

**MANAGEMENT OF VALUE CHAIN FOR COMPETITIVE ADVANTAGE  
AT KISUMU WATER AND SANITATION COMPANY LIMITED**


**EDWIN MUNYOLE SITATI**

**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF  
THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF MASTER  
OF BUSINESS ADMINISTRATION, SCHOOL OF BUSINESS,  
UNIVERSITY OF NAIROBI.**

**DECEMBER,2021**

## DECLARATION

I the undersigned declare that this is my original work and has not been presented in this or any other university for the award of a degree.

Signature: 

Date:.....26.Nov. 2021.....

**Edwin Munyole Sitati**

D61/9832/2018

Declaration by the Supervisor

I confirm that the work in this project was done by the student under my supervision.

Signature: 

Date:....**28<sup>th</sup> Nov. 2021**.....

**Prof. Vincent N. Machuki**

Department of Business Administration

Faculty of Business and Management Sciences

University of Nairobi.

## **DEDICATION**

This research project is dedicated to my dear parents Mr. and Mrs. Sitati. Your unwavering resolve for the quest of knowledge has been instrumental in my life and that of my siblings.

May the almighty continue to bless you.

## **ACKNOWLEDGEMENT**

I thank God for the gift of life and good health. My great appreciation goes to my Supervisor Prof. Vincent N. Machuki for his valuable and constructive insights during the planning and development of this research project. His willingness and zeal to offer his time so generously is overly appreciated. I would also like to thank the management of Kisumu Water and Sanitation Company Limited for granting the permission to carry out the study in their organization. I thank my family for their support more so during my study. Finally, I would like to extend my sincere thanks to my MBA colleagues for their academic support and encouragement during this research project.

## TABLE OF CONTENTS

<b>DECLARATION</b> .....	ii
<b>DEDICATION</b> .....	iii
<b>ACKNOWLEDGEMENT</b> .....	iv
<b>ABBREVIATIONS AND ACRONYMS</b> .....	iii
<b>ABSTRACT</b> .....	iv
<b>CHAPTER ONE: INTRODUCTION</b> .....	1
1.1 Background of the Study .....	1
1.1.1 Value Chain Management .....	2
1.1.2 Competitive Advantage.....	3
1.1.3 Kisumu Water and Sanitation Company Limited (KIWASCO) .....	4
1.2 Research Problem .....	5
1.3 Research Objectives.....	7
1.4 Value of the Study .....	7
<b>CHAPTER TWO: LITERATURE REVIEW</b> .....	8
2.1 Introduction.....	8
2.2 Theoretical Foundation .....	8
2.2.1 Systems Theory.....	8
2.2.2 Network Based Theory .....	9
2.3 Value Chain Management Practices .....	9
2.3.1 Primary value chain activities .....	11
2.3.2 Secondary Value chain activities .....	11
2.4 Value chain Management Practices and Competitive Advantage .....	12
2.5 Summary of Literature and Knowledge Gaps.....	15
<b>CHAPTER THREE: RESEARCH METHODOLOGY</b> .....	17
3.1. Introduction.....	17
3.2. Research Design.....	17
3.3. Data Collection .....	17
3.4 Data Analysis .....	18
<b>CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND DISCUSSION</b> .....	19
4.1 Introduction.....	19
4.2 Value Chain Management Practices at KIWASCO Limited .....	19
4.2.1 Primary Value Chain activities .....	20

4.2.2 Secondary Value Chain activities .....	22
4.3 Value Chain Management for Competitive Advantage at KIWASCO Limited .....	27
4.4 Discussion of Findings.....	36
<b>CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS.....</b>	<b>40</b>
5.1 Introduction.....	40
5.2 Summary of findings.....	40
5.2.1 Primary Value Chain Activities at KIWASCO Limited .....	40
5.2.2 Secondary Value Chain Activities at KIWASCO Limited .....	41
5.2.3 Management of Value Chain for Competitive advantage at KIWASCO .....	41
5.3 Conclusion of the study .....	42
5.4 Recommendation for policy and practice .....	43
5.5 Limitation of the study.....	44
5.6 Suggestions for further research .....	45
<b>REFERENCES.....</b>	<b>46</b>
<b>APPENDICES .....</b>	<b>52</b>
Appendix I: Interview Guide .....	52
Appendix II: Secondary Data capture form .....	55
Appendix III: Revised Strategic Plan 2017-2022 .....	55
Appendix IV: Data Collection Approval .....	55
Appendix V: Data Collection Approval.....	55
Appendix VI: Introduction Letter .....	55
Appendix VII : Maintenance Schedule.....	55
Appendix VIII : Maintenance Schedule/Annual Work plan.....	55
Appendix IX : Maintenance Schedule/Work plan .....	55
Appendix X : Process Flow – Intake Plant .....	55
Appendix XI : Maintenance Schedule .....	55
Appendix XII : Process flow clear water distribution.....	55
Appendix XIII : KIWASCO Organogram .....	55

## **ABBREVIATIONS AND ACRONYMS**

<b>ABC:</b>	Activity Based Costing
<b>CSR:</b>	Corporate Social Responsibility
<b>CRM:</b>	Customer Relationship Management
<b>C.A:</b>	Competitive Advantage
<b>EDI:</b>	Electronic Data Interchange
<b>GIS:</b>	Geographical Information System
<b>GSMA:</b>	Global System for Mobile Communications
<b>HRM:</b>	Human Resource Management
<b>HRD:</b>	Human Resource Department
<b>HRIS:</b>	Human Resource Information System
<b>ISO:</b>	International Standards Organization
<b>ICT:</b>	Information Communication and Technology
<b>JICA:</b>	Japan International Cooperation Agency
<b>UNIDO:</b>	United Nations Industrial Development Organization
<b>LVNWSB:</b>	Lake Victoria North Water Services Board
<b>LVSWW:</b>	Lake Victoria South Water Works
<b>MSLs:</b>	Minimum Service Levels
<b>NRW:</b>	Non Revenue Water
<b>O&amp;M:</b>	Operation and Maintenance
<b>KIWASCO:</b>	Kisumu Water and Sanitation Company Limited
<b>KEWI:</b>	Kenya Water Institute
<b>TVET:</b>	Technical Vocational, Education and Training
<b>WASREB:</b>	Water Services Regulatory Board
<b>WSP:</b>	Water Service Provider
<b>VCA:</b>	Value Chain Analysis

## **ABSTRACT**

Value Chain management is a powerful tool an organization can utilize for the attainment and sustenance of competitive advantage. This revelation informs the firm's crafting and implementing of a competitive strategy in a bid to acquire an admirable competitive position in the sector. Several theories and studies have advanced that a superior competitive advantage can be attained by disaggregating the firm into strategically significant activities and thereby understanding how each functions. With these imperatives known, the study sought to examine how Value Chain is managed for Competitive advantage at KIWASCO Limited. The study objectives were to determine the Value Chain Management practices and to establish how the firm manages its Value Chain to achieve a Competitive advantage. Among studies done in Strategic management, the focus was on Value Chain analysis and Competitive advantage in different contexts. Few of the studies revealed how the Value Chains are managed to achieve a Competitive Advantage. The planning and development of this research study was to fill this gap. The study adopted a case study as a research methodology in order to gain a deeper understanding of the firm's Value Chain activities. Both primary and secondary data was collected. Primary data was obtained by the use of an interview guide and secondary data from organizational and sector specific documents. Such as the strategic plan, annual work plans and maintenance schedules. Due to the qualitative nature of data received content analysis was best suited for analysis with a pointer on the study objectives. The study established that KIWASCO has disaggregated its key business functions into value generating activities. The findings of the study revealed that sources of competitive advantage are inherent in the firm's value chain management practices. Porter's generic value chain model was resourceful in determining the VCM practices. Technology and development was found to be key in value creation and competitive advantage. KIWASCO has automated its key value chain processes to ensure efficacy in service delivery. Physical and soft infrastructural development within coverage areas accorded the firm seamless distribution channels, outbound logistics and marketing activities. Firm infrastructure, good corporate governance practices and partnerships with other stakeholders like donors and development partners enabled the firm to access technical and financial assistance. Personnel management applied practices like recruitment and selection which were found to be highly competitive ensuring the right people at the right jobs. The study recommends that KIWASCO should explore more robust initiatives in managing its value chain for competitive advantage. Such initiatives have to do with policy issues and expertise consultations. This study is particularly useful to KIWASCO's management, policy formulation and implementation teams. Being a case study focusing on one WSP in Kenya. Future researchers should target more firms in the sector to enable generalization of findings and recommendation. Future studies should also consider contemporary Value chain models to factor in other crucial organizational aspects like leadership, corporate culture and people.



# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of the Study

Firms world over are formed to accomplish a number of goals and objectives. The major objectives may include maximization of shareholders' wealth, social welfare, gain a larger market share or market dominance (Jensen, 2001). Realization of these objectives is not always guaranteed as firms operate in a turbulent environment which brings forth threats that may jeopardize their competitiveness (Ansoff, 1988). For firms to gain an in depth understanding of the key leverage points that improve performance and create wealth for shareholders there is a dire need to disintegrate an organization into value creating activities known as Value Chain (Porter, 2004) argues that effective management of value chain activities gives a firm a competitive edge. Management of Value Chain expounds on the activities inside and outside a firm and links the same to an examination of its competitiveness (Damilano, 2018).

The Study was premised on Systems theory advanced by (Bertalanffy, 1968) and Network theory by (Johanson & Mattsson, 1988). Explained that systems theory examines the connectedness of parts of a system and their relations to each other. One function supports another function and together a broader objective is achieved. According to Mele et al (2010) Systems theory examines the interdependency of parts of a system, value is realized from the comprehension and profitably managing the entire system. The Network Based theory postulates that an organization is made up of elements that link up to form a network. The theory offers a simple perspective for analyzing and assessing the effectiveness of value chain management for competitive advantage (Johanson and Mattsson, 2015).

The Study was conducted at Kisumu Water and Sanitation Company Limited, which features prominently as a key player in the water and sanitation services provider in Kenya. The (WASREB, 2019) recorded that the water sector in Kenya faces a myriad of challenges that have hampered their ability to provide clean, affordable, quality water and sanitation services and be competitive in the market. Chief among them operational hurdles in their Value chain management. According to KIWASCO's strategic plan 2017-2022, the following key operational parameters have been listed as below average; water storage and treatment, distribution channels,

maintenance services, the firm's billing process, procurement and information technology departments performed averagely, additionally personnel need capacity building to enhance skills and competency. The firm has made great milestones at addressing and further improving on these challenges thus becoming competitive in the market (Odongo, 2019).

### **1.1.1 Value Chain Management**

Value Chain has been defined by several scholars. Value Chain analysis points out the functions of a product life cycle from initiation through stages of value addition to final delivery to the consumer (Porter, 1985). Value Chain analysis assesses the value added by each function to the end product or service, management of these functions results to competitive advantage. (Johnson & Scholes, 2015). (Fernandez-stark, 2016) defined Value chain management as an exercise that entails a set of interrelated activities aimed at developing, producing and delivering the end product or service to the ultimate consumer. Value chain management involves activities that strive to eradicate inefficiencies and rationalize consistency in the organizational operations in order to optimize the overall value (Taglioni, 2016).

Value chain management practices can be identified alongside Value chain models of Porter and Hines. (Porter, 1985) identified five generic primary and four support activities which together strive to create value to the organization. Primary activities include, inbound logistics links all functions of receiving, handling and storing of inputs. Operations is a value creating function converting the input into final product or service for example raw water treatment. Outbound logistics involves timely delivery of the product or service to the end user. Distinct activity here may include water distribution to households. Marketing and Sales entails creation of awareness of the product or service to potential and existing customers such as advertising, promotions, pricing and retail management. The last primary activity is after sales service which ensures functionality of the product or service, specific functions here may include maintenance, repairs, technical support and product or service upgrade.

Support or secondary activities reinforce primary activities. (Porter, 1998) elaborated on the four generic functions; Firm infrastructure entails the organization's structure, culture and systems. Practices are general management, legal and regulatory compliance, safety, management information systems and quality controls. Human resource management covers matters relating to recruitment, staffing, hiring, training and development and compensation of

personnel. Technology development covers all aspects of technology, know-how, process automation, equipment and research and development. Procurement entails all functions of acquiring resource inputs to primary activities. The specific practices may include purchase of raw materials, consumables, energy, fuel to power machines, water purifying machines and water treatment chemicals.

Hines (Hines, 1993) Value chain model will be crucial in identifying the Value chain management practices not covered by Porter's model. The products value is created at each stage of the primary functions by the teams; research and development, marketing, engineering, quality control, materials and design. Secondary activities utilize several concepts to create value to the ultimate consumer. Activity Based Costing (ABC) attributes costs to units along the value chain. Practices include ordering, setting up and a cost benefit analysis. Electronic Data Interchange (EDI) laid emphasis on quick response and communication to customers. Distinct practices are invoicing and purchase orders electronically.

Competitive advantage is both a driver and result of value chain management (Oliver, 2016). Ghonar (2015) in his study concluded that organizations that carried out value chain management practices recorded improved organizational potency in profitability and sustainability. (Urbig, 2003) revealed that value chain management practices assist executives and top management to streamline and improve internal and external processes better than rivals and hence cost reduction, higher returns, operational efficacy, customer base, innovations, quality and returns on investments.

### **1.1.2 Competitive Advantage**

A firm is competitive when it positions itself strategically in the market and has qualities and resources that easily out does other contenders , (Wang, 2018) According to (Ceglinski, 2016) competitive advantage manifests in an organization when its activities are more yielding than other players. Porter (1998) pointed out that a firm's positioning within the industry and attaining strategic capabilities give rise to competitive advantage. At the firm level the common parameters for measuring competitive advantage are relative productivity, efficiency and profitability (David, Semanik, & Torsekar (2018). Competitive advantage is operationalized in an organization basing on its capability to exploit market opportunities and counter competitive threats by rival firms in the industry (Sigalas et al, 2013). Firm level competitiveness can be

measured by using previous or potential performance gauges for example financial performance; profit, market share, return on investments and non-financial performance such as customer satisfaction and employees growth (Sachitra,2016).

Value chain management comes in handy in developing a strategy to convey competitive moves, comprehend the sources of competitive advantage, and further identify or develop the associations between activities that create value for customers and the firm (porter, 2012). Conferring to Bryson(2018) Value chain management describes how a product or service gains value and incurs costs along the channel. Competitive advantage can therefore be realized from the manner in which discrete activities are performed along the value chain the pointer being on efficiency, low costs and resultant superior products and services.

