

**A SURVEY ON THE USE OF BENCHMARKING AS A
CONTINUOUS IMPROVEMENT TOOL BY THE MINISTRY
OF AGRICULTURE PARASTATALS IN KENYA**

AKUMA O. ENOSH

**A Research Project Presented in Partial Fulfillment of the Award of the
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DECLARATION

I, the undersigned, declare that this is my original work and has not been submitted to the University of Nairobi or any other college for academic credit.

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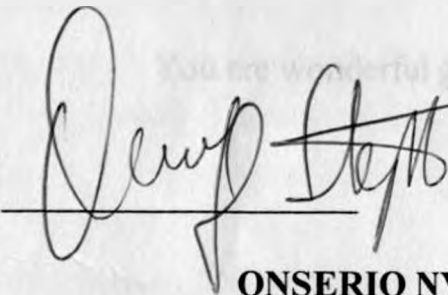


Date: 07.11.07

AKUMA O. ENOSH
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This project has been presented for examination with my approval as the appointed supervisor.

Signed:



Date: 07/11/2007

ONSERIO NYAMWANGE

Lecturer, Department of Management science, School of Business - University of Nairobi

ACKNOWLEDGEMENT

DEDICATION

To My Parents Mr. and Mrs. Herbert Akuma,

Thank you for your continued support and encouragement during my studies

To My Wife Josphine,

Thank you for your love and your financial support for this MBA Programme

My Kids – Milkah, Irene and Nelson

You are wonderful gifts beyond measure

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In the process of coming up with his research project, many developments took place. It involved extensive reading and ongoing dialogue with many people and organizations whom I will wish to acknowledge for their professional generosity and input.

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ABSTRACT

This was a survey on the adoption and challenges facing the ministry of agriculture parastatals in Kenya in the use of benchmarking as a continuous improvement tool. The collected data was analyzed and interpreted in line with the objectives of the study. Out of the sixty-two (62) respondents to whom the questionnaires were administered, only thirty-five (35) respondents in the parastatals responded. This gave a response rate of 56% percent.

The study established that there was congruence in the parastatals' products and services with the market requirements and the marketability of products and services was good, but not excellent. It was also found that most parastatals had systems that facilitated the systematic comparison and evaluation of practice, process and performance with any "best practices or smarter" institutions in improvement and self-regulation.

Four types of benchmarking methods emerged as the most commonly used within the ministry of Agriculture parastatals. These were ; internal benchmarking, competitive/performance benchmarking, external benchmarking and strategic benchmarking.

The main challenges that faced the Ministry of Agriculture parastatals in Kenya in the use of benchmarking technique included; analyzing and gaining a deeper understanding of own processes, scarcity of resources, and unavailability of appropriate benchmarking partners and bureaucracy of government in running of parastatals.

KEY WORDS: - Benchmarking, Continuous Improvement & Parastatals

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LIST OF ABBREVIATIONS

APQC:	American Production and Quality Centre
BPR:	Business Process Re-engineering
ERP:	Enterprise Resource Planning
ERS:	Economic Recovery Strategy
HCDA:	Horticultural Crops Development Authority
KARI:	Kenya Agricultural Research Institute
KEMRI:	Kenya Medical Research Institute
KEPHIS:	Kenya Plant Health Inspectorate Service
KESREEF:	Kenya Sugar Research Foundation
KETRI:	Kenya Trypanomiasis Research Institute
KEVEVAPI:	Kenya Veterinary Vaccines Production Institute
MOM:	Marketing Operations Management
NCPB:	National Cereals and Produce Board
PCPB:	Pest Control Products Board
QFD:	Quality Function Deployment
TQM:	Total Quality Management

CHAPTER ONE: INTRODUCTION

1.1 Background

In today's highly competitive, rapidly changing global economy organizations have been forced to consider, and in many cases adopt or implement, a wide variety of innovative management philosophies, approaches, and techniques. Many organizations have had to embark on various programmes such as Total Quality Management (TQM), Business Process Re-engineering (BPR), Employee involvement, Just-in – time production practices, and so forth. Both local and national governments worldwide have sought ways to reduce operating costs while maintaining or even improving the efficiency and efficacy of services that are provided to citizens. However, for the public sector to realize these goals and objectives it may need to look beyond its immediate environment and be willing to share information with, and learn from, its private sector counterparts. Public sector organizations are no exception. Although the public sector organization typically faces unique operational concerns and a strategic environment that differs from the private sector firm's, public sector organizational goals and objectives are similar to those of the private sector. As such, the approach for attaining them should be no different (Mahmoud, 2002).

The pace of change has continued to accelerate even faster as organizations get into the 21st Century. This is attributed to technological advancement, globalization of markets, demand for more creativity and innovation by customers for the manufactured goods and services. Organizations are finding themselves under pressure to exhibit superior performance in response to the posed challenges. The unrepresented intensity of competition coupled with demand for quality products has forced organizations to start changing their ways of doing business. The speed and pace of change demanded of organizations is enormous and this has compelled them to look for more innovative and creative ways if they are to stay in business (Ammons, 2001).

One managerial philosophy that embodies this “learn from others” approach is the process of benchmarking. Benchmarking is one strategy scholars have identified as having the potential to help in advancement in performance of services. Benchmarking has been used extensively

toward achieving a variety of operational and strategic ends (Cohen and Eimikke 1998: Nigel and Stuart, 2001: Hartly 1999; Ammons 2001; Coe 1999).

1.1.1 The Concept of Benchmarking

Decision makers are constantly on the look out for techniques to enable quality improvement. Benchmarking is one such technique that has become popular in the recent times. Though benchmarking is not new, it has now found more subscribers, and occupies a prominent place, helping quality improvement. Quite often, the benchmarking concept is understood to be an act of imitating or copying. But in reality this proves to be a concept that helps in innovation rather than imitation. Talluri and Sarkis, (2001) points out that interest in benchmarking has grown rapidly to the point where it is a significant tool for the management and improvement of quality and standards in most areas. Conceptualization of benchmarking at its simplest level can be viewed as a strategy for enabling people to think outside the boxes they normally inhabit: the boxes being departments, services or functional units of institutions (Spendolini, 1992; Norman, 2001).

Benchmarking (also "best practice benchmarking" or "process benchmarking") is a process used in management, in which organizations evaluate various aspects of their processes in relation to best practice, usually within their own sector. This then allows organizations to develop plans on how to adopt such best practice, usually with the aim of increasing some aspect of performance. Benchmarking may be a one-off event, but is often treated as a continuous process in which organizations continually seek to challenge their practices (Mahmoud, 2002). The search for best practices from world class organizations, industry leaders or superior performers is what is referred to as Benchmarking. Thus benchmarking is a learning process structured to enable those engaging in the process to compare their services, activities, processes products and results in order to identify their comparative strengths and weaknesses as a basis for self- regulation and improvement. Benchmarking offers a way of identifying 'better and smarter' ways of doing things and understanding why they are better or smarter. Given those insights, an institution can then implement changes that will improve practice or performance. Conclusively, benchmarking is an approach to self-evaluation through comparative analysis for the purpose of self-improvement (Ammons, 2001).

This is all in a bid to meet the challenges ahead as it is now evident that a successful past is no guarantee for future superior performance. Most private and public sector organizations have been able to look outside their own set – ups for more superior performances and managed to internalize what they have observed. In the search for ways and means of attaining superior performance, organizations have discovered that best practices do not belong to any company, organization or industry but have universal application to companies, large and small, across industries (Yasar and Mohamed, 2001).

1.1.2 Ministry of Agriculture Parastatals

The Kenyan government is comprised of ministries under which there are departments and parastatals. The Government has established the parastatals with a sole purpose of offering special services and generally taking care of certain strategic functions that demand government involvement. The public sector departments and parastatals may have to undertake a comparative analysis on their performance outcomes and learn from each other hence the application of the concept of benchmarking. Various ministries have a number of parastatals under their supervision (<http://www.kilimo.go.ke/>).

Agriculture is one of the mainstays of the Kenyan economy, accounting for about 25% of GDP in 2002 (including forestry and fishing) and a similar share of formal private sector waged employment. At the same time, however, it is estimate that up to 80% of the population is directly dependent on Agricultural activity for their livelihoods. The importance of improving Agricultural productivity is to the revival of the economy and improving livelihoods. The sector grew steadily during the first two decades of independence, recording an average growth rate of 5.6% per annum. This declined to an average of 3.5% per annum during the 1980s to about 1% during the 1990s. This decline during the 1990s masks some quite divergent trends in key commodity sectors. For example, tea production and export earnings continued to rise during the 1990s, while coffee production and export receipts declined dramatically .Land availability and quality are critical factors constraining further Agricultural growth. The area under cultivation has effectively extended to its limits, while less than 30% of land is of high or medium potential and some 70% is of low potential, largely corresponding to the Arid and Semi Arid Lands. There are, nevertheless, several

structural impediments to improved productivity growth, which, if addressed, could result in a revival in Agricultural growth (<http://www.kilimo.go.ke/>).

The government departments and parastatals are established with a role of service delivery to the public. However the differences or variances in their performance are as many as their number. Recently the government introduced a new phenomenon in its operations, referred to as performance contracting. Way back in 1963 certain economies that were comparable with the Kenyan economy have made huge leaps and are way ahead of Kenya. Some countries like Taiwan, Singapore and South Africa are now categorized amongst industrialized nations. These countries have invested their resources and today they are some of the highly admired economies (<http://www.kilimo.go.ke/>). The big question is what didn't Kenya do right?

