

**ADMINISTRATION OF DEVOLVED WATER SERVICES, TRANSFORMATIONAL
LEADERSHIP, PLANNING AND WATER PROVISION IN ARID AND SEMI-ARID LANDS IN
KENYA**

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DECLARATION

This research thesis is my original work and has not been presented for the award of a degree in any other University.

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DEDICATION

This research thesis is dedicated to my parents the late Mohamed Gedi and Zeinab Ibrahim Mohamed for taking the decision to enroll me in school when my peers were herding camels and goats on the hills of my village Takaba, Mandera West Kenya.

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TABLE OF CONTENTS

DECLARATION	ii
DEDICATION	iii
ACKNOWLEDGEMENT	iv
TABLE OF CONTENTS	v
LIST OF TABLES.....	ix
LIST OF FIGURES.....	xi
LIST OF ACRONYMS AND ABBREVIATIONS.....	xii
OPERATIONAL DEFINITION OF TERMS	xiv
ABSTRACT	xv
CHAPTER ONE: INTRODUCTION.....	1
1.1 Introduction.....	1
1.2 Background of the study.....	1
1.2.1 Administration of Devolved Water Services.....	3
1.2.2 Transformational Leadership.....	5
1.2.3 Planning.....	9
1.2.4 Water Provision	10
1.2.5 Arid and Semi-Arid Lands (ASAL)	14
1.3 Statement of the Problem.....	16
1.4 Objectives of the study	18
1.5 Justification of the Study	19
1.6 Scope of the Study	21
1.7 Limitations of the Study	21
1.8 Chapter Summary	22

CHAPTER TWO: LITERATURE REVIEW	23
2.1 Introduction.....	23
2.2 Theoretical Literature Review	23
2.3 Empirical Literature Review.....	34
2.4 Summary of Research Gaps.....	58
2.5 Research Hypotheses	66
2.6 Conceptual Framework.....	67
CHAPTER THREE: RESEARCH METHODOLOGY	71
3.1 Introduction.....	71
3.2 Research Philosophy.....	71
3.3 Research Design	71
3.4 Population.....	72
3.5 Sample and Sampling Technique	72
3.6 Data Collection Instruments	75
3.7 Data Collection Procedure	76
3.8 Pilot Study	76
3.9 Data Analysis.....	78
3.10 Diagnostic Tests.....	83
3.11 Ethical Considerations	84
CHAPTER FOUR: DATA ANALYSIS AND RESEARCH RESULTS	86
4.1 Introduction.....	86
4.2 Response Rate.....	86
4.3 Demographic Information	87
4.4 Administration of Devolved Water Services	91

4.5	Water Provision	98
4.6	Effect of Administration of Devolved Water Services on Water Provision.....	102
4.7	Administration of Devolved Water Services, Transformational Leadership and Water Provision	115
4.8	Administration of Devolved Water Services, Planning and Water Provision.....	122
4.9	Administration of Devolved Water Services, Transformational Leadership, Planning and Water Provision	129
CHAPTER FIVE: FINDINGS AND DISCUSSION		135
5.1	Introduction.....	135
5.2	Administration of devolved water services and Water Provision in ASAL.....	135
5.3	Administration of Devolved Water Services, Transformational Leadership and Water Provision	144
5.4	Administration of Devolved Water Services, Planning and Water Provision.....	151
5.5	Administration of Devolved Water Services, Transformational Leadership, Planning and Water Provision	154
CHAPTER SIX: SUMMARY AND CONCLUSION		168
6.1	Introduction.....	168
6.2	Summary.....	169
6.3	Conclusion	173
CHAPTER SEVEN: RECOMMENDATIONS		177
7.1	Introduction.....	177
7.2	Recommendations on Action and Managerial Practices	177
7.3	Policy Contributions	179
7.4	Study’s contribution to theory	182
7.5	Suggestions for Further Studies.....	182
REFERENCES		183

APPENDICES	225
APPENDIX I: INTRODUCTION LETTER	225
APPENDIX II: RESEARCH QUESTIONNAIRE.....	226
APPENDIX III: LIST OF DEVOLVED UNITS IN ASAL.....	232
APPENDIX IV: RESEARCH AUTHORIZATION LETTER.....	234
APPENDIX VI: TABLE OF THE STUDENT'S <i>T</i> -DISTRIBUTION.....	237
APPENDIX VII: F-DISTRIBUTION TABLE.....	239
APPENDIX VIII: CERTIFICATE OF JOURNAL PUBLICATION	240
APPENDIX IX: RAW DATA	242

LIST OF TABLES

Table 3.1: Sample Size for the Arid Sub-Counties	73
Table 3.2: Sample Size for the Semi-Arid Sub-Counties	74
Table 3.3: Summary of Research Objectives, Hypotheses and Empirical Models	81
Table 4.1: Response rate.....	86
Table 4.2: Stakeholders’ Engagement as a Component of Administration of Devolved Water Service	92
Table 4.3: Human Resource Development as a Component of Administration of Devolved Water Service	94
Table 4.4: Application of Modern Technology as a Component of Administration of Devolved Water Service.....	96
Table 4.5: Descriptive Statistics on Water Provision	99
Table 4.6: One-Sample Kolmogorov-Smirnov Test.....	101
Table 4.7: Breusch - Pagan Test for Homoscedasticity.....	102
Table 4.8: Correlation Coefficient for the Administration of devolved water services and Water Provision	103
Table 4.9: Model Summary for the Administration of Devolved Water Services and Water Provision.....	103
Table 4.10: ANOVA for Administration of Devolved Water Services and Water Provision..	104
Table 4.11: Regression Coefficients for Administration of Devolved Water Services and Water Provision	104
Table 4.12: Correlation Coefficients for Components of Administration of Devolved Water Services.....	105
Table 4.13: Model Summary on Administration of Devolved Water Services and Water Provision.....	106
Table 4.14: ANOVA for Components of Administration of Devolved Water Services	106
Table 4.15: Regression Coefficients for Components of Administration of Devolved Water Services.....	107

Table 4.16: Descriptive Statistics Results on Administration of Devolved Water Services, Transformational Leadership and Water Provision.....	115
Table 4.17: Regression Coefficients on Administration of Devolved Water Services, Transformational Leadership and Water Provision.....	117
Table 4.18: ANOVA for Administration of Devolved Water Services, Transformational Leadership and Water Provision	118
Table 4.19: R^2 for Administration of Devolved Water Services, Transformational Leadership and Water Provision	118
Table 4.20: Descriptive Statistics Results for Administration of Devolved Water Services, Planning and Water Provision	122
Table 4.21: Regression Coefficients for Administration of Devolved Water Services, Planning and Water Provision	124
Table 4.22: ANOVA for Administration of Devolved Water Services, Planning and Water Provision.....	125
Table 4.23: R^2 for Administration of Devolved Water Services, Planning and Water Provision.....	125
Table 4.24: R^2 for Administration of Devolved Water Services, Transformational Leadership, Planning and Water Provision	130
Table 4.25: ANOVA for Administration of Devolved Water Services, Transformational Leadership, Planning and Water Provision	130
Table 4.26: Regression Coefficients for Administration of Devolved Water Services, Transformational Leadership, Planning and Water Provision	131
Table 6.1: Summary of key findings	170

LIST OF FIGURES

Figure 2.1: Conceptual model	68
Figure 4.1: Economic activities in ASALs.....	87
Figure 4.2: Gender of the respondents	88
Figure 4.3: Respondents' Education Level	89
Figure 4.4: Profession of the Respondent	90
Figure 4.5: Respondents' First Year of Working in the County Leadership	91
Figure 4.6: Normal Q-Q Plot of Water Provision	100
Figure 4.7: Bar Graph on Suggestions on Stakeholder's Engagement in Water Provision	109
Figure 4.8: World Cloud on Suggestions on Stakeholder's Engagement in Water Provision.....	110
Figure 4.9: Bar Graph Presenting Recommendations on Human Resource Development in Water Provision.....	111
Figure 4.10: Word Cloud Presenting Recommendations on Human Resource Development in Water Provision	112
Figure 4.11: Bar Graph Presenting Recommendations on Application of Modern Technology in Water Provision	113
Figure 4.12: Word Cloud Presenting Recommendations on Application of Modern Technology in Water Provision	114
Figure 4.13: Bar Chart Presenting Improvements Needed on Transformative Leadership Qualities in Water Provision.....	120
Figure 4.14: Word Cloud Presenting Improvements Needed on Transformative Leadership Qualities in Water Provision	121
Figure 4.15: Bar Chart Presenting Improvements Needed on Planning in Water Provision	127
Figure 4.16: Word Cloud Presenting Improvements Needed on Planning in Water Provision....	128
Figure 4.17: Bar Graph on Suggestions to Enhance Water Provision	133
Figure 4.18: Bar Graph on Suggestions to Enhance Water Provision	134

LIST OF ACRONYMS AND ABBREVIATIONS

AIDS:	Acquired Immune Deficiency Syndrome
ANOVA:	Analysis of Variance
ASALs:	Arid and Semi- Arid Lands
CORDAID:	Catholic Organization for Relief and Development Aid
COWSOs:	Community-Owned Water Supply Organizations
DFID:	Department of International Development
ECHO:	Educational Concerns for Hunger Organization
EU:	European Union
HIV:	Human Immunodeficiency Virus
ICT:	Information Communication Technology
IEA:	International Environmental Agreements
ISO:	International Organization for Standardization
JICA:	Japan International Cooperation Agency
KIRA:	Kenya Inter-Agency Rapid Assessment
MIS:	Management Information System
NACOSTI:	National Commission for Science Technology and Innovation
NGOs:	Non-Governmental Organizations
NPWRM:	National Policy on Water Resources and Management
NWSB:	Northern Water Service Board

OECD:	Organization for Economic Co-operation and Development
TLU:	Tropical Livestock Unit
UNFPA:	United Nations Population Fund
UNICEF:	United Nations International Children’s Emergency Fund
VIF:	Variance Inflation Factor
WHO:	World Health Organization
WQI:	Water Quality Index
WRI:	World Resource Institute
WSP:	Water Service Providers
WUCs:	Water Use Committees
WWAP:	World Water Assessment Programme

OPERATIONAL DEFINITION OF TERMS

Administration of Devolved Water Services: This entails the range of activities including stakeholders' engagement, human resource development, and application of modern technology that are designed, put in place and implemented by County leadership in Arid and Semi-Arid Lands in Kenya for service delivery.

Arid and Semi-Arid Lands: This consists of the level of aridity is the definitive feature of ASAL where rainfall in every year ranges from 150mm to 550mm (for arid) and from 550 to 850mm annually in the semi-arid areas. Evapo-transpiration and temperatures are always very high for every season in a year. Therefore, for ASAL, the main challenge in policy is ensuring food and nutritional security and sustainability (The World Bank, 2012).

Planning: Planning entails a set goals and targets which include resource allocation, strategic planning, as well as optimal and on-time deliveries that aim to transform and improve the image of the public service through quality delivery of services. Planning when intensely applied in provision of services normally strengthen administrative capacities for County Governments to perform their functions effectively.

Transformational Leadership: this is a leadership style that emphasizes on the leader and follower improving each other through inspirations and motivations, creativity and innovations, rewards and recognition as well as intellectual stimulation. Transformational leaders transmit to employees a strong vision of the growth opportunities in their team, encourage them to think critically about change initiatives, enhance their confidence in dealing with adaptation, and emphasize the importance of performance while transcending self-interests for the team's sake.

Water Provision: A source, means, or process of supplying water that is easily accessible, affordable, quality, reliable and clear to Arid and Semi Arid Lands.

ABSTRACT

The Government of Kenya introduced Sessional Paper no 10 in 1965 that stated that for the economy to grow as a whole and as fast as possible, development money should be invested where it will yield the largest increase in net output. It further stated that this approach favored development of areas with abundant natural resources, good land and rainfall, transport and power facilities and people receptive to and active in development. For many years, this statement guided direction of government resources hence neglecting ASAL areas. Even though, and with promulgation of Constitution (2010), Kenya as a water scarce country did devolve water provision to counties, the question of whether administration of devolved water services has assisted in solving challenges related to water provision as desired and anticipated by target six (6) of the Sustainable Development Goals (SDGs) as well as Kenya's Vision 2030 still remain unresolved. The purpose of this study was therefore to establish the role of administration of devolved water services, transformational leadership and planning on water provision in Arid and Semi-Arid Lands in Kenya. Specifically, the study determined the effect of administration of devolved water services, analyzed the moderating effect of transformational leadership on the relationship between administration of devolved water services and water provision, assessed the moderating effect of planning on the relationship between administration of devolved water services and water provision, and as established joint moderating effect of transformational leadership and planning on the relationship between administration of devolved water services and water provision in ASAL in Kenya. The study used positivism research orientation and was guided by the cross-sectional survey research design targeting 113 sub-counties within the 23 ASAL counties with a sample of the 89 sub counties. A structured questionnaire was used in collecting primary data from sub-county water officers with secondary data collection being done via desk study. Findings are expected to contribute useful information for ASAL Counties to formulate an action plan for water provision. The study found that there is significant positive relationship between administration of devolved water services and water provision in ASAL in Kenya given $R^2 = 0.901$ with $F\text{-Calculated}(3, 70) = 211.613 > F\text{-Critical}(3, 70) = 2.74$ and a $p\text{-value} = 0.000 < 0.05$. In addition, transformational leadership has a significant moderating effect on the relationship between administration of devolved water services and water provision in Arid and Semi-Arid Lands in Kenya given that $\Delta R^2 = 0.009$, $\Delta F(1, 70) = 10.017$, $b = .181$, $t(72) = 13.923$, $p\text{-Value} = 0.000 < 0.05$. Further, planning has a significant moderating effect on the relationship between administration of devolved water services and water provision in Arid and Semi-Arid Lands in Kenya given that $\Delta R^2 = 0.003$, $\Delta F(1, 70) = 25.1907$, $b = 0.763$, $t(72) = 5.824$, $p\text{-Value} = 0.000 < 0.05$. Moreover, the joint moderating effect of transformational leadership and planning on the relationship between administration of devolved water services and water provision in ASAL in Kenya is significantly different from their separate effect given change in $R^2 = 0.041$ compared with separate moderating effects (0.009 for transformational leadership and 0.003 for planning) with $p\text{-value} = 0.000 < 0.05$. As part of recommendation, policy framework should be enhanced to ensure effective, efficient water sector governance, coordination and leadership.

CHAPTER ONE

INTRODUCTION

1.1 Introduction

This chapter presents the background of this study by elaborating key concepts used in the study. It also highlights the research problem, the study objectives, research hypotheses and study justification. Moreover, the chapter describes the scope and delimitations of this research.

1.2 Background of the study

Water is the source of life, the most precious and important of all-natural resources, without which the human species cannot survive (DSS, 2010). However, millions of people worldwide are still victims of water scarcity given that the resource falls short of the desired physical accessibility, affordability, quality, reliability, salinity, and clarity which in turn makes consumers susceptible to a range of water-borne disease. The sustainability rate on water projects in developing countries is alarmingly low due to a lack of resources, capabilities and spare parts for service and maintenance (Hazelton, 2015).

Kiprono and Wanyoike (2016) affirm that development is related to the availability of water, with this relationship being connected to the association between poverty and water availability, which is common in rural regions. Water provision is a complex subject that entails using little but achieving much. In this regard, the administration of devolved water services is expected to enhance water provision and eventually improve the lives of the citizens in ASAL. This is through minimizing resource wastage as well as reducing water pollution while using these resources in producing goods and services. This should be at all levels in the value chain and in provision of water (International Environmental Agreements, 2012). The Water Resource Group (2009) warned that inefficient water usage will cause water demand to exceed its supply by forty percent by 2030. The UNEP (2011) recommends that to address the shortage, it is critical to invest in infrastructure, policies and modern technologies. However, this cannot just happen since it will be subject to the effectiveness of the leadership styles and the planning exercised in

the counties. In this regard, this study explored the relationship amongst the transformational leadership, planning and water provision in the Arid and Semi-Arid Lands, before and after devolution.

However, in most Arid and Semi-Arid Lands of the developing world, safe drinking water from an improved source remains unacceptably lacking (WHO-UNICEF 2014). Despite the importance of these issues in the political agenda, water policies in many countries do not promote the creation of appropriate institutions to manage water needs and enhance supply and maintenance capabilities (Saleth & Dinar, 2013). This therefore calls for a more effective mode of policies and that is closer to the community such as devolved governance.

Devolution entails the process of devolving administration, power, authority and responsibilities to lower ranks, through legislative procedures. According to Robertson (2002), devolved administration entails a complete shift in the coming up with the decisions, revenue generation, responsibility and resources to the locally public unit which is under devolution. It has been advocated as a political response to the ills plaguing fragile and plural societies, such as, conflicts, inequalities, economic stagnation, corruption and inefficient use of public resources. Besides, devolution is also implemented as a reaction to external pressure from organized groups (or separatists). For devolution to be effective, however, the criteria of subsidiarity and consensus must be observed (Dent, 2004; Kimenyi and Meagher, 2004). There are several ways in which devolution impacts governance. First, by distributing authority over public goods and revenues devolution makes it difficult for individuals or groups of official actors to collude and engage in corrupt practices. Second, where devolution of authority takes place along territorial and communal lines, it can foster effective cooperation within the devolved units. As a result, local communities are able to mobilize social pressure against rent seeking and corruption. Indeed, a growing number of countries have over the last three decades further decentralized administrative, fiscal and political functions of central government to subnational governments. Some of these countries include the United Kingdom, Italy and Spain. In many cases, devolution has also been driven by the need to bring government closer to the people.

While devolution was intended to transfer some of these power, authority and responsibilities to lower ranks this process is meant to yield a seamless relationship between the devolved units and the central authority in a manner devoid of dissonance. The motivation of devolution in Kenya was the perception that county governments were at a better administrative position to render water provision as they are close to residents and thus can effectively identify challenges facing their localities compared to the National Government. Mukabi, Barasa and Viola (2015) pointed out that needs vary from one region to another in Kenya. The Water Act 2002 established the institutions that provide water services including Water Service Providers, Water Services Regulatory Board and Water Services Boards (Owuor & Foeken, 2009). This study emphasized on Arid and Semi-Arid Lands in Kenya.

1.2.1 Administration of Devolved Water Services

Worldwide, devolution continues to be perceived and implemented as a measure for enhancing the provision of social services, through the allowance of a closer linkage of local area needs with the public policy (World Bank, 2012). In Africa, devolution has grown significantly in the last twenty years. Some African countries that have embraced this form of decentralization include Uganda, South Africa, Ethiopia, Mali, Tanzania, Mozambique, Kenya, Nigeria and Ghana (Riedl & Dickovick, 2010).