### **1.1.3 Kisumu Water and Sanitation Company Limited (KIWASCO)**

The context of this study was set at Kisumu Water and Sanitation Company Limited within which management of Value Chain for Competitive advantage was examined. Kiwasco Limited was founded in 2001 and it is mandated by LVSWSB to provide water and sanitation services to residents of Kisumu County and its environs (Kiwasco Annual Report, 2018). The Water Act (2002) and the subsequent water sector reforms of 2003 decision to privatize essential services widened the firm's scope and created a need to improve its potency in water and sanitation services facility. Initially Kiwasco Limited was under the department of water and sewerage in the now defunct Municipal Council of Kisumu. Since its inception in 2001 to 2006, KIWASCO Limited operated without a strategic plan to guide on policy formulation, regulation and service provision. The local government did not consider it a priority perhaps due to the low number of customers then and failure to connect water and sanitation services to socio economic development (Water Master Plan 2030 Report, 2015). The firm's revised Strategic plan 2017-2022, advances the key value adding activities and ways in which it can perform better than others in the sector (KIWASCO Strategic plan, 2020).

Technical challenges such as inadequate water and sanitation infrastructure, economic challenges, political influence and legal issues such as governance hampers operations in water and sanitation service providers in Kenya (LVNWSB, 2017). The vision of KIWASCO Limited is "To be the most admired service provider" while its mission reads, "To provide quality water and sanitation services for improved livelihoods". The firm's core objective is to generate sufficient

revenue and sustain activities through the provision of water and sanitation services. (KIWASCO Strategic plan,2020). Services offered by the firm include, water and sanitation provision and laboratory water quality tests for private water services.

The firm developed and implemented a Performance Improvement Plan (PIP) alongside the revised Strategic Plan 2017-2022 which is expected to plan and operationalize significant process improvements, value adding activities and link policies to execution strategies. The Value Chain activities are broadly discussed and ways on how to effectively manage them to ultimately achieve a competitive advantage. The performance improvement action plans were relied on to assess and consequently improve the firm's performance, in this regard Value Chain Management activities were identified and appropriate measures for continuous improvement discussed (KIWASCO Performance Improvement Plan, 2014).

## **1.2 Research Problem**

Scholarly works and empirical studies have laid great emphasis on value chain analysis more than management of value chain. Much is known about analysis than management of value chain for competitive advantage (Gunatilake, 2018) & (Susanken, 2017) in their studies contend that the scope of research on value chain management for competitive advantage has remained truncated. Scholars have also settled that in deed management of Value Chain results to competitive advantage. (Vattiloki, 2017) concluded that a firm improves its performance and consequently achieves a competitive advantage by organizing and executing its distinct activities in the Value Chain. (Akenbor, 2011) established that value chain management has a positive but statistically irrelevant effect on competitive advantage. An organization achieves a competitive advantage when it acquires resources, technology and possesses the capability to modify its products and services and quickly adapt to competitive forces in the market (Kothari, 2016).

Kisumu Water and Sanitation Company Limited is confronted with a daunting task of transforming its traditional value chain management practices into an expanded scope and transition to ISO 9001:2015 Standard in a concerted effort to address its various performance shortcomings (Odongo,2019). The connection between value chain management practices and competitive advantage has been to a large extent fragmented in key Water and Sanitation service providers (WASREB, 2010) Value chain management is highly relied on to improve on

operational systems internally and externally with an aim of achieving competitive advantage and not just the mundane activities and procedures.

Local and international studies have mainly focused on analyzing value chains and competitive advantage in various industries. There exists little if any study that has focused on management of value chain for competitive advantage in the water sector in Kenya. Internationally, a study by (UNIDO, 2015) concluded that management of global value chains is essential for industries in Middle East and South East Asia to reach a desired level of competitiveness and that firms in the value chain model are subject to operational change over time. (Akenbor, 2011) established that value chain management has a positive but immaterial impact on competitive advantage of manufacturing firms (Roko, 2016) showed that there is a noteworthy relation between value chain and performance of Small and micro enterprises in Niger State.

Locally, studies by Mutua (2013) & Manduku (2017) concluded that VCA and C.A were strategically aligned to the overall goals and objectives in major financial institutions in Kenya. Karanja (2015) showed that Kenya Airways Limited Company had adopted Porter's value chain model which is a push strategy. (susanken, 2017) concluded that value chain activities create value to customers through cost leadership and differentiation. Tindi (2013) found that Mayfair group should further analyze its cost drivers and consider thorough cost cutting measures in an effort to achieve a superior competitive advantage and deliver value to customers.

The studies above were conducted under different contexts, environment and methodologies. Their findings, recommendations and conclusions may not relate to KIWASCO presently. To point out, Mutua (2013) & Manduku (2017) emphasized more on the link between Value Chain Management and competitive advantage but completely ignored to identify Value Chain Management practices, this is a contextual gap as the practices will vary from one firm to the other. (susanken, 2017) relied on cost reduction and differentiation strategy as the only sources and indicators of competitive advantage. A conceptual gap lies here as scholars (Porter, 1985) Sigalas et al (2013) and (Sachitra, 2005) have settled that acquiring and possession of strategic resources, technology, ability to exploit and quickly adapt to competitive forces in the market results to competitive advantage. This study seeks to address the research question. How is Value Chain managed at KIWASCO Limited for Competitive advantage?

### **1.3 Research Objectives**

The objectives of the study were to:

- i. Establish Value Chain Management Practices at KIWASCO Limited
- ii. Determine how Value Chain Management is practiced for Competitive Advantage at Kisumu Water and Sanitation Company Limited.

### **1.4 Value of the Study**

Theoretically, this study adds to the existing body of knowledge in the field of Strategic management. Theoretical Postulations on the interdependence and interconnectedness between departments will be a point of reference to future scholars and researchers. The findings of the study agreed with the theoretical anchorage.

Findings of the study revealed that most the Value Chain management practices fail or are not implemented due lack of a policy document to guide the process. The study is therefore useful to KIWASCO's policy makers to factor in the value generating practices identified for the firm to reach a desired level of competitiveness. It seeks to specifically guide KIWASCO's top executives on policy formulation and implementation.

The findings showed that one department heavily relies on another department to perform its functions seamlessly towards the common goal. The study is therefore instrumental to the management and practitioners of KIWASCO Limited to strengthen the relationships and the link between the departments to achieve and sustain a competitive advantage. This could be in the form of resources i.e funding, human capital and technical support.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

Literature and scholarly works on Value Chain Management for competitive advantage were reviewed and critically examined in a bid to address the research problem. The sections presented here include; Theoretical foundation with a pointer on Systems theory and Network based theory. The concept of value chain management practices, value chain management practices and competitive advantage and finally a summary of empirical studies and gaps in knowledge.

#### **2.2 Theoretical Foundation**

These theories link up to explain and provide a conceptual and theoretical underpinning why firms in an industry establish and develop intra and inter – organizational systems and networks (Moliterno & Mahony 2011). Systems theory and Network Based theory are the focal theories brought forward to simplify the internal and external value chain of an organization (Lomi et al., 2016). The Value chain models of (Porter, 1985) and (Hines, 1993) depicts a clear way of how a system or network of activities shapes the competitive ability of an organization. The chain of activities joins together to meet a broader underlying objective of value addition; one set of activity is optimized with other related functions. The ground of competition shifts from the functionality of discrete functions to the execution of the broader organizational system (Marete, 2019).

##### **2.2.1 Systems Theory**

Systems theory is a multidisciplinary theory that was advanced by (Bertalanffy, 1968) According to (Gripsrud, 2004) systems theory simplifies the associations among the components of a system referred to as value chain. Systems theory is an interdisciplinary theory about every system in nature, in society and in many scientific domains as well as a framework with which we can investigate phenomena from a holistic approach (Jackson, 2003)

Scholars have agreed on concept of Value chain management for competitive advantage, (Porter, porter, 1985) and (Njuguna, 2013) competitive advantage is realized when the system of activities has to be understood and effectively managed. Systems theory provides a clearer view of the discrete activities of a firm that can be assessed for competitive advantage. The theory



suffers a shortcoming of judgement, being multidisciplinary different scholars interpret and apply it differently (Strauss, 2002).

### **2.2.2 Network Based Theory**

An organizational theory that affords a wider view of inter-organizational linkages and recognizes the influence of chain-chain associations on a firm's activities (Halldorsson, 2007). By emphasizing the concept of value chain, the theory assists practitioners to develop a more truthful assessment of the value generating activities and their implication for business. A network is composed of a huge number of actors and the pattern of associations bind them together, competitive advantage stems from the structural features of a network in which the organization is embedded (Olalo, 2013).

The Value chain network and centrality lead to gains such as adaptation, knowledge and control which in turn lead to competitive advantage, network based theory provide ground for further examination of the research problem (Powel, 2002). Critics have insisted that studies founded on Network based theory perspectives remains entirely descriptive and fails to provide explanations for social processes. Network based theory – like comparable social scientific methods requires judgement calls from the researcher as to which activities are important within a network and which are not (-Vass, 2015)

### **2.3 Value Chain Management Practices**

The concept of Value chain was first brought forward by (porter, 2018) The focal point being on cross-functional orientation in a firm. He pointed out two main activities; primary activities comprising of inbound logistics, operations, outbound logistics, marketing and sales and finally after sales service. The others were auxiliary activities comprising of procurement, technology development, human resource development and the company's infrastructure. (Hardacre, 2008) describe VCM as an intergrated evaluation of processes and procedures form the beginning to the end of the chain with the sole purpose of maximizing the overall value. To that effect, the prerequisite for optimization of the overall value requires that the Value chain management practices be determined and sources of competitive advantage assessed . Schultz et al., (2007) notes that Value chain management practices enables a firm to not only focus on management of individual business functions but to fully concentrate on cross-functional value chain

maximization and integrated resolutions within the value chain. The practice of Value chain management is concerned with an in-depth examination of each subsystem in a Value chain and every function with these subsystems with a view of attaining maximum value at the least cost possible therefore enhancing value and efficacy in the entire value chain system (Olhager, 2012). Thompson et al., (2007) noted that the management of value chain is based on the assumption that an organization's core role is value creation for stakeholders, therefore managers divide the activities of the entity into sets of separate value generating features. The firm is generally viewed as a chain of value creating activities beginning with the primary activities all the way to support value chain activities. Pearce & Robinson (2011) defines Value chain management practices as activities within and around the firm's value chain that can add value and premium and be a foundation of competitive advantage. Kotler (2003) defined value chain management practices as an assortment of value undertakings that are designed to produce, market and support its product/service within a value chain system. Maximization of the planned capability of a firm necessitates systematic identification of Value creating functions and analysis of contribution by each towards the overall goal. Feller et al., (2006) noted that Value chain management practices are strategic concepts utilized by firms to establish distinctive features or competitive strategies to gain competitive advantage. Value is obtained from technical, organizational and personnel capabilities. Value chain management is brought forward by Kaplinsky and Morris (2000) complete array of doings vital to bring forth the product/service from inception through intermediary phases of production, refining, delivery to ultimate consumer and the final after sales services. Rich et al., (2009) argues that value chain management practices represents an entity's value generating features grounded on the pricing strategy and cost structure, thus VCM practices are linkages, relationships and their interdependence in a value chain system.

The concept of value chain management singles out as a crucial diagnostic tool used by organizations to build customer value in businesses. The value created by the firm in the eyes of the customer forms the basis for gaining a competitive advantage (Johnson et al., 2008). VCM practices occasions the examination of processes and uncertainties in the entire chain in an integrated manner with a goal of optimizing the overall value (Hardacre & Collins, 2008). Value Chain Management practices can be obtained alongside Value Chain models depicted by Michael Porter (1985) and Peter Hines (1993). The Value Chain activities not covered in Porter's

model shall be complemented by those covered in Hines's Value Chain model. Porter (1985) identified five universal core activities; inbound logistics, operations, outbound logistics, sales and marketing and after sales services. Secondary or support activities; procurement, technology development, human resource management and firm infrastructure. In this regard therefore it is imperative to highlight the primary and secondary activities as below.

### **2.3.1 Primary value chain activities**

The generic core deeds are; Inbound logistics which entails receiving, storing, warehousing and material handling. Distinct practices include extraction of raw water and storing. Porter (1998) expounded on Operations function as conversion of inputs into finished goods or services. Specific practices in the context include treatment by chemical addition, sedimentation and filtration the procedures ensure water is safe for household consumption. Capon (2008) notes that outbound logistics entails delivery of product or service to the ultimate consumer. Practices here involves water supply and distribution management, transportation and delivery channels management. Johnson & Scholes (2008) explained that Marketing and Sales incorporated all activities of creating awareness, availing the product or service and persuading customers to buy. Distinct practices here include advertisements, promotions, market research, pricing and channel selection. Porter (1998) explains after sales Service activity as a function that maintains and enhances the product or service's value to the consumer. According to Muhoro (2014) universal practices include technical services, repairs, installations, equipment and asset maintenance, customer service, handling customer complaints, billing and revenue collection, debt collection services and reconciliation of customers' records.

### **2.3.2 Secondary Valuechain activities**

Porter (1985) similarly identified four support activities which reinforce primary activities. Procurement function entails obtaining and buying all goods, services and materials utilized by the Value Chain. Wangari (2019) concluded that such inputs include consumables e.g. chemicals, purifiers, stationery, assets such as machinery, buildings, accessories, office equipment, key services e.g. information technology systems, security services, legal and consultancy services. Porter (1998) notes that virtually all value adding activities revolves around technology development such as the know-how, processes, procedures and equipment

development. Karanja(2015) identified the following practices in service industries; research and development, process automation e.g. electronic bill payments, balance inquiries, bill payment reminders, notifications, mapping of customers' coverage, computer and engineering software.

Human resource management transcends all individual primary and secondary activities (Porter, 1985). Capon(2008) notes that all practices of staffing, hiring, training and development, reimbursement of all personnel are covered here. Firm infrastructure entails the structure, systems and culture of the organization (Porter, porter , 1985). Practices here are general management, planning, finance, accounting, strategic alliances, management information systems, regulatory affairs and legal issues (Marete, 2019).

(Lysons, 2006) pointed out key value chain activities in Hines's model not covered in Porter's model. Hines's primary activities entails of teams that cover materials, marketing, research and development, engineering quality and design. Secondary activities are ABC, human resource management, training, education, total quality management, electronic data interchange and profit (Hines, 1993) Activity based costing(ABC) assesses the firm's cost competitiveness by attributing costs to cost centers and cost drivers Thompson et al (2007). Practices here are ordering, setting up, quality assurance, overhead allocations and cost management systems. Electronic data interchange(EDI) facilitates quick response and communication to customers', suppliers and other stakeholders. Tindi (2013) settled on practices such as electronic order processing, e-purchasing, e-billing and electronic inventory management systems.