The Kenyan agricultural sector has the following key stakeholders: *Farmers and their organizations*: Smallholders and commercial farmers, farmers' groups (male and female), cooperative societies, apex and national farmer organizations. *Public sector*: Ministry of agriculture, other line ministries, treasury, ministry of planning and national development, department of personnel management, parastatals, area development authorities, and local government, including provincial and district administrations. *Private sector*: Traders, exporters, and agro industries (including small-scale traders). *Policy group*: Academic institutions, other institutes and think tanks, elected representatives at the national and local levels, financial institutions, and nongovernmental organizations (Okidegbe et al. 1998).

The Kenyan people are not receiving value for their money instead what can be seen are poorly performing state corporations and government departments full of corruption. Consequently the services the government is according its citizens are of low quality; the products from government's agricultural parastatals are more expensive than imported products. A case in point is the cost of taxes, for example cars in Uganda are less costly than the same cars in Kenya and yet the cars are transported through the Kenyan soils. Sugar produced in Kenya is more expensive than imported sugar from India; leave alone our neighboring countries whose sugar is less expensive. Electricity is another example of an expensive government service, the list is endless. With the advent of the Economic Recovery

Strategy, the Government is currently exploring how to harmonize the KRDS with the ERS. This process is being undertaken with close donor dialogue (Foster *et. al.*, 2001).

The critical issues and challenges hindering the growth of agricultural sector parastatals are many. These include: Land fragmentation. There are about three million small farms (less than 20ha) of which 80% are below 2 ha. Many of these small-holders suffer from high costs of production, lack of access to credit and markets; secondly, the weak extension services and technology adoption. This gives rise to sub-optimal crop development and husbandry; thirdly, highly variable seed quality. The lack of reliable seed certification introduces additional risk to agricultural activity and an associated lower yield in many crops; fourth, inefficient marketing organization and regulatory frameworks; fifth, inefficient animal disease control systems. At the root of many of these problems is the poorly focused structure of the competent ministries' budgets and the corresponding lack of responsiveness of service providers at the local level to farmers' needs. This implies the need for a significant refocusing of competent ministries' activities in line with core functions and improved accountability (<http://www.kilimo.go.ke/>).

1.2 Statement of the Problem

Various ministries have a number of parastatals under their supervision. The Government has established the parastatals with a sole purpose of offering special services and generally taking care of certain strategic functions that demand government involvement. The public sector departments and parastatals undertake a comparative analysis of their performance outcomes and learn from each other hence the application of the concept of benchmarking. The government also collects taxes and borrows funds on behalf of its citizens. These Funds are utilized through the annual government financial budgets that are approved by parliament. The Funds are channeled through the various Ministries/departments and the government's specialized units, that is, parastatals. This has been a repeat process since independence (<http://www.kilimo.go.ke/>).

The Ministry of Agriculture has 24 parastatals whose performance is at extremes i.e. a scan on the performance of the Ministry of Agriculture parastatals reveals a huge gap between top performers and poor performers in the quality of service delivered. One wonders to what extent benchmarking may have been used as a technique in attainment of service quality

amongst the Ministry of Agriculture parastatals (<http://www.kilimo.go.ke/>). Thus was need to investigate the challenges facing the challenges facing the 24 Ministry of Agriculture parastatals in the use of benchmarking as continuous improvement tool towards excellent service provision.

Way back in 1963 certain economies that were comparable with the Kenyan economy had made huge leaps and were way ahead of Kenya Ministry of Agriculture parastatals. Some countries like Taiwan, Singapore and South Africa were then categorized amongst industrialized nations. Thus, there was need for a research to be conducted in order to assess the extent to which the Kenyan Ministry of Agriculture parastatals had adopted some of the best practices employed to continuously improve its services; and document the challenges facing the Ministry of Agriculture parastatals in the use of benchmarking technique as a tool for continuous improvement

A number of researches in benchmarking especially had been conducted in the past. Jackson (2001) found out that benchmarking can support very different agenda driven by a need to learn in order to understand, improve and innovate; a collective commitment to self-determined improvement even in a competitive market- a new collegiality and models of working that are based on professional rather than public accountability.

Among the local studies, Amollo (2002) focused on benchmarking the order delivery process for continuous improvement in the Kenyan oil industry, and Magutu (2006) documented the benchmarking activities based only on the academic function of the Kenyan Public Universities, both suggested that there was need for a study to be conducted to determine to what extent other companies outside the oil and education industries in Kenya use benchmarking as a continuous improvement tool.

Although researches had been done on benchmarking, none had focused on the Ministry of Agriculture parastatals in Kenya. This study therefore sought to investigate and document the challenges that were facing the Ministry of Agriculture parastatals in Kenya in the use of benchmarking technique as a continuous improvement tool to learn from the best performers, internally and externally, so as to achieve improvements in their own processes. Thus the

research was conducted to answer the following questions: Why was it that Kenyan Ministry of Agriculture parastatals had not been able to at least adapt some of the best practices to continuously improve their services? What were some of the challenges facing the Ministry of Agriculture parastatals in the use of benchmarking technique as a tool for continuous improvement?

1.3 Objectives of the study

The objectives of the study were:

- a) To establish the extent of adoption of benchmarking technique as a tool for continuous improvement in the Ministry of Agriculture parastatals in Kenya;
- b) To establish the challenges facing the Ministry of Agriculture parastatals in Kenya in the use of benchmarking technique as a tool for continuous improvement

1.4 Significance of the Study

i) Academicians / Researchers

Findings from this research will assist academicians in broadening of the syllabus with respect to this study hence providing a deeper understanding of benchmarking methodology as a tool for continuous improvement. The findings may as well attract other researchers to venture into areas in operations performance improvement strategies that have not been studied in the African context. The available literature is full of case studies from the west, which as pointed out by Aosa (1992), cannot be replicated without amendments in Africa.

ii) Ministry of Agriculture

The findings of this study will help public service Managers and other decision – makers with an insight into the benefits of using benchmarking as a continuous performance strategy in public service delivery. The study intends to reveal the use of benchmarking as a continuous improvement technique, the procedures used in benchmarking in the public sector.

iii) Government

The government can use the findings for their research to assist in policy formulation and development of a framework for benchmarking in its ministries; this study might also help in

pointing out areas in which state corporations can develop competencies and capabilities leading to superior performance. It is also hoped that this study will help in recognizing the fact that local environment constraints, should not hinder application of benchmarking as an improvement.

CHAPTER TWO: LITERATURE REVIEW

2.1 Benchmarking

Benchmarking is recognized as an essential tool for continuous improvement of quality. A large number of publications by various authors reflect the interest in this technique. Reviews of literature on benchmarking have been done in the past by a few authors. However, considering the contributions in the recent times, a more comprehensive review is attempted here. Originally the term “benchmark” derives from land surveying where a mark, cut in the rock, would act as a reference point. In the business world, a benchmark is a standard of excellence against which to measure and compare (Slack, 1998). In 1979 the Xerox corporation, the document and copying company; used the term ‘competitive benchmarking’ to describe a process used by the manufacturing function to revitalize itself by comparing the features, assemblies and components of its products with those of competitors. However since then the term ‘benchmarking’ has widened its meaning to cover service organizations. American Production and Quality Centre (1997) defines benchmarking as the process of performance improvement by continuously identifying, understanding and adapting outstanding practices and processes found inside and outside the organization and implementing the results.

Benchmarking is a continuous search for, and application of significantly better practices that lead to superior competitive performance. Garvin (1993) defines benchmarking as a disciplined process that begins with a thorough search to identify best - practice organizations, continues with the careful study of one’s own practices and performance, progresses through systematic site visits and interviews and concludes with an analysis of results, development of recommendations and implementation. Folz and David H (2004) defined benchmarking as the systematic identification of the best practices employees by other jurisdictions which lead to superior performance. Benchmarking can somewhat philosophically be defined as follows (APQC, 1997): “Benchmarking is the process of being humble enough to admit that someone else is better at something and being wise enough to learn how much to match them and even surpass them”

Before the evolution of the formal benchmarking process, two important predecessors to the current benchmarking approach existed that is the Competitive analysis and Quality Function Deployment (QFD). QFD, an approach to product development allows an organization to interpret customer needs and expectations and state them in terms of technical requirements (Talluri and Sarkis, 2001). Nevertheless, the four values that public servants are required to promote, are namely; Accountability, Legality, Integrity and Responsiveness.

2.1.1 Statistical Definition of Benchmarking

The term benchmarking also has a statistical definition. It is a method of using auxiliary information to adjust the sampling weights used in an estimation process, in order to yield more accurate estimates of totals (Slack, Chambers & Johnston, 2001).

Suppose we have a population where each unit k has a "value" $Y(k)$ associated with it. For example, $Y(k)$ could be a wage of an employee k , or the cost of an item k . Suppose we want to estimate the sum Y of all the $Y(k)$. So we take a sample of the k , get a sampling weight $W(k)$ for all sampled k , and then sum up $W(k) \times Y(k)$ for all sampled k . One property usually common to the weights $W(k)$ described here is that if we sum them over all sampled k , then this sum is an estimate of the total number of units k in the population (for example, the total employment, or the the total number of items). Because we have a sample, this estimate of the total number of units in the population will differ from the true population total. Similarly, the estimate of total Y [where we sum $W(k) \times Y(k)$ for all sampled k] will also differ from true population total. We do not know what the true population total Y value is (if we did, there would be no point in sampling!). Yet often we do know what the sum of the $W(k)$ are over all units in the population. For example, we may not know the total earnings of the population or the total cost of the population, but often we know the total employment or or total volume of sales. And even if we don't know these exactly, there often are surveys done by other organizations or at earlier times, with very accurate estimates of these auxilliary quantities (Sharif, 2002).