The water sector is especially vulnerable to poor governance as well as corruption. Procurement processes involving large amounts of public money and investment decisions, characterized by discretion and non-transparency, open the door for undue interference and capture. The monopolistic nature of service delivery prevents competition and, when coupled with the failure to recover costs and the need for subsidies, may lead to inefficient and clientelistic resource allocation. Since water is a basic service, many consumers or water users can be easily coerced into paying bribes for access. The asymmetry of information between consumers and water institutions and the lack of public awareness about respective rights and responsibilities may prevent citizens from obtaining services they are entitled to. Lines of accountability are often not clear and informal service providers (ISPs) are frequently not subject to public regulation (World Bank, 2012).

Administration of devolved water services is therefore a typical example that should result in better services to the public. There have been attempts to decentralize powers in more than seventy nations in the past decades. The ground basis of this change is the notion that the closeness brings about more efficiency and the constituents' needs are responded to promptly and as a result, public service efficiency is guaranteed (Shen & Zou, 2015).

In Kenya, devolution was enacted with the promulgation of the new constitution in 2010. The underlying principles of devolution are economic development, self-governance and the equitable sharing of resources at the national and county levels (Holmquist, 2014). Following the constitutional change, many functions that were devolved included administrative, political and monetary commands within the countries 47 counties (Bagaka and Kobia, 2013). Through devolution, devolved administrations in Arid and Semi-Arid Lands are able to deliver quality services and in time (Wagana, Iravo & Nzulwa, 2015). The main ideologies for devolving power as well as functions for the National Government and County Governments are spelt out in chapter 11 of the Kenya constitution 2010 and were aimed at localizing administration of services including in water provision for better results. Additionally, Article 189 of the Kenyan constitution obliges both levels of the government to respect the functionality and institutional integrity (Republic of Kenya, 2010).

Devolved water services and the resultant administrative roles allows for decentralized decision making through engagement of stakeholders, local human resource development and application of modern technology. Engaging stakeholders increases their participation in an affirmative way in organizational activities (Greenwood, 2007). Devolving water services to counties was meant to provide counties with an opportunity to provide clean, safe and reliable water for both its residents and animals through effective administration. Additionally, administration of devolved water services was meant to address the challenge of inadequate human capacity, lack of skills and lack of a well-structured human resource system in water provision. This is attributed to staff who may not have the necessary experience to perform their duties. It is also due to lack of knowledge and a shared vision among the political leadership and staff on what good governance entails and how to implement key governance issues. The County Government Act, passed in 2012, provides the legislative framework for the functioning of county governments,

with some administrative guidance on the new roles and responsibilities of county governments, including on the delivery of water and sanitation services. Devolution of these core services became effective from July 1, 2013 under the guidance of the Transition Authority, a statutory body with constitutional authority to facilitate the transition process.

This transfer of responsibilities to county governments, nonetheless, has wide-ranging administrative implications for the water and sanitation sector. The creation of a two-tier system of government, each with a legislature, together with the allocation of the functions of water and sanitation services to county government, means that the policy role of national government with respect to water and sanitation services requires a level of cooperative governance and consultation with counties that was less evident in the previous system. Effective administration of the devolved water services requires county governments to focus on key administrative opportunities and challenges. In addition, counties will have to work with the National Government to sustain existing services and to ensure a smooth transition as the legislative framework for the sector is formalized, and new institutions settle in. Furthermore, county governments also need to understand the specific legislation that applies to the delivery of water and sanitation services – and be able to execute the mandate of delivering water and sanitation services (World Bank Group, 2015).

1.2.2 Transformational Leadership

The concept of leadership has generated interesting debate with the evolving styles of the Leadership. A review into the arguments advanced by scholars on the concept of leadership indicates that there lacks a consensus regarding its expression. Some have contextualized it as the induction of complaisance, a personality feature, a group practice, power relationship, goal-achieving instrument, and the outcome of interactions, the instigation of a structure, some kind of persuasion or influence (Bass, 2000). Recently, it has been perceived as entailing some kind of responsibility geared towards the attainment of certain goals through the application of the present material and manpower, ensuring that there is cohesiveness and coherence in the organization (Ololube, 2013).

Leadership, being central to politics and government, is one of the important societal institutions that have the potential to significantly impact the objectives and processes of governments across all societies (Bolden, 2004). In a political context, leadership can be described as individuals elected to positions of authority, influence and decision-making directed by a constitutional mandate. From a sociological perspective, leadership can also be described as a stimulus directed at individuals and/or organizations to act in a collective manner in achieving identified goals (Northouse, 2013; Dubrin, 2013). According to Bhat, Rangnekar and Barua (2013) the values of security and equality have drawn much attention to the essence and responsibilities attached to political leadership. In modern day democratic states, it is informed by the need for developmental changes not achieved due to economic instability, changes in technology and urbanization. Furthermore, the values of democracy have placed the onus right on those in governments and required the political leadership to be responsive, accountable and visionary towards societies that have become extremely diverse, complicated and desperate for meaning (Belias & Koustelios, 2014).

According to Puni, Ofei and Okoe (2014), there are different leadership styles including: autocratic, democratic/participative, transformational, as well as laissez faire leadership styles. Autocratic style entails telling others what to do without allowing them to give their inputs on the decision, unlike democratic style which values involvement of all. Laissez faire style is where the followers are free to make decisions without the leader's interference (Iqbal, Anwar & Haider, 2015). In this regard, it is evident that the ability of effective administration of devolved water services to enhance water provision in the ASALs will be subject to the transformative ability of leaders in the counties. Transformational leaders transmit to employees a strong vision of the growth opportunities in their team, encourage them to think critically about change initiatives, enhance their confidence in dealing with adaptation, and emphasize the importance of performance while transcending self-interests for the team's sake (Bass, 1999). Because of such leadership influence, employees are more likely to react favorably to change both attitudinally and behaviorally. For instance, Ololube (2013) reported positive relationships between transformational leadership and employee change commitment. Similarly, Detert and Burrell (2007) provided evidence that change-oriented (i.e., transformational) leadership predicted job performance at the unit level.

As managers strive to operationalize change through transformational leadership, employees react to change in both intended and unintended ways. For example, managers might have varying ideas on how to accomplish change that could be equally instrumental for invoking supportive change reactions. If employees misinterpret managers' ideas for implementing change (Sonenshein, 2010), they might experience uncertainty about particular behaviors needed to achieve desired change objectives. These experiences can emotionally charge change contexts (Kouzes and Posner, 2002) and reduce employees' confidence in effectively adjusting to change. Such contexts, coupled with repeated adjustments in employees' work routines, divert energy from their daily performance. Tensions might mount in employees as they attempt to learn new work routines while maintaining prior performance levels (Certo & Certo, 2006). Under these conditions, transformational leaders cannot champion change personally, but must convince their subordinates upon achieving the intended changes, that every stakeholder would only achieve net benefits at both individual and corporate levels.

Leaders with transformational leadership qualities have over the years been held in very high esteem. It is perceived as being superior to other types of leadership qualities capable of transforming organizations. Kouzes and Posner (2002, P. 30) argue that when facing significant change " leadership is the art of mobilizing others to want to struggle for shared aspirations" given that strategy implementation means effecting changes on how the organization runs in terms of business focus, systems and processes, leaders must therefore be skilled managers, able to create an enabling environment that motivate others to follow their aspirations and a shared vision among organizational members (Van Knippenberg & Hogs 2003).

According to Broaweys and Price (2011) a transformational leader is far much preferred than a transactional leader. The reason for this is based on what Broaweys and Price states that the perception of leadership has changed over time in line with the current development ideas on organizations and management. In organizations today, we are less likely to place our emphasis on planning, allocating responsibilities and controlling functions of management rather we seek to move towards emphasizing more on motivating and inspiring our employees, creating change in organizations and empowering others in organizations. This new type of leadership creates, communicates, and embodies a vision that seeks to influence changes in the employees' attitudes

and basic assumptions of our subordinates and to continue building their commitment to the company. In addition, a transformational leader inspires trust, confidence and loyalty which is what is known as a transformational style of leadership. Simola, Barling and Turner (2010) state that transformational leadership is a type of leadership in which interactions among interested parties are organized “around a collective purpose” in a way that seeks to “transform, motivate, and enhance the actions and ethical aspirations of followers” Furthermore, Geib and Swenson (2013) define transformational leadership as a leadership style that seeks positive transformations “in those who follow” and that achieves desired changes through the “strategy and structure” of a company.

The resource-based theory argues that performance in an institution is a function of managers’ efficacy in building their institution around resources that are valuable, rare, inimitable, and lack substitutes (Barney, 2001). A firm should care for and protect resources that possess these characteristics, because doing so can improve organizational performance. Crook, Ketchen, Combs and Todd (2008) indicated that human resource development as a resource that meet these criteria, hence, it should be well managed. One dimension would be through transformational leadership. Transformational leadership is a significant leadership style to maximize efficiency and to achieve the objectives of the organization (Chaudhry & Javed, 2012)). According to Zhu, Chew and Spangler (2005), transformational leadership is one of the fundamentals of a company performance, in which qualified managers make decision dealing with the purpose and objectives of the company, compensation, interpersonal behavior, product, target customers, delivery and others. At the organizational level, transformational leadership establishes and transmits to all employees the overarching direction of the organization, as such, developing a better understanding of effective leaders is important for future leader development (Gupta, Solis, Calderon & 2005).

Transformational leaders therefore influence subordinates by motivating and inspiring them to achieve organizational goals (Bass & Avolio, 1995). They also try to help subordinates imagine appealing future outcomes related to the organization (Bass & Avolio). Research has shown that transformational leaders affect organizational outcomes such as organizational citizenship behavior, organizational commitment, job satisfaction, effort, and in-role performance (Nguni,

Slegers, & Denessen, 2006). Therefore, transformational style emphasizes on the leader and follower improving each other and it is therefore imperative to understand the moderating role transformational leadership play in influencing the relationship between administration of devolved water services and water provision in the context of ASAL.

1.2.3 Planning

Planning entails a set goals and targets that aim to transform and improve the image of the public service through quality delivery of services. Planning when intensely applied in provision of services normally strengthen administrative capacities for County Governments to perform their functions effectively (Institutional Reform in the New Constitution of Kenya, 2013). Planning entails a set goals and targets which include resource allocation, strategic planning, as well as optimal and on-time deliveries that aim to transform and improve the image of the public service through quality delivery of services, Therefore, the planning concept may be regarded to have a major role in moderating the relationship between administration of water services and water provision. At the same time, to achieve the goals of devolution, it is important for the county administration to have a strategic plan that acts as a guide on planning objectives and how each objective is to be achieved. Therefore, counties are guided by specific objectives to achieve its planning goals. These objectives must be clear about what will be achieved, they must be measurable to quantify results and measure when they have been achieved, they must be achievable and realistic in order to be attained within project resources in a specified timescale. Planning is aimed at providing the directions to the set plans in order to focus on the results (Republic of Kenya, 2013).

As part of leaders' capacity for planning, it is mandatory for successful leaders to have a managerial and leadership trait. Management team is fully mandated to put into action the formulated goals on the grounds of the already set organizational rules and procedures. Planning involves overall competency and overall service quality given to the external and interior shareholders (Sifuna, 2012). Hughes, Ginnett and Curphy (2012) argue that another main task of the leadership in all organizations is to lay down the structure of the organization and the orders

to be followed. This implies that the planning is also vital in the provision of services in Arid and Semi-Arid Lands.

Water management crisis response takes various facets especially in other countries globally. As a result of inadequate public resources, public negligence and fraud, market mechanism such as price and competition have been employed effectively to create water crisis (Golooba-Mutebi, 2012). Another fundamental concern that has been emphasized in water management involves demand driven approach in water management involving the community. Therefore, the issues affecting management of water continue to be highly native and contextual (Hirsch, 2006).

1.2.4 Water Provision

Water is the backbone for all known forms of life and therefore it is important to ensure adequate supply in the right quantity and quality. According to UNESCO (2015), the available suitable water resource for domestic use is only 2.7% of the available water on earth but only 1% of the water (in lakes, rivers and groundwater) is accessible. Most of the available freshwater resources are inaccessible because they are in the hidden part of the hydrologic cycles (deep aquifers) and in glaciers (frozen in the polar ice), which means safe drinkable water on earth has very small proportion (~3%) in the freshwater resources. In some countries, sufficient freshwater is not available (physical scarcity). In some countries, abundant freshwater is available, but it is not affordable to many (economic scarcity) but in arid and semi-arid lands, available water is not only scarce but also has qualities below international standards (Samra & Fawzi, 2011).

Water provision is indicated by physio-economic accessibility such that the ease of physically accessing the water facilities including the safety and adequacy of these resources constitute the physical component of water provision. At the same time water is required to be within the physical reach by every part of the population or at least within the visibility (Kaushik, 2011). Jones, Parker and Reed (2002) insulated that, physical accessibility to water is indicated by the households spending less time to identify the infrastructure and using the saved time on other productive activities such as household chores. Water is an essential resource for sustaining

health, yet both the quantity and quality of available water supplies are declining in many parts of the world.

In developing countries and especially in ASAL areas in Kenya, lack of access to safe water, especially in rural areas and among poor communities, obliges women to spend hours every day collecting water for their families' daily needs, causing enormous drain on their energy, productive potential and health. Largely because of their role in collecting water, washing clothes, cleaning and cooking, and in rural areas, performing day-to-day agricultural tasks, women are constantly exposed to the risks of contracting water-related diseases that affect their reproductive health. Exposure to contaminated water sources is associated with pregnancy failures and with infant and childhood development difficulties, illness and mortality (Carl, 2010). Access to water is a known basic human right, however, Sub Saharan Africa and other third world countries experience several challenges. This ranges from the water infrastructure to the distance they have to walk to get this precious commodity (UNWWAP, 2009). Even if water is available from a source away from home free of charge, its collection involves time to get to the source, to wait at the source (queuing), and time to haul the water back home. One may choose to convert collection time into collection costs using an assumed value of time. However, the value of time may differ widely across households depending on who is responsible for collecting water, and even within a specific household over time of day or day of week. In localities lacking formal labour markets or with high unemployment, estimating an average value of time for a study population is largely guesswork.

Physical access to water by a community indicates the ability for that community to get safe, sufficient and consistent water supply; having an adequate number of water channels which leads to less waiting time; practical distance from the point of household to the point of drawing water; and reasonable supply of all accessible water infrastructures. On the other hand, physical access to water facilities at the individual level is the ease of access to the minimum indispensable safe, secure and sufficient amount of water for both the individual and domestic consumption. Quality, physical security at the point of access and sufficiency as well as the consistency can therefore be regarded as key indicators of physical accessibility to water (Woodhouse, 2004).

Economic accessibility, on the other hand, is a component that is indicated by ease of affordability of water facilities by every household regardless of their level of affluence (Frone & Frone, 2013). This indicates that when the water levies are so unreasonable for household to afford, there is an opportunity cost since they have to use their scarce resources for other basic needs such as food, housing, education, health-care and clothing. Therefore, water as a resource is said to be, economically speaking, accessible if household/family spends five percent or less of its monthly disposable income on water (Allen, Dávila & Hofmann, 2006). Water accessibility depends on its physical location and timely availability (Osei, 2004). Ariyabandu (1999) express the fact that easy accessibility, reliability and timely availability of adequate safe water to satisfy human needs ensures household water security for basic needs and economic activities. Globally, the main sources of freshwater for socio-economic activities include rivers, pipe water, protected and unprotected springs, open wells, protected wells, roof catchments, dams, earth pans, boreholes, streams, lakes, reservoirs and underground aquifers resulting from a complex hydrological cycle (UNEP, 1999).

The per capita domestic water consumption in the ASAL is estimated as 20 litres per day (MoWRD, 2002). This includes water for cooking, bathing and washing. Nearly all the water resources used by livestock are also used by humans, even when visibly turbid and polluted as in rivers, dams and pans. Livestock water demand was estimated based on the drinking requirements of one Tropical Livestock Unit (TLU). According to the Range Management Handbook (Republic of Kenya, 2012), one TLU is equivalent to 250 kg live weight. Thus, an average cow is about 0.9 to 1.0 TLU, while one cow is equivalent to 10 goats or sheep in terms of water per day, because nearly all the animals are crossbreeds and have average body weight.

Human water requirement was calculated by multiplying the per capita requirement (60 litres) with the total population, while livestock water demand was calculated using weighted values derive livestock population in terms of TLU, and total TLU multiplied with daily water demand (also 50 litres), (Wairua, 2011). Some water sources are meant only for human consumption; hence they have zero water demand for livestock. Livestock water demand in Nyangores area is affected by long distances to water sources, immigration of pastoralists in dry season, and emigration in the wet season. In most cases, the demand does not match supply which is

variable. It has caused a lot of conflicts over water and other resources, especially during dry season, when demand outstrips supply (Biamah, 2004). Apparently two – thirds of the water is utilized for livestock drinking.

The Government of Kenya recognizes that for the country to meet its poverty-reduction strategies and achieve the SDGs, water has to be made available, accessible and affordable, especially to the poor. This is based on the fact that all the seventeen SDGs are directly or indirectly related to access to water. The Kenyan water sector has for a long time been characterized by inefficiencies, lack of investments, poor management and confusing array of legal and institutional frameworks. This has resulted to inadequacies in water accessibility, affordability, quality, reliability, and clarity as well as frequencies to which these water is provided to Arid and Semi Arid Lands. In addition, the exponential growth of Kenya's urban centers has put increasing pressure on utilities to extend services to new areas.

To address these challenges and as part of a global trend, the Government of Kenya introduced far reaching reforms in the water sector to restructure and improve sector performance (Owour & Foeken, 2009). A major aspect of these reforms was ensuring financial viability of water service providers (WSP). However, most WSPs are financially unsustainable. WSPs are faced with weak management structures, processes and systems and poor systems of revenue collection. Therefore, in order to ensure the sustainability of WSPs, it was vital to investigate the interrelationship and importance of factors impacting corporate sustainability, paying greater attention to financial viability of a WSP (GoK, 2015). The government further devolved water provision in 2010 in attempt to address water provision challenges.