## **2.4 Value chain Management Practices for Competitive Advantage**

To better understand and manage the activities through which an organization creates a competitive advantage and shores up shareholder value, it is imperative to dissect the business system into a series of value generating functions referred to as value chain (Porter, 1985). Value chain management practices describes an organization's activities, performance and links them to the competitive ability of the firm. C.A is fundamental to the success or failure of an enterprise. Johnson & Scholes (2002) VCM practices confines a firm to its core competencies and outsource functions and resources where it lacks a unique capacity and ability to undertake. (Alnawaiseh, 2014) noted that once a firm takes its strategic direction to the core by allocating resources to key value activities and ignoring or giving less attention to non value activities,

competitive advantage can be achieved and sustained in the long run. Competitive advantage can be realized through the application of VCM practices in the organization's discrete activities. Porter (1985) argues that the practices may involve cost or differentiation strategy. (Lysons, 2006) observes that VCM practices like activity based costing can be applied to cost drivers to significantly reduce and control costs of production/service delivery, the cost advantage realized could be a source of competitive advantage to the firm. On the other hand, VCM practices can be used to create a differentiation advantage. According to (Abdulwahid, 2019) VCM practices come in handy in advancing a differentiation strategy. Product/service design can be implemented by the help of ICT practices and enable the firm to deploy new products/services, enter new markets and advance technologies there by creating a competitive advantage. This can be achieved when a firm creates and implements unique value chain features more efficiently. These unique features cannot be easily imitated by competitors (Ackah, 2011).

White (2004) observed that VCM practices can be used as a tool for systematic review of strategically important activities in the search for competitive advantage. C.A cannot be comprehended by a holistic approach to a firm (Porter, 1985) VCM practices divides the firm into the value generating features that produce value and cost in an organization. Although the VCM practices have been widely accepted as a model of organizational activity and assessing business activities for C.A, further insights into the concept of competitive advantage, and how to achieve it has mutated into a more complex affair as competitors and consumers behavior has also changed (Johnson & Busbin, 2000). There is therefore need for a more modern and empirical research to bring forth more concrete and verifiable findings regarding the subject.

(Bryson, 2018) noted that a typical firm is composed of a succession of processes in adding value to a service/good and it is how well these VCM practices are performed that creates sustainable competitive advantages. These practices are carried out in what Porter (1985) termed as value chain. Lawton et al., (2001) argues that there are many ways to achieve a competitive advantage, but all involve availing to consumers what they perceive as superior value compared to rival firms in the market. A superior value may be a combination of price, feature, quality, services and other attractive incentives. Porter (1985) argued that competitive advantage may arise from building competences and resource capabilities that are not easily matched.

Competitive advantage grows mainly out of the VCM practices that a firm applies to create value for its customers through internal and external activities that exceed the firm's cost of creating it. Referring to Pearson & Robinson (2004) VCM practices enables a firm to perform discrete activities that may comprise of key strengths and weaknesses for the firm. Through systematic identification of these discrete functions managers can target potential strengths and weaknesses for further examination and competitive advantage. Dess & Picken (1993) observed that thriving firms with enduring sources of competitive advantage not only align their VCM practices but also recognize and appreciate the linkages and interrelationships between them. Firms should therefore strengthen their linkages to attain a competitive advantage.

Scholarly works have identified the association between Value Chain Management practices and C.A.s as a vital area needing further empirical research. Marston (2008) notes that although management of value chain offers immense chances to achieve and maintain above average levels of competitive advantage. Crafting and sustaining a closely aligned value chain remains a challenging venture. Ghonar (2015) contends that internal and external environmental challenges unless studied further in an experiential manner will impact negatively on the competitiveness of a firm. Kannegiesser et al (2008) alludes that a universal model for Value Chain Management practices is critical in the mission to achieve a sustainable level of competitive advantage otherwise the whole exercise will be doubtful at best.

Scholars and researchers are yet to come up with an agreed upon and dominant model for value chain management practices. Collins et al (2002) dissected Value Chain Management practices into operational and strategic aspects. Distinct strategic activities include building and maintaining constructive relationships, implementing a superior ICT technology, aligning capacities and re-engineering material flows. Distinct operational practices entail consumer research, forecasting and development activities, mapping internal and external value chains, managing cross functional teams and optimal logistical solutions. Hardacre & Collins (2008) summarized key VCM practices as Procurement and sourcing, Operational excellence and supply chain network redistribution and redesign. Thuku & Kombo (2019) in their study concluded that Value chain management practices that can be harnessed for a competitive advantage are Supplier relationships, internal value chain activities and customer relationship management.

Despite the widespread credence by scholars on Value Chain management for competitive advantage, the initial scope of research has remained quite narrow (Schiebel, 2005). It is apparent that management of Value Chain for competitive advantage fails primarily due to practitioners lack of practical, yet theoretically sound models to guide their execution styles (Beard, 2008). Studies have revealed that practitioners, managers and executives have paid too much attention on productivity rather than the overall value of the firm, this scenario impacts competitiveness negatively (McDermott et al, 2008).

Thuku & Kombo (2019) established the affiliation between value chain management practices and organizational performance and developed a framework to aid firms in their endeavors to achieve and sustain a competitive advantage. The study was contextualized in medium and small scale retail outlets in Nakuru County. The study concluded that efficient value chain management in terms of supplier relationship, internal value chain activities and supplier relationship would result in high organizational performance in sales, market share, profitability, customer base, stock level and operational excellence hence competitive advantage.

## **2.5 Summary of Literature and Knowledge Gaps**

The research sought to determine the value chain management practices and further establish a link on how value chain can be managed for competitive advantage. A review of related literature and studies internationally and locally revealed a serious disconnect on how value chain management practices can be closely aligned to achieve a competitive advantage. Empirical studies have steadily settled that value chain management practices contribute positively to organizational performance and competitiveness.

The literature reviewed on the variables relating to management of value chain for competitive advantage did not record how they interact for realization of a competitive advantage. Although the literature only appreciated the link between C.A and VCM practices. Johnson & Scholes (2002) highlighted the contribution of distinctive capabilities and resources to a firm's competitive advantage. Pearce & Robinson conferred that allocating resources to key value activities could result to the firm achieving a competitive advantage. Lyson & Farrington (2006) laid emphasis on ABC, cost reduction and low operational cost as ways to achieve a competitive advantage. Thompson et al., (2007) advanced a focus on differentiation of service/product design and delivery using ICT practices to create a competitive advantage. Dess & Picken (1993) focused

on strengthening the bonds and interrelationships within the value chain to achieve a competitive advantage. The reviewed research publications have narrowly captured certain aspects of Value chain management practices in the process of achieving and sustaining a competitive advantage, while relatively few publications have aimed to provide a more comprehensive literature to help investigate how VCM practices are managed for competitive advantage. This study intends to fill the gap by investigating how VCM practices are managed for C.A at Kisumu water and sanitation company.

Empirical studies reviewed had the following gaps in knowledge. Ghonar (2015) concluded that firms that consistently carried out value chain management practices recorded improved performance gauged by attractive profits and sustainability. Roko & Opusunji (2016) observed that the organizational capacity and capability to direct the linkages in their value chains often reduces costs or augments differentiation, this eventually boiled down to an improved organizational performance. Njuguna (2013) there exists a high positive correlation between VCM practices, supply chain performance and overall organizational performance. VCM practices propelled supply chain performance with firms adopting practices that suits them better. A study by (Schiebel, 2005) does not only divulge the cost advantages of value chain analysis and differentiation benefits relative to competitors in an industry setting. This enables a firm to achieve an increased market share and higher profit margin.

Grounded on the above theoretical arguments and empirical evidence, it can suffice that value chain management practices results to improved organizational performance. An in-depth analysis at the empirical evidence shows that studies have majorly focused on determining the value chain management practices, the connection between value chain activities and organizational performance, the extent of application of value chain management practices and finally the role of cost and differentiation on the competitive advantage of an organization. Few studies if any, have focused on how value chain management practices can be done for competitive advantage particularly in the water sector in Kenya. This study pursues to fill this gap.



## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1. Introduction**

This is a general blue print for the research. It covers three main parts; the methods, tools used, sources of data, the target interviewees and the tools for data analysis. The topics under research methodology are; research design, data collection and data analysis.

#### **3.2. Research Design**

Case study research design was adopted. A case study has been well demarcated by various scholars (Ragin & Becker, 1992; Gerring, 2004; Passeron & Revel, 2005; Yin, 2012 & Stone 1987) have defined a case study as an explanatory phenomenon in its natural setting, while Gable (1994) postulates that a case study offers a chance to probe penetrating questions and to capture in details the richness of organization conduct. A case study uses several data collection techniques such as interviews, observations as well as text analysis (Yin, 1994). A case may refer to the subject under investigation for example people or organizations.

The researcher adopted a case study design because of its richness in detail and greater depth than other experimental research designs. A case study provides room for further clarifications of the qualitative data collected through interviews and observations. Among other empirical studies that have successfully adopted a case study research design. (Kotabe, 2016) and Ambuko (2013) this is evidenced by the sound findings, conclusions and recommendation of the studies.

#### **3.3. Data Collection**

The study gathered both Primary and secondary data. Tella (2015) notes that a case study may utilize several sources of data in combination. Primary data obtained by an interview guide with interviewees involved in policy formulation and long term strategies of the firm. Among them; Head Technical Services, Accounting and Finance, Human Resources and Administration, Commercial Services and Information, Communication and Technology. Middle level managers, supervisors and technical staff involved in value chain management practices. Interviews were

conducted in a semi structured format using an interview guide (appendix II). The interviews further elaborated on the secondary data collected by reviewing the Company's annual work plans, reports, financial reports, management reports and the revised Strategic plan 2017-2022 using a secondary data capture form (appendix II). This is so as the secondary data required was documented.

### **3.4 Data Analysis**

This is a procedure of examining, cleansing, altering and modelling the data with a pointer on extracting useful information, enlightening deductions and supporting decisions (Valentine, 2017). Data collected from all parts of the interview guide was analyzed using content analysis. Content analysis is suitable for analyzing this type of qualitative data, because it helps in obtaining detailed and in-depth information from the qualitative data that was received. Babbie (2001) explained content analysis measures the what aspect of a message. In this study the focus was to establish VCM practices and determine how value chain management is practiced for competitive advantage.

Content analysis was appraised systematically; categorization of data which involved applying and developing codes, the second step was to identify common themes, patterns and relationships, finally the data was summarized by linking the research findings to the objectives of the study and the presence of possible contradictions. Inferences were made from existing literature and other empirical studies in chapter two. This was necessary to establish common ground and in any case where variations occurred so as to bring forth more concrete and verifiable research findings and conclusion.

## **CHAPTER FOUR**

### **DATA ANALYSIS, FINDINGS AND DISCUSSION**

#### **4.1 Introduction**

The objective of the study was to establish the Value Chain management practices and determine how Value Chain management is done for Competitive advantage at KIWASCO Limited. This chapter incorporates data analysis, findings and discussions with a pointer to addressing the research question. A case study research design was undertaken where the management of Value Chain for Competitive advantage was examined using a secondary data capture form and an interview guide. The interviewees were largely drawn from departments involved in the value chain management activities of the organization.

Primary data was obtained from departmental heads, sectional heads(managers) and supervisors involved in the day to day value chain management activities of the organization. Secondary data was acquired from the revised strategic plan 2017-2022, annual work plans and the firm's annual report 2018. Content analysis was employed to analyse the data with regards to the study objectives. The technique made it easier to draw inferences from the kind of responses received from the interviewees as well as identify the possibility of contradictions from literature and empirical studies reviewed. The data received was classified along the sub themes of the study VCM practices. The second objective was achieved by linking common themes identified and comparisons done with regard to the literature reviewed. Any variations to the theories and conceptualization of the study were documented.

#### **4.2 Value Chain Management Practices at KIWASCO Limited**

This study sought to establish from the interviewees the actual activities performed by their respective departments in order for the firm to achieve a competitive advantage. This was instrumental in establishing the value chain management practices which is the first objective of the study and whether they collaborate with the previous researches and literature reviewed.

#### **4.2.1 Primary ValueChain activities**

Primary Value chain activities are directly involved in creation of service/products. The first objective of the study was achieved by identifying the key VCM practices along the primary value chain activities. The four generic primary activities are inbound logistics, operations, outbound logistics, marketing and sales and after sales services. The study identified two departments/sections involved in primary value chain activities. They included; technical and commercial services departments. The researcher wanted to establish the specific roles played by each department and where the whole value creation process begins. Interviewees concurred with the assertion that inbound activities begin with sourcing and disseminating the inputs. An interviewee said;

“Apart from planning and designing the whole process of production, the main value creation activity begins at the intake plant where abstraction occurs then the raw water is pumped to our treatment plants where treatment is done then finally direct distribution to consumers and our reseirvoirs.”(Water Production manager).

The firm has two intake plants one at Dunga and another one at Kajulu. The intake plants are responsible for abstraction of raw water from the source Lake Victoria and River Kibos respectively. The raw water is then pumped to the respective treatment and production plants. It is at these treatment plants that the distinct activities with regards to inbound logistics occurs. They include receiving, storing of the raw water, warehousing of the chemicals and purifiers, material handling, machine and equipment scheduling and finally dissemination (appendix III). The head of commercial services observed;

“The department’s main role which doubles up as a value creation activity is to develop plans for expansion and business development which entails collaborating and coordinating with diverse teams like marketing, sales and customer service”.  
(Head, Commercial services ).

According to the water production supervisor, the distinct activities conducted at the operation and production level were treatment of the raw water into safe for consumption. Which basically involves conversion of raw input into finished product. The raw water goes through filtering where large particles and other foreign materials are removed, mixing chambers and reaction chambers where chemical adulteration is done to remove dissolved impurities such as

iron. Segmentation is carried out to ensure the water is devoid of any impurities. The study confirmed from the firm's annual report 2018 that quality and assurance tests are conducted at the plant in the laboratory to ensure standards are met(appendix VII).Other distinct activities included; testing, equipment maintenance and engineering, monitoring pressure levels and general facility operations.

“Our systems and procedures are linked in such a way that the production and operation units carry out joint functions, it is therefore difficult to specify each unit's role in value creation process, although technically once the raw water is ready for distribution the operation unit takes charge”.(Supervisor, water production).

The research study noted that after the product is ready for consumption it still needs to find its way to the target customers. The Value Chain management practices under outbound logistics involved distribution and supply of clean and safe water for consumption by pumping and gravity powered directly to consumers both large and small scale and to their designated water reservoirs for storage and eventually supply. An interviewee involved in water supply confirmed that their distribution channels are well mapped out within their coverage. Water production and consumption occurs concurrently, therefore storage is not their biggest concern but distribution. The distribution channels are monitored to ensure efficiency and effectiveness. The firm has established water kiosks and delegated meter management systems in informal settlements to further back up the main distribution channels. In some cases water distribution trucks are put into use to ensure distribution is optimal.