The benchmarking procedure begins by first breaking the population into benchmarking cells. Cells are formed by grouping units together that share common characteristics, for example, similar $Y(k)$, yet anything can be used that enhances the accuracy of the final

estimates. For each cell C, we let $W(C)$ be the sum of all $W(k)$, where the sum is taken over all sampled k in the cell C. For each cell C, we let $T(C)$ be the auxiliary value for cell C, which is commonly called the "benchmark target" for cell C. Next, we compute a benchmark factor $F(C) = T(C) / W(C)$. Then, we adjust all weights $W(k)$ by multiplying it by its benchmark factor $F(C)$, for its cell C. The net result is that the estimated W [formed by summing $F(C) \times W(k)$] will now equal the benchmark target total T . But the more important benefit is that the estimate of the total of Y [formed by summing $F(C) \times F(k) \times Y(k)$] will tend to be more accurate (Slack, Chambers & Johnston, 2001).

2.1.2 Origins of Benchmarking

In Earlier reviews of literature on benchmarking, it was found out that at least six literature reviews have been made in the past. The different reviews in chronological order are: "Roadmap to current benchmarking literature" (Jackson et al., 1994); "A review of key publications on benchmarking: part I" (Mohamed and Youssef, 1995) "A review of key publications on benchmarking: part II" (Mohamed and Youssef, 1996); "Benchmarking: a select bibliography" (Vig, 1995); "A review of benchmarking literature" (Czuchry, 1995); "A framework for benchmarking in the public sector literature review and directions for future research" (Jeffrey and Mahmoud, 1998); "Theory and practice of benchmarking: then and now" (Mahmoud, 2002).

Benchmarking has traversed four distinct generations: *The first generation*: - reverse engineering was characterized with initiatives of teardown and technical product analysis. *The second generation*: - competitive benchmarking which involved comparisons of processes with those of competitors. This is where benchmarking was refined into science by Xerox, mainly during 1976-1986. *Third generation*-process benchmarking: -where it was realized that learning can be made from companies outside the industry and required more in-depth knowledge and understanding. *Fourth generation*: - strategic benchmarking which involves a systematic process for evaluating alternatives, implementing strategic and improving performance by understanding and adopting successful strategies from external partners. Here, there are alliances who participate in ongoing business partnership perspective, and continuously and long-term. The climax is making fundamental shifts in a process that feeds re-engineering (Watson, 1996). Over the last five years, different authors

had several opportunities to collect and study literature pertaining to benchmarking. Two main reasons are: interactions with industries with focus on quality management; and one of the author pursuing doctoral studies in the field of quality management (Dattakumar and Jagadeesh ,2003).

Among the pioneers in the benchmarking movement are Motorola, IBM, AT & T, AICOA, DEC and Milliken; but none of these pioneers enjoys a more prominent role in that industry than Xerox Corporation. In the early 1980s, Xerox L & D was beset with indifferences in the warehousing function. Productivity increases were minimal, three to five percent per year and profit margins were in jeopardy of eroding. The warehousing picking operation was identified as an area with the greater potential for improvement and targeted as an area for benchmarking. Xerox Logistics and Distribution (L & D) approached L. L. Bean with its request that the two companies engage in a co-operative benchmarking project. It considered and utilized functional benchmarking to improve the performance of warehousing facilities (Tucker et al; 1987). Rank Xerox sees benchmarking as a helping in setting standards of performance at strategic level and helps in understanding the best practices and operations methods at operational level: This helped the company achieve its performance objectives (Foster *et al.*, 2001).

2.1.3 Best Practices

A best practice is a technique or methodology that, through experience and research, has proven to reliably lead to a desired result. A commitment to using the best practices in any field is a commitment to using all the knowledge and technology at one's disposal to ensure success. The term is used frequently in the fields of health care, government administration, the education system, project management, hardware and software product development, and elsewhere. “Best practices” are documented strategies and tactics employed by highly admired companies. These are companies that are most profitable, and are the strongest competitors in their businesses (Elcock and Howard, 2006).

The notion of a best practice is not new. Frederick Taylor (1919) said as much nearly 100 years ago: “among the various methods and implements used in each element of each trade there is always one method and one implement which is quicker and better than any of the

rest" (Taylor, 1919). This viewpoint came to be known as the "one best way" (McAdam and Kelly, 2002). History, however, is filled with examples of people who were unwilling to accept the industry standard as the best way to do anything. The enormous technological changes since the Industrial Revolutions in England and the United States bear witness to this fact. For example, at one time horses were considered the 'best' form of transportation, even after 'horse-less carriages' were invented. Today, most people drive a gasoline, diesel, or bio-fuel vehicle—itsself an improvement on the horse-less carriage. The purpose of any standard is to provide a kind of plumb line, and therefore that standard must be, "What is possible?" and not, "what is somebody else doing?" (Hoag & Cooper, 2006).

In real-world application, Best Practice is a very useful concept. Despite the need to improve on processes as times change and things evolve, Best Practice is considered by some as a business buzzword used to describe the process of developing and following a standard way of doing things that multiple organizations can use for management, policy, and especially software systems Kumar and Chandra, 2001. Best Practices are commonly used in many Enterprise Resource Planning (ERP) and Marketing Operations Management (MOM) systems. A Best Practice can be selected (generally from several competing options) and defined within a computer system. Then, any organization performing similar tasks can draw from the same procedure, and theoretically improve their operations.

The notion of 'best practices' does not commit people or companies to one inflexible, unchanging practice. Instead, Best Practices is a philosophical approach based around continuous learning and continual improvement. For example, the American Productivity and Quality Centre (APQC,2002) suggests that: "Three themes resonate through successful benchmarking and best-practice transfer efforts: Transfer is a people-to-people process; meaningful relationships precede sharing and transfer; Learning and transfer is an interactive, ongoing, and dynamic process that cannot rest on a static body of knowledge. Employees are inventing, improvising, and learning something new every day; Benchmarking stems from a personal and organizational willingness to learn. A vibrant sense of curiosity and a deep respect and desire for learning are the keys to success."

Best practices do not have one template or form for everyone to follow. In the context of Business Management, Best Practice is the concept that a good process, and planning, is being followed in the Execution Management of a project plan, and that changes to the initial plan, dependencies, and goals are being tracked and documented (Johnson and Chambers, 2000a). According to the American Productivity & Quality Center, the three main barriers to adoption of a best practice are a lack of knowledge about current best practices, a lack of motivation to make changes involved in their adoption, and a lack of knowledge and skills required to do so (Johnson and Chambers, 2000b).

2.1.4 Benchmarking and Continuous Improvement

Benchmarking, especially when used in association with total quality management and continuous quality improvement, is thought to have a place in today's business organization. Benchmarking is a multifaceted technique that can be utilized to identify operational and strategic gaps, and to search for best practices that would eliminate such gaps. Among the progeny of performance measurement and results oriented management in the public sector is a growing interest in various forms of benchmarking choosing on appropriate form that is, a form that suits the given purpose and carefully applying the prescribed techniques, are both essential for benchmarking success. Also important is a proper frame of mind of receiving the lessons of benchmarking (Elcock and Howard, 2006).

Benchmarking is one of the new vogue subjects, along with a raft of quality related initiatives. What can be so difficult about examining how other organizations have achieved improved performance? The answer is NOTHING, but "examining" others is a world away from really learning HOW they achieved the improvement. Many organizations publicize what they have achieved, but it is unusual for them to be lucid on the more mundane facts of how this transformation was made to work. Benchmarking is one of the most effective means to identify improvements which can make a significant difference to an organization (Elcock and Howard, 2006).

Improvement is defined as providing increased customer satisfaction in the most effective manner. to perpetuate an improvement process it must be recognized as successful..... work within "the art of the possible". To climb Mount Everest, one is more likely to achieve it if

he/she succeeds in smaller stages as part of a steady journey to the summit. Benchmarking is Not New. Every organization performs it to some extent every day..... and never gives it a second thought, let alone spends time describing it as benchmarking. In the 1970's and 1980 it was a difficult to generate much interest in performance comparison of two or more government units or parastatals. "We are unique" government officials said of their organization and its environment. "Our conditions are different; our service demands are different" (usually meaning greater than the demands faced by any other counterparts); comparisons would be meaningless (Ammons, 1999).

Continuous improvement adopts an approach to improving performance which assumes more and smaller incremental improvement steps. In continuous improvement it is not the rate of improvement that matters but the momentum of improvement. It does not matter if successive improvements are small; what does matter is that every month some kind of improvement actually takes place (Slack, Chambers & Johnston, 2001).

2.2 Benchmarking Process Ideas

Sources of information about other organizations can be obtained from data centers, libraries or through direct contact (Cortin, 2000). Benchmarking as a method of self – assessment is based on two different process ideas; Referencing and comparing one thing with another and; Searching for and creating reference points or benchmarks and understanding the reasons why they are reference points.

Benchmarking activities can be classified according to the referencing processes as a mechanism for comparison that is used. Four different reference processes can be distinguished (Jackson, 1998; Jackson and Lundi, 2000 a); Action research; focused surveys supported by discussion; Performance indicators; statistical measures and online databases; Specification, codes of practice, descriptors and examples of good practice; Performance criteria and scoring systems; standardized testing examples of performance.

2.3 Evolution of the Benchmarking Methodology

Watson (1993) scrutinized the historical development of Benchmarking concepts and suggests that Benchmarking is moving from an art to a science. In so doing, it has traversed four distinct generations of development since inception. The first generation: reverse Engineering was characterized with initiatives of teardown and technical product analysis. It entails comparison of product characteristics, functionality and performance of competitive offerings. The second generation: Competitive Benchmarking involves comparisons of process with those of competitors and was refined into science by Xerox, mainly during the period 1976 -86. Third generation: Process Benchmarking was the recognition that learning can be made from companies outside the industry, that is, outside the competitive boundary.

