable directors manages institutes effectively, the majority of the directors 66.7% could not say whether it was adequate or not. About 11.1% disagreed that it was adequate and 32.2% agreed. This suggests the need to evaluate the training programme to know its impact since majority of the directors could not asses its impact.

On the urgent need for management training, the majority of directors (66.7%) strongly agreed to the need for management training while 33.3% agreed to the need for training. This agrees with Armon's (1968) statement that scientists who have always considered competence as an essential for a scientific career should realise that they must also acquire competence in administration if they are to be successful in their new and vital role as managers of the research organisation. As Kinard (1988) indicate good management practices can be learned and applied.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Introduction

This chapter presents the main findings of the study, conclusions derived from the findings and recommendations on how directors of CSIR Institutes could be assisted to achieve managerial improvement in the performance of their role as managers of Institutes. The study was aimed at investigating the managerial challenges faced by CSIR directors and how they can be assisted to achieve managerial improvement.

A questionnaire containing 27 items made up of questions on managerial functions, managerial importance, managerial training before and after appointment, managerial training required among others aimed at obtaining information on managerial challenges faced by directors and how they can be assisted to achieve managerial improvement was used. The questionnaire method was used to collect data from the field and the Statistical Product and Service Solutions (SPSS) used for the analyses of the data.

In all 22 directors were used for the study comprising 11 Directors and 11 Deputy Directors. Out of the 22 questionnaires distributed, 18 responded to the questionnaire. The Statistical Product Service Solutions SPSS were used to analyze the findings.

The specific objectives of the study include describing the management process of CSIR Institutes, management challenges faced by Directors, and training needs of directors. The summary derived from the finding are presented below:

Summary

The following are the major findings of the study

- The majority of directors (88.99%) described their managerial role and responsibilities as managing people and task together.
- The main challenge faced by directors in managing the Institute is managing the people in the Institute – the human resource.
- Directors of CSIR Institutes require training in people – related skills and financial management to enable them achieve managerial improvement.
- There is no systematic training programme in management for CSIR directors or scientists with the potential to become a director.
- Management positions in the CSIR Institutes are dominated by male scientists.
- Directors do not regard all functional areas of management as equally important.
- Also the majority (66.7%) of the directors confirmed the urgent need for training in management for CSIR Directors of Institutes.

- The majority of the directors are highly educated as 83.3% are holders of Doctor of Philosophy Degree.

Conclusions

The study found out that the main challenge faced by directors in managing CSIR Institutes is managing the people in the Institute. Generally the research discovered from the findings that the majority of CSIR directors are in agreement to the urgent need for managerial training in human resource and financial management to enable them achieve managerial improvement.

Recommendations

Having revealed the factors constituting challenges to the effective performance of their role as managers of CSIR Institutes, this section suggests and recommends ways of achieving managerial improvement in the performance of their role.

Improving human resource management in the institutes

The study revealed that the main challenge faced by directors in managing Institutes is the managing people aspect of their job. Therefore to achieve managerial improvement; directors must improve on the managing people aspects of their job. Directors will need to acquire or improve on their Human skills. This skill is demonstrated in the way a director relates to other people, including the ability to motivate, facilitate, co-ordinations, lead, communicate and resolve

conflicts. A director with human skills allows subordinates to express themselves without fear of ridicule and encourages participation. It involves patience, trust and genuine involvement in interpersonal relationship. The director must create an environment in which the workers work together as a team with a sense of belonging and dedication. The acquisitions of Human skills will help the director in effectively interacting with others, which is truly conducive to high moral and necessary for organisational success.

Improving training in human resource management skills and financial management

The study also showed that directors require training in people – related skills and financial management in order to achieve managerial improvement in the performance of their role as managers of CSIR Institutes. Therefore the CSIR management should have training programmes aimed at equipping directors of Institutes with people – related and financial management skills.

Improving management training programmes

There should be a systematic training programme in management for CSIR Scientists. Many CSIR scientists get promoted to their first management job by having excellent technical skills. However, technical skills become less important than human skills as scientists move up the hierarchy. It is therefore important for the CSIR to plan its management training programmes to start immediately a scientist attains the rank of senior research scientist and the training

must be regular for all categories of managers. This will ensure that by the time the research scientist becomes a head of division; he would have had some managerial training and possibly acquire some managerial knowledge and skills. The training should also be planned in such a way that by the time the scientist becomes a Deputy Director or Director, he would have gone through an appropriate management training programme that will enable him to perform effectively as a manager of an Institute.

Improving effective performance of managerial functions

The effective performance of the interrelated managerial functions of planning, organising, leading and controlling, results in the achievement of organisational goals any training programme should take into account the analysis of the importance of each of the managerial functions of planning, organising, leading and controlling so that functions that are perceived to be less important and also performed less effectively will be emphasized in order to continue to improve directors' performance.

The study also revealed that management positions in the C S I R are dominated by male scientists. The CSIR management should encourage more female scientists to take up management positions in the Institutes.

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APPENDIX A

QUESTIONNAIRE FOR INSTITUTE DIRECTORS

This questionnaire is part of a study on improving the management of CISR institutes, the role of institute directors. I would be pleased if you could use a few minutes to complete this questionnaire. All information provided will be treated as confidential.

Sex : M ☐ F ☐

Institute:…….