“95% of our distribution channels are self operating all that is needed is pumping and use of gravity that is connections from the main water pipes, the remaining 5% benefit from water kiosks, bowsersand direct purchase from our bulk water sale points.” (Water production manager).

The study noted a variation in sales and marketing function. It was revealed that to a large extent delivery and distribution channels management doubles up as sales and marketing avenues. Channel management was found to be resourceful to both activities of outbound and sales and marketing sometimes serving the two functions concurrently. The research established that creating awareness of their products and services is partly supported by the presence of distribution channels within coverage areas.

“Our major role as a department is to ensure that the right information about us and what we do is out there with the potential and existing stakeholders, our sales force team is

keen on social media marketing, radio talk shows, random visits to customers and other marketing channels.” (Sectional Head, Commercial services).

Other than the distribution channels the firms revised Strategic Plan 2017-2022 (appendix III) identified the following distinct practices; marketing plan for both water and sewer by Customer Service department, brand book development and social media plan, channel selection, channel relations, pricing, further increasing awareness and presence at Kisumu Huduma Centre, CSR Plan to improve Corporate image and perception. Two interviewees collaborated this information by further elaborating on the mediums of advertising used by KIWASCO Limited: media e.g radio/radio talk shows, bulk SMS system, wall branding, bill boards, use of online fliers and brochures among others.

The researcher also wanted find out from the interviewees if KIWASCO Limited offered any after sales services. All interviewees were affirmative in their response. The study noted that after sales services were equally important as promotional activities. They identified several after sales practices which included; monitoring and mapping new and existing connections, installation and maintenance of meters, distribution channels, fittings and sewer lines, routine repairs and replacement of worn out distribution channels, customer trainings and visits, carrying out customer satisfaction surveys and timely resolving of customer complaints. The information obtained from the interviewees further explained details captured in their respective annual work plans viewed by the researcher. Distinct activities like routine maintenance, repairs and checks were largely captured in their annual work plans.

“The technical team in conjunction with the commercial services join hands in providing after sales services, for example technical issues like repairs, maintenance installations are done by the technical personnel, on the other hand activities like customer visits, customer satisfaction surveys and complaints management are carried out by the marketing and sales personnel”. (Head, Commercial services).

#### **4.2.2 Secondary Value Chain activities**

The study identified four departments involved in Secondary value chain activities, they are Finance department, Human resource, ICT and supply chain department. The interviewees

therefore responded to questions with regard to the first objective of the study in which the Value Chain management practices were to be established.

The procurement function in the organization is carried out by the Supply Chain department. Interviewees confirmed the existence of a procurement plan (appendix III) which guides on the activities carried out by the various departments and stakeholders. When asked about the department's key duties and if at all they contributed to the overall organization's value, he said;

“My team is responsible for carrying out all kinds of procurement functions and supplies in accordance to our policies and procedures, we work hand in hand with the finance team to ensure all departments have what they need to accomplish the organizational goals and objectives.”(Head, Supply Chain).

For consumable supplies like chemicals, stationeries as well as assets such as machinery, safety wares, laboratory equipment, office equipment, office space and buildings. The procurement function supports all other value chain activities. The research established that all the requirements by the various departments are forwarded to the Supply Chain department which then carries out tendering in daily gazettes, company's website and media(appendix III). The successful applicant will then supply the items required for the financial year adhering to quality and other terms and conditions. For items that may be required for instance in case of emergencies, bursts or breakdowns the department may opt for a direct purchase other than tendering. Value Chain management practices identified under the procurement function were; order processing, deliveries and payments, quality and specifications checking, control and management of assets e.g machinery, equipment, inventories and supplies. On whether the firm purchases jointly with other firm's, he had said;

“This practice only occurs in partnerships where the joint teams decide on the percentages of expenditure each should incur, some donors and grants may require an input from the Company a good example is the pro poor initiatives.”(Head, supply chain).

The items procured are divided into two assets and supplies/consumables. Assets include; auto mobiles, furniture, water pumps, fittings, land, office space, generators, ICT hardware and software, office and laboratory equipment among other assets. Consumables are; stationery, chemicals, branding materials, brochures and services such as equipment and machinery maintenance, transport, travel, accommodation, legal, security, internet services among

others. All the departments follow the general procurement guidelines that borrow heavily from the Supply Chain department best practices. The procurement plan is well documented in the firm's revised strategic plan 2017-2022 (appendix III).

Technology and development function is categorized as a critical support department. The study found out that every value adding activity at KIWASCO Limited embodies technology and development. The researcher established from the department's annual work plan and the revised strategic plan 2017-2022 (appendix III) that technology and development activities were grouped into efforts to enhance the product/service creation and the processes. The Value chain management practices identified were process automation, remote monitoring trends of intake, distribution, water tank levels, reservoirs, leak detection, network mapping, communication and coordination, web and telemarketing activities, automated customer serving channels. It was also noted that product/service design, research and development aspects typically fell under technology. The ICT manager said the following the department's role in maximizing the firm's value;

“I support all the departments by providing technical services, management of all our platforms squarely falls under my docket, the fact that most of our key processes are automated I can confirm that the department adds value to the entire value chain.” (Manager, ICT).

Process automation was the main theme identified under technology and development. It was revealed that Information and Communication Technology (ICT) avails the platform for crucial activities such as creation and delivery of products/service to the ultimate consumers. It was confirmed that KIWASCO Limited relies on automation processes when it comes to billing and revenue collection, the firm's e-billing system has been integrated with the financial system which makes the process seamless. A further observation was that the procurement process was largely automated employing the e-procurement system. The firm's ICT tools, equipment and software are heavily supported by a team of highly qualified and competent personnel. The ICT manager said the following on the processes that have been automated;

“We use the GIS and GSM technologies for process automations; billing, revenue collection, meter reading app, leak detectors, sensors, network mapping, remote monitoring, department to department e.g e-procurement, chemical adulteration and other auxiliary services.” (Manager, ICT).



KIWASCO Limited's revised strategic plan 2017-2022 (appendix III) has laid out the Human Resource Information System (HRIS) which ensures efficiency and reduces turn around time in the department's crucial activities. Interviews carried out by the researcher collaborated this information. Human Resources or Personnel management was not only a discrete value adding activity but also a strategic aspect as it determines the firm's skills set, competency and motivation of staffs. Personnel management was considered an enabler of strategy in the sense that the department supports other departments and the entire organization to deliver on their respective mandates by providing human capital. The HR manager said the following on the key value adding departmental roles;

“The HR department is a driver and an enabler of value creation, the department's key role is to manage the supply and demand of personnel, the firm depends on HR for human capital to perform its various functions”. (HR manager).

Distinct activities were identified to be recruitment, selection, hiring and firing, training and development, compensation of all types of personnel, rewarding top achievers as a source of motivation, job evaluations, performance appraisals, contracting, balance score card evaluations and continuous individual personnel improvement plans. In a sector where technical skills are highly regarded, the research concurred that KIWASCO Limited has fully qualified, competent and highly motivated individuals in charge of their various business functions in technical, supply chain, commercial services, finance, customer care management and ICT. This was achieved through a properly managed personnel recruitment, selection, capacity building, training and development and an attractive compensation system. The HR manager when asked about the presence or absence of a functional HRIS system, she said the following;

“The HRIS system has enabled us to digitize virtually all the processes in the department For example; reporting channels, payroll and remuneration analysis, and skills set among others.” (Manager, HR).

Interviewees confirmed that Firm Infrastructure entailed a number of Value Chain management practices which included general/strategic management, planning, finance, accounting, legal, government affairs i.e environmental compliance, quality management, operations, culture management, corporate governance issues and activities geared towards building meaningful corporate relationships, image and brand. Most of these infrastructural activities are supported by

The Board of Directors and initiatives by top management. The finance department sectional head on their key duties;

“The finance department mostly deals with financial planning, reporting, analysis of appraisals, forecasting and projections, budgetary controls most specifically here the billing, revenue and debt collection falls under this department. Our focus as a department we are concerned about the cash needs of the organization”. (Sectional Head, Finance).

General management is enhanced through a functional organogram (appendix VIII) , this information was confirmed from the firm’s strategic plan (appendix III). The organization Chart is principally modeled around the key functional areas of the firm where key processes and systems are instituted top-down borrowed from best practices of ISO certification. This has provided KIWASCO with a platform for quality management and recommended best practices in the sector. The organization has a Human Resource Information System (HRIS), finance and accounting system, ICT, customer and e-procurement management systems with inbuilt controls. KIWASCO’s customer focused culture is defined by philosophies which include Vision, Mission, Core Values and Service charter. Majority of the staff are involved in prospecting and serving customers. The HR manager stated the following on the issue of firm infrastructure;

“We undertook a staff rationalization exercise between 2017-2019 to determine staffing levels, skill sets and experience, this exercise guided our revised organizational chart to better manage the firm’s infrastructure.” (Manager, HR).

Other than marketing functions that enhances brand building over a period of time, the firm reinforces brand building and protection by observing the ethical guidelines in the line of business. The firm’s infrastructure incorporates an effective strategy that accounts for stakeholder views and values as well as a clear reporting structure that guarantees accountability and transparency. The organization is keen on developing and owning more physical infrastructure within its coverage and has developed a master budget for the same. This has the effect of continuing to build KIWASCO as a reputable and preferred Water and Sanitation Service provider (appendix III). The head of technical services on whether there are any infrastructural needs currently to advance the firm’s competitive edge;

“Infrastructure whether physical or non physical is crucial for the firm’s growth and sustainability, the major need now is physical infrastructure which is capital

intensive. There are proposals on how the firm could undertake these projects for example obtaining commercial funding like bank loans.”(Head, technical services). The findings indicate that Activity Based Costing(ABC) was applied to the core functions of the firm by allocating financial, operational, performance information and tracing the same to production costs. The focus is on activities as fundamental cost drivers and objects. Unit costs are assigned to activities as a basis for determining product/service costs. Interviewees confirmed that cost is the one thing that can jeopardize operations if not controlled. ABC therefore was identified as a costing system which points on activities performed to produce products/services. Distinct activities entailed; unit costs allocation, cost drivers identification, ordering, setting up and assuring quality. This function will permit decisionmakers in the organization to only focus on value adding activities and eliminate or spend less resources on essential but non value adding activities. The cost element was established to be under the performance, monitoring, evaluation and reporting (appendix III). An interviewee on cost control measures in the firm;

“We have several practices in place, first our budgetary process ensures we stick to only value adding activities, the audit and risk team is keen on the firm’s spending whether recurrent or capital these and many other practices ensures our costs are at a minimum.” (Manager, finance).

Electronic Data Interchange(EDI) focused on communicating business information electronically rather than traditional print. Activities included ; e-billing, e-procurement, e-requisitions and quotations, e-revenue collection and electronic purchase orders. This function was found to be efficient, cost effective and more secure.

### **4.3 Value Chain Management for Competitive Advantage at KIWASCO Limited**

The second part of the interview guide was designed to address the second objective, the study sought to find out how the Value Chain management practices contribute to Competitive advantage. The study also tried to establish whether C.A was inherent in the VCM Practices either now or in the forthcoming and finally indicators of Competitive advantage in the firm were determined. The researcher was therefore keen on the kind of responses from the interviewees that could help achieve the objective.

On the question of the key leverage point of the firm, the study pointed out the chief leverage for Competitive advantage as the product/service provided by KIWASCO namely water provision, sanitation services and laboratory services. It was noted that the firm was licensed and mandated to provide the services in the County of Kisumu. This gives the firm an advantage and in a way barrier to entry by any interested party is enhanced. The head of commercial services said;

“The water sector is unique, it cannot be easily copied or duplicated the services we provide in our coverage area guarantees the firm a margin if all other functions are cooperative, this on its own is a sure competitive advantage.”(Head, Commercial services).

Other leverage points for C.A included; product/service profile and development capability, ICT based process automations and communication, corporate social responsibility functions, the mapping network, county wide presence, a strong brand and corporate image, a pool of motivated, professional and experienced employees in all business functions and after sales services such as customer complaint resolutions, follow ups on new and existing connections, customer satisfaction surveys, claims handling and management. The technical head said;

“Our main source of competitive advantage lies in owning resources in terms of funds, personnel, equipment, machinery, infrastructure and the right technology the firm continuously works on improving these aspects of the business.”(Head, Technical Services).

The firm achieves a competitive advantage from its ability and capacity to provide water and sanitation services to residents of Kisumu County and its environs. KIWASCO generates a total of 44,000, 000 litres of water on a daily basis against a daily demand of 38,000,000 million litres of water. This means that the firm surpasses the daily demand of water in its coverage areas. The idle capacity provides a unique opportunity to the firm to expand and exploit new market areas to further increase their returns. The water production manager on whether organizational capacity is a source of competitive advantage said;

“The firm exceeds the daily demand by consumers and therefore our supply is uninterrupted except for a few cases like tank cleaning, breakdowns and so forth.”(Manager, water production).

The firm’s intake plants are strategically positioned in the market to guarantee continuous flow and supply of raw material in this case raw water. The intake plant at Dunga abstracts raw water from Lake Victoria while the Kajulu plant abstracts raw water from River Kibos. This guarantees

a reliable and continuous flow of water throughout the year, it is impossible to exhaust the two sources. The organization is therefore able to achieve a competitive advantage and be ahead of other Water and Service providers (WSP) in the sector (appendix III). Most of the WSP lack such kind of capacity as they rely on seasonal rivers, wells and boreholes which may dry up during droughts and deepening the costs of the firm.

The research further looked into how Competitive advantage arises from the product/service development process and partnerships. One of the key VCM practices at the input level is research and information on market needs. In order to achieve this parameter collection and analysis of market intelligence and market needs is done. Gathering of this crucial information is conducted by KIWASCO's direct sales force, research surveys, marketing personnel, distribution channels and satellite offices. The firm has also partnered with other organizations in a bid to increase their customer base and presence in the region. The partners also provide services like marketing, security, funding, donations, grants and technical support. Some of the partners are Riat Hills water supply, Lake Victoria South Water Works(LVSWW), Japan International Cooperation Agency (JICA), Vitens international among others (appendix VII). The Head of commercial services on whether the firm's internal value chain and synergies are advantageous at the input level;

“My team conducts market research and analysis to determine consumer needs, this informs how we design our services to meet the market needs we also get grants in the form of water and sanitation research which is a boost in service delivery.”(Head, Commercial services).