Fourth Generation: Strategic Benchmarking involves a systematic process for evaluating alternatives, implementing strategies and improving performance by understanding and adopting successful strategies from external partners. This type of benchmarking takes longer to undertake, can lead to fundamental shifts in process, takes more resources and results to process re – engineering (Battaglia and Musar, 2000).

2.4 Types of Benchmarking

Benchmarking is defined as a continuous process during which processes and methods of operational functions as well as products and services of one's own company are measured against a benchmark, i.e. the maximum achievable performance (Falk, 2000, p. 138). There are different types of benchmarking some of which are not necessarily mutually exclusive. It is upon the interested part to determine what type of benchmarking is most appropriate. All schemes for classifying benchmarking activities are somewhat artificial because many benchmarking exercises will combine a variety of approaches and straddle different categories of a scheme.

Benchmarking activities can be classified according to the nature of processes that underpin the activity (Jackson, 1998) and/or whether the process is implicit or explicit; conducted as an independent or a collaborative or partnership exercise; confined to a single organization-internal, or involves other similar or dissimilar organizations- external; focused on the whole

process i.e. vertical benchmarking or part of process as it manifests itself across different functional units i.e. horizontal benchmarking; focused on inputs, process and outputs or a combination; based on quantitative/metric information data and/or qualitative/bureaucratic information; primarily about self-referencing against standards or expectation i.e. regulatory benchmarking (Hyland and Beckett, 2002). The seven standard types of benchmarking are:

2.4.1 Functional/Generic Benchmarking

This is used when the organization want to benchmark with partners drawn from different business sector or areas of activities aimed at finding ways of improving similar functions or work processes. Leads to innovation and dramatic improvement, when used to focus on improving activities or services for which counterparts do not exist and patents of benchmarking within the same sector exist and lastly when radical change is necessary (Jackson, 1998a).

2.4.2 Internal Benchmarking

This involves seeking partners within the same organization or example from business units located in different areas .The main advantage of internal benchmarking is that access to sensitive data and information are easier, standardized data is often readily available usually less time and resource are needed and there may be fewer barriers to implementation as practices maybe relatively easy transfer across the same organization. However, real innovation may be lacking and the best in class performance is more likely to be found through external benchmarking. It is appropriate to use this kind of benchmarking when; several business units within the same organization exemplify good practice, exchanging information and data with external organizations would be understandable in cases where there is inexperience in applying benchmarking and lastly time and resources are limited (Sharif, 2002; Anderson, 1995).

2.4.3 External Benchmarking/Best Practice Benchmarking

The major focus is seeking outside organizations that are known to be best in class and provides an opportunity of learning from those who are at the leading edge. Although not every best practice solution can be transferred to others, this type of benchmarking is

appropriate when innovation is sought and examples of good practice are found in other organizations that are lacking in individual companies. Implementation is slower because of the “not invented here” syndrome. The type of benchmarking may also take up more time and resources to ensure that comparability of data and information the credibility of the findings and the development of sound recommendations (Vic, 2000).

2.4.4 Strategic Benchmarking

This is used where organizations seek to improve their overall performance by examining the long-term strategies and general approaches that have enabled high-performers to excel. Nahmia (2000) critically examined core competences, new product and service development, changing balance of activities and improving capabilities for dealing with changes in the background environment making conclusions that changes resulting from this type of benchmarking may be difficult to implement and the benefit are likely to take a long time to materialize (Darmont and Schneider, 2000).

2.4.5 Performance Benchmarking or Competitive Benchmarking

This is used where organization consider their position in relation to performance characteristics of key products and services. This refers to process of tearing down a competitor product to see what can be learned from its design and construction (Cartin, 2000). Benchmarking partners are drawn from the same industry and it is appropriate to use this type of benchmarking when the focus is on the relative level of performance in key areas or activities in comparison with others in the same industry and finding ways of closing gaps in the performance (Appleby, 1999).

2.4.6 Process Benchmarking

This invariably involves producing process maps to facilitate comparison. It is used when the focus is on improving specific critical processes and operations. The benchmarking partners are sought from the best practice organizations that perform similar work or deliver similar services. It is appropriately used when the focus is in improving key processes in a short time (Vic, 2000).

2.4.7 International Benchmarking

International benchmarking is used in situations where good practice organizations are located in other countries too few benchmarking partners within the same country to produce valid results and the aim is to achieve world-class status. This can take more time and resources to set up and implement. The results may need careful analysis due to national differences (Hyland and Beckett, 2002).

The different ways of classifying benchmarking processes are tackled in works of Camp (1989), Spendolini (1992), Jackson (1998), Appleby (1999), Jackson and Lund (2000).

2.5 Challenges While Benchmarking

Benchmarking is concern with being able to judge how well an organization is doing; It can be used as an approach to setting realistic performance standards (Nahmia, 2000); It is also concern with searching out new ideas and practices which can be copied or adapted; Benchmarking is essentially about stimulating creativity and providing a stimulus which enables operations better to understand how they should be serving their customers (Cartin, 2000).

Benchmarking is a moderately expensive process, but most organizations find that it more than pays for itself. The three main types of costs are: Visit costs - This includes hotel rooms, travel costs, meals, a token gift, and lost labour time; Time costs - Members of the benchmarking team will be investing time in researching problems, finding exceptional companies to study, visits, and implementation. This will take them away from their regular tasks for part of each day so additional staff might be required; Benchmarking database costs - Organizations that institutionalize benchmarking into their daily procedures find it is useful to create and maintain a database of best practices and the companies associated with each best practice now.

The basic idea of benchmarking is: categorize and respond. Snowden has postulated that known space is the domain of good practice. Within known limits we can both predict and prescribe behaviour (Snowden, 2002).

Benchmarking as a term should motivate political decision makers because it a positive activity perceived as a mechanism for improving operations and policies to proactively search for best practices and management systems. Benchmarking is usually the most credible of all justifications for practical operations and new policies. The weak side of benchmarking is that it can sometimes lead to imitation of best practices without critical reflections. If organizations just imitate best practices, it can lead to the lack of innovation inside organizational machinery. Benchmarking is not a cookbook process that requires only looking up ingredients and using them for success. Benchmarking should be a discovery process and a learning experience. It requires observing what the best practices are and projecting what performance should be in the future. Benchmarking is a winning economic policy strategy, because it assists political leaders and policy analysts in identifying practices that can be adapted to build winning, credible, defensible plans and strategies, and complement new initiatives to achieve superior performance (Ira and Jari, 2003).

Benchmarking should be approached on a strategic partnership basis in which both parties should expect to gain from the information sharing. Benchmarking can help reinsure the idea of direct contribution of what an operation has to the competitiveness of its organization (Nigel and Robert, 2000). Benchmarking activities that are focused on the quality of the public service can be directed towards:- Level of competence or skills of service providers; Clarity of policies and procedures that guide in fast decision making especially in ensuring consistency in decision making; Tools and equipment engaged by organizations in the process of service delivery; Customer focus in service provision and Quality of processes themselves. Benchmarking is a powerful management tool because it overcomes "Paradigm blindness." Paradigm Blindness can be summed up as the mode of thinking, "The way we do it is the best because this is the way we've always done it." Benchmarking opens organizations to new methods, ideas and tools to improve their effectiveness. It helps crack through resistance to change by demonstrating other methods of solving problems than the one currently employed, and demonstrating that they work, because they are being used by others (Jackson, 2000).

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costs - This includes hotel rooms, travel costs, meals, a token gift, and lost labour time. Time costs - Members of the benchmarking team will be investing time in researching problems, finding exceptional companies to study, visits, and implementation. This will take them away from their regular tasks for part of each day so additional staff might be required. Benchmarking database costs - Organizations that institutionalize benchmarking into their daily procedures find it is useful to create and maintain a database of best practices and the companies associated with each best practice now.

According to Norman (2001) the choice of benchmarking tools and scope depends on the how excellent, good, bad or indifferent an organization's operations are. Jackson (2001) noted that there are various considerations, which affect the choice of the type of benchmarking to use. Benchmarking is a simple concept but quite complex in application thus not all benchmarking attempts succeed due to undisciplined planning approach and limited resources (Cartin, 2000).

The following are the factors noted by Norman (2000), Jackson (2001) and Cartin (2000) that influence benchmarking decisions: *Compatibility with local conditions*. Finding benchmarking partners willing to participate in the benchmarking studies, identifying those comparable in size, market condition and sector to be believed sufficiently better to have something to teach others and willing to share their best practice information; *Comparability of companies and process*. Check on the likely sources of good practice; *Time and resource availability*; *Limited duration* for in depth interviews and preparations; The *availability of resources* to run both the participation and implementation of benchmarking determines the choice and scope of benchmarking methodology; *Level of experience* in benchmarking. Organizations which have no experience in benchmarking and lack business process understanding usually choose internal benchmarking as there are no flow charts to indicate the benchmarking process and modeling can not be easily depicted; *Objectives to be achieved and aspects to be reviewed*. Getting acceptance for the use of both quantitative and qualitative benchmarking information determines the performance levels and processes respectively.

The above, acts as challenges to benchmarking but information technology has been utilized to support logistics and grow rapidly with the introduction of microcomputers in the early 1980's (Norman, 2000). The study will be based on above challenges while evaluating the parastatals.