As a criterion, water provision needs to meet the suitability tests for adequacy, affordability, quality and accessibility as well as reliability (Bos, Alves, Latorre, Macleod, Payen, Roaf & Rouse, 2016). However, there is no universally acceptable standards for gauging the mentioned parameters and various authors expressing different metrics. For instance, Bos *et al.* (2016) underscores that distance covered by a household must be within 30-minutes' walk or 0.2 kilometers for water resources to be termed as accessible. WHO/UNICEF (2013) also give guidelines and principles that need to be followed for water to be considered fit for use by

stating that Chloride should not exceed 100 mg/L in domestic water to be palatable. At the same time, Excessive Fluorine (F) (>2 mg/L) causes a dental disease known as fluorosis (mottling of teeth) with F < 2 mg/L causes dental cavities in children.

To overcome the challenge of standardized measure in determining suitability of water resources, the calculation of a general water quality index (WQI) is extremely important in order to communicate the quality of water in a better and understandable ways. In the current study, the researcher used an arithmetic Water Quality Index method proposed by Tiwari and Mishra (1985). The overall WQI classes are expressed in percentages as follows: 76-100 (excellent, grade A), 51–75 (good, grade B), 26–50 (poor, grade C), 0–25 (very poor, grade D), >100 (unfit for domestic consumption, Grade E). The reverse of this scale is applicable for turbidity, color, taste and odor. WQI was also adopted by Gupta, Purohit, & Jayita, (2001); Ramakrishnaiah, Sadashivaiah & Ranganna (2009); Dinka (2010); Jagadeeswari & Ramesh (2012).

1.2.5 Arid and Semi-Arid Lands (ASAL)

ASALs occupy about 89 percent of Kenyan land mass and with around 36 percent of Kenyan population, 70 percent of all the livestock and 90 percent of the wild game supporting tourism sector in Kenya (Ministry of Planning & Devolution, 2016). In arid lands, water coverage is at 26 percent. Semi-arid lands, as well, have serious water scarcity with some regions like Kajiado County having water coverage as low as 32% (Arid lands Resource Management Programme, 2006).

ASAL lands regularly experience recurrent water deficiency as a result of scarce rains received over the years. Nonetheless, pastoralists are dominant in the area and they have to walk for a very long distance in pursuit for water that they use domestically for human and livestock consumption (Northern Water Service Board, 2011). With livestock being the main source of livelihood for most of the communities living in Arid and Semi-Arid Lands, water is key to survival. The region faces perennial drought which immensely affects the livestock and affecting food security for humans. The insufficient food has resulted to increased deaths of children and the elderly (ECHO/UNICEF, 2005). The girl child has been most affected by inadequacies in

water provision because they are forced to drop out of school to go and fetch water for their families and livestock which in most cases are very far from their residences. This leads to increased illiteracy levels among the girls.

Water provision in ASAL has been challenging over time as a result of persistent droughts and land-use patterns. The climate scenarios show that rainfall variability and increased evaporation due to higher temperatures will lead to further decreases in the available water (GoK, 2013). Already there are dramatic reductions in the snow and glaciers of Mount Kenya, believed to be associated with global warming. These glaciers could vanish in the next 15 years. The disappearance of the glaciers will affect agricultural activities, the availability of water for both rural and urban populations, hydroelectric production and tourist activities (Ministry of Environment and Mineral Resources, 2009). Adaptation to water scarcity is one of the most important issues facing Kenya today and rural Kenyans 'livelihoods are already affected by a changing climate, (Ritho, *et al.*, 2012).

The economy in ASAL is largely built around pastoralism with some, the more wet lands, having some mixed agro-pastoral economic activities that include among others crop farming (through both irrigation and seasonal rain), tourism, agro-livestock businesses and bio-businesses. Other activities include fisheries as well as hunting and gathering which are mostly used for subsistence. The ecosystem in semi-arid lands permits escalated production beyond that of arid. These lands, nonetheless, share the same experience of prolonged drought and food insecurity with the further challenge of blotting population, uncertain climatic changes and degraded ecosystems (UNICEF, 2013). The unit of analysis in this study entailed the sub-counties in ASAL. According to the Ministry of Planning and Devolution Report (2016), there are one hundred and thirteen (113) sub-counties demarcated as Arid and Semi-Arid Lands (ASAL) and distributed within 23 counties in Kenya. The Ministry further categorises the 113 sub-counties into Arid (36 sub-counties in 8 counties) and Semi-Arid (77 sub-counties in 15 counties).

1.3 Statement of the Problem

The Government of Kenya introduced Sessional Paper no 10 in 1965 that stated that for the economy to grow as a whole and as fast as possible, development money should be invested where it will yield the largest increase in net output. It further stated that this approach favored development of areas with abundant natural resources, good land and rainfall, transport and power facilities and people receptive to and active in development. For many years, this statement guided direction of government resources hence neglecting ASAL areas. Through better planning, ASAL Counties in Kenya that were previously marginalized have a chance to improve their socio-economic situation by outlining priority areas of intervention in line with their community's. Even though, with promulgation of Constitution (2010), Kenya as a water scarce country did devolve water provision to counties, the question of whether administration of devolved water services has assisted in solving challenges related to water provision as desired and anticipated by target six (6) of the Sustainable Development Goals (SDGs) as well as Kenya's Vision 2030 still remain unresolved.

Miriti and Keiyoro (2017) states that, devolution can improve administration of available resources through enhanced stakeholders' engagement in major decision making in counties as well as strengthening the accountability of county resources. In addition, application of modern technologies in water provision that was initially expensive to acquire and develop was now within reach of County Governments. Moreover, human resource development that includes recruitment and training of staffs in water sector that was not possible during the pre-devolution days could now be achieved to help in sourcing and prudent management of water. Furthermore, effective implementation of the new devolved framework now requires a transformational thinking as well as proper planning to focus on new emerging opportunities and innovative way of addressing challenges to effectively achieve sustainable delivery of improved water services to the communities.

While there is evidence that administration of devolved water services has improved conditions in ASAL, this study investigates water provision which is inadequately addressed by past studies. A few studies have been conducted on public water provision but whose focus and scope

make the suffer from either conceptual gap, contextual gap or methodological gap is either jurisdictions outside Kenya or haven't laid interest in ASAL. For instance, a study by Peprah, Oduro-Ofori and Asante-Wusu (2015) in Ghana investigated provision of water in Awutu-Senya East Municipality, Ghana. The study indicated that, individuals' contribution on daily water production amounted to 64.2% with public water provision effort constituting 35.8%. Close to half of that water was salty with 28% being contaminated and impure. This study was inadequate by failing to establish whether provision significantly relates to administration of devolved water services, transformational leadership and planning which are examined in the current study. In Kenya, Wagah, Onyango and Kibwage (2010) studied accessibility of water services in Kisumu municipality and found that, although 77.1% of household could access piped water only 25% accessed the minimum recommended amount. Further, low-income households were the most affected by poor accessibility to water. This study was nonetheless carried out before administration of devolved water services kicked off noting that the structure of municipality could yield difference in management of water service from that of a devolved structure. Additionally, Kisumu county is not demarcated as an ASAL thus making the study inadequate to assess the actual effect of devolution on the marginalized communities.

Wachira (2014) carried out a study on challenges and prospects for effective water conservation in Mwingi North District, Kitui County, Kenya. The study showed that there is stakeholders' engagement in water conservation though it is not recognized by the local people. However, the study by Wachira applied explanatory research design and did not consider the moderating effect of planning on water provision. Other more relevant studies differ from the proposed study in terms of study areas, scope, methodology or time. Mwendamseke (2016) investigated the efficacy of the newly promoted strategy of Community – Owned Water Supply Organizations (COWSOs) in seven ASAL districts of Dodoma region. The study found that the registration process of COWSOs at the districts is undesirably low. Unfortunately, the study did not factor in the aspects of planning in water provision and which from the background of this study has turned out as an area that could have significant influence on the relationship between administration of devolved water services and water provision. The study also seems to be establishing strategies water management bodies, contrary to the current study which investigate

the outcome of devolution. It was also based in Dodoma and, therefore, cannot be generalized into Kenyan context.

Cherunya, Janezic and Leuchner (2015) explored sustainability of supplying water that is safe for drinking where it is underserved focusing on devolved solutions in Kenya. From the study, majority of households often obtained water from different sources. Nonetheless, the contextual focus for the study was not ASAL. This study also failed to interrogate the role of transformational leadership motivated by (Serfonten, 2010) who established that, leaders ought to have the appropriate skills and a wide spectrum of knowledge that would be applied in the appropriate time to address various problems. Given that limited studies that have investigated the issue of administration of devolved water services in ASAL, there is a need of insights to understand the concerns put forward. To address this gap, this study explored the interplay between administration of devolved water services, transformational leadership, planning and water provision in ASAL in Kenyan.

1.4 Objectives of the study

The main objective of the study was to establish the role of administration of devolved water services, transformational leadership and planning on water provision in Arid and Semi-Arid Lands, Kenya.

The specific objectives are:

- i. To determine the effect of administration of devolved water services on water provision in ASAL in Kenya;
- ii. To establish the moderating effect of transformational leadership on the relationship between administration of devolved water services and water provision in ASAL in Kenya;
- iii. To establish the moderating effect of planning on the relationship between administration of devolved water services and water provision in ASAL in Kenya;

- iv. To establish if the joint moderating effect of transformational leadership and planning on the relationship between administration of devolved water services and water provision in ASAL in Kenya is significantly different from their separate effect.

1.5 Justification of the Study

The study will be beneficial to several stakeholders. The specific stakeholders include the government of Kenya, County Governments, the society, scholars and researchers.

1.5.1 The Government of Kenya

The study will inform National Government policies to better align or revise the existing legal framework, policies and the guidelines of devolution process. Further, the findings may influence the National Government to develop appropriate policies to enhance devolution processes so as to improve water provision to the public and thus propel the country towards achieving Vision 2030. Furthermore, the National Government might use of the findings to come up with strategic interventions to enhance devolution and water provision to its citizens. The study also informs best strategies to employ in making turnaround in water provision both at national and County Governments. This study finally came up with policy recommendations, which can be used by National Government to improve management and leadership skills in relation to water provision.

1.5.2 County Governments

The County Governments, which took effect with the new constitutional dispensation, may benefit a lot from the study findings primarily because the study addresses gaps in water provision with specific focus on ASAL counties in Kenya. The County Governments are expected to play a critical role in improving water provision to the people. This study might inform County Assemblies and County Executive on whether devolution of fiscal power, political power and administrative power has improved water provision to the people as was

expected by the constitution. The members of County Assembly may use the finding of this study to better align or revise the existing county legal framework to promote water provision in the counties. This study finally came up with policy recommendations, which can be used by County Assemblies and County Executives to improve on management and leadership skills so as to increase water provision in County Governments.

1.5.3 The society

This study is of help to the entire society as it seeks to explain the relationship between devolution, transformational leadership and water provision. By illustrating the effect of governance decentralization on service delivery in County Governments in Kenya, the finding may shape future devolution debate and water provision in the entire Kenya society. The findings of this study may also benefit the entire Kenyan society including private practitioners by providing them with in-depth understanding of the relationship between devolution and water provision delivery. Similarly, the finding of this study will be of significance to other African developing countries and especially the members of the East African community, that are culturally, economically, and politically similar to Kenya.

1.5.4 Scholars and Researchers

To the scholars, the study is value-added to the existing body of knowledge as it developed comprehensive model on devolution, transformational leadership, planning and water provision. The study will thus benefit the scholars wishing to undertake further studies aimed at improving devolved governance structures in local and global context. Academic researchers will be able to refer to the data used in the study and benefit from the findings, cognizant of the fact that rich literature is unavailable in Kenya relating to devolution, transformational leadership, planning and water provision and service delivery. Moreover, the framework developed in the study may be useful tool to academicians and other researchers wishing replicate this study in different states, counties and countries. Nevertheless, this study serves as a stepping stone for newer research on devolution, transformational leadership, planning and water provision.

1.6 Scope of the Study

This study was designed to be carried out in all sub-counties within ASAL Kenya. The study generally examined the effect of administration of devolved water services on water provision. How leadership and management moderate the interplay between administration of devolved water services and water provision was also analyzed. The study covered 113 sub-counties ASAL.

1.7 Limitations of the Study

The researcher encountered a number of challenges related to the research; but the limitations did not have a significant interference with the outcome of the study. Although this study covered all ASAL County Governments in Kenya, it only used a sample to draw conclusions and inferences, which was as per the research design. Time factor was a limitation as the respondents took longer time than expected. At times the researcher had to personally travel to some remote local authorities where the research assistants failed to make headways. This escalated the costs beyond the budget. The geographical spread of the 23 counties in Kenya made access difficult

In addition, some of the respondents found it difficult to fill the questionnaire because they felt giving the information required might jeopardize their jobs; however, this was overcome by assurance that the information will not be divulged and is for academic purpose. The study did not obtain 100% response rate due to unwillingness and unavailability of some targeted respondents given the nature of information to be collected. The other challenges faced was resource limitations during the entire period of the research ranging from time, finances and technical support during the data analysis and thesis development. The researcher overcame this by selecting a sample from the entire population and thus making the available resources adequate for the study.

Due to logistic challenges, the researcher was not in a position to acknowledge every element within the population and instead only got a representation with the outcome being generalized

to the entire population. To mitigate any bias during the sampling, scientific and systematic techniques were used to select the respondents. Respondents were required to give views that have the potential of being subjective to their personal interpretation of the various research questions which would have affected the accuracy and credibility of the outcome. To mitigate this, the researcher undertook a pilot study where research instruments were subjected to reliability and validity tests. The researcher encountered some security challenges especially in Northern Counties bordering Somalia. The researcher mitigated this by getting security escort in these areas.

Further, the study used ordinal scale among others to measure the variables. However, ordinal scale does not give the investigator the level of precision required in a study, especially when strong statistical procedures are to be applied (Saunders *et al.*, (2007). The respondent was the sole data source for both independent, moderating and dependent variables. Despite the limitations experienced, the quality of the study was not compromised. The study was designed in highly scientific manner following a thorough literature and theoretical review. Moreover, the study was based on a single country using data from Kenya. There is an opportunity to conduct a larger survey in other major cities and countries across the world. It may be interesting to explore the relationship between administration of devolved water services, transformational leadership, planning and water provision in arid and semi-arid lands countries that have similar environments to Kenya. All in all, the study was rigorous in its approach analysis, interpretation and reporting of the findings. The implications discussed did not therefore have any material effect on the results and findings of the study

1.8 Chapter Summary

This chapter has presented a background of the study that in general describes the water situation in Kenya, the water situation in ASAL and the interplay between administration of devolved water services and water provision. The chapter also shows the research problem that the study sought to address, highlighted study objectives, justification, scope and limitations of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In this chapter, theoretical and empirical literature in past works of different researchers, relevant or related to the area of study is reviewed. In this regard, the review has been done about administration of devolved water services and water provision, the relevant theory and the researcher's conceptualization of the research variables.

2.2 Theoretical Literature Review

This study is anchored on the theory of fiscal decentralization, Souffle theory, transformational leadership theory, new public management theory, and the visionary leadership theory.

2.2.1 Theory of Fiscal Decentralization

This theory was intended to address administration of devolved water services as the independent variable for this study. The theory particularly focused on the aspect of devolved resources from national government to the county governments. Formulated by Oates (1972), the theory of fiscal decentralization is based on a premise that the decentralization of funds from National Governments to sub-National Governments meant for development would bring services closer to local citizen levels (Oates, 1972). Oates (1972) noted that, fiscal decentralization hinges heavily on the two concepts of efficient and effective distribution and allocation of financial resources for enhanced service delivery in the public sector. In this vein, Oates (2006) advances the arguments on the theory of fiscal decentralization which presupposes that sub-National Governments are in a position to adapt outputs of public services to the preferences and particular circumstances of their constituencies, as compared to a central solution that presumes one size fits all.

The distribution function involves the role of government in changing the distribution of income, wealth or other indicators of economic well-being to make them more equitable than would otherwise be the case. The case for assigning this function to the National Government rests on two assumptions: that the National Government's broad taxing powers can more easily redistribute income; and that the ability of taxpayers to move from one jurisdiction to another to take advantage of more attractive spending and taxation policies weakens local government's ability to "soak the rich and redistribute to the poor." The case for regional and local redistributive policies rests on the fact that sub-national levels of government provide the services most used by low-income families. However, most economists view the national role as primary. The *allocation function* is government's role in deciding the mix of public and private goods that are provided by the economy or by government. Each level of government may be more efficient in delivering certain governmental goods and services.

In adopting this theory therefore, this study contends that unlike the monopolistic environment enjoyed by National Governments, devolved governments encounter stiff competition from their peers. It is such competition that necessitates constraints in budgetary growth and contributes the pressure for the efficient provision of services to the public for example through the implementation of responsive health care projects (Oates, 2006; Tiebout, 1956). Through the theory, this research also holds that fiscal decentralization can act as a critical vehicle to achieving sustainable development in the health care sector especially the implementation of projects if it is used to provide a logical framework for mobilizing local support and resources, and promoting participation among beneficiaries of these public service development programs (Porcelli, 2009). The superiority of the National Government in delivering national defines or national health research is obvious as is the likelihood that certain services such as fire and police protection are more suitable for local government.

Through the theory, the researcher also argues that fiscal decentralization should not be taken as the panacea for the implementation of public services projects such as water provision. Its existence may not even necessarily produce positive outcomes if there is no fair and clearly defined mechanism for resource allocation and distribution. In fact, as it has been argued, fiscal decentralization could lead to allocative inefficiencies, as well as poor accountability and

governance (Seabright, 1996). This has been found to limit innovations in the provision of public sector services by devolved units of governance.

This theory was relevant to this study given that the theory hinges heavily on the two concepts of efficient and effective distribution and allocation of financial resources for enhanced service delivery in the public sector. This resonates with the object of devolving administration of water services in Kenya in order to transfer finance resources from national government to self-governing local agencies (counties). Additionally, the Theory of Fiscal Decentralization aligns itself to Article 174 (g) of the Kenya Constitution on “Objectives of Devolution” to ensure equitable sharing of national and local resources throughout Kenya.

2.2.2 The Souffle Theory

This theory was also intended to address administration of devolved water services but focusing on the administrative aspect of the devolved resources. The Soufflé Theory was proposed by (Parker, 1995) who postulates that there are three major elements of decentralization namely administrative, fiscal, and political decentralization. Parker (1995) emphasized that decentralization is a multi-dimensional process that proceeds with successes and setbacks. The theory argues that like a Souffle that needs just the right combination of milk, eggs, and heat to rise, a successful program of decentralization must include the right combination of political, fiscal, and institutional elements to improve rural development outcomes (Farooq, Shamail, & Awais, 2008; Laryea-Adjei, 2006). Decentralization initiatives will therefore be subject to a continuous process of modification reflecting changes in social, political and economic conditions (Laryea-Adjei, 2006). There is therefore the need to include all dimensions of political, fiscal and administrative decentralization. Parker suggests a conceptual model, the soufflé theory, which incorporates the essential elements of political, fiscal and administrative decentralization as they combine to realize desired outcomes.