Interviewees argued that with these kind of networks and strength collaboration KIWASCO is able to collect an array of information about the market and the current developments in the water sector within and beyond borders. The information guides the firm on their strategy key pillars and product/service enhancement. A sectional head settled that if information/resources gathered from research and collaborations is put into good use and well managed, the organization is able to develop and further improve product/service with tailor made customer/market/sector needs in an efficient and cost effective way than competition and in compliance with Water Services Regulatory Board (WASREB) standards. An example is given of sewer production and sell of organic manure, briskets, biogas production, these products are eco friendly and a cash generating venture for the firm apart from its core business.

In addition, the product/service development cycle is usually shorter at the firm. This is due to their advanced technology and infrastructure development. From the abstraction point, the firm is able to treat and distribute clean and safe for consumption water to the consumers within two hours. One of the parameters of Competitive advantage (appendix III) is efficiency and effectiveness in service delivery. The distribution/delivery time is not only reduced but also the overall cost allocation impacts of product/service development. To sum up, a combination of reliable information and infrastructural development is the concerted effort supporting the product development capability. Interviewees were of the opinion that this capability if closely aligned and optimized can be a powerful source of Competitive advantage. On whether any advantage arose from product/service design, research and development and service delivery;

“Automation of most input and operation processes such as water treatment has saved a lot of time, consumers are able to get timely delivery of services. Research on the water sector has enabled us to acquire modern infrastructure like water pumps which are energy efficient, with these aspects in place quick service delivery is guaranteed.”(Manager, ICT).

Risk surveying, management and mitigants are practices carried out prior to approving projects, ventures particularly those with long term implications to the firm. The practices are crucial to ensure KIWASCO is able to respond to dynamic and uncertain environment as well as invest its resources in profitable ventures and assure stakeholders of safe guarding the enterprise values (appendix III). Interviewees had a consensus that the firm was competitive basing on its ability to exploit market opportunities e.g pursuing new connections, installing and adopting the latest technology in the sector i.e Global Systems for Mobile Technologies(GSMA) and GIS network. Additionally, the firm is able to understand the pricing risks and customer needs better. It was noted that institutionalization of these practices could further enhance the firm’s competitive ability.

The study found out that the marketing plan, corporate affairs and public relations office serve two functions. First, to create awareness about KIWASCO’s products/services and convince customers to purchase. Secondly for continuous visibility, building corporate image and public perception attracting potential donors, investors. An interviewee was of the opinion that while all kinds of outdoor advertising have done well in creating awareness, product/service and brand recognition these have now been overtaken by time. To enhance its marketing communication

influence, KIWASCO should leverage on its ICT platforms to facilitate web marketing, telemarketing and social networking. These advertising mediums were viewed as cheap, reliable and of high impact and coverage given the changing consumer trends and lifestyles. On whether there exists a Commercial information system(CIS) and roles towards competitiveness;

“The CIS harbours customer database, the system further supports decision making in marketing, finance, project appraisals, training needs of personnel and so forth, such information is crucial in the firm’s competitiveness as it highlights trends and historical data that wouldn’t otherwise be available.”(Sectional head, Commercial services).

KIWASCO’s image branding entailed brand strategy implementation, ISO certification, branding of assets and employees, public forums like ASK shows, institutionalization of CSR plan, media engagement strategy and advertising activities like wall branding, bill boards and road shows for their efforts in making KIWASCO visible, recognizable and attractive to potential and existing stakeholders. This has cemented its position as a leading water and service provider in the region. WASREB carried out a survey in 2017 of WSP in Western region and awarded KIWASCO as best service provider (appendix VII). This acted as a good avenue for the firm to further advance new meter and sewer connections being its core business. Interviewees collaborated that more partners now prefer to work with KIWASCO on various functions such as billing and revenue collection than before, this show of good faith is as a result of the firm’s increased visibility. An advantage arising from regional presence. On whether any advantage arose from the firm’s external value chain;

“Our partners like suppliers, distributors, donors, bankers and regulators assist the firm to be more visible to the public, this has benefits of awareness, facilitating processes like revenue collection through financial intermediaries, service delivery is therefore enhanced.”(Manager, HR).

To further enhance the advantage arising from distribution channels, an interviewee argued that the firm should invest in building capacity through training of all personnel on products, services, marketing and sales skills, customer care and claims management. On whether personnel needed extra training to enhance service delivery;

“The HR team conducts internal surveys to establish training needs of our staff in various areas, a requisition is then made to facilitate the training. It is a continuous process and needs change with the changing business environment.”(Manager, HR).

Additionally, the firm must seek to have presence in all areas of Kisumu County in terms of sewer and water connections, this will be instrumental to its outbound, marketing and sales activities. Other than the distribution channels, competitive advantage was found to be inherent in the firm's establishments e.g. their sister plants like Arito in Seme sub county, Kisat plant and Nyanas water and sanitation company in Sondu. These sister plants obtain technical support from KIWASCO and in turn creating awareness in the larger Kisumu County and also serve as service points in claims handling and management (appendix VII). Head of technical services on any immediate need for competitive advantage;

“We endeavor to have county wide presence in terms of sustainable infrastructure, this is a sure way of delivering services to customers, recently we are expanding through our sister plants within the county.” (Head, Technical services).

Synergies and strategic alliances have afforded KIWASCO extensive geographical coverage, supplies/material support, capacity building through training personnel, technical and expertise support. These auxiliary features are a sure C.A to the firm in the management of its Value Chain. The World bank has on numerous occasions supported KIWASCO (appendix III). Other potential sources of competitive advantage were identified as KIWASCO's advanced ICT infrastructure for Customer Relationship Management (CRM). There were claims of not maintaining a constant touch with customers through technology (CRM) and a lack of a well coordinated plan to conduct physical visits especially to existing customers.

Collaborative information from various interviewees revealed that KIWASCO has undoubtedly one of the most recent and preferred ICT infrastructure in the sector that can leverage a competitive advantage. This is also true according to WASREB specifications and performance functions (appendix III). Information communication and technology was appraised to be embodied in the entire VCM practices and a key in determining the efficacy of the value chain activities or its absence. The core operations like water production, water distribution, sanitation and sewer and reduction of Non Revenue Water (NRW) are hinged on ICT platform. The firm must therefore continuously invest in its availability, speed, reliability and capacity building to both internal and external users for optimality. Existence of a dysfunctional ICT system can negatively impact the functions and wear away competitive advantage arising from other VCM practices. ICT manager on existence of an ICT platform any continuous improvement plans for competitiveness;



“Since we automated most processes our platform is always up and running, we keep monitoring changes in the market with our service providers, to ensure continuous improvements a special budget is prepared in advance.”(Manager, ICT). KIWASCO has automated almost all of its crucial processes. This was confirmed right through the value chain. The firm’s intake plant has employed modern technologies of abstraction and pumping using sophisticated pumps that have the capacity to remotely detect any defects, record amount of water in litres pumped, the pumps can be pre timed to either start or shut down e.g in the event of excess chemicals in the water. A visit to the Dunga treatment plant confirmed that 80% of processes have been automated. The firm cuts on power costs by using gravity at their Kajulu plant to distribute water. The procurement function is done electronically to the Supply Chain department and approved online. The firm uses Global System for Mobile Communications (GSMA) and Geographic Information System (GIS) to remotely monitor water tank levels dubbed Vipimo, reservoirs, pipes bursts, leakage, mapping of new and existing connections, pressure monitoring at the Kisumu Control Board, electromagnetic meters have also been installed in most densely populated areas within Kisumu County. The automated chemical dosing system was identified as real cost effective venture. Automatic sensors were installed along major supply channels to monitor any defects and cause for alarm. All these features and many others supported by ICT were found to reinforce value chain activities and allowed the firm to gain a competitive edge by positioning the market and exploiting changes and new opportunities in the competitive scope. An interviewee confirmed that plans were underway to digitize and automate meter reading, billing and revenue collection. The ICT infrastructure has contracted time and space in the firm’s key generating activities.

Stakeholders are also able to lodge complains online through the social media pages, SMS system 40222, revenue collection was recently boosted by the online payment system by closing the cash office which was viewed as redundant in the current times. Efficiency has been recorded with the new revenue collection system as it is safe, reliable, user friendly and cost effective. Checking of water bills and amounts due was found to be effective in revenue collection, sending SMS as reminders of payments, any updates to stakeholders is done electronically via bulk SMS system which has in the long run been found to be cost effective. The organization channeled concerted efforts to their social media platforms for communication, customer care, stakeholder meetings and creating brand image and public perception. All these features have been termed as

parameters for competitive advantage in WSP by WASREB (appendix III). The finance manager on the existence of an accounting system and its contribution to competitive advantage;

“The accounting system has streamlined the efficiency of processes in my department, for example revenue collection revenue collection is now digital, reconciliations are much easier now. We have been able to cut on costs of extra personnel and paper work.”  
(Manager, Finance).

Personnel management was affirmed by interviewees as a true leverage to achieving a competitive advantage. The manner in which human resource is handled has a great impact on the overall organizational performance and competitiveness. It was noted that the extend of skill set, competency, motivation and attitudes of personnel was largely determined by how the human capital is managed. The researcher wanted to find out how it impacted competitive advantage. It sufficed that KIWASCO has heavily invested in personnel over the years as an assurance of quality service delivery, growth and sustainability. This also ensures an adequate pool of highly motivated and experienced personnel in the sector. HR manager on whether the HRIS existed in the firm and any advantages arising from the same;

“For a long time we operated without a comprehensive HRIS, we have a functional one now. All the HR functions are inculcated in it be it policies, procedures, database of personnel. We are also able to carry out competitive recruitment and selection processes, this ensures we get the right people for the various positions.”(Manager, HR).

Recruitment, selection, hiring and compensation functions are undertaken by experts and professional recruitment firms in the sector. The firm has a thorough recruitment process which ensures that only the best are selected. The department periodically undertakes training and development of its personnel in various areas e.g technical, administrative, customer care and managerial skills. The firm has a continuous development programme for its personnel one being the graduate trainee programme, attachments and internships. These programmes assist in selection and recruitment as most of the candidates have already worked in the firm and therefore the learning curve is greatly reduced eliminating idle capacity in the early days of work. This according to interviewees accord the firm a competitive advantage. To ensure continuous skills development the firm has engaged the Kenya Water Institute (KEWI) for research and training of its personnel. Professionalism and integrity has been overly emphasised by the HRD and all members of staff resonate with the values. HRD was found to have co-opted the WASREB HR policy manual to WSP in its human resource policies and procedures as an

indicator of competitive advantage (appendix III) and for best HR practices in the sector like remuneration which was found to be a key motivating factor among personnel.

The study established varied opinions on whether the procurement function had any impact on competitive advantage. A good number of interviewees could not pinpoint an advantage that is specific and strategic in their value chain. Only reiterated that the procurement function undertaken by the Supply Chain department in conjunction with the Finance department is supportive to other departmental functions. The support is in the form of supply deliveries, availability when and required. It however was clear that procurement functions of assets like motor vehicles, machinery and equipment must take cue of outbound logistic needs of the firm in this case production and distribution of water. It was evident that KIWASCO is in the process of automating its stock taking and inventory management systems. This will save the firm's leadtime, human resource costs of hiring personnel in the department and better manage supplier related costs and quality. Head of supply chain on whether competitive advantage arises from procurement functions and needs on input cost, quality and availability;

“The procurement function is crucial to all departments, we build lasting relationships with suppliers and ensure that our costs are at the minimum. Our competitive tendering processes guarantees good quality, availability and reliability of materials and assets.”(Head, Supply chain).

The firm's general management is supported through a functional and revised organogram (appendix III). The organization structure is designed and appraised around the key functional areas of a typical WSP and approved by WASREB. This is advantageous as it clearly spells out duties, responsibilities, guarantees control, reporting structure and accountability. The structure has instituted unity of purpose, mutual respect and a sense of purpose as each employee understands better how they contribute to the overall value chain creation process of the firm. The structure was found to be important in skills exchange and sharing of best practices in the sector like building capacity and enhancing professionalism.

It also emerged that all of KIWASCO's systems, procedures and processes are coined at the executive management level following the revised organization structure (appendix VIII). This best practice was obtained as a result of certification by the International Organization for Standardization (ISO) this guarantees quality control management and best practices. The firm has also over the years endeavoured to institutionalize good corporate governance practices

through; ethical practices, strategy formulation process incorporating stakeholder views and values, clear reporting systems designed to enhance transparency and accountability. These corporate governance practices have cultivated a culture of professionalism in the organization. The HR manager on how policies are formulated and implemented;

“The department’s policies become the organization’s, we have a revised organization structure to assist in strategy formulation and implementation, all personnel are involved in these processes to ensure ownership of responsibilities. Our ISO certification guides our internal and external practices to guarantee quality and adherence.”(Manager, HR).

#### **4.4 Discussion of Findings**

This part evaluates how the study connects with existing theories as well as comparisons with findings of empirical research conducted in the field of Strategic Management. Comparisons done bring out areas of agreement and disagreement in existing empirical studies and theories. The theories that guided the study were ; systems theory (Bertalanffy, 1968) and Network based theory (Halldorsson et al., 2007). Systems theory emphasizes that systems relate and interact with each other within a larger and more complex system. The theory postulates that the whole is greater than the sum of its parts although the parts have to work together to achieve a common goal. The findings of this study show that the firm’s value chain system interact with each other with the input of value chain management practices to reach a common goal which is competitive advantage. No part of the value chain system can work in isolation, it therefore follows that the key findings relate well with the theoretical anchorage (Gadde & Håkansson, 2001). Network based theory postulates that for an organization to achieve its goals and objectives there must be an alignment between the key actors, activities and resources that constitute the network components. The theory underscores that resource accession and co-ordination is key for organizational growth and sustainability. The findings of this study points in the same direction with the theory, the disaggregating of the firm into key value generating activities and thereby applying the value chain management practices signifies the alignment of key actors (Fawcett et al, 2009). The study findings revealed that owning resources and co-ordination could be a powerful source of competitive advantage.

Although services are regarded as intangible and perishable given their simultaneous production and consumption, the research study settled that the generic value chain model as brought forward by Porter (1985) applied to service firms. Findings of the study revealed that KIWASCO's Competitive advantage lies in positioning in the market and exploiting new technological frontiers. This assertion is in tandem with a study by Muhura (2012) that a firm derives a competitive advantage from the distinct capabilities in building relationships and embracing new business methods. There was collaboration to the fact that positioning in the market and exploiting opportunities have heavy financial implications. Possession of these strategic capabilities and being able to counter any competition in the market was found to be consistent with (Porter 1998). A study carried out by Makanga (2011) concluded that indeed possession of differentiated strategic capabilities enabled firms to better focus on service delivery, acquire larger market share and eventually guaranteeing a competitive advantage.