2.6 Benchmarking Procedures

Jackson (2001) and Norman (2000) outlined the procedure that can be followed while utilizing the support of logistics to grow rapidly while benchmarking as follows:

(i) Identify your problem areas first - Because benchmarking can be applied to any business process or function, a range of research techniques may be required. They include: informal conversations with customers, employees, or suppliers; exploratory research techniques such as focus groups; or in-depth marketing research, quantitative research, survey questionnaires, engineering analysis, process mapping, quality control variance reports, or financial ratio analysis.

(ii) Identify organizations that are leaders in these areas - Look for the very best in any industry and in any country; Consult customers, suppliers, financial analysts, trade associations, and magazines to determine which companies are worthy of study. Usually done by mapping the process (breaking into small elements and identifying the flows of information, materials, products etc). Four key elements; Review inputs and outputs e.g.: which ones adds value?

(iii) Survey companies for measures and practices - Companies target specific business processes using detailed surveys of measures and practices used to identify business process alternatives and leading companies. Surveys are typically masked to protect confidential data by neutral associations and consultants. Before undertaking benchmarking it is critical that organizations who are leaders in certain aspects are identified. This can be achieved through use of trade associations, consultancies, television, radio, newspapers, customers' word-of-mouth, performance at trade floors, and so forth.

(iv) Visit the "best practice" companies to identify leading edge practices - Companies typically agree to mutually exchange information beneficial to all parties in a benchmarking group and share the results within the group. Analysis of data should be undertaken to determine the gaps and amount of resources necessary to bridge the gaps.

(v) Implement new and improved business practices - Take the leading edge practices and develop implementation plans which include identification of specific opportunities, funding the project and selling the ideas to the organization for the purpose of gaining demonstrated value from the process. This is the stage where actions or implementation should be taken. The people should get involved and resources allocated and inappropriate structures that may not accommodate the desired changes should be adjusted accordingly or done away with and in place more superior structures be introduced. The study intends to determine whether this process is followed while benchmarking in the ministry of agriculture parastatals; it might be a challenge to them too.

2.7 Products of Benchmarking

According to Jackson (2000), benchmarking results in three different products. Improved networking, collaborative relationship and mutual understanding between participants; Benchmarking information – in the form of text, numerical or graphical information about the area of study, for example, evaluate the reports, guidelines, specifications how to do it workbooks, specification and code of best practices, exemplar of good conduct, different practices and statistics; A better understanding of practice process or performance, and insights into how improvements can be made. This understanding can be retained among participants, for example in order to gain or maintain competitive advantage, or it can be disseminated more widely through conferences, workshops and publications. The study intends to determine what is achievable in the ministry of agriculture parastatals.

2.8 Local Researches on Benchmarking

Magutu (2006) concluded that the three critical factors that have influenced the success of public universities' benchmarking practices in their environs are: time and resource availability: limited duration, comparability and compatibility which is the reason why the institutions don't practice international benchmarking. Amallo (2002) and Magutu (2006)

further recommended a study to be conducted to determine the extent other companies outside the higher education sector use benchmarking as a continuous tool. Such studies will help in highlighting challenges facing Kenyan organizations in the implementation of benchmarking. This might shade some light as to why Kenyan organizations have not been able to reach world-class status in their operations. Policy markers would then be able to initiate appropriate reforms based on these challenges.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Research Design

The research design was a survey on the adoption and challenges facing the Ministry of Agriculture parastatals in Kenya in the use of benchmarking technique as a tool for continuous improvement.. A survey research design was chosen because of the manageable number of parastatals under the ministry of agriculture; a total of twenty four (24) in number.

3.2 Population and Sampling

The population of the study was the twenty four Ministry of Agriculture parastatals from which a sample was drawn. Sampling involved gathering of a sample of data or opinions considered representative of a whole. This study therefore constituted all the parastatals in the ministry of agriculture which was possible because the number of 24 was manageable.

The unit of analysis was the parastatal's operation function and sixty-two (62) respondents were sampled. Rosco (1975) proposes a rule of the thumb for determining a sample size and says that a size of 30 to 500 is appropriate for most researches.

3.3 Data Collection

This study relied on primary data collection methods. The data collection entailed distribution of questionnaires to the informants in the operations function of all the ministry of agriculture parastatals. The items in the instrument were developed from the literature review to assist in the collection of primary data, (see Appendix II). It was delivered to the twenty-four (24) ministry of agriculture parastatals' various respondents. The sample frame constituted the three levels of management in the ministry of agriculture parastatals that is the senior, Middle and Low-level management. The questionnaire was self administered in that it involved the 'drop-and-pick-later' approach. This gave the respondents ample time to think through the questions before answering them.

3.3 Data Analysis

Completed questionnaires were edited for completeness and consistency. The data was then coded and checked for any errors and omissions (Kaewsonth & Harding, 1992) and then analyzed using procedures within Statistical Package for Social Sciences (SPSS)_PC version 11 to get its feel. One basic form of analysis was performed that is simple descriptive univariate statistics.

The responses from the open-ended questions were listed so to obtain proportions appropriately; the mean and standard deviation were used. The mean was to measure the average response of the population. The mode was used as an arithmetic measure of the most frequently identified observation. The standard deviation was to look at the spread of the answers from the mean. For closed questions, a comparative analysis using distribution tables, quantiles (percentiles) and graphical analysis was done to ascertain whether there was a significant difference within the pattern of responses and to improve the presentation of the analyzed results for ease of interpretation.

To establish the most critical challenges, factor analysis techniques was used to approximate each set of variables/challenges relative to the others; factor analysis was used to reduce a large amount of data into a structure that can be more easily studied.

CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter covers data analysis and findings of the research. The data is presented in form of proportions, means, tables and graphs. Data was collected from 24 parastatals of the Ministry of Agriculture whose performance is at extremes. The collected data has been analyzed and interpreted in line with the aims of the study. Out of the sixty-two (62) respondents to whom the questionnaires were administered, only thirty-five (35) respondents in the parastatals responded. This gave a response rate of 56% percent.

4.2 Organizational Profile

Public organizations have their policies on resource utilization pegged on wider framework of effective use of public resources, and provision of information to drive change to the government for social and economic agendas. The respondents were asked to rank their parastatals in some key performance aspects on a scale of 1 to 5. The results are as in table 4.1 below.

Table 4.1 the Comparison and Evaluation of the Practice, Process and Performance

The Comparison and Evaluation of the Practice, Process and Performance	Descriptive Statistics		Rank
	Mean	Std. Deviation	
Effective use of public resources	1.8857	.90005	1
Provisions of information to the public to enable them make informed choice	2.2571	1.17180	2
Provision of information to drive change to the government for social and economic agendas	2.4286	1.09237	3
Your ability to meet market requirements	2.6000	1.11672	4

Source: Research Data

From the results in table 4.1, the parastatals had to a very great extent (Mean = 1) made effective use of public resources; and to a great extent (Mean = 2) provided information to the public to enable them make informed choice and information to drive change to the government for social and economic agendas; and at least met market requirements.

4.3 The Extent of Adoption of Benchmarking Technique as a Tool for Continuous Improvement

In order to establish the extent of adoption of benchmarking technique as a tool for continuous improvement in the Ministry of Agriculture parastatals in Kenya, some issues were assessed as seen below.

4.3.1 Continuous Improvement Systems in the Ministry of Agriculture Parastatals in Kenya

Continuous improvement adopts an approach to improving performance which assumes more and smaller incremental improvement steps. In continuous improvement it is not the rate of improvement that matters but the momentum of improvement. The respondents were asked to make an assessment of the continuous improvement systems in the organizations and the responses can be explained as below.

The respondents were asked to rate their parastatals services congruence with the market requirements and the marketability of their products and services. From the research data, the congruence parastatals products and services with the market requirements and the marketability products and services was ranked as good with 57%, and excellent with 29%. This was a clear indication that some 14% of the parastatals were below average. The respondents were also asked to rate the continuous improvement systems in the parastatals, from the research data, 55% of the respondents indicated them as good, as 45% indicated them to be fair. This confirms Okidegbe et al. (1998) conclusion that the Kenyan people are not receiving value for their money instead what can be seen are poorly performing state corporations and government departments full of corruption.

The respondents were also asked to indicate how often the improvement practices were renewed/ reviewed. From the research data, 38% indicated that they are renewed annually, as the rest are renewed biannually. Hence they meet the definition of continuous improvement. Some of the external drivers of change in the parastatals were found to be Market place, Customers and Legislation. The internal drivers of change in the parastatals were also found to be Actual Performance and Monitoring systems.

4.3.2 Benchmarking Practices

On the existence on benchmarking systems, the respondents were asked to indicate whether there are there systems that facilitate the systematic comparison and evaluation of practice, process and performance with any “best practices or smarter” institutions in improvement and self-regulation. From the research data, 60% of the respondents indicated that they have such systems in place. Development and improvement purposes is the major reason for the systematic comparison and evaluation of practice, process and performance with any “best practices or smarter” institutions for the parastatals.

The respondents were asked to indicate the comparison and evaluation of the practice, process and performance on a scale of 1 to 5. From the results in table 4.2 below, some of the systematic comparison and evaluation of the practice, process and performance that have been adopted to a great extent (Mean = 2) in are respondents were found to be : an analysis of results; measurement, of own and the benchmarking partners' performance level, both for comparison and for registering improvements; comparison, of performance levels, processes and practices; the careful study of your own practices and performance; and lastly a thorough search to identify best-practice-organizations. The respondents also indicated that public accountability processes that are founded on action research and overall capacity of the systems to develop, improve and regulate itself drives the agenda of learning, improvement, innovation and change towards a self-determined improvement. This the true picture for public institutions.