Godha (2014) cited (Hossain, 2000) and opined that administrative decentralization seeks to redistribute authority, responsibility and financial resources for providing services among different levels of government. The central government transfers some of its responsibilities for planning, financing and management to the local level authorities. By doing so the central

government gives the local authorities administrative autonomy to respond effectively to the local needs (World Bank, 2008). The local authorities can therefore make changes and enforce regulatory decisions to govern various systems at local offices such as the procurement system and human resources management-including recruitment and performance management (Godda, 2014). In addition, Ghazia (2009) contends that fiscal decentralization gives local government authority and power to generate revenues and decide on expenditures. It also transfers some funds from central government to local governments so that the local governments can deliver decentralized function. Fiscal decentralization takes many forms like cost recovery through user charges and expansion of local revenues through property or sales taxes, or indirect charges.

Nevertheless, there should be fiscal policies and procedures to govern the practices of local officials; checks and balances must also be built into the system (Kerr, 1998 in Godda, 2014). Political decentralization transfers policy and legislative powers from central government to elected local authorities (Azfar, 1999). However, the allocation of the power of decision making to local authorities is not enough to create successful decentralization if local officials are not accountable to the local population (Elsageer & Mbwambo, 2004). Local accountability might be promoted through various mechanisms such as third-party monitoring by media and NGOs, extensive participation of citizens and central government oversight of local governments (Godda, 2014).

Despite the propositions of the Soufflé theorist that are in favor of decentralization, governance decentralization has been criticized due to several limitations. Saito (2001) posits that decentralization may foster more local loyalty to regional identities than the national identity, and this may encourage more autonomy from the central government and even a territorial secession in multi-ethnic and multi-religious societies, particularly in Africa. This puts the national integrity itself at risk. Secondly, decentralization may increase corruption at local level and thus this would not improve accountability. Lastly, the increased efficiency and effectiveness of public resources may not be realized, since resources (capital, human and even social) available at local level in low-income countries are very limited. These scarce resources are more effectively utilized when they are concentrated at the national level.

Decentralization may also jeopardize equity among different localities. The Soufflé theory is at the center of devolution. The theory is relevant to the current study as it provides insights on various dimensions of decentralization adopted by County Governments in Kenya. Unlike other countries where the devolution process of the three powers (political, administrative and financial) has been sequentially attained, in Kenya the three types of decentralization were achieved at once with the ratification of the constitution in 2010 (Kobia & Bagaka, 2014).

The Souffle Theory was applicable in this study since it provides in-depth understanding of various decentralization constructs namely financial decentralization, political decentralization and administrative decentralization aspects which affect the variables in this study. However, it is the administrative component of decentralization that this theory applied most given that, the national government gives the county authorities administrative autonomy to respond effectively to the local needs. This autonomy therefore makes administration of devolved water services a variable since the county authorities can therefore make changes and enforce regulatory decisions to govern various systems at local offices such as the procurement system and human resources management-including recruitment and performance management. Moreover, Article 174 (c) of the Kenyan Constitution further makes this theory adequately relevant for the purpose of the study since devolution was meant to give powers of self-governance to the people and enhance the participation of the people in the exercise of the powers of the State and in making decisions affecting them.

2.2.3 Transformational Leadership Theory

This theory addressed transformational leadership as the first moderating variable for this study. Transformational leadership theory, also known as relationship theory, was initiated by Burns (1978) and Bass (1985), and has become quite popular in recent years. The theory focuses on the connections formed between the leaders and followers. Burns (1978), in the book *Leadership*, set the stage for the evolution of transformational leadership theory. The focus was on followers and their sense of self-concept, encouraging followers to build self-concept based on the mission and vision of the leader, by motivating followers to do their best and want to meet the expectations of their leaders. In this process, followers can achieve self-esteem, be involved, and

be satisfied. In the 21st century, organizations are faced with new challenges, which in some cases are different from face-to-face challenges and need quick and reliable intervention strategies.

Burns (1978) posited that transformational leaders engage followers not only to get them to achieve something of significance, as he described them as “visionary change agents,” but also to “morally uplift” them to be leaders themselves hence, enriching the relationship by creating followers’ interdependence (p. 20). Bass (1985) added that to be transformational, the leader has to learn the needs, abilities and aspirations of the followers to develop them into leaders. The outcome of implementing transformational leadership is a mutual relationship that converts followers to leaders and leaders into moral agents to satisfy the needs of their followers (Gill, 2006). Groves and LaRocca (2011) stated in their analysis of the ethical emphasis of transformational leaders that, “transformational leadership is predicated on deontological ethics and a focus on the morality of the means rather than the ends ... predicated on the norm of social responsibility” (p. 513).

Leaders implementing transformational leadership can gain the trust, admiration, confidence, and respect of other team members by personally demonstrating an extraordinary ability of one kind or another. These leaders put the needs of their followers before their own and display high standards of ethical and moral behavior that results in a high percentage of trust. Doing so will result in increased motivation, intrinsic and extrinsic, in leaders and followers. Trust may be the single most important factor in transformational leadership (Bass, 1999). Leaders implementing transformational leadership will result in leaders becoming role models for their followers: people identify with them and want to follow and emulate them. In general, organizations can acquire the needed leadership either by recruiting new leaders or by building a leader from the followers.

In essence, leadership is about the understanding of the behaviors and functions of individuals and circumstances that are present in the workplace. The transformational style of leadership (Dunford, 1992) builds on this concept to be the next step beyond the transactional leadership paradigm, which is one of leader-follower relationship in the context of a formal exchange

seeking something more than just obedience and compliance from the followers (Lindgreen, Palmer, Wetzels & Anticco, 2009). Individual job performance is reported by Walumbwa, Avolio & Zhu (2008) and further supported by Tsai *et al.* (2009) to be related to the leader's transformational leadership input. Therefore, supporting identification of the leader/follower relationship, and resulting in the improved work unit and individual performance of the follower.

Transformational leaders believe there is a need, as demonstrated in Tichy & Ulrich (1984) whatever the situation, to change the followers' beliefs, attitudes and values, for the good of the organization and individual, and in doing so achieve a superior level of performance and competitive advantage. According to Bass (1990) managers who behave like transformational leaders are more likely to be seen by their colleagues and employees as satisfying and effective leaders. In consideration, Robbins & Judge (2007, p. 437) explain transformational leadership as "leaders who inspire followers to transcend their own self-interests and who are capable of having a profound and extraordinary effect on followers". In support are Castro, Perinan, Carlos & Bueno (2008) who acknowledge that transformational leadership is positively related to leadership effectiveness and has a significant influence on the attitudes and behaviors of followers, and is a style that has a positive advantage for both the organization and the individual.

From the arguments in this theory, it can be implied that exercising transformational leadership in the devolved administrations can greatly improve service delivery to the residents in Arid and Semi-Arid Lands given that the theory advocates for leaders to put the needs of their followers before their own and display high standards of ethical and moral behavior that results in a high percentage of trust. This would in turn result in increased motivation, intrinsic and extrinsic, in leaders and followers meaning that there would be enhanced service delivery in the various devolved functions. Thus, it is expected that water provision being a devolved function can be improved by having Leaders in ASAL embrace transformational leadership. As such, this theory helped examining the leadership styles adopted in ASAL in the light of what constitutes transformation leadership. At the same time, it this theory helped to establish whether the leadership has brought a valuable change in service delivery in ASAL as suggested in the theory, especially pertaining to water provision.

2.2.4 New Public Management Theory

This theory was intended to address planning as the second moderating variable for this study. The theory is also attentive on “water provision” which is the dependent variable for this theory. The new public management theory emerged in the 1980s and 1990s. The theory was proposed by Hood (1991) who argument was along the reconfiguration of the state along more cost efficient (and effective) lines. The protagonist recommended that the public sector be opened up to greater private sector influence. Mongkol (2011) citing (Balk, 1996; Hughes, 2003) avers that new public management reforms were aimed at improving the quality of public services, saving public expenditure, effective planning, increasing the efficiency of governmental operations and making policy implementation more effective. The belief that large and monopolistic public bureaucracies are inherently inefficient was a critical force driving the emergence of the new public management (Andrews, 2012). The theory represents a set of ideas, values and practices aimed at emulating private sector practices in the public sector (Bourgon, 2007). Recently, Gumede & Dipholo (2014) citing Osborne and Gaebler (1992) further opined that there was a need to reinvent government and harness the entrepreneurial spirit to transform the public sector and later “banish the bureaucracy”. Bourgon (2007) argued that the new public management theory takes its intellectual foundations from public choice theory, which looks at government from the standpoint of markets and productivity and from managerialism, which focuses on management approaches to achieve productivity gains.

The three underlying issues which new public management theory attempts to resolve includes: citizen-centered services; value for taxpayers’ money and a responsive public service workforce (Bourgon, 2007). Notably, there are also studies that indicate that the new public management reforms do not necessarily lead to improved service delivery. For example, Simonet (2008) analyzed governments’ attempts at providing better health-care services for less in Germany, the United Kingdom, Switzerland, France and Italy. The study concluded that new public management led to greater inequity and more bureaucracy in some countries, but not all, countries. Competition, a major characteristic of the theory, did not necessarily lead to better health outcomes, and, unlike in other sectors, the application of new public management theory in health care meant larger providers (insurers, hospitals) and regulations have remained strong.

The new public management is often mentioned together with governance (Tolofari, 2005). Governance is about the overarching structure of government and the setting up of overall strategy, while new public management is the operational aspect of the new type of public administration. The theory has also been supported by (Zungura, 2014) who contends that the dominant theme of new public management is the use of market techniques to improve the performance of the public sector. The main features of new public management include performance management, e-governance, contracting out and outsourcing, decentralization and accountability among others (Zungura, 2014).

The new public management theory has also been criticized due to several shortcomings. First, Mongkol (2011) citing (Kaboolian, 1998; Khademian, 1998) pointed out that the theory introduces a paradox of centralization through decentralization. Giving public managers more authority to manage programs may result in concentrating decisions making in them. Thus, new public management may lead to centralized decision making by public managers, rather than encouraging decentralization in public organizations as it claims. The second criticism concerns applying private sector management techniques to the public sector. While new public management has encouraged the use of private sector management techniques, there may be risk associated with adopting some private sector practices. Many academic commentators argued that most areas of public service and administration have distinct political, ethical, constitutional and social dimensions and these factors make the public sector different from the private sector (Mongkol, 2011) citing (Armstrong, 1998; Flynn, 2002).

Lastly, the new public management theory is based on applying market principles into public policy and management. However, Mongkol (2011) quoting (Hughes, 2003) argued that developing country governments often have only little experience in the operation of markets. Basic infrastructure of management in developing countries is also not developed enough to support market-oriented reforms (Barker, 2006). Moreover, there are various factors which are required before the market can be effective. Mongkol (2011) quoting Hughes (2003) pointed out that markets are ineffective without the rule of law, for example, to ensure compliance with contracts. The new public management theory is relevant to the current study as it informs citizen's participation, social accountability practices and service delivery variables. The theory

advocates for citizen's participation in the process of evaluating public services since the new public management principle of customer responsiveness requires that the degree of the user satisfaction be measured (Pollitt, 1995).

This study drew from the theory of new public management in understanding the impact of social accountability on service delivery. The broad idea of new public management theory, is the use of market mechanisms in the public sector to make managers and providers more responsive and accountable (Hughes, 2003; Mongkol, 2011). Given that the proponents of this theory advocates for government to put in place social accountability mechanisms to increase efficiency in service delivery, there is need for adequate and effective planning to achieve the intended objectives. The theory is also important in understanding service delivery variable. The rationale of establishing County Governments is to ensure efficient service delivery through citizen-centered services; value for taxpayers' money and a responsive public service workforce. In this regard, County Governments are important tool for new public management reforms in improving the quality public services and increasing the efficiency of governmental operations. The new public management theory is, therefore, useful in analyzing the quality of services delivered by the County Governments besides providing a foundation for predicting the link between decentralization, e-government and service delivery variable with the moderating variable being e-government.

2.2.5 Visionary Leadership Theory

This theory was intended to enhance both transformational leadership and planning as the moderating variables for this study and therefore assist in addressing the fourth objective (joint moderating effect of transformational leadership and planning on the relationship between administration of devolved water services and water provision). Visionary theory concentrates on both transactional (planning) and transformational leadership which were first articulated by Burns (1978) and later developed further by Bass (1985, 1990). Transactional leadership style emphasizes on contingency reward and management by exception. Contingency reward emphasizes on the leader agreeing with followers on the goals, responsibilities, operating structure and reward to be received upon achievement of set performance targets (Bass &

Avolio, 1994). On the other hand, planning through management by exception may be categorized into two namely Management by Exception-Active (MBEA) and Management by Exception-Passive (MBEP). MBEA arises in cases where the leader actively monitors progress against planned benchmarks and initiates corrective action before things go wrong. In case of MBEP, the leader waits passively and only acts when there are problems (Bass, 1985).

In transformational leadership, leaders motivate followers to achieve objectives by raising their level of awareness, motivation as well as addressing and modifying their values and self-esteem. According to Bass and Avolio (1994), transformation leadership involves four I's namely Idealized Influence (II), Inspirational Motivation (IM), Intellectual Stimulation (IS) and Individualized Consideration (IC). Idealized influence refers to the ability of the leader to exert influence by acting as a role model to the followers while IM refers to the ability of the leader to develop and articulate a compelling future vision as well as creating an image of success. On the other hand, IS arouses intelligence, rationality and focused problem solving by questioning assumptions, seeking differing perspectives and encouraging innovation and creativity. Individualized consideration emphasizes on the need for leaders to treat followers as individuals and not as just as members of a group. As noted by Felfe, *et al.* (2004), transformational and transactional leadership styles exist in a continuum and are not independent of each other since a leader can combine certain aspects based on the circumstances. However, in most cases, one may identify the dominant style for a given leader.

In the current study, this theory translates to the role of the devolved governments in Kenya transformations and the planning within the devolved units to ensure sustainable water resource provision to their communities by formulating and adopting appropriate policies and strategies for the benefits of the wider communities. For the Arid and Semi-Arid Lands, the theory applies by emphasizing on the change of approach from the pedagogical methods that were used by the National Government to a more paid attention approach that clearly understands the dire need of the communities in ASAL in terms of water and devising strategies to save the communities from the perennial insufficient water. Therefore, developed authorities in Arid and Semi-Arid Lands, through sound management of available resources, should ensure that within a given time

frame their areas have sustainable water provision frameworks in place and should involve the locals in ensuring their survival in coming generations.

2.3 Empirical Literature Review

Empirical literature was based on past studies done on the subject variables including administration of devolved water services and water provision, transformational leadership and water provision, planning and water provision, and administration of devolved water services, transformational leadership, planning and water provision.

2.3.1 Administration of Devolved Water Services and Water Provision

Researchers have made efforts to examine administration of devolved water services and water provision in different areas including stakeholders' engagement, human resource development and application of modern technologies.

2.3.1.1 Stakeholders' Involvement

There is a range of literature and methodologies regarding the history of stakeholder engagement and public participation with philosophers forging founding concepts. The approaches by socio-political theorists on analysis of institutions have shown that economies based on solidarity have been regarded as more compared to the traditional command-and-control and state-centered solutions (Akhmouch & Clavreul, 2016). The theories have made great contributions in investigating various processes and typological engagements (Yee, 2010; Mott Lacroix & Megdal, 2016). Arnstein's moved from participation as an end in itself and considered the "ladder on citizen participation", as the means to an end as supported by Fung (2006) in his "democracy cube".

A study by Nyong (1998) investigated domestic water use in the water deficient semi-arid Nigeria, using a case study of Katarko. Detailed socio-demographic data known to affect water demand were compared with aggregate data at the national and regional levels. A tradeoff exists between using good quality water and the effort it takes to obtain it. Using culturally constructed

measures of water quality, the study found that the locals perceive the quality of water they use as higher in the rainy, than in the dry season. Overall, the results show that although most of the determinants of water demand in both seasons are subject to social-cultural interpretations, one can approach the management of it with economic principles. The research recommended the provision of a new set of optimal wells, in view of the offsetting benefits associated with them. The results of the study contribute conceptually and factually to the understanding of domestic water demand in rural areas of developing countries. This study, however, failed to consider stakeholders engagement as a key administrative aspect in water provision. Similarly, key indicators of water provision especially on quality and affordability of water were not considered.

Wachira (2014) carried out a study on challenges and prospects for effective water conservation in Mwingi North District, Kitui County, Kenya. The study adopted an explanatory research design with the sample units being households and institutions. A total of 30 households were sampled using simple random sampling method with medium and low income residential being well represented. The study showed that there is stakeholders' engagement in water conservation though it is not recognized by the local people. A few of them were aware of some NGO's that were involved in community water projects but most of them did not know any of them by name. The stakeholders' engagement showed efforts to provide water projects and also offer community awareness to the community. Even though this study was adequate in assessing some challenges in water provision especially in creation of awareness to the community, a major weakness on this study was identified in lack of inclusion of human resource development as well as application of modern technology as important variables that compliments stakeholders' engagement in implementation of water projects.

In a similar study, Cherunya *et al.*, (2015) explored sustainability of supplying water that is safe for drinking where it is underserved focusing on devolved solutions in Kenya. From the study, majority of households often obtained water from different sources. Households largely perceived the sources of water to be unsafe for drinking forcing them to chlorinate or boil the drinking water. Nonetheless, it was found that majority of households in Kenya did not consistently treat their drinking water. This study had the strength of addressing quality,

accessibility, salinity and reliability of water provided for human consumption. Nevertheless, the study had the deficit of linking the administrative role in water provision with affordability by residents of Arid and Semi-Arid Areas.

Korir (2013) did a study on challenges affecting devolution of public sector services in local authorities in Kenya focusing on county government of Kericho. The population under this study was constituted by the entire political, technical and civic leadership of Kericho County who are residing within the bounds of the said county at the time the study is carried out. Stratified random sampling was employed to select 84 respondents from the categories of sub-counties. Primary data sources were used in this study. The research established that training of staff as well as empowerments of the residents have not been effectively carried out. Resource mobilization locally to generate resources is lacking despite the poor funding of devolution services from the central government. This study recommended empowerment and mobilization of resources in order for devolution to succeed. In addition, training should be encouraged by the authorities. Systems should be established at local level to ensure the devolved services reaches the ordinary citizens. Even though this study emphasized on the need of devolution as a solution for local challenges, it failed to identify and examine the basic aspects of water provision as well as show how local resource mobilization relate to reliability of water provision.