The firm was found to have an enormous capacity when it came to product/service development front, the advantage arose from the fact that service delivery time and cost were greatly reduced. Water production and distribution was done by the use of alternative sources of power e.g gravity and solar power other than electricity as the sole source of power which shoots up costs. The finding also coincide with Susanken (2017) who in her study found that a firm could achieve a competitive advantage by significantly reducing operational costs, overheads and differentiating its product/service. The finding however differed with Susanken (2017) on the assertion that cost and differentiation are the only aspects that enables a firm to achieve a competitive advantage, this study findings observed many other sources of competitive advantage like positioning in the market, possession of strategic capabilities and distinct characteristics.

The study revealed that the firm had disaggregated its key functions into value generating activities, this ensured proper management and allocation of resources to value rather than to functions. This observation was supported by Ghonar (2015) who asserted that firms that applied the VCM practices to their operations commanded a larger market share, profitability, growth and sustainability. This is true in KIWASCO's case the different business functions are handled by separate departments co-ordinating with each other within the chain.

The findings established that KIWASCO continues to leverage off its wide distribution network and channels that guarantee location utility for the customer. Apart from its own establishments, the firm utilizes sister plants and partners increasing awareness and handling general complaints. These findings conform with Urbig (2003) who in his study stated that firm infrastructure function supports the entire Value Chain by assisting top executives in general management and streamlining internal and external processes thereby achieving and sustaining a competitive advantage. Ndugu (2012) further cemented this finding that competitive advantage is inherent in distribution channels particularly in service firms. Further observations are consistent with Capon (2008) assertions that rapid service/product delivery to customers than competition can be a source of competitive advantage.

From the study it was clear that the distribution network is closely allied to the marketing function, which was key in creating awareness and convincing purchase. Marketing was also instrumental in brand building, while there was agreement that the current marketing activities; advertising, bill boarding among others have been largely uplifting, it is crucial that the firm adopts current trends in marketing communication. Similar thoughts were supported by Karanja(2015) who in his study advocated for adoption of modern technologies in reaching out to customers as the business world, lifestyles of consumers and preferences keep changing.

The study established that KIWASCO has highly a qualified and competent pool of personnel in all key business and value functions. The firm's recruitment and selection processes are highly competitive and has instituted appropriate HR policies and procedures to support them. This is true according to Marete (2010) who in her study indicated that a firm acquires a competitive advantage in the way it recruits and follows through with training and development of its human resources. The findings are also comply with recent studies which have indicated that competitive recruitment, selection and training not only enhance service delivery but also guarantees the firm a sustainable competitive advantage ( Thuku&Kombo 2019).

It was confirmed from the study findings that technology is at the core of enhancing efficacy in product/service production and delivery. At KIWASCO, technology supports all other value chain functions. This observation agrees with Schiebel(2005) who in his study concluded that a functional ICT infrastructure is key in automating transactional processes and activities through

speed, reliability and availability. Nonetheless, the study revealed that for ICT platforms to generate a competitive advantage stability of operations and user capacity must be enhanced.

The study findings established that the firm had inculcated good corporate governance practices in all areas of the business. This is particularly crucial for the firm as failure to adhere to ethics may have devastating effects on the health of consumers and the environment. This finding is in agreement with a study conducted by Munyefu (2018) who in his study noted that good corporate governance was a prerequisite for a firm to achieve and sustain a competitive advantage. Munyefu (2018) identified good corporate practices as personnel involvement is strategies, ethical practices in hiring, organizational spending and clear roles and responsibilities.

The outcome of this study demonstrated the interconnectedness and dependency amongst the value chain activities and the firm's networks in this case the departments were functionally related to each other providing support. In addition the firm has continuously strived to strengthen linkages of its value chain by developing an organization structure which facilitates communication. The postulations of System theory and Network based theory which fortifies this study were supported here. Theoretical anchorage of the study System theory by (Bertalanffy, 1968) and Network based theory brought forward by Halldorsson et al., (2007).

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter presents a summary of research findings as per the research objectives. Conclusions drawn from the summary of research findings, recommendations for policy and practice are brought forward. This chapter also covers limitations of the study and suggestions for future studies.

#### **5.2 Summary of findings**

This section summarizes the key findings of the study as per the study objectives as brought forward in chapter four. The first objective was to determine the Value Chain Management practices at KIWASCO Limited which were categorised into Primary Value Chain activities and Secondary Value Chain activities.

##### **5.2.1 Primary Value Chain Activities at KIWASCO Limited**

With respect to the first objective, the study revealed that Value Chain management practices of the study unit largely relate to the generic value chain models. The five primary activities are inbound logistics, operations, outbound logistics, sales and marketing and finally after sales services. From the findings of the study, the main VCM practices under inbound logistics of the firm include; water abstraction, pumping, storing, warehousing of other materials e.g chemicals and other supplies consumed in the creation and delivery of product/service. Distinct activities at the operational level included; storing, water production e.g chemical treating, segmentation, laboratory testing, impurities monitoring and basically all activities of raw water conversion into safe for consumption. Practices under Outbound logistics were found to be; water distribution and supply management through various channels. Marketing practices were found to share with outbound logistics e.g management of distribution channels, advertising, bill boarding, telemarketing, selling by personnel and conducting CSR activities to create a brand. After sales services comprised of claims handling, customer visits, follow ups, complaints management, carrying out repairs and maintenance of water and sewer channels.



### **5.2.2 Secondary Value Chain Activities at KIWASCO Limited**

Similarly, in addressing the first objective the VCM practices under secondary value chain activities were identified. The main support value chain activities are; Human resource development (HRD), Information Communication and Technology (ICT), Procurement and finally Firm infrastructure. The study established that these support activities are designed to enhance the performance of primary activities.

The key VCM practices under HRD were; recruitment, selection, hiring, firing, training, development, motivation of personnel, capacity building, performance contracting, performance appraisals and remuneration at all levels. Distinct activities established under procurement function were; tendering, need analysis practice, supplier vetting and selection, sourcing, facilitating deliveries and carrying out inspections to ensure quality. Practices under ICT included; system security maintenance, network coordination and maintenance, monitoring and evaluation, research and development and product/service design. Firm infrastructure practices were; general management, accounting and finance aspects, public relations activities, legal and compliance matters, administrative issues, planning and quality control mechanisms.

### **5.2.3 Management of Value Chain for Competitive advantage at KIWASCO**

The second objective of the study was to establish how KIWASCO is managing its Value Chain for Competitive advantage. The study findings concurred with the generic value chain models of a typical service firm. The research study showed that KIWASCO is able to achieve and sustain a C.A due to possession of strategic organizational capabilities which in turn enables the firm to position itself competitively in the market. The firm's leverage on modern technology was key in gaining a competitive edge, automation of processes guarantees the firm faster and reliable process transactions. Good corporate governance practices further strengthened the corporation's locus in the market and corporate image to both internal and external stakeholders. The firm's established infrastructure, skilled and motivated personnel played a great role in the firm's competitiveness.

The basic discrete value generating activities connected to the firm's C.A included, raw water sourcing and distribution capacity, automated meter reading, billing and revenue collection, faster and cost effective product/service development, distribution channels management,

advantages accruing from strategic alliances and synergies, ICT based marketing communications and institutionalization of CSR plan, corporate image building activities and after sales services were found to be significant in creating and sustaining a superior competitive advantage. The firm has over the years invested heavily in these activities and at the same time continues to improve on its key practices. Thus the positioning in the market and possession of differentiated strategic capabilities to counter any competition and exploit opportunities.

### **5.3 Conclusion of the study**

In general the result of the study show that the firm has disaggregated its Value Chain into discrete value generating activities. These VCM practices have enabled the firm to attain and maintain a competitive edge and dominance in the market. As a differentiating factor KIWASCO's competitive advantage today and in the future lies on its ability to own resources both tangible and intangible, continuously improve on its key VCM practices and build strategic alliances and partnerships. More specifically the firm's core business of expanding coverage by new connections both in sewer and water, policy formulation and implementation was found to support the firm's strategy towards competitiveness.

The VCM practices adopted by the firm to achieve a competitive advantage support the existing literature and theories that anchor the study. There were also a few departures from existing literature and theories. With regards to disaggregating the firm into strategically relevant activities in order to identify the sources of competitive advantage was not in doubt. The firm sees every activity as a stride that has to add value to the final product/service. The VCM practices act as drivers towards competitive advantage. This study established that on the basis of the significant activities the firm's management is able assess where value is created and where improvements can be done.

The key practices that drove competitive advantage were identified as technological aspects like process automations, good corporate governance, infrastructural developments and personnel management coupled with building strategic relationships in the sector. It is evident that the firm's core activities are closely aligned to create and sustain a competitive advantage. However there are a few challenges with regards to infrastructural development. The old distribution channels requires a complete overhaul to better serve the customers well. Environmental

concerns are also part of the issues to be addressed with regards to disposal of waste water and management. Non revenue water management through policy and best practices in the sector. Despite the challenges, it can be concluded that KIWASCO Limited has to a large extent achieved a Competitive advantage according to the WASREB Impact Report 9 and the Minimum Service Levels (MSLs) the firm was ranked number 11 out of 86 in WSP. Most of the Parameters and indicators of C.A ticked e.g. water coverage, metering ratio, drinking water quality, hours of supply, personnel expenditure and management, Operation and maintenance cost coverage, revenue collection efficiency, non revenue water management and staff productivity measures.

The study addressed specific gaps in knowledge discussed under chapter two in the following manner. Empirical studies earlier conducted on Value chain management and competitive advantage concurred to the fact that management of value chain leads to a company achieving a competitive advantage. However the studies did not establish the VCM practices, this study filled the gap as the VCM practices were identified under the first objective. Additionally, the studies reviewed revealed conceptual gaps in that they only linked value chain management to competitive advantage. Nonetheless, few of the studies documented how firms manage their value chains to achieve and sustain a competitive advantage. This study filled the gap by demonstrating how VCM is practiced for competitive advantage, thereby achieving the second objective.

#### **5.4 Recommendation for policy and practice**

The findings of the study indicated to a large extent that KIWASCO Limited had adopted and practiced VCM practices for Competitive advantage. It is clear that technology anchored all key business functions, the firm should now move and secure their systems and processes from cyber crime and related hacking activities. This could save the firm future financial and non financial losses in the event of a malfunction of the kind. The firm's input function entailed conducting a market research and customer surveys by the sales force team by physical visits. This is a good public relations exercise however the firm and specifically the public relations unit should strive to embrace modern research techniques such as the use of digital platforms to reach the consumers. Digital platforms are highly efficient, reliable and has the ability to reach a huge number of the target respondents within a short period of time.

Personnel management was found to be an enabler of strategy, without a skilled and competent workforce even the best strategy could still fail. KIWASCO should further enhance its employees skills by partnering with Technical Vocational Education and Training institutes (TVET) to provide further technical support particularly to technical staffs. With the wake of a global village technology and the way of doing things rapidly changes, the firm has to keep up with the change. This could also be a motivating factor to personnel and bulidng a pool of competent and skilled employees. KIWASCO should endeavor to involve all personnel in the formulation and implementation of its strategic plan, this ensures ownership and better comprehension of the organizations's strategic direction.

The firm's distribution channel solely depends on infrastructural development. The study showed that there is a dire need to develop infrastructural networks to further enhance service delivery. The interviews further identified the major challenge as lack of sufficient resources despite the high returns on invstments projected. The firm should have a policy on external funding such as commercial loans from financial institutions apart form donations and grants. The research study identified non revenue water management a one of the setbacks to attaining the revenue targets. The top management in conjuction with experts, consultants, legal and enforcement teams should come up with a policy to specifically tackle the menance of non revenue water. This kind of initiative will further shore up the firm's overall turnover.

## **5.5 Limitation of the study**

The planning and development of this study adopted a case study which focused on a single unit of study KIWASCO Limited. The findings and conclusion of this study may not generally apply to other organizations in the water and service provider that may want to adopt in management of their Value chains. The data collected may be different from other firms, additionally different firms may have divergent ways and objects of managing their value chains for competitive advantage. Therefore, with this limitation on the generality of conceptual analysis the findings of this study may only apply to KIWASCO Limited.

This study only focused on management of KIWASCO's value chain for competitive advantage. However, there are other areas within the firm that can be looked into to determine whether competitive advantage is being achieved. These aspects may include leadership issues at

all levels of the firm, political influence from stakeholders like the County government of Kisumu, firm infrastructure and strategy compatibility, the relation between top management and other employees among others.

The study adopted a case study research design which allowed for an in depth data collection on the study unit. Nonetheless, the design may lack scientific vigor of reliability and little or no basis for generalization to other organizations in the sector. This is in the sense that the response obtained from one interviewee cannot be the same response from a different interviewee. Science dictates that an experiment should be replicable for reliability. Finally, with a case study methodology interviewer and interviewee biasness may influence the findings of the study due to the subjective nature of interviews.

## **5.6 Suggestions for further research**

The conceptualization of this study may not apply to other organizations in the water service providers. Therefore future researchers should carry out a cross section survey to include other WSP, this will help in generalizations of findings and more concrete and verifiable research findings on the topic.

The business world is changing at a fast pace, what was useful yesterday may not serve the same purpose today. Future researchers should now contextualize the Contemporary Value Chain models to capture aspects not covered in the existing V.C models e.g crucial managerial aspects like leadership, corporate culture and the congruence between strategy and the firm's infrastructure.

Future researchers should adopt more verifiable scientific research designs in conducting similar studies. Such designs may include; cross sectional surveys and longitudinal studies which will give a broader scope of data collection which in turn enhances reliability and verifiability.

## REFERENCES

Alnawaiseh, M.A., AL-Rawashdi, F. & Alnawaiseh, M. (2014). The Extent of Applying Value Chain Analysis to Achieve and Sustain Competitive Advantage in Jordanian Manufacturing Companies, *International Business Research*, 7,(8).

Abdulwahid, H. & Nabil, S. (2019). The complementary association between value chain and target costing system to strengthen the competitiveness: An applied study on Saudi manufacturing companies in Al-Kharj. *Management Science Letters*. 9. 1543-1552.

Aguko, S. O. (2014). *Value chain analysis and organizational performance of beer Manufacturing companies in Kenya*. (Unpublished MBA Thesis), University of Nairobi, Nairobi.

Akenbor, C. O., & Okoye, E. I. (2011). An Empirical Investigation of Value-Chain Analysis and Competitive Advantage in the Nigerian Manufacturing Industry. *International Multidisciplinary Journal*, Ethiopia 5 (6) 188-198.

Ackah, D. & Agboyi, M.R. (2014). *Procurement & the value chain*. A tool for achieving effective organizational goal; A study of electricity company of Ghana Limited.

Bertalanffy, L. von. (1968). *General system theory: Foundation, development, application*. New York: George Braziller.