Table 4.2: The Comparison and Evaluation of the Practice, Process and Performance

The Comparison and Evaluation of the Practice, Process and Performance	Descriptive Statistics		Rank
	Mean	Std. Deviation	
An analysis of results	2.2759	1.19213	1
Measurement, of own and the benchmarking partners' performance level, both for comparison and for registering improvements	2.3030	1.10354	2
Comparison, of performance levels, processes, practices, etc	2.4375	1.10534	3
The careful study of your own practices and performance	2.4839	1.26151	4
A thorough search to identify best-practice-organizations	2.5000	1.23228	5
Systematic site visits and interviews	2.5000	1.34715	6
Development of recommendations and implementation	2.5000	1.22474	7
Learning, from the benchmarking partners to introduce improvements in your own organization	2.6333	1.18855	8
Improvement, which is the ultimate objective of any benchmarking study	2.6333	1.12903	9

Source: Research Data

There are a number of factors that influence the success the benchmarking/the process of emulating the best practices. The respondents were also asked to indicate the factors that influence the success the benchmarking/the process of emulating the best practices in the parastatals on a scale of 1 to 5. The results are as in table 4.3 below.

Table 4.3 The Factors That Influence the Success the Benchmarking/the Process of Emulating the Best Practices

The Factors That Influence the Success the Benchmarking	Descriptive Statistics		Rank
	Mean	Std. Deviation	
Objective identification of opportunities and bottlenecks	1.0714	.26227	1
The organization's own former performance	1.0968	.30054	2
The added value offered by the method /cost-benefit analysis	1.2069	.41225	3
The support of the method to internal quality management within	1.2333	.43018	4
The contribution to a greater accountability to the outside world	1.3333	.47946	5

Source: Research Data

From the results in table 4.3 above, some of the systematic factors that influence the success the benchmarking/the process of emulating the best practices in the parastatals to a very great

extent include the objective identification of opportunities and bottlenecks; the organization's own former performance; the added value offered by the method /cost-benefit analysis; the support of the method to internal quality management within; and the contribution to a greater accountability to the outside world. This is in line with Mahmoud's (2002) observation that benchmarking may be a one-off event, but is often treated as a continuous process in which organizations continually seek to challenge their practices influenced by a number of factors.

A better understanding of practice, performance, and insights to a very great extent is what the parastatals have achieved in the participation in any benchmarking/systematic comparison exercise.

4.4 The Challenges Facing the Ministry of Agriculture Parastatals in the Use of Benchmarking Technique

4.4.1 How Comparisons are done and modeled

The respondents were asked to indicate how the comparisons in benchmarking are done and modeled in the parastatals. From the research data, 71% of the parastatals agreed with the 2006/2007 performance ranking of the ministry of agriculture parastatals. On how comparisons are done on a scale of 1 to 5, the results are as in table 4.4 below. Most respondents indicated that the comparisons are done through systematic evaluation of alternatives and adopting successful comparing processes with those of competitors in the ministry.

Table 4.4 How Comparisons Done

How Comparisons Done	Distribution	
	Frequency	Percentage
Systematic evaluation of alternatives and adopting successful	20	58.8
Comparing processes with those of competitors in the ministry	9	26.5
Learning from companies outside the ministry of agriculture	3	8.8
Breaking/tearing down the services offered and technical pro	2	5.9
TOTAL	35	100

Source: Research Data

The comparisons can also be modeled in different ways. The respondents were also asked to indicate how comparisons are done on a scale of 1 to 5 and the results are shown in table 4.5.

Table 4.5 How Comparisons Modeled

How Comparisons Modeled	Descriptive Statistics		Rank
	Mean	Std. Deviation	
Independent self-referencing	1.5667	.50401	1
Collaborative group partnership	1.8286	.92309	2
Brokered models (involving an individual or agency intervening)	1.8571	.80961	3
Collaborative one- to - one partnership	1.9143	.70174	4
Independent self-referencing	1.5667	.50401	5

Source: Research Data

From the results in table 4.5, to a very great extent (Mean = 1), the comparisons are modeled through independent self-referencing, followed by collaborative group partnership, then through brokered models involving an individual or agency intervening.

4.4.2 The Referencing Processes and Types of Benchmarking Schemes Used As a Mechanism for Comparison

The respondents were asked to indicate the extent of use of the different referencing processes used as a mechanism for comparison and the extent of use and awareness of the types of benchmarking schemes. The results are as in table 4.6.

Table 4.6: The Referencing Processes

The Referencing Processes	Distribution	
	Frequency	Percentage
Performance indicators: - statistical measures and online data	20	58.8
Specification, codes of practice, descriptors and examples o	9	26.5
Action research: - focused surveys supported by discussion	2	5.9
TOTAL	31	100

Source: Research Data

From the research data, most respondents indicated that the major source of data and information in benchmarking is through direct contact. From the results in table 4.6, above the reference point for the comparisons are performance indicators that is the statistical measures and online data, as opposed to the specification, codes of practice, descriptors and examples and action research which is focused surveys supported by discussion.

Table 4.7 Types of Benchmarking Schemes

Types of Benchmarking Schemes	Descriptive Statistics		Rank
	Mean	Std. Deviation	
Internal benchmarking	1.6400	1.03602	1
Competitive/performance benchmarking	1.6897	0.80638	2
External benchmarking	1.8571	1.11270	3
Strategic benchmarking	1.8621	0.91512	4
Process benchmarking	2.1429	1.04401	5
Collaborative benchmarking	2.2000	1.00000	6
Independent benchmarking	2.2000	1.25831	7
International benchmarking	2.2222	1.15470	8
Development/Improvement benchmarking	2.2400	1.12842	9
Functional/Generic benchmarking	2.4074	1.11835	10
Bureaucratic benchmarking	3.0000	0.86603	11

Source: Research Data

Based on the comparison mechanisms, from the results in table 4.7 above, the four types of benchmarking which are currently in use are internal benchmarking, competitive/performance benchmarking, external benchmarking and strategic benchmarking. Also from the research data, the three most critical factors that influence the choice of the various benchmarking Tools and scope in the parastatals were found to be compatibility with local conditions, time and resource availability; and lastly the limited duration for comparability of the parastatals and processes.

4.4.3 Challenges and Successes of Benchmarking

There are a number of factors that affect/challenge and successes in the use of benchmarking technique as a tool for continuous improvement. The respondents were asked to rank in a scale of 1 to5 the extent to which some of the key have faced the Ministry of Agriculture parastatals in Kenya in the use of benchmarking technique as a tool for continuous improvement, and the results are as in table 4.8 below.

Table 4.8 Challenges and Successes of Benchmarking

Challenges and Successes of Benchmarking	Descriptive Statistics		Rank
	Mean	Std. Deviation	
Analyzing and gaining a deeper understanding of one owns processes for an improvement in the industrial partners in the ministry of agriculture.	2.0345	1.32241	1
A need for understanding own processes by analyzing and understanding the parastatal's own processes	2.0370	1.34397	2
Requesting initial performance information about the process in question before selecting a benchmarking partner, to make sure the performance is sufficiently good to offer new insights	2.6897	1.10529	3
Performing the benchmarking visits in teams to ensure that people complement each other in terms of skills and interests and contributed to creating ownership in the parastatals	2.7241	1.27885	4
Comparability of companies and processes	2.7778	1.50214	5
Seeking aid and support from sources and institutions that might be able to point to and convince potential partners, e.g., industry associations, area experts, media, etc.	2.7931	1.11417	6
Finding benchmarking collaborates willing to participate in the benchmarking studies	2.8889	1.42325	7
Applying a systematic procedure whereby a large number of potential benchmarking partners are scanned for relevance and high performance.	2.9630	1.25519	8
Exchanging all possible background information beforehand, thus being able to start covering the interesting parts right away	2.9655	1.08505	9
Getting acceptance for the use of both quantitative and qualitative benchmarking information	3.2222	1.25064	10
Limited duration of each interview and being limited by time	3.4444	1.36814	11
Offering to pay for the time spent by the benchmarking partner in preparations for and during the benchmarking visit	3.5172	1.35279	12
Lack of business process understanding	3.5517	1.40372	13
Making sure, the offer made to the companies is attractive, for instance by informing about processes, the benchmarking company is particularly good at and offering return visits	3.5926	1.47438	14
The use of a generic benchmarking questionnaire in structuring the individual benchmarking reports	3.6897	1.25651	15
Making sure to bring along someone fluent in the local language if the benchmarking partner finds it difficult to conduct the interviews in an international language	3.8276	1.22675	16
Meeting for a social gathering the night before the benchmarking visit to break the ice and build up trust before starting the meeting	4.0000	1.30931	17

Source: Research Data

From the results in table 4.8, the nine key challenges that have faced the Ministry of Agriculture parastatals in Kenya in the use of benchmarking technique as a tool for continuous improvement to a great extent (Mean =2) include; analyzing and gaining a deeper understanding of own processes, requesting initial performance information about the process in question before selecting a benchmarking partner, performing the benchmarking visits in teams to ensure that, people complement each other in terms of skills and interests. Comparability of companies and their operation processes seeking aid and support from sources and institutions that might be able to point to and convince potential partners, finding benchmarking collaborates willing to participate in the benchmarking process exchanging all possible background information beforehand, thus being able to start covering the relevant. The rest with mean of three seem to be coupled with uncertainties on their influence on the success of the benchmarking technique as a tool of continuous improvement.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the findings and makes conclusions on this study on the adoption and challenges facing the ministry of agriculture parastatals in Kenya in the use of benchmarking as a continuous improvement tool. It also includes the study limitations and recommendations for further research

5.2 Summary

Data was collected from 24 parastatals of the Ministry of Agriculture whose performance is at extremes. The collected data has been analyzed and interpreted in line with the objectives of the study namely; to establish the extent of adoption of benchmarking technique as a tool for continuous improvement in the Ministry of Agriculture parastatals in Kenya; and secondly to establish the challenges facing the Ministry of Agriculture parastatals in Kenya in the use of benchmarking technique as a tool for continuous improvement. There was a response rate of 56% percent. The research methodology was based on the fact that the study was a survey design.