A study by Gambe (2013) on water provision in Harare, Zimbabwe indicated that residents were yearning for involvement in the process of finding solutions to water problems bedeviling Harare. They felt sidelined and this caused an unpleasant relationship between the residents and the city fathers. Another study conducted by OECD (2015) on stakeholder engagement for inclusive water governance in OECD development indicated that there has been some progress to move towards more structural forms of stakeholder engagement in the water sector. The study highlighted that new legislations, rules, procedures and values at different stages have yielded more stakeholder engagement forms that are standardized and embedded in organizations' overarching principles and policy to encourage greater information, co-operation, consultation or awareness raising into their operational rules and procedures. This study, nonetheless, did not consider the different indicators of water provision including physical accessibility, affordability, quality, reliability, salinity, frequency as well as clarity of water used.

Shifting from an issue-based to a structural form of stakeholder engagement raises some challenges for decision makers. The study (OECD, 2015) identified various barriers to stakeholders' engagement including "consultation fatigue", often due to an insufficient clarity on how to use stakeholder inputs in decision making and implementation; the absence of political will and leadership; insufficient time, staff and funding; weak supportive legal frameworks; consultation capture from over-represented categories; resistance to change and reluctance to relinquish power; weak capacity; the insufficient public concern and awareness; information asymmetry; fragmented institutional settings and complexity of the issues. Even though the study thoroughly investigates the contribution of stakeholders' involvement in water provision, the study failed to bring alongside the contributions of human resource management and application of modern technology, the variables that will be adequately be addressed in this study.

2.3.1.2 Human Resource Development

Human resource development is simply a key aspect in the manoeuvres of the organization (Armstrong, 2008). Human resource development Management can be viewed as the "paradigm shift" from the ancient view to human resource management (Kearns, 2005). Kearns describes human resource development management as the process of optimizing, obtaining and keeping hold of those with the best talent by executing systems and processes that are in line with the organizations' core aims. According to Armstrong (2008), human resource development refers to all human abilities either inherent or acquired features where its value can be enhanced by suitable development investments. Leana and Pil (2009) viewed human resource development as the individual's skills, cumulative abilities and knowledge attained through expanded formal and informal education and experience.

Leveraging an organization's human resource development is a crucial source of efficiency and effectiveness in performance (Hitt *et al.*, 2001) and, thus; investments will directly vary with the human resource development and may improve total employee output and service delivery. This implies that if leaders in ASAL put in place good policies that improve the human resource development, service delivery to the public in all spheres, including water services, which could

be improved. One of the key ways through which organizational leaders can influence performance is through human resource development management. This is in line with Keith (2009) who suggested that the customers are the most important and their needs ought to be fully satisfied and this can be only achieved after addressing the needs of the employees (human resource) in the organization.

A study by Zeraebuk, Mayabi, Gathenya and Tsige (2014) assessed the effects of water supply services on operational performance. The study was based at Asmara Water Supply Department (AWSD) and findings reveal that requirements of water provision are not only confined to new structures and infrastructure but also employment of manpower as complementary investments. This manpower entails investing in technical and administrative capabilities as well as capacity building for the staff. Utility performance is largely indicated by manpower growth through the rate of participation in employees' training explaining the fraction of employees that have participated in at least one training event (Zeraebuk, Mayabi, Gathenya & Tsige, 2014). Improvement on quality and efficiency in water provision is achieved by service providers, regulators and other decision makers to bring in relevant managerial tools to measure and monitor performance of water utilities. Management of water resources, in addition, must be in possession of knowledge on data collection, processing, verification and storage to analyze the success of a water utility. The operators of private/public water utilities should, moreover, be in knowhow of financial implications at the point of the task as well as well as the usefulness of the data on management (Berg & Corton, 2007). This study failed to link human resource development to accessibility and affordability of water in ASAL. The study also had a methodological gap given the target respondents were limited only to a water supply department as opposed to the current study that cut across different devolved administrations in ASAL.

An assessment of human resource development literature indicates that the existing literature is too general and hence cannot be applied to the context of the Arid and Semi-Arid Lands. It mainly describes the importance of proper human resource development management without considering the devolved government structures, but rather an organization in general. As such, its applicability in the specific context of Arid and Semi-Arid Lands government is limited. This

study therefore addressed this gap by examining the effect of human resource development in ensuring efficient water provision in Arid and Semi-Arid Lands.

2.3.1.3 Application of Modern Technology

In spite of improved importance on societal and communal characteristics of water supply, technology does still matter. Technological choices, which are easy to understand and are of low cost, are likely to be more sustainable than those that require specialist skills or equipment. Therefore, a range of options should be presented to potential users. Local innovation that brings the technology closer to the people should also be encouraged in the interests of sustainability (Wille, Williams & Pearce, 2016). Avila, Feigenblatt, & Heller (2010) suggest several water sources and intake technologies that can be considered. These include: rainwater (roof rainwater harvesting, catchment and storage dams); ground water (spring water collection, dug well, drilled wells, subsurface harvesting systems); surface water (protected side intake, river-bottom intake, sump intake).

The catchment of rainwater from using downpipes and gutters and directs it to storage containers. Subsurface harvesting systems retain groundwater flows and facilitate their abstraction (Pearce, Welle, & Dickinson, 2013). They are in two forms (Subsurface dams and Raised-sand dams). The apex of the dam is about one meter beneath the ground surface, which prevents the land becoming waterlogged. Subsurface dam is an impermeable dam built across a surface aquifer, such as the bed of a seasonal sand-filled river, and based on top of an impermeable layer. Each time the upstream part of the river fills with sand, the crest is raised a little more to build up a groundwater reservoir. Raised-sand dam is an impermeable dam built across the bed of a seasonal sand-filled river, with the crest reaching a few decimeters above the upstream river bed (Bhatnagar, 2014)).

From the literature review, no past studies are known to exist that adequately address the effect of application of modern technologies on in water provision. The existing literature is also too general and hence cannot be generalized to the context of the Arid and Semi-Arid Lands. It mainly describes the some of the technology in water provision without considering a particular

context. As such, its applicability in the specific context of Arid and Semi-Arid Lands government is limited. This gap was addressed through having this study's emphasis on examination of the effect of applying modern technology in ensuring efficient water provision to the people in Arid and Semi-Arid Lands.

2.3.2 Administration of Devolved Water Services, Transformational Leadership and Water Provision

The concept of leadership has been perceived as a fundamental concern in organizational behavior. Yukl (2013), defined leadership as the process of influencing others to understand what needs to be done, and the process of facilitating individual and collective efforts to accomplish those agreed-upon objectives. Whereas, Thill and Bovée, (2015) defined the leader as a person who influences, helps, and guides followers to achieve their assigned duties and effective goals in the organization, it is viewed as an interactive process through which businesspeople develop an effective approach to collective goals by Hackman and Johnson (2013). Leadership is by definition, a group process in which the team comes together to improve their communities and commit to joint action and mutual accountability, a process whereby an individual influence a group of individuals to achieve a common goal (DuBrin, 2013). "Leadership is the art of getting someone else to do something you want done because he wants to do it." - Eisenhower (as cited in Goodreads, Eisenhower, 2014, para 1).

Evidence is accumulating that servant transformational leadership is good for service delivery in both public and private sectors. A study by Romig (2001) in Marietta in the United States with thousands of employees demonstrated that when the practices of servant transformational leadership are implemented through transformational leadership training in a business, performance is improved by 15 - 20% and work group productivity by 20 -50%. This means an increase in profitability. Another study by Hemlin (2006) among university and business company researchers in Sweden analyzed how transformational leadership and organizational support (LOS) influences creative knowledge environments for research groups in biotechnology. The study asserted that transformational leadership, influence, and power are inextricably linked. Douglas and Fredendall (2004) in their study among Hospitals in South

Carolina U.S.A found significant relationships between employee fulfillment and financial performance and customer satisfaction. Another study by Douglas and Fredendall (2004) also found a strong relationship between employee fulfillment and customer satisfaction. Transformational leadership has also been linked to outcomes such as leadership effectiveness, innovativeness, quality and improvement (Bass, 1985; Tsai *et al.* 2009). In the same studies, transactional leadership was also positively correlated with these outcomes, but in general, the relationships were considerably weaker than those found for transformational leadership.

Transformational leadership engages others through a social process of change and involving the relationship of shared purpose between the leader and the followers to accomplish a shared goal (Allix, 2000). Citing Burns (1978), Allix (2000) noted that “leadership over human beings is exercised when persons with certain motives and purposes mobilize in competition or conflict with others, institutional, political, psychological, and other resources so as to arouse, engage, and satisfy the motives of followers” (p.9). According to Allix (2000), Burns sees leadership as being indivisible from the needs and goals of followers; a transformational leader articulates and motivates followers towards a common purpose and shared goals.

A number of studies have also suggested that transformational leadership, through its four dimensions, has a profound positive influence on followers’ efforts and satisfaction (Bass & Avolio, 1990b; Cacioppe, 1997; Coad & Berry, 2000; Cardona, 2000; Sarros & Santora, 2001; Robbins *et al.* 2004; Robins & Judge, 2007; Tsai Chen, Cheng, 2009). The dimensions that make up transformational leadership were described by Sarros and Santora (2001) and further supported by Avolio, Waldman and Yammarino (1991) as individualized consideration, inspirational motivation, intellectual stimulation and idealized influence. These categories highlight the alignment to Bass’s (1985a) model, in that individualized consideration, inspirational motivation, intellectual stimulation and idealized influence are integral within the Bass’s (1985) model. It is important to understand the expanded descriptions of the four dimensions of transformational leadership model are as follows:

Koech and Namusonge (2012) classify leadership styles into transformational, transactional and laissez-faire leadership. Amongst the different approaches/styles of leadership for managing

organizations, transactional leadership and transformational leadership are common. According to Saowalux and Peng (2007), the former is grounded on normal exchange interactions whereby followers' efforts, loyalty and productivity are rewarded. Conversely, the latter focuses on raising the followers' consciousness on significance of particular outcomes and how to achieve them. It also inclines on motivating followers to go beyond self-interests for the sake of the organizational mission and vision. This collective engagement triggers an above expectations performance in the followers. Transformational approach entails the influence on main changes in attitude across the organization for the achievement of the organizational objectives. Transactional approach encompasses working on the organization's culture, through the existent rules/procedures. Conversely, transformational leadership modifies culture on the basis of a newly formed vision and revising the shared norms, assumptions and values (Nongo, 2015). This study however failed to link the relationship between the administration of devolved water services and water provision as moderated by transformation leadership.

Datche (2015) carried out a study on influence of transformational leadership on organizational performance of state corporations in Kenya. The study addressed this shortcoming by establishing the influence of transformational leader behaviors on organizational performance with an interest on the mediating effect of employee engagement between these relationships in the state corporations in Kenya. A survey data from 90 sampled State Corporations in Kenya was used to explore the existing relationships. Stratified random sampling technique was employed to select the respondents for the study. Both primary and secondary data was used in this study. Descriptive statistics such as means, standard deviations as well as inferential statistics; correlations and regressions analyses were conducted to establish the relationships between the study variables. A Sobel test was used to establish the mediating effect of employee engagement between transformational leadership and organizational performance. The findings indicate that both transformational leadership and employee engagement are significantly related to organizational performance in State Corporations in Kenya. Three out of the four of transformational leader dimensions in this study; inspirational motivation (though weak), intellectual stimulation and individualized consideration were found to be significantly related to both employee engagement and organizational performance. Idealized influence of leader was however found to be negatively related to both. Employee engagement was found to partially

mediate the relationship between transformational leadership and organizational performance. This study assessed the effect of transformational leadership on water provision on independent versus dependent relationship model and thus did not factor in the effect of it as a moderator in the study.

In their study, McIntosh and Taylor (2013) argue that strengthening the capacity of water professionals to lead change in policy, planning, management and communities is an essential component of the collective response to global water challenges. Kinicki and Kreitner (2008) affirmed that transformational leaders are capable of developing valuable change in an organization; instilling in followers, great intrinsic motivation and loyalty; newly establishing the future image and stirring followers' commitment to realize the image. The approach consists of the following aspects: individualized attention, inspiring incentive, idealized influence (behavior and attribute) and logical stimulation (Moss & Ritossa, 2007). This study failed to examine the effect of administration of devolved services on water provision with transformational leadership as the moderator.

Studies by Bass (2002), Avolio, Jung and Berson (2003) portray transformational leadership as having a direct relationship with organizational productivity. This was confirmed by Dumdum, Lowe and Avolio (2002) for the case of private organizations. Likewise, analysis of empirical studies by Judge and Piccolo (2004) indicated that subordinates' productivity in formal tasks is strongly associated with transformational leadership approach. According to Koene, Vogelaar and Soeters (2002), the charismatic aspect of transformational leadership produces increased employee performance and this were true in a study of 50 sampled supermarkets in the Netherlands. Further, a study by Xenikou and Simosi (2006) in financial firms revealed that when management practiced transformational leadership, the organizations performed well. It is beyond doubt that most studies point to a positive relationship existing between transformational leadership and the employee performance. It is apparent from the literature reviewed on leadership that little has been done to investigate how leadership influences the relationship between administration of devolved water services and water provision in Arid and Semi-Arid Lands. The existing studies therefore have inadequate insights as far as the problem of water provision as conceptualized in this study is concerned. This study however failed to link the

relationship between the administration of devolved water services and water provision as moderated by transformation leadership

Kemboi and Tarus (2011) in their study in Kenya explored the existing links between transformational leadership capabilities and business strategy implementation. These scholars proposed that in enhancing transformational leadership capabilities, leveraging team based transformational leadership through culture, shared vision, knowledge and transformational leadership are important as ways of nurturing self-transformational leadership. They further noted that at individual level, developing innovative behavior is considered a prerequisite to enhancing transformational leadership capabilities. The study was not water provision.

A study of the relationship between Nigerian local government administrative leadership styles and organizational outcomes (Adanri, 2016; Adanri & Thakkar, 2016) revealed that the Nigerian public sector leadership styles play small role in the local government outcomes and the perceived leadership effectiveness and employees' satisfaction. The studies show that leadership styles only account for a small variability in the local government outcomes and perceived employees' job satisfaction. Others have identified the high level of institutional corruption and the structural ties of local governments to the state governments especially the political and fiscal control of local governments by the state governments as impediments to effective local government operations and outcomes in Nigeria. The context of this study was however not on ASAL.

Lee (2012) examined the role of transformational leadership in the home healthcare industry by finding a link between transformational leadership and workplace performance among home health aides. The quantitative research study used secondary data from the 2007 National Home Health Aides survey using binary analysis and multivariate regression analysis. Study findings from the study revealed that there is a positive relationship between transformational leadership and employee outcome. Employee outcome was measured by reduced injury, increasing career satisfaction, and choosing the same career if they have to choose again. Lee (2012) showed that transformational leadership play an important role in improving workplace performance and financial implications because reduced absenteeism and injury could result in cost savings.

Irshad and Hashmi (2014) in their examination of the relationship between transformational leadership, organizational citizenship behavior, and the mediating role of emotional intelligence revealed that there is a relationship between transformational leadership and organizational citizen behavior and that emotional intelligence plays a mediating role in the relationship. No link of transformational leadership on the relationship between transformational leadership and accessibility of water in ASAL.

Belias and Koustelios (2014) provided a critical review of the relationship between transformational leadership and employee job satisfaction in the banking sector. They noted the various leadership styles that have been examined in the literature and affirm that transformational leadership is the most studied and widely accepted leadership style. The paper identified various types of tools that have been developed to measure leadership effectiveness and employee's satisfaction. Transactional leadership is effective in some cases but transformational leadership is most likely to be more effective in most situations because they motivate others to go beyond what they had originally intended and empower others to achieve individual and organizational goals, thereby creating more committed and loyal employees, a better working environment and employees' job satisfaction (Boga & Ensari, 2009; Bhat *et al.*, 2013). The study addressed employees job satisfaction and therefore failed to address any indicators in water provision

2.3.3 Administration of Devolved Water Services, Planning and Water Provision

According to Munive-Hernandez, Dewhurst, Pritchard and Barber (2004), planning involves the pattern or plan of action that integrates an organization's major goals, policies and action sequences into a cohesive whole. Aldehayyat and Khattab (2013) noted that planning techniques enable managers to transform data into valuable decisions and suitable actions. According to Daft and Marcic (2016) planning is effective to water provision in various aspects. The first one involves its contribution to objectives. A plan must have the aspect of effectiveness. Every major plan and its supporting plans should contribute to the accomplishment of the purpose and objectives of the enterprise. Proper plans deliver the required output. According to Korir and Moronge (2016) planning provides overall direction to the organization. Streiner (2003) states

that there is strategic consistency when the actions of an organization are consistent with the expectations of its management. The existing literature does not establish the moderating role of planning on the relationship between administration of devolved water services and water provision.

Hansen and Villadsen (2010) noted that while there has been a significant amount of studies on planning, there is only a few studies of planning in moderating the relationship between administration of devolved water services and water provision. They compared public and private managers' leadership styles within the framework of their jobs. The study was based on a survey of Danish public and private managers. It examined the impact of the sector within the managerial job context on leadership behavior and suggested that the difference between public and private leadership practices is due to the context of the jobs. The study shows that managers in public and private sector use different leadership styles because they are bound by structural settings of their jobs, role clarity, and perceived job autonomy. According to Hansen and Villadsen (2010), public managers seek to achieve their task through a participative leadership style while private managers use a more directive and task-oriented leadership style. No link of transformational leadership on the relationship between planning and affordability of water in ASAL.

Sorel and Pennequin (2008) advocate for planning to involve developing objectives or the organizational strategic plans and looking for resources that would best be suited in achieving the organizational goals as outlined in strategic plans. Each goal should have financial and human resource projections associated with its completion so that it becomes successful. The planning process also creates timelines for when the plans should be achieved. According to Ballou (2007), planning also involves developing the tracking and assessment method that will be used to monitor the project process.