Bryson, J.M. (2018). *Strategic planning for public and non-profit organizations: A guide to strengthening and sustaining organizational achievement*. John Wiley & Sons.

Bertalanffy, L.v. (1969). *General System Theory*. New York: George Brazillier.

Cegliński, P., Wiśniewska, A. (2016), “*CSR as a Source of Competitive Advantage: The Case Study of Polpharma Group*”, *Journal of Corporate Responsibility and Leadership*, (3)4.

Damilano, M., Nicola, M., Enrico, B., & Fabio, C., (2018), Value Creation and Competitive Advantage; Empirical Evidence from Dividend Champions of the S&P 500. *International Journal of Business and Management*, 13(12), 50.

Elder-Vass, D. (2015). Disassembling Actor –Network Theory. *Philosophy of the Social Sciences*,45(1), 100-121.

Gable, Guy G. (1994) Integrating case study and survey research methods: an example in information systems. *European Journal of Information Systems*, 3 (2), pp. 112-126.

Gerring, J. (2004), What is a Case Study and What is it Good for? *American Political Science Review*, 98(2), 341-54.

Gereffi, G., & Fernandez-Stark, K. (2016). *Global value chain analysis: a primer*. Retrieved from <http://hdl.handle.net/10161/12488>

Hines, P. (1993), Integrated Materials Management: The Value Chain Redefined: *International Journal of Logistics Management*, 4(1), 13-22.

Hardacre, B & Collins, G. (2008). *Procurement's Role in The Generation and Capture of Value in Supply Chains*.

Halldorsson, A, Kotzab, H., Mikkola, J.H., &Skijott-Larsen, T. (2007). Complimentary theories to supply chain management. *Supply Chain Management: An international Journal*,12(4),284-296.

Jackson, M. (2003). *Systems Thinking: Creative Holism for Managers*, Chichester: John Wiley & Sons, Ltd.

Jensen, M. (2000). *Value Maximization and the Corporate Objective Function*. Harvard Business School, USA.

Jensen, M. C. (2001). Value Maximization, stakeholder Theory, and the Corporate Objective Function. *Journal of Applied Corporate Finance*, 14(3), 8-21.

KIWASCO. *Performance Improvement Plan and NRW Action Plan, Final Evaluation Report*, Kisumu Water and Sewerage Company, Kenya, National Water and Sewerage Corporation, Uganda, July 2011.

Kaplinsky, R., & Morris, M., (2001) A Handbook for Value Chain Research. *Working Paper Prepared for the IDRC*, Brighton, UK, Institute for Development Studies.

Kotabe, M., & Kothari, T. (2016). Emerging market multinational companies' evolutionary paths to building a competitive advantage from emerging markets to developed countries *Journal of World Business*, 51(5), 729-743.

LVNWSB. (2017). *List of Completed Projects Kakamega: Lake Victoria North Water Services Board* Retrieved from <http://www.lvnwsb.go.ke/index.php/projects/completed-projects/126-mbale-water-supply>.

Lysons, K. & Farrington, B. (2006), *Purchasing and Supply Chain Management*. 7th Ed. Pearson Education Limited Prentice Hall.

Marete, P. K. (2010). *Application of Hines value chain model by Kenya medical supplies agency*. (Unpublished MBA project), University of Nairobi, Nairobi.



Moliterno, T. & Mahony, D. (2011). *Network Theory of Organization: A Multilevel Approach*. Journal of Management. 37. 443-467. 10.1177/0149206310371692.

Njuguna, M.M. (2013). *Value chain management practices and supply chain performance manufacturing firms in Nairobi*. (Published MBA Project). University of Nairobi.

Price waterhouse Coopers. (2013). *Supplier relationship management: How key suppliers of large your company's competitive advantage*.

Porter, M.E. (1998), *Competitive Advantage, Creating and Sustaining Superior Performance*, The Free Press, New York, NY.

Porter, M.E. (1990). *Competitive Advantage: Creating and sustaining superior performance*, The Free Press USA.

Porter, M. (1985). *Competitive Advantage: Creating and Sustaining Superior Performance*. Free Press, New York, NY.

Porter, M E., (2004), *Competitive Advantage: Creating and Sustaining Superior Performance*, USA, New York Press.

Porter, M. (2012). *Strategy and the new competitive advantage: Creating share value*. Harvard Business School, Boston.

Perera, C.S.R., & Gunatilake, S. (2018). A conceptual model for value chain management in construction contractor organizations'. *26th Annual Conference of the International Group for Lean Construction*, Chennai, India. 982-991.

Roko, L.P., & Opusunju, M. I. (2016), Value Chain and Performance in Agro Allied Small and Medium Scale Enterprise in Sokoto State, Nigeria, *International Journal of Business and Social Research*, 6(9), 8-17.

Shikumo, E. (2012), *Value Chain and Competitive Advantage of Firms in the IT Industry in Kenya*. (Unpublished MBA Project), School of Business, University of Nairobi.

Susanken, R.R. (2017). *An assessment of value chain application for value creation in e- retail based business*. (Published MBA Project), United States International University.

Strauss, D.F.M. (2002), The scope and limitations of Von Bertalanffy's systems theory, *South African Journal of Philosophy*, 21:3, 163-179.

Schiebel, M. (2005), *Value chain analysis and competitive advantage in telecommunication lines in the United Kingdom*.(Unpublished Ph.D. Thesis), Institute of Marketing and Innovation, University of Natural Resources and Applied Life Sciences, 2.15.

Thuku, N. & Kombo, H. (2019). Effect of Value Chain Management Practices on Performance of Medium and Large Scale Retail Outlets in Nakuru County, Kenya. *European Journal of Business and Management*.

Thuku, N.W. (2019). *Effect of value chain management practices on performance of medium And large scale retail outlets in nakuru county, Kenya*.(Published MBA ProjectUniversity

Taglioni, D., & Winkler, D. (2016). *Making global value chains work for development*. World Bank Publications.

UNIDO, (2015), Global Value Chains and Development UNIDO's Support towards Inclusive and Sustainable Industrial Development United Nations Industrial Development Organization (UNIDO), *Combining Agro-Value Chain and Cluster Development: a case study from Ethiopia*. Vienna: UNIDO.

Urbig, D. (2003). The value chain analysis-implications for firms and industry analysis; *Proceedings of Perspectives in business informatics research (BIR)* Berlin-Shaker Verlag; 1-15.

Valentine, K. (2017). The Undercurrents of Listening: A Qualitative Content Analysis of Listening in Writing Center Tutor Guidebooks. *The Writing Center Journal*, 36(2), 89-11

Wang, H., Han, P., & Liu, W. (2018). How to Improve Sustainable Competitive Advantage from the Distributor and the Supplier Networks: Evidence from the Paper-Making Industry in China, *Sustainability*, 10(6), 1-13.

Wangari, N.T. (2019). *Effect of Value chain management practices on performance of medium and large scale retail outlets in Nakuru County, Kenya* (Unpublished MBA project), University of Nairobi.

Yang, H.D., Mason, R.M. & Choudhury, A. (2011), The Internet, Value Chain Visibility and Learning: *International Journal of Electronic Commerce*, 6(1), 101-120.

Yin, R. K. (1994). *Case Study Research* (2nd ed.). Thousand Oaks, CA: SAGE Publications Inc.

Yin, R.K. (2012), *Applications of Case Study Research*. Thousand Oaks CA: Sage Publications, third edition.

## **APPENDICES**

### **Appendix I: Interview Guide**

Kindly respond to the following questions in a summarized fashion.

#### **I. Head, Technical Services**

1. What are your departments Value Chain Management Practices? What activities do you perform?
2. What are the most important infrastructural needs for growth, profitability and sustainability (road/transport, pipelines, distribution channels, telephone service, electric supply, storage, etc.)?
3. Which aspects of your business do you intend to change in the next 2 years (machinery, equipment, computers, new products, quality control, management system, worker skills, etc.)?
4. In your view how does your department's key activities contribute to the overall organizational performance?
5. What action plans have been put in place to ensure your departments key activities are achieved in a timely manner?
6. What challenges do you encounter in managing the key technical services?
7. What other useful information can you give regarding the Management of Value Chain for Competitive advantage in your organization?

#### **II. Finance Manager**

1. Where do you go when you need money for your business? What other roles do you play?
2. Do you get credit from input suppliers? What are the terms?
3. Do you have need for additional financing at the moment? If so, what would it be used for?
4. Does the firm has an accounting and financial management system? If yes, what are its components and how does it contribute to achievement of your key departmental activities?
5. What specific challenges does your department face? What measures are in place to address them?
6. Could kindly comment on the financial performance of the organization.
7. What other valuable comment can you add to the topic of this research study?

### **III. Manager, Human Resource and Administration**

1. Does KIWASCO Limited has a Human Resource Management information system?
2. What are your departments key Value Chain Management Practices? What activities do you perform?
3. What management skills would you like to strengthen in order to grow your business?
4. How do you ensure these activities are well understood, supported and implemented by employees?
5. Is the current level of your workers training holding back growth? If so, what additional training do they need? What are your training and development needs?
6. How are your HRM policies and procedures formulated and implemented?
7. Do you encounter any challenges in managing your departments key activities? How are they addressed or being addressed?

### **IV. Head, Commercial Services**

1. What major activities does your department perform? How do you promote and market your products/services?
2. How are these activities connected to other departments and networks within your organization? Describe your internal Value Chain?
3. To whom do you sell your product or service? What percentage goes to each?
4. What other products/services do you produce/sell? What percentage does each represent in terms of your gross revenue?
5. Does KIWASCO Limited has a comprehensive commercial information system including up to date customer database? If yes, how does it contribute towards fulfilling your roles?
6. Do you ever collaborate with other firms on promotion and/or marketing? What is your external Value Chain?
7. What standards or certification requirements do your products/services need to conform to?
8. What government policies/regulations benefit your business (registrations, inspections, subsidies, incentives, etc.)?
9. What government policies/regulations are obstacles to growing your business?

### **V. Manager, ICT Department**

1. What role (s) do you play to ensure the firm's overall value is maximized?

2. What processes, procedures and know-how in the Value Chain are automated? Explain
2. Does the organization have an information, communication and technology system? If yes, how does it assist in achieving your key value chain activities?
3. What are your major needs/ opportunities in product design, research and development and service delivery)?
4. What continuous improvements steps has the department undertaken to ensure a smooth flow of service delivery? How does the organization keep up with the ever changing technology?
5. Is your current equipment or machinery an impediment to growth? Explain. If so, what kind of equipment or machinery could improve your business?
6. What action plans would you suggest to be put in place to ensure the firm's Value Chain is managed for Competitive Advantage?

## **VI. Head of Supply Chain**

1. What activities does your department perform with regards to the organization's Value Chain?
2. Have you ever purchased inputs jointly with other business? Explain.
2. Does the organization have a Supply Chain Management System? If yes, what unique roles does the system play with regards to the firm's Value Chain?
3. What are your major needs/opportunities in the areas of input cost, quality, and availability?
4. How do you align your department's roles to the overall organization's performance? What measures have been put in place to ensure the department's roles are achieved?
5. What major services, items/products and supplies do the organization outsource? What guides the outsourcing process?
6. Who are your most important suppliers and what do you buy from each?
7. Are there problems in obtaining some important inputs? Explain.

## Appendix II: Secondary Data capture form

DOCUMENT	DATA REQUIRED	VALUE CHAIN MANAGEMENT PRACTICES	COMPETITIVE ADVANTAGE PARAMETERS
1. Annual work plan	<ul style="list-style-type: none"> <li>• Firm Infrastructure status report</li> <li>• Personnel management</li> <li>• Financial performance reports</li> </ul>	<ul style="list-style-type: none"> <li>• Systems development (accounting, finance, IT)</li> <li>• Recruitment, hiring, compensation, appraisals, performance contracts, training development</li> <li>• Pricing, costing, revenue generation activities, debt management programs .</li> </ul>	<ul style="list-style-type: none"> <li>• Adoption of latest technology in the market</li> <li>• Competent and sufficient workforce</li> <li>• Profitability and sustainability</li> </ul>
2. Revised Strategic Plan 2017-2022	<ul style="list-style-type: none"> <li>• Customer service</li> <li>• Operation and maintenance</li> <li>• Billing and revenue collection</li> <li>• Policy, legal and consultancy</li> <li>• Water demand management and efficiency</li> </ul>	<ul style="list-style-type: none"> <li>• Enhanced communication and customer relations channel</li> <li>• New water channels installation, repairs, upgrading</li> <li>• Meter reading, billing calculation and recalculation</li> <li>• Policies developed and enforced</li> <li>• Meters purchase and installation</li> <li>• Meter reading and billing audits</li> </ul>	<ul style="list-style-type: none"> <li>• Computerization of billing systems</li> <li>• Mapping of meter Connections</li> <li>• Timely meter reading,</li> <li>• Billing software installed</li> <li>• 100% collection of bills</li> <li>• Implementation of audit recommendation</li> <li>• Personnel recruitment compliance</li> </ul>

Source: Cambridge University (2015). University press.



## Appendix III: Revised Strategic Plan 2017-2022



**KISUMU WATER & SANITATION  
COMPANY (KIWASCO) LIMITED**

**REVISED STRATEGIC PLAN 2017 - 2022**

**REVISED IN 2020**

**APRIL 2020**

## Appendix IV: Data Collection Approval



### Kisumu Water & Sanitation Company Limited

Nafaka House, Opp Swan Centre, Oginga Odinga Street

P.O. Box 3210 - 40100 Kisumu, Kenya

Tel: +254 57 202 4100, +254 57 202 3856

Hotline: +254 700 517 517, 755 517 517

Email: info@kiwasco.co.ke • Web: www.kiwasco.co.ke

REF: KWSC/PER/TRN/10

DATE: 5<sup>th</sup> November 2020

Edwin Munyole Sitati  
Faculty of Commerce,  
University of Nairobi,  
P.O. Box 30197,  
Nairobi.

Dear Sir/ Madam,

### **RE: DATA COLLECTION REQUEST**

This is in reference to your letter dated 28<sup>th</sup> October 2020 on the above subject matter.

We are happy to inform you that your request has been granted.

We wish you the best of luck in your studies.

Yours faithfully,

Everlyn Opiyo

**For: Managing Director**

*Our vision: "To be the most admired services provider"*



Scanned with  
CamScanner

## Appendix V: Data Collection Approval



### Kisumu Water & Sanitation Company Limited

Nafaka House, Opp Swan Centre, Oginga Odinga Street

P.O. Box 3210 - 40100 Kisumu, Kenya

Tel: +254 57 202 4100, +254 57 202 3856

Hotline: +254 700 517 517, 755 517 517

Email: info@kiwasco.co.ke • Web: www.kiwasco.co.ke

REF: KWSC/PER/TRN/10

DATE: 5<sup>th</sup> November 2020

Edwin Munyole Sitati  
Faculty of Commerce,  
University of Nairobi,  
P.O. Box 30197,  
**Nairobi.**

Dear Sir/ Madam,

#### **RE: EDUCATIONAL VISIT**

This is in reference to your letter dated 28<sup>th</sup> October 2020 on the above subject matter.