A questionnaire with open ended and closed ended question was developed by the researcher and used in data collection. Summary is based on the research questions as follows.

Continuous improvement adopts an approach to improving performance which assumes more and smaller incremental improvement steps. In continuous improvement it is not the rate of improvement that matters but the momentum of improvement. It was found that the congruence parastatals products and services with the market requirements and the marketability products and services were good, but not excellent. The rating of the continuous improvement systems in the parastatals was also rated as good. This confirms Okidegbe et al. (1998) conclusion that the Kenyan people are not receiving value for their money instead what can be seen are poorly performing state corporations and government departments full of corruption.

Some of the external drivers of change in the parastatals were found to be the Market place, Customers and Legislation. The internal drivers of change in the parastatals were also found to be Actual Performance and Monitoring systems. It was found that most parastatals had systems that facilitate the systematic comparison and evaluation of practice, process and performance with any “best practices or smarter” institutions in improvement and self-regulation. Some of the systematic comparison and evaluation of the practice, process and performance that have been adopted to a great extent were found to be an analysis of results; measurement, of own and the benchmarking partners' performance level, both for comparison and for registering improvements; comparison, of performance levels, processes and practices; the careful study of your own practices and performance; and lastly a thorough search to identify best-practice-organizations.

Some of the systematic factors that influence the success the benchmarking/the process of emulating the best practices in the parastatals to a very great extent include the objective identification of opportunities and bottlenecks; the organization's own former performance; the added value offered by the method /cost-benefit analysis; the support of the method to internal quality management within; and the contribution to a greater accountability to the outside world. This is in line with Mahmoud's (2002) observation that benchmarking may be a one-off event, but is often treated as a continuous process in which organizations continually seek to challenge their practices influenced by a number of factors.

A better understanding of practice, performance, and insights to a very great extent is what the parastatals have achieved in the participation in any benchmarking/systematic comparison exercise. Improved networking and benchmarking information are minor objectives of the participation.

The comparisons in benchmarking can be done and modeled in a number of ways. It was found that most of the parastatals agreed with the 2006/2007 performance ranking of the ministry of agriculture parastatals.

It was found that the major source of data and information in benchmarking is through direct contact; and the reference point for the comparisons are performance indicators that is the statistical measures and online data, as opposed to the specification, codes of practice,

descriptors and examples and action research which is focused surveys supported by discussion. The four types of benchmarking which are currently in use are internal benchmarking, competitive/performance benchmarking, external benchmarking and strategic benchmarking. It was also found that the three most critical factors that influence the choice of the various benchmarking tools and scope in the parastatals are compatibility with local conditions, time and resource availability; and lastly the limited duration for comparability of the parastatals and processes.

Among the nine key challenges that have faced the Ministry of Agriculture parastatals in Kenya in the use of benchmarking technique as a tool for continuous improvement to a great extent include: analyzing and gaining a deeper understanding of one's own processes; requesting initial performance information about the process in question before selecting a benchmarking partner, performing the benchmarking visits in teams to ensure that people complement each other in terms of skills and interests and contributed to creating ownership in the parastatals and comparability of companies and their operation processes.

5.3 Conclusions

Based on the results from data analysis and findings of the research a number of conclusions were arrived at as enumerated below.

Continuous improvement adopts an approach to improving performance which assumes more and smaller incremental improvement steps. The rating of the continuous improvement systems in the parastatals was also rated as good. The internal drivers of change in the parastatals were also found to be actual performance and monitoring systems.

It was found that most parastatals had systems that facilitate the systematic comparison and evaluation of practice, process and performance with any "best practices or smarter" institutions in improvement and self-regulation.

It was also established that the systematic factors that influence the success of benchmarking to a very great extent include; the objective identification of opportunities and bottlenecks; the organization's own former performance; the added value offered by the method /cost-

benefit analysis; Improved networking and benchmarking information are minor objectives of the participation.

The comparisons are done through systematic evaluation of alternatives and adopting successful comparing processes with those of competitors in the ministry. To a very great extent, the comparisons are modeled through independent self-referencing, followed by collaborative group partnership, then through brokered models involving an individual or agency intervening.

It was also found that the four types of benchmarking which are commonly in use are internal benchmarking, competitive/performance benchmarking, external benchmarking and strategic benchmarking. It was also revealed that the three most critical factors that influence the choice of the various benchmarking tools and scope in the parastatals are; compatibility with local conditions, time and resource availability; and lastly the limited duration for comparability of the parastatals and processes.

Finally, the five key challenges that have faced the Ministry of Agriculture parastatals in Kenya in the use of benchmarking technique as a tool for continuous improvement to a great extent include ; analyzing and gaining a deeper understanding of own processes-a need for understanding own processes by analyzing and understanding the parastatals own processes , requesting initial performance information about the process in question before selecting a benchmarking partner, performing the benchmarking visits in teams to ensure that, people complement each other in terms of skills and interests and contribute to creating ownership in the parastatals ,comparability of companies and their operation processes ,seeking aid and support from sources and institutions that might be able to point to and convince potential partners,

5.4 Recommendations

The findings of the study indicated that there were a number of issues to be addressed and suggestions for further research.

The following challenges need to be addressed within the ministry of agriculture parastatals; comparability of the parastatals and their operation processes, seeking aid and support from sources and institutions that might be able to point to and convince potential partners, finding benchmarking collaborates willing to participate in the benchmarking studies, applying a systematic procedure whereby a large number of potential benchmarking partners are scanned for relevance and high performance , exchanging all possible background information beforehand. The other challenges with a mean of three seem to be coupled with uncertainties on their influence on the success of the benchmarking technique as a tool of continuous improvement.

5.5 Limitations of the Study

The following factors were the greatest hurdles while conducting the study: Time: It took long when collecting the questionnaires because some of the respondents kept them and never bothered to answer. Irrelevancy: Some of the respondents had no information hence giving out data which was not satisfactory. Transportation: Due to poor means of communication it took long to visit all branches and this led to arriving when some of the managers had left for meetings and others home. Literature availability: Due to poor equipped libraries on ICT and e-operations it took long to get the required data and literature

1.

5.6 Suggestions for Further Research

Areas of further research that were identified include; a similar study be carried out on other ministries in the Kenyan government. Further research should be undertaken to determine how benchmarking can contribute to a companies financial performance and credit risk management. A study should also be done to assess the adoption and challenges facing the other parastatals in Kenya in the use of benchmarking as a continuous improvement tool.

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APPENDICES:

APPENDIX I: LETTER OF INTRODUCTION

Dear Respondent,

RE: THE CHALLENGES FACING THE MINISTRY OF AGRICULTURE PARASTATALS IN KENYA IN THE USE OF BENCHMARKING TECHNIQUE AS A TOOL FOR CONTINUOUS IMPROVEMENT

I am a student pursuing Masters Studies in Business Administration [MBA], Operations Management in the School of Business, University of Nairobi. The title of my study is “**The Challenges Facing the Ministry of Agriculture Parastatals in Kenya in the Use of Benchmarking Technique as a Tool for Continuous Improvement**”. Your organization was selected to participate in this study since it falls in the above scope and category, and you have been selected because of your position as a key player/head/manager in the operations management of your organization.

The questionnaire attached asks questions about your organization’s benchmarking processes, practices and challenges with respect to operations management, its performance in the agricultural sector and a few about the characteristics of your organization. Based on your experience and knowledge, please indicate the extent to which you agree or disagree with given statements.

Your participation is essential to this study and will enhance our knowledge of the challenges and success of benchmarking in Kenya and Ministry of Agriculture. I also wish to assure you that all information with respect to this research will be treated with the strictest confidence it deserves and will only be used for academic purposes, and in no circumstance will your name be mentioned in the report without your prior permission. If you would like, we can send you the report of the findings on request.

Kindly assist in providing the required information.

Thank you.

Enosh Akuma [MBA Student] : Tel. 0723 443187 : Email: eongoshi@yahoo.com

APPENDIX II: QUESTIONNAIRE

Organization Questionnaire on Challenges While Benchmarking:

Introduction: This questionnaire consists of two parts; please answer all questions in the two sections. Benchmarking the practice of being humble enough to admit that someone else is better at something, and being wise enough to learn how to match him or her and even surpass them at it. The essence of benchmarking is learning from others.

PART ONE: GENERAL QUESTIONS

[To be answered by all informants]

1.1 Name of the Parastatal.....Job Title.....
Number of years in the present organization.....Level of Education.....

(Indicate your responses by checking the boxes/cells provided below)

1.2 How are your parastatal services congruent with the market requirements and the marketability of your products and services?

- | | | | |
|--------------|--------|---------|--------|
| a) Excellent | [] | b) Good | [] |
| c) Fair | [] | d) Bad | [] |

1.3 How will you rate the (continuous) improvement systems in your parastatal?

- | | | |
|----------------|---------------|----------------|
| a) Good [] | b) Bad [] | c) Fair [] |
|----------------|---------------|----------------|

1.4 How often are your improvement practices renewed/ reviewed?

- | | | | |
|---------------|--------|------------------|--------|
| a) Monthly | [] | c) Semi-annually | [] |
| b) Annually | [] | d) Continuously | [] |
| e) Other..... | | | |

1.5 What are some of the external drivers of change in your parastatal?

- | | | | |
|----------------|--------|-----------------|--------|
| a) Customers | [] | b) Market place | [] |
| c) Legislation | [] | d) Other..... | |

1.6 Which are some of the internal drivers of change?

- a) Actual Performance [] c) Monitoring systems []
 b) Dysfunctional behavior [] d) Other.....