Daft and Marcic (2016) emphasize the primacy of planning among the manager's tasks. Hence, planning logically precedes the execution of all the other managerial functions. Awino *et al.* (2012) argues that the more emphasis there is on planning, the greater the positive change in firm's performance. Planning is typically where the direction of the organization is established

through a variety of activities including the development of goals. As such, the planning embodies various levels of decision making (Schraeder, *et al.* 2015).

Daft and Marcic (2016) also identified the third effect of planning on water provision as its pervasiveness. All managers, from the first line supervisor to the Chief Executive Officer (CEO) of a company, are to do planning. At lower levels, we may term it as operational planning and at higher levels we may term it as planning. The amount of time spent in planning may vary with the level type. CEOs may spend more time planning and organizing and departmental heads may be there to take care of resource acquisition, directing people in their departments and controlling the department performance. The efficiency of plans also contributes highly to water provision.

According to Awino *et al.* (2012) positive change is caused by effective planning. The efficiency of plans must be aligned to contribute to the objectives of the organization and to promote the analyzing and improvement of strategies. Koontz and O'Donnell (2011) observed that the efficiency aspect has to be applied not only in money terms to various resources used in production and service activities but also to the individual and group satisfaction of human resources.

Kibachia, Iravo and Luvanda (2014) have held the view that a common challenge faced by all organizations, whether private or public, is how to successfully manage planning process for attainment of organizational objectives. Planning which is carried out by top management involves formulation of vision and mission statement, performance of situational analysis and finally strategy implementation and choice. The process considers future implications of current decisions, adjusts plans to the emerging business environment, manages the business analytically and links, directs, and controls complex enterprises through a practical, working management system. Robbins, DeCenzo and Coulter (2008) advanced that an effective planning system for an organization links long-range strategic goals with both mid-range and operational plans.

Sosiawani, *et al.*, (2015) state that each dimension of planning (formality, tools of planning, employee participation, implementation of planning, time horizon and control of planning) all contribute to water provision. Formality of planning has been proven to have a positive

relationship with the firms' performance (Glaister, *et al.*, 2008). Secondly, the tools of planning are believed to be able to increase the efficiency and effectiveness of organization planning (Kraus, Harms & Schwarz, 2006). These tools include the SWOT analysis, interrelationship diagram and affinity diagrams. By employing tools of planning, it would be able to achieve better performance as in the case of hotels in the Middle East (Aldehayyat & Khattab, 2013). Thirdly, there is also positive relationship between employee participation and firms' performance. It is believed that employees' participation on planning contributed to the effectiveness of the development of strategy and in return, leads to better effectiveness of implementation.

Employees contribute in planning by giving their suggestion and test-driving the different strategies so as to get the best fit in terms of strategies that an organization can adopt, resulting in increased performance (Collier, Fishwick & Floyd, 2004). Whenever employees are involved in the planning process of an organization, their motivation and attachment to the project is high thus making them more effective while running the project. The implementation is likely to run as smoothly as possible. The implementation of planning is also another dimension agreed upon to be one of the most important parts in planning process. Successful planning can explain whether the process addressed the corporate strategies and the objectives implemented properly. Veetil (2008) proved that by implementing planning properly, it would be able to assist firms to achieve better performance. Subsequently, creating assignments with timelines considering the ability of individual employees in the completion of the task time horizon is also considered as the key dimension of planning which is able to improve the performance of the organization.

Mitchelmore and Rowley (2013) through their study, recommend firms to lengthen their time horizon of planning in order to gain better performance. Since enough allocated time will allow employees to work efficiently without the pressure that time is running out on them, their performance would greatly improve. There are various implementation strategies that management in different organizations can adopt. The strategies may adopt a top-down approach where the policies and plans are developed at the top and the information trickles down to the bottom where the instructions are carried out. The implementation approach may also be bottom-up or hybrid depending on the organization structure and their internal systems of handling

firm's assignments (Veetil, 2008). Another dimension of planning is the control of planning (Kraus, *et al.* 2006). Wijewardena, *et al.*, (2004) suggested that by engaging control mechanism like establishing the evaluation methods and identifying alternative courses of action through implementation to the planning, firms are able to achieve better performance. This study, nonetheless, did not assess the moderating role of planning on the relationship between administration of devolved water services and water provision.

Wagaki (2013) describes planning as an ongoing, never-ending, integrated process requiring continuous reassessment and reformation. Planning is, thus, a deliberate, emergent, dynamic and interactive process. To establish your business within the industry to a performing level the organization needs to strategize and use planning practices as key aspects towards establishing and positioning themselves strategically in the market (Kathama, 2012). Aldehayyat and Twaissi (2011) have proven that the relationship between planning and firms' performance is positive and significant in the Middle East context. Aldehayyat and Khattab (2013) also state that employing tools of planning would be able to contribute to achieving better performance in hotels in the Middle East.

According to O'Regan and Ghobadian (2002), the key components of planning include an understanding of the firm's vision, mission, values and strategies. Strategy narrowly defines the means by which it is seeking to get there. A strategic plan is the path chosen to follow towards the end vision. The vision outlines what the organization wants to be, or how it wants the world in which it operates to be in its long-term view and concentrates on the future (Kathama, 2012). The mission defines the fundamental purpose of an organization or an enterprise, succinctly describing why it exists and what it does to achieve its vision while the values are beliefs that are shared among the stakeholders of an organization. Values drive an organization's culture and priorities and provide a framework in which decisions are made. For an organization's vision and mission to be effective, they must become assimilated into the organization's culture (Wijewardena, *et al.*, 2004).

Planning forces an organization to look into the future and therefore provides an opportunity to influence the future, or assume a proactive posture (Kathama, 2012). It provides better

awareness of needs and of the facilities related issues and environment, helps define the overall mission of the organization and focuses on the objectives. Also, it provides a sense of direction, continuity, and effective staffing and leadership and plugs everyone into the system as well as providing standards of accountability for people, programs, and allocated resources. It is the key to helping stake holders collectively and cooperatively gain control of the future and the destiny of the organization (O'Regan & Ghobadian, 2002). Akinyele and Fasogbon (2010) suggest that planning consists of a set of underlying processes that are intended to create or manipulate a situation to create more favorable outcomes for a company. This is quite different from traditional tactical planning that is more defensive based and depends on the move of competition to drive the company's move. In business, planning provides overall direction for specific units such as financial focuses, projects, human resources and marketing. Planning may be conducive to productivity improvement when there is consensus about mission and when most work procedures depend on technical or technological considerations.

Johnson and Christensen (2008) stated that the process of planning involved creating visions of possible futures, making explicit the values underlying the preferences for those particular futures, and establishing practical plans to achieve desired outcomes that are robust in the face of uncertainty and changes in constraints. Chimbugia (2011) suggested that effective planning as a practice is not as rational and analytical as it has been portrayed in the literature. He argues that planning is both a generic activity whose success determinants are partially independent of the area in which it is applied and an area where judgment, intuition and creativity are still important. Therefore, planning should be creative intuitive meeting the demands of both the organization and the employees. A good plan should be clearly understood to make it easy to be implemented which will result in high performance on both the individual and organizational level.

Khan and Khaliq (2014) did their study in Pakistan and stated that in the world today, which is very challenging and uncertain, the planning practice is the most reliable and effective way to compete with these challenges for every kind of businesses. Koeneet *al.* (2002) on their study on commercial banks in Kenya noted that the seven dimensions of planning were very crucial in enhancing performance. Abdalkrim (2013) stated that planning involves having a vision,

mission, latent abilities of entrepreneurs, market orientation, competitors' orientation and customer relations. The study did not address the basic elements of water provision including the reliability, accessibility, and affordability for residents in ASAL.

Planning provides the basic direction and rationale for determining the focus of an organization; and also provides the specification against which any organization may best decide what to do and how to do it. Simply put, it is a process for creating and describing a better future in measurable terms and the selection of the best means to achieve the results desired. It is said that failure to plan is akin to planning to fail. Thus, Abdalkrim (2013) summarized the importance of planning as; increase in effectiveness, development of a sustainable competitive position, developing a good fit between the external environment and the internal capabilities and helping managers to consider the future implications of the current decisions. Having a good vision, objective and strategy is no guarantee that the project performance will be good. Creative planning by the management can help in improving performance outcome of the project. But on the other side, without a vision, good plan or strategy, the performance of a project is sure to fail or at best will be poor.

2.3.4 Administration of devolved water services, Transformational Leadership, Planning and Water Provision

With the establishment of devolution, most of the poor regions were highly optimistic that they would realize enhanced development (Holmquist, 2014). Among the areas where this improvement was anticipated, therefore, is water provision since the water services were devolved. To realize this however, it is apparent from the literature reviewed that the transformational leadership and planning in the counties must be effective. Research linking transformational leadership to outcomes has shown moderating effects for transformational leadership and planning on performance of organizations (Schaubroeck, Lam, & Peng, 2011), self-efficacy (James, McKechnie & Swanberg, 2011), and intrinsic motivation (Zhu *et al.*, 2009). It appears that the link between transformational leadership and service delivery is affected by many factors, suggesting that engagement will likely partially mediate this relationship. Additionally, no studies have investigated this relationship at the task level; they have instead focused on broader measures of overall job performance and job engagement. This

comes as a surprise given the foundational conceptualization that engagement is a fluid or moment-to-moment state, varying within individuals based on contextual variables that are related to a specific task (Kahn, 1990; Saks, 2006; Kelly, 2008). In understanding that engagement can fluctuate based on task specific environmental influences, it is important to study its antecedents and outcomes from the same perspective.

Existing literature does not address the joint moderating effect of transformational leadership and planning on the administration of devolved water services and water provision. For instance, Mwenda Mseke (2016) conducted a study in Dodoma region covering seven ASAL districts which lack alternative sources of clean water from the surface. The aim of the study was to assess rural water supply management system in Dodoma region. The main focus was to measure the efficacy of the newly promoted strategy of Community – Owned Water Supply Organizations (COWSOs). The study found that the registration process of COWSOs at the districts is undesirably low. Many rural water projects were still under village water committees at 56% and private operators (28%) while the COWSOs were managing only 15% of water projects. Many districts highlighted that the major challenge was lack of funds to support the program implementation. To improve the strategy's performance, the study recommended that the Government should intensify the investment by disbursing enough funds and resources for the programme execution.

In their study, McIntosh and Taylor (2013) contend that there should be reinforcement of the ability of water experts to enhance effective changes in planning, communities' management as well as revision of relevant policy. Kisiangani (2015) carried out a study establishing the existing resource, ASAL use patterns and practices, the factors behind the current resource use, patterns and practices as well as the implications on the socio-economic and environmental well-being. The study was contextualized in Isiolo County, Central location aiming at analyzing the land use potential with the aim of ensuring optimal utilization. It employed non-experimental research methods which utilized both secondary and primary data. Secondary data was obtained from books, journals, government publications among others. The study revealed that Isiolo County is endowed with various resource potentials ranging from natural wealth and indigenous knowledge among others. The main land use practices in the area are pastoralism and

subsistence crop farming. It was further established that the region has dispersed settlements patterns which are lacking basic infrastructure services.

Omollo (2010) examines Kenya's experience with devolved system of government, the challenges faced and prospects of devolution under a new Constitution. Her study notes that Kenya attained independence under a Constitution that provided for regionalism but the system was dismantled soon thereafter. During independence, municipal and county councils were established with a significant measure of autonomy under the jurisdiction of the regional assemblies. However, when the regional assemblies were dismantled, powers previously exercised by the assemblies were transferred to the minister for local government leading to dominance and control of local authorities by the central government. The study proposes a well-designed devolution system to cure the weaknesses noted in the local authority system. One essential of this design is the entrenchment of devolution in the Constitution so as to surmount lack of political good will to implement it as happened at independence. The other essential is to enshrine mechanisms for citizen participation in the Constitution. Devolution and public participation are essential features of Kenya's new Constitution. What remains to be ascertained is how these novel provisions have been utilized specifically to empower *Wananchi* and bring about development. However, this article was written before the first devolved government came into office in 2013.

Nthenge (2016) assessed water access challenges and coping strategies in selected sites of Makueni County, Kenya. The aim of this study was to establish water scarcity coping strategies used by rural communities in Kilili sub-location in Makueni sub-county and Kyanguli sub-location in Kibwezi East sub-county, all located Makueni County. The broad objective of the study was to identify water sources, access challenges and coping mechanisms in selected sites in Makueni County. The study also documented institutions promoting water resources and coping mechanisms and hence water access in the selected sites of the County. The study adopted cluster sampling and simple random approach to gather quantitative data using household surveys. A total of 70 households in two selected sites were interviewed. The collected data was coded and entered into the computer for analysis using the Statistical Package for Social Sciences (SPSS) and presented using tables. Results obtained on water sources

revealed that rivers were the major sources of water (78%) across the study site followed by shallow wells (31%) (SD=23.5). Most households (46%) in both sites could access water within 1-3km (SD=2.5). Five major water access problems were documented in the study sites and in overall, scarcity of water was the most common problem in both study sites (77%) (SD=9.5).

On his part Juma (2015) observes what was practiced in Kenya after the collapse of regionalism shortly after independence was delegation through the local authorities and de-concentration through the provincial administration and field-based ministries. In his opinion, all attempts at decentralization beginning with regionalism at independence, the Local Authorities and the District Focus for Rural Development (herein after referred to as DFRD) failed because no attention was paid to the normative value of these concepts and the ideology and political philosophy that underlie them. He then discusses the perceived strengths of devolution, which include prospects of democratic self-governance, public participation, nation and nationhood building, equalization and efficient and effective delivery of services. He further looks at pitfalls that could befall devolution if it is not well thought out and managed. Among other issues, he argues that devolution can be captured and controlled by local elites to the exclusion of ordinary citizens thereby rendering democratic governance and public participation elusive. He argues that whether or not devolution of power will succeed will depend on the overall political and Constitutional culture nurtured deliberately by the public alongside a committed leadership.

According to Barkan and Michael (1989) the District Focus Rural Development (DFRD) policy of the early 80's enhanced the potential for public input in development by establishing subordinate development committees below the District Development Committee at the division, location and sub-location levels. Their study however does not make any findings on whether indeed it had improved governance. The evidence available, which we cite with approval, suggests that the policy was implemented in a manner that enhanced control of decision making by local representatives of the central government hence undermining its very objective.

Wekesa (2012) examines the Constitution and the County Governments Act to establish their potential to protect and promote the political and socio-economic rights of ethnic minorities in counties. He concludes that both the Constitution and the County Governments Act are deficient

in protecting and promoting the ethnic minority's right to political participation in the sense that the election to County assemblies is based on the first-past-the-post electoral system which favors the ethnically dominant and therefore makes the chances of minorities being elected slim. Given the important role of County Assemblies in debating and passing legislation necessary for implementation of development as well as over sighting the Executive, and the identified deficiency in the electoral system, it is opined there is need for deliberate mechanisms to mainstream and safeguard the interests of ethnic, religious and other minorities within Counties. This is necessary in ensuring an inclusive and equitable society.

Ochieng (2012) looks at the comparative Legal, Constitutional and Policy framework for public participation in the devolved system of government among Kenya, South Africa, Uganda and Tanzania and concludes that there are few formal and statutory spaces designed for public engagement in the governance process in the Kenyan regime for County governance. He gives an example of the fact that there are no inbuilt mechanisms within the system to ensure that public input is taken into account in decision-making and implementation. This is a real danger because there is possibility that *wananchi* can be consulted for the mere purpose of it without necessary taking into consideration their views while designing and implementing programs and projects.

Koech (2016) on his part carried out a study to analysis household water demand, distribution and community management strategies in Nyangores Subcatchment, Bomet County, Kenya. The objectives of this study were to determine the magnitude of household water demand, identify key factors that influence the magnitude of water demand and distribution and to examine the effectiveness of the current water use management strategies in Nyangores sub-catchment. The study employed descriptive statistics based on survey responses from a total of 300 households picked from Silibwet, Bomet and Sigor divisions. Household level data was supplemented with key informant interviews of 20 professionals from the Ministry of Water and Irrigation, Water Service Board and WRMA officials. The study also relied on secondary data from the National Housing and Population Census report and the meter reading reports at the District offices. The study found that the current mean water demand stands at 9,745 m³ per day, which is largely met by unsafe water sources. Women and girls bear the greatest brunt of water related access

constraints because they spent a lot of time fetching water and this also exposes them to health and safety risks. The expansion of piped water supply is slow with only 5.3% coverage since 2003. The community water use management strategies are below 30% and UfW is 53.77% up from a benchmark of 25%. Non-payment of water bills is increasing at the rate of 4 % per month. Management strategies currently employed include rationing, public education on efficient water use while metering, pricing and enforcement of legislation on water governance are employed on a limited extent.

A World Bank Report on Kenya's economy indicated the strides Kenya had taken towards achieving transformational leadership through County Governments. The report on this matter lays down the impact devolution has had towards achievement of good governance in the country especially with respect to public participation and notes that the County Governments, with the support from the national authorities that have made considerable progress towards implementing constitutional and legal provisions for transparency, accountability and participation. In the early stages, they prioritized the setting up of structures and systems to facilitate public participation. Counties have built communication frameworks, and established participatory forums as per legislative requirements. Beyond meeting the legislative Requirements Counties have adopted innovative initiatives to engage citizens (World Bank, 2015).

Wambua (2011) carried out a study on factors influencing household access to water supply in Mutito Division, Kitui District Kenya. The objectives of the study were to identify main water supply sources in Mutito Division, to analyze the factors influencing household accessibility to potable water in the area, and to determine gender roles in water harvesting, transportation and demand management. Both qualitative and quantitative techniques of data collection were used. The questionnaire and a case study guide were the main instruments of data collection and this was supported by secondary data from reviewed literature. Using survey data the study formulated chi-square analysis to estimate relationships between the socio-economic and physical factors that influence household water access in the study area. Pearson correlation coefficient was used to determine the relationship between socio-economic factors and household access to water. Further, the study conducted a T-test to compare actual amount of

water available for the household and the amount they would have spent if there was enough water at their disposal. The study findings showed that female headed households were poorer than their male counterparts and therefore, this impacted on their ability to invest in water transporting implements reducing the amount of water transported home. The results of Chi-Square test of significance ($\chi^2 = 28.92$; $df = 2$; $p = 0.000$) indicated that there was a significant relationship between family size and access to water supply at probability of error = 0.05. Pearson's correlation coefficient indicated that larger families were less likely to have access to adequate water ($r = -0.25$, $p = 0.05$, $n = 150$).