Your request has been granted and you are scheduled to visit Dunga Water Treatment Plant at 9:00am as per your request.

Be informed that all safety matters will be your responsibility during the tour.

Yours faithfully,

Everlyn Opiyo

**For: Managing Director**

*Our vision: "To be the most admired services provider"*



## Appendix VI: Introduction Letter



**UNIVERSITY OF NAIROBI**  
**SCHOOL OF BUSINESS**  
**KISUMU CAMPUS**

Telegrams: "Varsity" Nairobi  
Fax: 4181650  
Kisumu, Kenya  
Telex: 22095Varsity  
Mobile: 0720348080  
Email: sobkisumu@unobi.ac.ke

P.O Box 19134-40123  
Kisumu, Kenya

Date: 2<sup>nd</sup> November 2020

REF: D61/9832/2018

**TO WHOM IT MAY CONCERN**

**RE: EDWIN MUNYOLE SITATI - REGISTRATION NO: D61/9832/2018.**

The above named student is in the Master of Business Administration degree program. As part of requirements for the course, he is expected to carry out a Research Project in his area of specialization on "**Management of Value Chain for Competitive Advantage at Kisumu Water and Sanitation Company Limited.**"

He has identified your organization (KIWASCO) for the purpose of data collection and report writing. This is to kindly request your assistance to enable him complete the study. The exercise is strictly for academic purposes and we assure you that all protocols will be followed, and privacy regulations adhered to. If you have any questions or concerns, you are free to contact us. Your assistance will be greatly appreciated.

Best Regards,

**DR NIXON OMORO**  
**COORDINATOR, SoB, KISUMU CAMPUS**

Cc File Copy



Scanned with  
CamScanner



## Appendix VII : Maintenance Schedule

**KISUMU WATER AND SANITATION COMPANY  
INTAKE WORKS MAINTENANCE SCHEDULE JUNE 2019- JUNE 2020**

MONTHS	JUNE				JULY				AUGUST				SEPTEMBER				OCTOBER				NOVEMBER				DECEMBER				JANUARY				FEBRUARY				MARCH				APRIL				MAY				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
<b>PUMP 1</b>																																																	
<b>PUMP 1 MOTOR &amp; PANEL</b>																																																	
<b>PUMP 2</b>																																																	
<b>PUMP 2 MOTOR &amp; PANEL</b>																																																	
<b>PUMP 3</b>																																																	
<b>PUMP 3 MOTOR &amp; PANEL</b>																																																	
<b>PUMP 4</b>																																																	
<b>PUMP 4 MOTOR &amp; PANEL</b>																																																	
<b>PUMP 5</b>																																																	
<b>PUMP 5 MOTOR &amp; PANEL</b>																																																	
<b>COMPRESSOR 1</b>																																																	
<b>COMPRESSOR 2</b>																																																	
<b>PUMP 7</b>																																																	
<b>PUMP 7 MOTOR &amp; PANEL</b>																																																	
<b>PUMP 8</b>																																																	
<b>PUMP 8 MOTOR &amp; PANEL</b>																																																	
<b>PUMP 9</b>																																																	
<b>PUMP 9 MOTOR &amp; PANEL</b>																																																	
<b>PUMP 1KSC</b>																																																	
<b>PUMP 1KSC MOTOR &amp; PANEL</b>																																																	
<b>PUMP 2KSC</b>																																																	
<b>PUMP 2KSC MOTOR &amp; PANEL</b>																																																	
<b>PUMP 3KSC</b>																																																	
<b>PUMP 3KSC MOTOR &amp; PANEL</b>																																																	
<b>PUMP 4KSC</b>																																																	
<b>PUMP 4KSC MOTOR &amp; PANEL</b>																																																	
<b>PUMP 5KSC</b>																																																	
<b>PUMP 5KSC MOTOR &amp; PANEL</b>																																																	
<b>CAPACTOR BANK OLD</b>																																																	
<b>CAPACTOR BANK KSC</b>																																																	
<b>LIGHTS</b>																																																	
<b>BARRIER OLD</b>																																																	
<b>BARRIER NEW</b>																																																	
<b>BARRIER KSC</b>																																																	

# Appendix VIII : Maintenance Schedule/Annual Work plan

## KISUMU WATER AND SANITATION COMPANY LIMITED

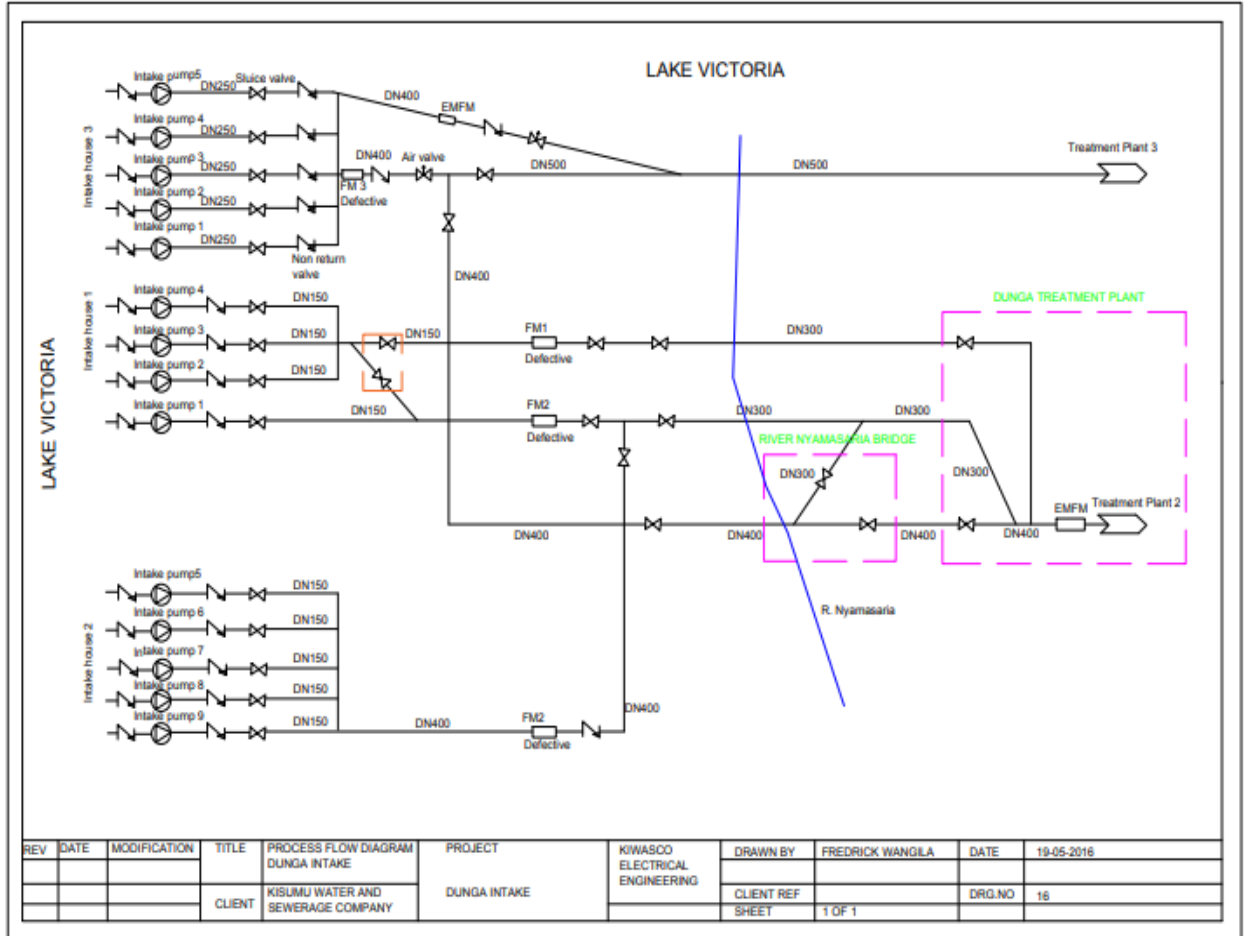
### KIBUYE RESERVOIURS MAINTENANCE SCHEDULE JUNE 2019- MAY 2020

MONTH	JUNE				JULY				AUGUST				SEPTEMBER				OCTOBER				NOVEMBER				DECEMBER				JANUARY				FEBRUARY				MARCH				APRIL				MAY							
WEEK	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
PUMP 1	█																																																			
MOTOR 1,PANEL		█																																																		
PUMP 2			█																																																	
MOTOR 2,PANEL				█																																																
PUMP 3																																																				
MOTOR 3,PANEL																																																				
PUMP 4																																																				
MOTOR 4,PANEL																																																				
PUMP 5																																																				
MOTOR 5,PANEL																																																				
PUMP 6																																																				
MOTOR 6,PANEL																																																				
PUMP7																																																				
MOTOR 7,PANEL																																																				
PUMP 8																																																				
MOTOR,PANEL 8																																																				
MAINSWITCH BOARD																																																				
CAPACITOR BANK																																																				
LIGHTS																																																				

## Appendix IX : Maintenance Schedule/Work plan

KISUMU WATER AND SANITATION COMPANY LIMITED																																																				
KAJULU PLANT MAINTENANCE SCHEDULE JUNE 2020- MAY 2021																																																				
MONTH	JUNE				JULY				AUGUST				SEPTEMBER				OCTOBER				NOVEMBER				DECEMBER				JANUARY				FEBRUARY				MARCH				APRIL				MAY							
WEEK	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
PUMP 1	■																■																																			
MOTOR 1,PANEL	■																				■																															
PUMP 2		■																							■																											
MOTOR 2,PANEL			■																										■																							
COPRESSOR 1				■																													■																			
COPRESSOR 2					■																																															
COPRESSOR 3						■																																														
MIXER 1																																																				
MIXER 2																																																				
MIXER 3																																																				
MIXER 4																																																				
MIXER 5																																																				
MIXER 6																																																				
MIXER 7																																																				
VALVES																																																				
MAINSWITCH BOARD																																																				
CAPACITOR BANK																																																				
LIGHTS																																																				
GENERATOR	AS PER HOUR OF RUNNING(200HRS OR 3MONTHS-WHICHEVER COMES FIRST)																																																			

# Appendix X : Process Flow – Intake Plant



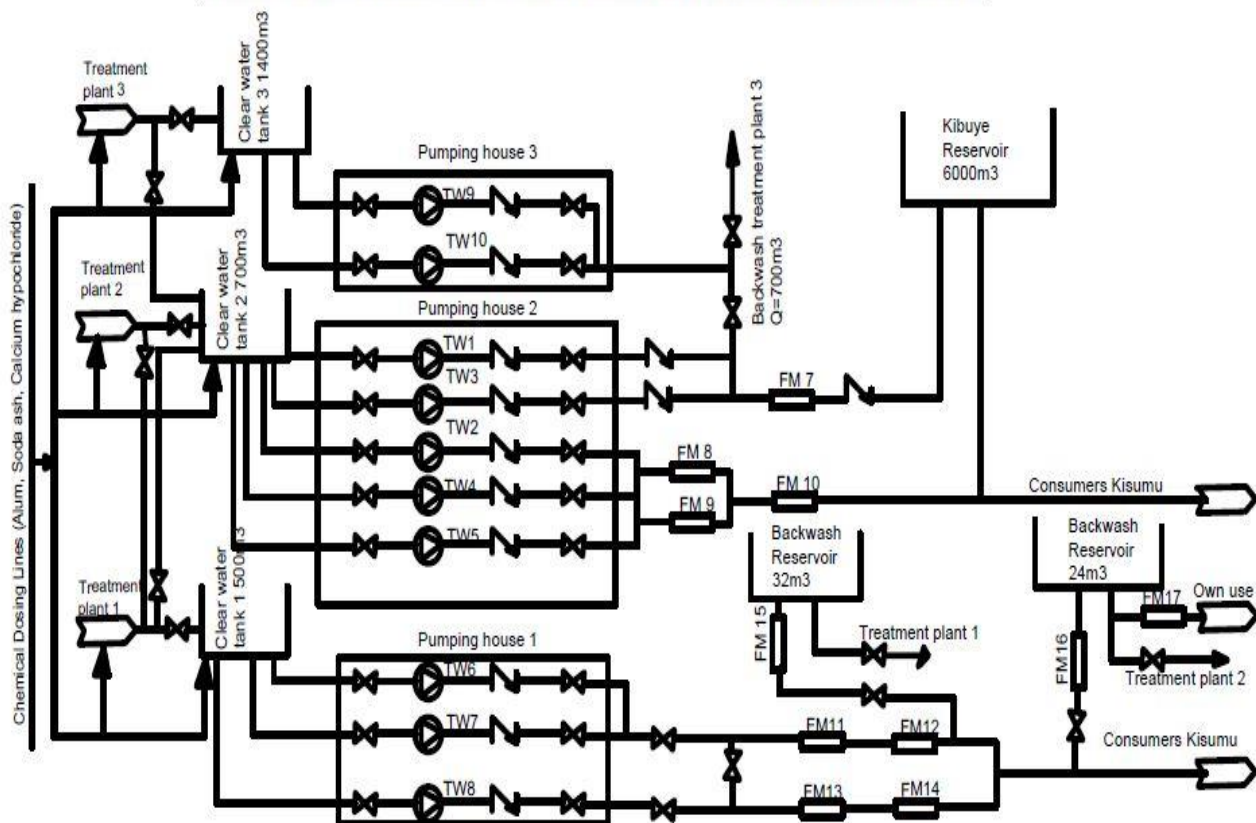


## Appendix XI : Maintenance Schedule

KISUMU WATER AND SANITATION COMPANY LIMITED													
KISAT WASTE WATER BOOSTER STATIONS							MAINTENANCE SCHEDULE 2019/2020						
AIRPORT BOOSTER													
MONTH	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	JAN	FEB	MAR	APRIL	MAY
PUMP 1	■										■		
PUMP 2		■										■	
PUMP3			■										■
KENDULANE BOOSTER STATION													
PUMP 1				■									
SUNSET BOOSTER STATION													
PUMP 1					■								
PUMP 2						■							
TOM MBOYA BOOSTER STATION													
PUMP 1							■						
PUMP 2								■					
PUMP 3									■				
DEWATERING PUMP										■			

## Appendix XII : Process flow clear water distribution

Process flow diagram clear water tanks and Distribution Dunqa



# Appendix XIII : KIWASCO Organogram