PART TWO: BENCHMARKING PRACTICES

2.1. Are there systems that facilitate the systematic comparison and evaluation of practice, process and performance with any “best practices or smarter” institutions in improvement and self-regulation? Yes [] No []

2.2. What is the major reason for the systematic comparison and evaluation of your practice, process and performance with any “best practices or smarter” institutions?

- a) For regulatory purposes [] b) For development and improvement []

2.3. To what extent do you do the following during the systematic comparison and evaluation of your practice, process and performance? Please tick (v) on the extent column key numbers based on the key below.

- [1] = Very Great Extent [2] = Great Extent
 [3] = Uncertain [4] = Small Extent
 [5] = Very Small Extent

Statement	Extent				
	[1]	[2]	[3]	[4]	[5]
Measurement, of own and the benchmarking partners' performance level, both for comparison and for registering improvements					
Comparison, of performance levels, processes, practices, etc					
Learning, from the benchmarking partners to introduce improvements in your own organization					
Improvement, which is the ultimate objective of any benchmarking study					
A thorough search to identify best-practice-organizations					
The careful study of your own practices and performance					
Systematic site visits and interviews					
An analysis of results					
Development of recommendations and implementation					
Others					

2.4 What drives the agenda of learning, improvement, innovation and change towards a self-determined improvement?

- a) Professional processes []
- b) Public accountability processes that are founded on action research []
- c) Overall capacity of the systems to develop, improve and regulate itself []
- d) Others _____

2.5 Indicate how each of the following factors influence the success of your benchmarking/the process of emulating the best practices. Please tick (v) on the effect column key numbers based on the key below. [1] = Affects [2] = No Effect

Statement/Factor	Effect	
	[1]	[2]
The added value offered by the method /cost-benefit analysis		
Objective identification of opportunities and bottlenecks		
The organization's own former performance		
The support of the method to internal quality management within		
The contribution to a greater accountability to the outside world		
Others		

2.6 To what extent have you achieved the following in your participation in any benchmarking/systematic comparison exercise? Please tick (v) on the extent column key numbers based on the key below.

- [1] = Very Great Extent
- [2] = Great Extent
- [3] = Uncertain
- [4] = Small Extent
- [5] = Very Small Extent

Statement	Extent				
	[1]	[2]	[3]	[4]	[5]
Improved networking					
Benchmarking information					
A better understanding of practice, performance, and insights					
Others					

2.7 How can you rank your parastatals in the following aspects? Please tick (v) on the Rank column key-numbers based on the key below.

[1] = Excellent [2] = Good [3] = Bad [4] = Fair [5]=poor

Statement	Extent				
	[1]	[2]	[3]	[4]	[5]
Effective use of public resources					
Provision of information to drive change to the government for social and economic agendas					
Provisions of information to the public to enable them make informed choice					
Your ability to meet market requirements					
Others					

2.8 Do you agree/concur with the 2006/2007 performance ranking of the ministry of agriculture parastatals?

Yes [] No []

Why _____

2.9 Generally, what do you think made your parastatal rank lowly in the 2006/2007 ministry of agriculture parastatals ranking?

2.10 What is your organization as a ministry of agriculture parastatal doing to achieve the level of having best practices, processes and opportunities for continuous improvement to meet world-class status/to be recognized as the best in the world?

2.11 What is the perception of your parastatal's strategies?

- a) As the most admired among the ministry of agriculture parastatals []
- b) As most profitable among the ministry of agriculture parastatals []
- c) As strongest competitors among the ministry of agriculture parastatals []
- d) Others (Please state) _____

2.12 How are you doing your comparisons *now*? (Please tick only one)

- a) Breaking/tearing down the services offered and technical product analysis []
- b) Comparing processes with those of competitors in the ministry of agriculture []
- c) Learning from companies outside the ministry of agriculture parastatals []
- d) Systematic evaluation of alternatives and adopting successful strategies from external partners []

2.13 How do you model your comparisons? (Please tick more than one)

- a) Collaborative group partnership []
- b) Collaborative one- to – one partnership []
- c) Brokered models (involving an individual or agency intervening) []
- d) Independent self-referencing []

(Independently -no direct involvement of partners, collaboratively - there is an active involvement of partners)

2.14 What are some of the sources of information about other organizations' processes?

- a) From data centers []
- b) From libraries []
- c) Through direct contact []
- d) Internet/websites []

2.15. Which referencing processes do you use as a mechanism for comparison?

- a) Action research: - focused surveys supported by discussion []
- b) Performance indicators: - statistical measures and online databases []
- c) Specification, codes of practice, descriptors and examples of good practice []
- d) Performance criteria and scoring systems: - standardized testing []
- e) Others

2.16 Please indicate the extent of use and knowing/awareness of the following types of benchmarking schemes/systematic comparison exercises in your organization. Please tick (v) on the extent column key numbers based on the key below.

- [1] = In Use [2] = Plan to Use [3] = Known But Not In Use
 [4] = Don't Know

Statement	Extent			
	[1]	[2]	[3]	[4]
Competitive/performance benchmarking				
Process benchmarking				
Functional/Generic benchmarking				
Internal benchmarking				
Development/Improvement benchmarking				
Collaborative benchmarking				
External benchmarking				
Strategic benchmarking				
International benchmarking				
Bureaucratic benchmarking				
Independent benchmarking				

{Key: Strategic Benchmarking- examining the long-term strategies and general a approaches, Performance benchmarking or competitive benchmarking -consider their position in relation to performance characteristics of key products and services, Process benchmarking- producing process maps to facilitate comparison, Functional/generic benchmarking -with partners drawn from different business sector, Internal benchmarking seeking partners within the same organization, External Benchmarking/Best Practice Benchmarking- outside organizations that are known to be best in class, International Benchmarking- good practice organizations are located in other countries}

2.17 Please tick the **THREE** most critical factors influencing the choice of the various benchmarking Tools and scope in your parastatal

- a) Compatibility with local conditions []
- b) Comparability of the parastatal and process []
- c) Time and resource availability; Limited duration []
- d) Level of experience in benchmarking []
- e) Objectives to be achieved and aspects to be reviewed []
- f) Others

PART THREE: CHALLENGES AND SUCCESSES OF BENCHMARKING

Please indicate the extent to which the following factors have affected your parastatals (challenges and successes of benchmarking) in the use of benchmarking technique as a tool for continuous improvement. Please tick (v) on the extent column key numbers based on the key below. {[1] = Very Great Extent; [2] = Great Extent; [3] = Uncertain; [4] = Small Extent; [5] = Very Small Extent}

Challenges and Successes of Benchmarking	Extent				
	1	2	3	4	5
Finding benchmarking collaborates willing to participate in the benchmarking studies					
Getting acceptance for the use of both quantitative and qualitative benchmarking information					
Lack of business process understanding					
Limited duration of each interview and being limited by time					
Comparability of companies and processes					
Applying a systematic procedure whereby a large number of potential benchmarking partners are scanned for relevance and high performance.					
Seeking aid and support from sources and institutions that might be able to point to and convince potential partners. e.g., industry associations, area experts, media, etc.					
Making sure, the offer made to the companies is attractive, for instance by informing about processes, the benchmarking company is particularly good at and offering return visits					
Requesting initial performance information about the process in question before selecting a benchmarking partner, to make sure the performance is sufficiently good to offer new insights					
Exchanging all possible background information beforehand, thus being able to start covering the interesting parts right away					
Meeting for a social gathering the night before the benchmarking visit to break the ice and build up trust before starting the meeting					
Offering to pay for the time spent by the benchmarking partner in preparations for and during the benchmarking visit					
Making sure to bring along someone fluent in the local language if the benchmarking partner finds it difficult to conduct the interviews in an international language					
The use of a generic benchmarking questionnaire in structuring the individual benchmarking reports					
Performing the benchmarking visits in teams to ensure that people complement each other in terms of skills and interests and contributed to creating ownership in the parastatal					
A need for understanding own processes by analyzing and understanding the parastatal's own processes					
Analyzing and gaining a deeper understanding of one owns processes for an improvement in the industrial partners in the ministry of agriculture.					

APPENDIX III: LIST OF PARASTATALS IN THE MINISTRY OF AGRICULTURE

1. Kenya Agricultural Research Institute (KARI)*.
 2. Kenya Plant Health Inspectorate Service (KEPHIS)
 3. Agricultural Development Corporation
 4. Agricultural Finance Corporation
 5. Nyayo Tea Zones Development Corporation
 6. Tea Research Foundation
 7. Coffee Research Foundation
 8. Kenya Sugar Board
 9. Coffee Board of Kenya
 10. National Cereals and Produce Board (NCPB)
 11. Kenya Seed Company
 12. Horticultural Crops Development Authority (HCDA)
 13. Pyrethrum Board of Kenya
 14. Kenya Sugar Research Foundation (KESREEF)
 15. Tea Board of Kenya
 16. Pest Control Products Board (PCPB)
 17. Mumias Sugar Company
 18. Chemelil Sugar Company
 19. Nzoia Sugar Company
 20. Agro-chemical and Food Company
 21. Central Agricultural Board
 22. Cotton Board
 23. Kenya Sisal Board
 24. Coffee Development Fund
25. *Includes animal section of Kenya Trypanomiasis Research Institute (KETRI), and Kenya Veterinary Vaccines Production Institute (KEVEVAPI). The human section of KETRI absorbed by Kenya Medical Research Institute (KEMRI).