A relatively more recent and related study to the current one was carried out by Maimuna and Kidombo (2017) on Factors influencing performance of water projects in arid and semi-arid areas with focus on Ewaso Ng'iro North borehole projects, Isiolo County, Kenya. The objectives of the study were to determine how community participation, water infrastructure, project management and maintenance funds affect performance of Ewaso Ng'iro North borehole projects in Isiolo County. The study was grounded on the community participation theory, institutional theory and resource-based view theory. The study adopted a descriptive research design. The target population composed of employees in different management levels of the 12 development agencies including the NGOs, CBOs and RBOs and government officials from the Ministry of Water and Irrigation. A sample population of 162 is arrived at by calculating the target population of 281 with a 95% confidence level and an error of 0.05. Descriptive statistics such as frequencies, percentages, mean score and standard deviation was estimated for all the quantitative variables and information presented in form of tables. Inferential data analysis was done using multiple regression analysis. Multiple regression analysis was used to establish the relations between the independent and dependent variables. The study aimed at determining how community participation affect performance of Ewaso Ng'iro North borehole projects in Isiolo County and found that it greatly affects the performance of Ewaso Ng'iro North Borehole Projects in Isiolo County. Further the study found that maintenance funds greatly influences performance of Ewaso Ng'iro North borehole projects in Isiolo County.

2.4 Summary of Research Gaps

From a review of existing literature, the kind of leadership and management exercised in the counties can influence the degree to which devolution of the water services enhance the water provision in the Counties concerned. However, previous studies on devolved services have not adequately addressed this relationship. Due to the inadequacies in existing studies, there is a need of literature to provide an understanding of the interplay between administration of devolved water services, transformational leadership, planning and water provision specifically in ASAL.

Previous studies on devolved services and water provision have not adequately addressed this relationship. For instance, Mwendamseke, (2016) carried out an assessment of COWSOs Strategy for Sustainability of Rural Water Supply in Dodoma. The study did not consider the effect of devolution of the water services. Wachira (2014) did a study on challenges and prospects for effective water conservation in Mwingi North District, Kitui County. The study also did not consider the moderating effect of planning on water provision. Kisiangani (2015) carried out an analysis into land use potential in Arid and Semi-Arid Areas. The study gave a general perspective of management of natural resources in arid and semi-arid areas and not on water provision.

Due the inadequacies in existing studies, there is a dearth of literature to help understand the effect of devolving water services on efficiency of water provision specifically in ASAL, in consideration of the existing leadership. To address these gaps, this study seeks to explore interplay between administration of devolved water services, transformational leadership, planning on water provision in Kenya with specific concentration on ASAL as summarized in Table 2.1.

Table 2.1: Research Gaps

Researcher	Research Topic	Methodology	Findings	Knowledge Gap	Addressing the Gap
Mwendam	Assessment	Population was	Many rural	Did not factor in	This study

Researcher	Research Topic	Methodology	Findings	Knowledge Gap	Addressing the Gap
seke (2016)	of COWSOs Strategy for Sustainability of Rural Water Supply in Dodoma Region	covering seven ASAL districts	water projects were still under village water committees by 56% and private operators (28%) while the COWSOs were managing only 15% of water projects.	the aspects of management in water management. It was also based in Dodoma and, therefore, cannot be generalized into Kenyan context	explored the interplay between planning as moderating variable and water provision in a Kenyan context
Nyong (1998)	Topographic Survey of Katarko village. Sub- Project report	Multiple regression models	Although most of the determinants of water demand in both seasons are subject to soçio-cultural interpretations, one can approach the management of it with economic principles.	Although the study was conducted in arid area, it was based in Nigeria, and not in Kenya. The time it was conducted is long time ago to address the current water provision challenges.	This study was done in Kenya and factored in the effect of administration of devolved water services, considering the moderating effect of transformational leadership.
Wachira (2014)	Challenges and prospects for effective water	Explanatory research design with the sample units being households	There is stakeholders' engagement in water conservation though it is not	The study also did not consider the moderating effect of management styles on water provision.	This study considered the moderating effect of planning on water provision in the light of

Researcher	Research Topic	Methodology	Findings	Knowledge Gap	Addressing the Gap
	conservation in Mwingi North District, Kitui County, Kenya	and institutions.	recognized by the local people. A few of them knew of some NGO's that were involved in community water projects but most of them did not know any of them by name.		devolution of the water services. The study also precisely focused on the areas in ASAL.
Kiprono and Wanyoike (2016)	Effect of projects funded by County Government on people's living standards in Kericho County	Cross-sectional survey using descriptive statistics	Projects funded by County Governments lack proper leadership	Paid attention on projects in different fields and did not consider in-depth the devolved water services	This study incorporated the moderating effect of transformational leadership
Mukabi <i>et al</i> (2015)	Devolved governance in Kenya; whether it is a false start in democratic	Cross-sectional survey based on all counties in Kenya	Devolved governance found to have a major impact on development	The study was too general and cannot be generalized to the ASAL context	This study integrated and contextualized aspects of leadership, devolution and efficiency on

Researcher	Research Topic	Methodology	Findings	Knowledge Gap	Addressing the Gap
	decentralization for development				ASAL
Ngari (2001)	The impact of these dams on the recipient communities	Cross-sectional survey based in ASALs in Kenya	The study confirmed that the water from the dams has been beneficial to the communities where the water is used for irrigation, which has created employment by people selling the water, which is also used for irrigation.	The study also did not consider the moderating effect of management styles on water provision.	This study considered the moderating effect of planning on the water provision in the light of devolution of the water services.
Kisiangani (2015)	An Analysis of Land Use Potential in Arid and Semi-Arid Areas	The study was contextualized in Isiolo, Central location. A sample size of 154 people was used. It	Isiolo County is endowed with various resource potential ranging from natural wealth and indigenous knowledge among others. The main	The study gave a general perspective of management of natural resources in arid and semi-arid areas and not on water provision	The current study linked administration of devolved water services with water provision in a larger ASAL area.

Researcher	Research Topic	Methodology	Findings	Knowledge Gap	Addressing the Gap
		employed non-experimental research methods which utilized both secondary and primary data.	land use practices in the area are pastoralism and subsistence crop farming.		
Helldorff and Lemuna (2010)	Rural Development and Natural Resource Management	A combination of qualitative and quantitative techniques of data gathering and analysis.	The management is coherent with social structure of the community where elders, owners of cattle and young warriors are responsible for location and decision-making regarding resources	Paid attention on projects in different fields and did not consider in depth the devolved water services	This study incorporated the moderating effect of transformational leadership
Korir (2013)	Challenges affecting devolution of public	Stratified random sampling was employed to	Training of staff as well as empowerments of the residents has	The study was general on devolution of services	The current study narrowed down to administration

Researcher	Research Topic	Methodology	Findings	Knowledge Gap	Addressing the Gap
	sector services in local authorities in Kenya: Case of county government of Kericho	select 84 respondents from the categories of sub-counties	not been effectively carried out. Resource mobilization locally to generate resources is lacking despite the poor funding of devolution services from the central government		of devolved water services. The researcher will also interact relationship between administration of devolved water services with moderating effects of transformational leadership as well as that of planning
Datche (2015)	Influence of Transformational Leadership on Organizational Performance of State Corporations in Kenya	Descriptive statistics such as means, standard deviations as well as inferential statistics; correlations and regressions analyses	Three out of the four of transformational leader dimensions in this study; inspirational motivation (though weak), intellectual stimulation and individualized consideration were found to be	The study targeted state corporation and not counties. In addition, the study was not based in Arid and Semi-Arid Lands	This study will focus on counties in Arid and Semi-Arid Lands

Researcher	Research Topic	Methodology	Findings	Knowledge Gap	Addressing the Gap
			significantly related to both employee engagement and organizational performance.		
Koech (2016)	Analysis of household water demand, distribution and community management strategies in Nyangores Subcatchment, Bomet County, Kenya	Descriptive statistics based on survey responses from a total of 300 households picked from Silibwet, Bomet and Sigor divisions. Household level data was supplemented with key informant interviews	Women and girls bear the greatest brunt of water related access constraints because they spent a lot of time fetching water and this also exposes them to health and safety risks. The expansion of piped water supply is slow with only 5.3% coverage since 2003	The study was based only in one county	This study was a cross-section based on all counties in Arid and Semi-Arid Land
Nthenge (2016)	Water Access	The study adopted	Rivers were the major sources of	The study did not incorporate any of	Considered moderating

Researcher	Research Topic	Methodology	Findings	Knowledge Gap	Addressing the Gap
	Challenges and Coping Strategies in Selected Sites of Makueni County, Kenya	cluster sampling and simple random approach to gather quantitative data using household.	water (78%) across the study site followed by shallow wells (31%) (SD=23.5). Most households (46%) in both sites could access water within 1-3km (SD=2.5).	the two moderating variables (transformational leadership and planning	effect of both transformational leadership and planning The study also interacted these variables in a step-wise analysis
Wambua (2011)	Factors influencing household accessibility to water supply in a semi-arid area: a study of Mtito Division, Kitui District Kenya	Both qualitative and quantitative techniques of data collection were used.	female headed households were poorer than their male counterparts and therefore, this impacted on their ability to invest in water transporting implements reducing the amount of water transported home	The study brings in the aspect of gender in water provision. The study also puts a lot of emphasis on household factors as the main driver to water accessibility as opposed to external factors like administration of devolved water services	The current study lay emphasis on devolution as the main variable that affects water provision in ASAL. The study will also consider all the 23 counties categorized as ASAL.
Maimuna and Kidombo	Factors influencing performance	Descriptive research design. The	Community participation greatly affects the	The study was limited to the concept of	This study covered a wide scope of human

Researcher	Research Topic	Methodology	Findings	Knowledge Gap	Addressing the Gap
(2017)	e of water projects in arid and semi-arid areas: Case of Ewaso Ng'iro North borehole projects, Isiolo County, Kenya	target population composed of employees in different management levels of the 12 development agencies including the NGOs, CBOs and RBOs and government officials from the Ministry of Water and Irrigation	performance of Ewaso Ng'iro North Borehole Projects in Isiolo County. Further the study found that maintenance funds greatly influences performance of Ewaso Ng'iro North borehole projects in Isiolo County	community participation	resource development and application of modern technology beside stakeholders' engagement (community participation)

2.5 Research Hypotheses

The study sought to test the following research hypotheses:

H0₁= There is no significant effect of administration of devolved water services on water provision in ASAL in Kenya;

H0₂ = There is no significant moderating effect of transformational leadership on the relationship between administration of devolved water services and water provision in ASAL in Kenya;

H0₃ = There is no significant moderating effect of planning on the relationship between administration of devolved water services and water provision in ASAL in Kenya;

H0₄ = The joint moderating effect of transformational leadership and planning on the relationship between administration of devolved water services and water provision in ASAL in Kenya is not significantly different from their separate effects.

2.6 Conceptual Framework

Smyth (2004) defined the conceptual framework as a component of outline for the relationship under scrutiny, test or review due to the assessment and indicates the probable link between these aspects. In this study, water provision is the dependent variable which is deemed to be affected by three major aspects in administration of devolved water services including stakeholders' engagement, human resource development and application of modern technology. These three aspects, therefore, were considered as indicators under the independent variables. The effect of the independent variable which is administration of devolved water services on water provision is assumed to be influenced by transformational leadership and planning. As such, transformational leadership and planning were considered as the moderating variables as presented in Figure 2.1.

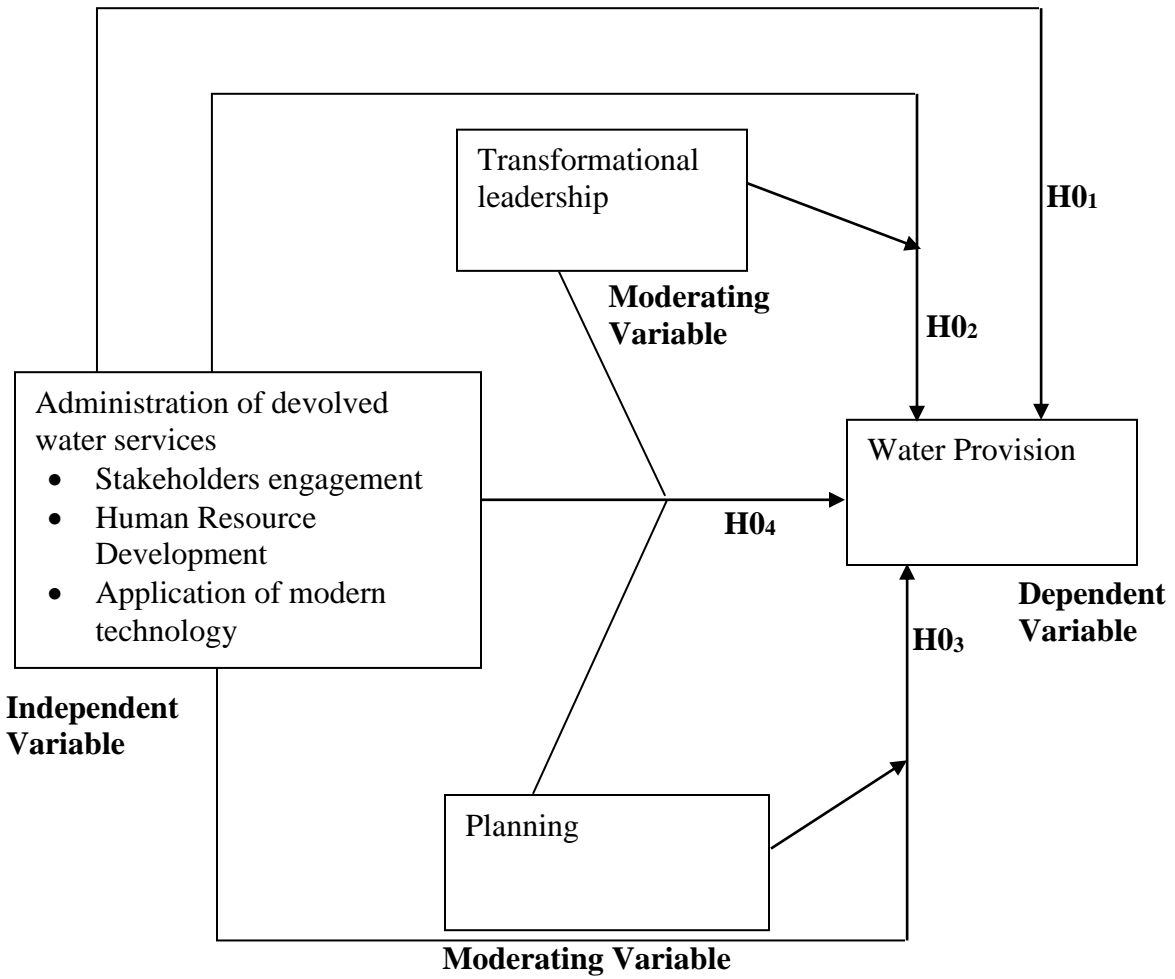


Figure 2.1: Conceptual model

2.7 Measurement of Study Variables

Table 2.2: Operationalization of Variables

Variables	Indicators	Measure	
Administration of devolved water services	<ul style="list-style-type: none"> • Stakeholders' engagement • Human resource development • Application of modern technology 	<ul style="list-style-type: none"> • Holding stakeholders' forum • Communication • Knowledge and skills • Experience • Transparency and accountability • Technology • Support for technology by residents • Applicability of technology 	5-point Likert Type Scale 1= Strongly Disagree 5= Strongly Agree
Transformational leadership	<ul style="list-style-type: none"> • Inspiration and motivation • Creativity/innovation • Rewards and recognition • Intellectual stimulation 	5-point Likert Type Scale 1= Strongly Disagree 5= Strongly Agree	
Planning	<ul style="list-style-type: none"> • Resource allocation • Strategic planning • Optimal and on-time deliveries 	5-point Likert Type Scale 1= Strongly Disagree 5= Strongly Agree	

Variables	Indicators	Measure
Water provision	<ul style="list-style-type: none"> • Efficiency in time and cost • Accessibility and availability of water • Quality of water • Adequacy/reliability of water 	Percentage (%) change in level of 2011 & 2012 vs 2015 & 2016: <ul style="list-style-type: none"> • Time taken to collect water • Cost of water • Main barriers while accessing water • Salinity, alkalinity, acidity and bacteria in water • Availability of water • Reliability of water

Table 2.2 shows operationalization of variables against their indicators and units of measure. The indicators of administration of devolved water services were the stakeholders' engagement, human resource development, and application of modern technology, while transformational leadership was indicated by delegating of duties and innovation. Planning, on the other hand, had budgeting, strategic planning and optimal and timely delivery of services as indicators with water provision being indicated by efficiency in time and cost, accessibility and availability of water, quality of water and adequacy/reliability of water.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section explains the methodology to be applied in this research. The chapter presents the design, target population, sampling technique and sample size, instruments for collecting data as well as data collection procedure. The chapter further explains the data analysis and presentation of the results.

3.2 Research Philosophy

This study used positivism research orientation. Positivism has been dominant in the social, psychological and behavioural sciences as well as the management research (Ridenour & Newman, 2008). It is a quantitative method entailing numerical data collection and analysis that depends solely on numerical evidence to deduce inferences or test hypotheses. The philosophy is chosen due to its ability to make it possible to measure the reactions of a large number of subjects as representative of some wider population to a specified string of questions that help in the comparison and statistical aggregation of the data (Ridenour & Newman, 2008). This study widely used these methods – questionnaire-based surveys, observation, and secondary sources, which further makes the approach best suited for this study.

3.3 Research Design

The Research design is the plan for execution of the research method and subsequent analysis of acquired data Kothari's (2004). The research design helps the researcher to devise a plan to tackle the various process and tasks required to conceptualize a plan of operation and tasks required for the completion of the study being undertaken. This study applied a cross-sectional survey research design because the variables under study were measured as naturally perceived

without manipulation or control. At the same time, The design allows for multiple variables at the time of a data snapshot as well as creation of new theories/studies or in-depth research. Cross-sectional studies concerned with finding out "what is" might be applied to investigate research questions. The main goal of this type of research is to describe the data and characteristics about what is being studied.

3.4 Population

A population is all of a particular type of entity either limited by geographical location or one or more characteristics (Cramer &Howitt, 2004). The population for this study was 113 sub-counties in Arid and Semi-Arid lands in Kenya. According to the Ministry of Planning and Devolution Report (2016), there are one hundred and thirteen (113) sub-counties demarcated as Arid and Semi-Arid Lands (ASAL) and distributed within 23 counties in Kenya. The Ministry further categorises the 113 sub-counties into Arid (36 sub-counties in 8 counties) and Semi-Arid (77 sub-counties in 15 counties).