SECTION A

Please, tick where appropriate: ☐

1. What is your present position?

   Director ☐ Deputy Director ☐

2. How long have you been with the CSIR?……..…….

3. How long have you been at your present post? Please, specify …….……

4. What was your former grade or position?

   a) Deputy Director ☐

   b) Head of Division/Chief Research Scientist ☐

   c) Head of Division/Principal Research Scientist ☐

   d) Head of Division/Senior Research Scientist ☐

5. How long did you handle this position? ……..

6. Educational Level

a) Masters Degree ☐

b) Doctor of Philosophy Degree ☐

7. Age: …….

SECTION B

NATURE OF MANAGERIAL FUNCTIONS AND ROLES

8. What are the managerial functions that you perform?

Planning ☐

Organising ☐

Leading ☐

Controlling ☐

9. How do you view your managerial roles and responsibilities?

Managing people ☐

Managing task ☐

Managing people and task together ☐

10. Do you face any difficulties managing research scientists?

Please, comment: …….

……

……

11. Do you face any difficulties managing supporting staff? Please, comment:

…….……

……..

12. Do you face any difficulties managing financial resources? *Please, comment*:

    ……..……

    ……..……..……..……

13. Do you face any difficulties managing physical resources? Please, comment:

    ……..

    ……..……..

SECTION C

14. MANAGERIAL IMPORTANCE

    Please, score the following questions on a three point scale by choosing one number to each question?

Very Important	Important	Not Important
3	2	1

15. How do you perceive the importance of the managing people aspect of your job?……..

16. How do you perceive the importance of the managing task aspect of your job? ……

    ……

17. How do you perceive the importance of the following managerial functions?

Very Important	Important	Not Important
3	2	1

    (a) Planning ☐

    (b) Organising ☐

(c) Leading ☐

(d) Controlling ☐

SECTION D

MANAGERIAL EFFECTIVENESS

Please, score the following questions on a three point scale by choosing one number to each question?

Very Effective	Effective	Not Effective
3	2	1

18. What is your perceived effectiveness in performing the following managerial functions?

a) planning ☐

b) organising ☐

c) leading ☐

d) controlling ☐

SECTION E

PREVIOUS TRAINING PRIOR TO

APPOINTMENT AS DIRETOR OF INSTITUTE

19. Were you given any management training before your appointment as Director of the Institute? Yes ☐ No ☐

If you answer No, please skip to question No. 25

20. If you answer yes, why were you given the training?

(please, tick the appropriate box)

a) To equip you with knowledge and skills ☐

b) To correct deficiencies ☐

c) To prepare you to assume greater responsibility ☐

d) To solve operational problems ☐

21. To what extent was the training useful to your current job?

a) To a large extent ☐

b) To some extent ☐

c) Very little ☐

22. Did the training programme improve the performance of your role as a Director of an Institute? Yes ☐ No ☐

SECTION F

TRAINING AFTER APPOINTMENT AS DIRECTOR OF INSTITUTE

23. Have you received any form of managerial training since you were Appointed as Director? Yes ☐ No ☐

Did you encounter any difficulties in your job prior to the course?

Yes ☐ No ☐

24. Has the training programme improve your performance as manager of the Institute? Yes ☐ No ☐

25. Do you think the training programme is adequate to enable you perform your managerial duties effectively and efficiently?

Yes ☐ No ☐

26. What suggestion would you make to the CSIR to improve the managerial skills or abilities of Institute Directors.

SECTION G

TRAINING NEEDS

Please, indicate your management training needs by choosing the five most preferred skills from the list below and rating them in order of priority.

(a) Leadership skills

(b) Effective communication

(c) Managing and motivating staff

(d) Interpersonal skills

(e) Financial management

(f) Appraisal of subordinates

(g) Supervising skill

(h) Training and development of employees

(i) Conflict resolution

(j) Time management

(k) Information and Communication Technology (ICT)

(l) Improving one's overall work

Please, tick the column which approximately describes your view on the statements below?

27. The present management training given to CSIR Institute Directors adequately prepares them to manage Institutes effectively.

Strongly Agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly Disagree ☐

There is urgent need for regular workshops seminars and training programmes in management for Institute Directors.

Strongly Agree ☐ Agree ☐ Uncertain ☐ Disagree ☐ Strongly Disagree ☐

APPENDIX B

QUESTIONNAIRE FOR THE HEAD OF HUMAN RESOURCE DEVELOPMENT, CSIR HEAD OFFICE

The questionnaire is a part of a study on towards the improvement of the management of CSIR institutes: The role of institute directors. I will be pleased if you spend a few minutes to complete this questionnaire. All information provided will be treated as confidential.

1. Do you have training programmes in management for institute Directors?

   Yes ☐ No ☐

2. If yes why was it introduced? Please comment. ……

   ……..……

3. When was it introduced? ……..……..

4. How regular are the training programmes?

   ……..……..

5. Which of the following do you use to ascertain the management training needs of Directors?

   i) Observation ii) Questionnaire iii) Test

   iv) Interview v) Job analysis and performance review

6. Why do you select the method(s) you have stated above?

   ……..……..

   ……..……..

7. What is your department doing to improve the managerial skills and abilities of Directors?……

   ……..……..

8. What constitute Director of an institute's training and development in the CSIR?….……..……

   ……..

9. When was the training and development programme for directors of institutes first introduced in the CSIR?

   ……..……

10. When was the Human Resource Development Department formally institutionalized? ……..……

11. What is the present structure of the Human Resource Development Department?……..…….

12. What are the objectives of the Human Resource Development Department?

    ……..…….

13. Has the CSIR any policy on management training for institute Directors?

    Yes ☐ No ☐

14. Has the CSIR any Training Development plan for institute Directors?

    Yes ☐ No ☐

15. If yes, how effective is its implementation? Please comment.

    ……..…..

    ……..……..

16. Are management training and development programmes effectively implemented according to the needs of the CSIR institute directors

Yes ☐ No ☐

If yes please comment. ……..

……