3.5 Sample and Sampling Technique

A sample is a small proportion of targeted population selected. Sampling, hence, refers to the selection of a number of participants in a research to represent the bigger population from which they are selected (Saunders, Lewis & Thornhill, 2007). In cases where a census (a survey of the entire population) is impossible, sampling procedures provide a justified option (Kothari, 2004). In this regard, sampling of the ASAL Sub-Counties was done using the Slovin's Formula (as used by Ariola, 2006). The formula is expressed as $n = N / (1 + Ne^2)$

Where: n is sample size; N is the population size and e is the tolerance error. The confidence level gives the margin of error; in this formula, it ranges from 95% to 99% implying a tolerance error of 0.05 and 0.01 respectively (Ariola, 2006). The current study used a 95% confidence level implying a 0.05 tolerance error. Therefore, using Slovin's Formula, the sample size was calculated as: $n = 113 / (1 + 113(0.05)^2) = 88.11 \approx 89$ sub-counties.

Proportionate sampling was then used to allocate the proportion of the sample size going to each of the 23 counties. Kothari (2004) noted that proportionate sampling is used when a population from which sample is to be drawn does not constitute a homogeneous group. Proportionate sampling involves dividing the population into a series of relevant proportions which implies that the sample is likely to be representative. Sub-counties which form our population are characterized by heterogeneous groups, given that some fall in arid lands while others are in semi-arid lands. Proportions for this study were effectively applied at county level where the number of sub-counties in each county formed the proportion of sample size going to the county. Random sampling was then applied to select sub-counties. The proportions used were computed as $\text{Proportion (P)} = \text{Sample Size} / \text{Total population} = 89 / 113 = 0.787611$. The computation of sample size for the sub-counties is presented in Tables 3.1 and 3.2:

Table 3.1: Sample Size for the Arid Sub-Counties

Arid Counties	Arid Sub-county	Proportion	Sample Size (Rounded)
Garissa	6	0.787611	5
Isiolo	2	0.787611	2
Mandera	6	0.787611	5
Marsabit	4	0.787611	3
Samburu	3	0.787611	2
Tana River	3	0.787611	2
Turkana	6	0.787611	5
Wajir	6	0.787611	5
<i>Sub-Total</i>	36		29

Table 3.2: Sample Size for the Semi-Arid Sub-Counties

Semi-Arid Counties	Semi-Arid Sub-county	Proportion	
Baringo	6	0.787611	5
Embu	4	0.787611	3
Kilifi	7	0.787611	5
Kwale	4	0.787611	3
Laikipia	3	0.787611	2
Lamu	2	0.787611	2
Makueni	6	0.787611	5
Meru	9	0.787611	7
Narok	6	0.787611	5
Nyeri	6	0.787611	5
Taita Taveta	4	0.787611	3
Tharaka Nithi	3	0.787611	2
Kitui	8	0.787611	6
Kajiado	5	0.787611	4
West Pokot	4	0.787611	3
<i>Sub-Total</i>	77	0.787611	60
TOTAL	113		89

Source: Researcher (2017)

3.5.1 Respondents

Study respondents were Sub-County Water Officers in ASAL counties. Each sub-county is headed by a Sub-County Water Officer hence the number of sub-counties in ASAL equals the number of Sub-County Water Officers. The total number of respondents was therefore eighty-nine (89). This ensured a naturally heterogeneous but relatively homogeneous sample as recommended by Saifuddin (2009).

3.6 Data Collection Instruments

According to (Kothari, 2004) data are facts presented to the researcher from the studying environment. This study used questionnaire to collect primary data. Secondary data on the other hand was collected through review of relevant publications and literature.

3.6.1 Questionnaire

In this study, questionnaires were self-administered and filled by Sub-county Water Officers. This research instrument was organized into 5 sections as guided by research objectives. Section A; sought the background information of the respondents to assess their suitability in addressing the research objectives. Questions in Section A were in nominal form. Section B, Section C, Section D and Section E sought information on administration of devolved water services, transformational leadership, planning and water provision respectively. Questions in the four sections were of 5-point Likert type scale.

3.6.2 Desk Study

Desk research refers to the collection and analysis of data already documented in print or availed online (Business Dictionary, 2017). It entails collecting secondary data from secondary sources like the internet, government agencies, published reports, libraries among others. In this study, desk research was used to collect secondary data relating to water services from the Devolved

governments in ASAL records. Moreover, desk research was used to collect secondary data on the subject concepts in the study objectives from published journals, books and articles that may contain relevant information on the concepts investigated. These were sourced from the library as well as online sources from the internet. Desk research survey was guided by objective with the information sought relating to three different categories of literature including conceptual literature (to be used in conceptualization of the main variables especially under background of the study), theoretical literature (mainly in chapter two to identify relevant theories) and empirical literature (presented in the statement of the problem and literature review to identify the existing knowledge as well as the gap).

3.7 Data Collection Procedure

In this study, primary data was collected through and questionnaires. The researcher trained four research assistants who were engaged in collecting primary data. The Secondary data was collected by the researcher himself from records on water provision and related issues. This was done by first seeking authority from the relevant county and sub-county authorities in ASALs. For purposes of collecting data in this study, the questionnaires were administered to the relevant respondents in the institutions.

The researcher got a permit and a letter of introduction from the Management University of Africa, before embarking on the actual field activities. Permission was also obtained from the National Commission for Science Technology and Innovation (NACOSTI) to engage the various leaders in the study and obtain a permit.

3.8 Pilot Study

For this study, pretesting of the questionnaire was done through piloting to ensure its reliability and consistency. The fundamental importance of piloting is to examine the viability of the anticipated method to be used in the main research (Leon *et al.*, 2011). In general, a 10% to 20% of sample size for the main study is recommended for piloting (Osama & Issa, 2015). In this regard, piloting was conducted on nine sub-counties within ASAL but who were not covered in

the final study. This constituted 10.11 percent (9/89) which was adequate for the purpose piloting for this study.

In essence, the pre-test helped to provide real questionnaire tests as well as its mode of administration. For that reason, it enabled the shortcomings of the instruments to be identified and predict the extent of non-response likely to take place. The clarity of the instrument items to the respondents was necessary so as to correct inconsistencies arising from the instruments, which ensured that they measure what was intended. The pilot data was not included in the actual study.

3.8.1 Validity

According to Griffiee (2012) validity is defined as the guarantee that the items in the questionnaire would be understood by respondents in a way similar to the way intended by the questionnaire maker. There are three categories of validity: face, content and construct validity (Cavana *et al.*, 2001). Face validity was estimated by use of correlations between the objective and subjective items utilized in the scales. Content validity was assessed through review and verification of the extent literature for the items contained in the research instruments. Finally, construct validity was assessed from the correlations of items (Kimberlin & Winterstein, 2008).

Both research instruments (a set of questionnaires were subjected to experts' opinions and recommendations and necessary adjustments were made. These experts included thesis supervisors and independent research consultants who largely advised on how to make the instruments more user-friendly as well as ensuring that all research objectives were adequately covered. One major recommendation made, and which was implemented by the researcher, was to treat transformational leadership considered in this study was treated as independent moderator in this study.

3.8.2 Reliability

Reliability indicates the extent of consistency in results/data obtained after administering the research instrument in subsequent trials (Kothari, 2004). In most cases, the preferred reliability criterion in line with the literature is Cronbach Alpha (Bonett, 2002) and the Alpha takes values in the range of 0 – 1 where 0 indicates no consistency while 1 indicates complete consistency. Different thresholds have been suggested for accepting the alpha between 0.7 and 0.9 (DeVellis, 2003). This study therefore adopted Cronbach Alpha to determine reliability of research instruments.

The alpha value can be as low as a result of less questions, low items interrelatedness or varied constructs. Low correlation items are discarded. However, a very high alpha may be an indicator of redundancy of some items that may be testing one question though in varied forms. The alpha should take a maximum value of 0.95 (Streiner, 2003). Piloted instrument generated an overall Cronbach Alpha of 0.831 while that of final data collected was 0.902 indicating that the research instruments were reliable for the purpose of this study.

3.9 Data Analysis

The Data collected was first sorted, cleaned and verified before actual analysis was conducted using SPSS statistical software, version 24 and Microsoft excel. Filled data for respondents whose level of response was found to be adequate were assigned numbers for coding into the computer. Then the data collected was subjected to qualitative and quantitative analysis. With respect to this, the quantitative data was categorized according to subject concept of the objectives of this study. The organized data was then interpreted in the light of the research problem to be addressed and used to enhance the quantitative findings. For qualitative data, data was collected through open ended questions that sought respondents' opinions on how various components of administration of devolved water services can improve water provision in ASAL. Analysis was done using R-based Qualitative Data Analysis (RQDA) software and results presented in bar plots and word clouds using visual representation of text data in the form of

tags. For the case of word clouds, the frequency of occurrence of these tags indicated level of prevalence as visualized by bar size, text size, text weight as well as the text color.

Quantitative analysis entailed computing descriptive statistics like the frequency and percentage for the quantitative data. Measures of central tendency were also used in which case the mean, median and mode were computed. At the same time, measures of dispersion were computed particularly the standard deviation. Inferential statistics were all applied on the quantitative data where correlation analysis, analysis of variance (ANOVA) and regression analyses were done. Presentation of findings was done using tables, pie charts, bar graphs as well as histograms for interpretation, summary and conclusions. In conducting the regression analysis, simple linear regressions analysis and hierarchical multiple linear regressions analysis were done, in which case, the regression was done at different levels. The models were expressed as follows:

- i. $Y = \beta_0 + \beta_1 X + e$; this analytical model tests the relationship between independent variable (administration of devolved water services) and the dependent variable (water provision).

Where: Y is water provision

X is administration of devolved water services expressed as:

$X = W_1 X_1 + W_2 X_2 + W_3 X_3$ where X_1 , X_2 , and X_3 represents the three components of administration of devolved water services considered in this study (that is stakeholders' engagement, human resource development and application of modern technology). Similarly, W_1 , W_2 , and W_3 are the weighted parameter for their respective component.

e is the error term. β_0 is the constant and β_1 is the model coefficient.

Therefore, the component model expressing the relationship between Y and X can be summarized as follows:

$$Y = \alpha + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + e$$

- ii. The analytical model for testing moderating effect of transformational leadership (M_1) on the relationship between administration of devolved water services and water provision:

$$\text{Step 1: } Y = \beta_0 + \beta_1 X + e$$

$$\text{Step 2: } Y = \beta_2 + \beta_3 X + \beta_4 M_1 + \varepsilon$$

$$\text{Step 3: } Y = \beta_5 + \beta_6 X + \beta_7 M_1 + \beta_8 X * M_1 + \varepsilon$$

Where Y is water provision, X is administration of devolved water services, M_1 is transformational leadership, $X * M_1$ is the interaction term and e is the error term. B_0 , B_2 and B_5 are the constants with β_1 , β_3 , β_4 , β_6 , β_7 , and β_8 , being the model coefficients (Hayes, 2018).

- iii. The analytical model for testing moderating effect of planning (M_2) on the relationship between administration of devolved water services and water provision

$$\text{Step 1: } Y = \beta_0 + \beta_1 X + e$$

$$\text{Step 2: } Y = \beta_9 + \beta_{10} X + \beta_{11} M_2 + \varepsilon$$

$$\text{Step 3: } Y = \beta_{12} + \beta_{13} X + \beta_{14} M_2 + \beta_{15} X * M_2 + \varepsilon$$

Where Y is water provision, X is administration of devolved water services, M_2 is planning, $X * M_2$ is the interaction term and e is the error term. B_0 , B_9 and B_{12} are the constants with β_1 , β_{10} , β_{11} , β_{13} , β_{14} , and β_{15} , being the model coefficients (Hayes, 2018).

- iv. The analytical model for testing the joint moderating effect of transformational leadership (M_1) and planning (M_2) on the relationship between administration of devolved water services and water provision in Arid and Semi-Arid Lands

$$\text{Step 1: } Y = \beta_0 + \beta_1 X + e$$

$$\text{Step 2: } Y = \beta_{16} + \beta_{17} X + \beta_{18} M_1 + \beta_{19} M_2 + \varepsilon$$

$$\text{Step 3: } Y = \beta_{20} + \beta_{21} X + \beta_{22} M_1 + \beta_{23} M_2 + \beta_{24} X * M_1 + \beta_{25} X * M_2 + \varepsilon$$

Where Y is water provision, X is administration of devolved water services, M_1 is transformational leadership, M_2 is planning, $X * M_1$ and $X * M_2$ are the interaction terms and e is

the error term. B_0 , B_{16} and B_{20} are the constants with β_1 , β_{17} , β_{18} , β_{19} , β_{21} , β_{22} , β_{23} , β_{24} and β_{25} , being the model coefficients (Hayes, 2018; Darlington & Hayes, 2017).

Table 3.3: Summary of Research Objectives, Hypotheses and Empirical Models

Objective	Hypothesis	Type of Analysis	Interpretation of Results
Objective 1 To determine the effect of administration of devolved water services on water provision in ASAL in Kenya.	Hypothesis 1 Administration of devolved water services does not significantly influence water provision in ASAL in Kenya	Simple linear regression analysis $Y = \beta_0 + \beta_1X + e$	Coefficient of determination $R^2 = 0.7$ or more indicates perfect fit of regression model. ANOVA. F-Test, showing a significant and valid model at $p < 0.05$ t-value > 1.962 shows statistical significance P-value < 0.05 shows significant correlation between variables r = 0.700 or more indicates a strong positive relationship and r = 0.300 or less indicates a weak relationship.
Objective 2 To establish the moderating effect of transformational leaderships on the relationship between administration of devolved water services and water provision in ASAL in Kenya	Hypothesis 2 Transformative leadership styles do not have a significant moderating effect on the relationship between administration of devolved water services and water provision in ASAL in Kenya	Hierarchical Regression Analysis Step 1: $Y = \beta_0 + \beta_1X + e$ Step 2: $Y = \beta_2 + \beta_3X + \beta_4M_1 + \varepsilon$ Step 3: $Y = \beta_5 + \beta_6X + \beta_7M_1 + \beta_8X * M_1 + \varepsilon$	Coefficient of determination $R^2 = 0.7$ or more indicates perfect fit of regression model. ANOVA. F-Test, showing a significant and valid model at $p < 0.05$ t-value > 1.962 shows statistical significance P-value < 0.05 shows significant correlation between variables

Objective	Hypothesis	Type of Analysis	Interpretation of Results
Objective 3	Hypothesis 3	Hierarchic regression analysis	<p>$r=0.700$ or more indicates a strong positive relationship and $r=0.300$ or less indicates a weak relationship.</p> <p>Coefficient of determination $R^2=0.7$ or more indicates a significant fit of regression model.</p> <p>ANOVA. F-Test, showing a significant and valid model at $p<0.05$</p> <p>t-value > 1.962 shows statistical significance</p> <p>P-vale< 0.05 shows significant correlation between variables</p> <p>$r=0.700$ or more indicates a strong positive relationship and $r=0.300$ or less indicates a weak relationship.</p>
To establish the moderating effect of planning on the relationship between administration of devolved water services and water provision in ASAL in Kenya	Planning do not have a significant moderating effect on the relationship between administration of devolved water services and water provision in ASAL in Kenya	<p>Step 1: $Y=\beta_0 + \beta_1X + e$</p> <p>Step 2: $Y=\beta_9 + \beta_{10}X + \beta_{11}M_2 + \epsilon$</p> <p>Step 3: $Y=\beta_{12} + \beta_{13}X + \beta_{14}M_2 + \beta_{15}X*M_2 + \epsilon$</p>	
Objective 4	Hypothesis 4	Hierarchical multiple regression analysis	<p>Squared multiple correlation coefficient, $R^2=0.7$ or more indicates significance of the regression model.</p> <p>ANOVA. F-Test, showing a significant and valid model at $p<0.05$</p> <p>t-value > 1.962 shows statistical significance</p>
To establish if the joint moderating effect of transformational leadership and planning on the relationship between administration of devolved water services and water provision in ASAL in Kenya is different from their separate effect.	The joint moderating effect of transformational leadership and planning on the relationship between administration of devolved water services and water provision in ASAL in Kenya is not significantly different from their separate effect.	<p>Step 1: $Y = \beta_0 + \beta_1X + e$</p> <p>Step 2: $Y=\beta_{16}+ \beta_{17}X + \beta_{18}M_1 + \beta_{19}M_2 + \epsilon$</p> <p>Step 3: $Y=\beta_{20}+ \beta_{21}X + \beta_{22}M_1 + \beta_{23}M_2 + \beta_{24}X_1*M_1 + \beta_{25}X_1*M_2 + \epsilon$</p>	

3.10 Diagnostic Tests

Diagnostic tests were based on tests for autocorrelation, multicollinearity, normality and homoskedasticity.

3.10.1 Test for Autocorrelation

Ordinary Least Square (OLS) assumes that there is no serial or autocorrelation in the error terms entering the regression functions. Autocorrelation, may be defined as correlation between members of series of observations ordered in time (as in time series data) or space as in cross section data. OLS estimates, in the presence of autocorrelation are still linear unbiased as well as consistent and asymptotically normally distributed, but no longer efficient. They do not have minimum variance among all linear unbiased estimators. In this study, autocorrelation was tested using Durbin Watson Index

3.10.2 Test for Multicollinearity of Explanatory Variables

The term multicollinearity originally meant the existence of a perfect or exact, linear relationship among some or all explanatory variables of a regression model. Multicollinearity is a problem that occurs with regression analysis when there is a high correlation of at least one independent variable with a combination of the other independent variables. The problem occurs when some of the predictors are influenced by some variables within the model. This generates correlation and impreciseness on regressed model because variables are not completely independent. This study used Variable Inflation Factor (VIF) to measure the extent of multicollinearity, which indicates that the extent of variance of a regression coefficient increases if the explanatory variables are correlated, where the greater the VIF-Value, the more the extent of collinearity.

If there is perfect multicollinearity, the regression coefficients remain indeterminate and their standard errors are infinite. On the other hand, if multicollinearity is imperfect but high, Estimation of the regression coefficients may be possible (determinate) but could possess the large standard errors (in relation to the coefficient themselves), which implies that the coefficients cannot be estimated with great precision or accuracy. According to Gujarati (2003), Multicollinearity becomes a serious problem if the pair wise or zero order correlation between

the two regressors is in excess of 0.8 that is, if the VIF is greater than 5, it indicates a high level of collinearity with VIF of 10 or above presenting an extremely intolerable multicollinearity.

3.10.3 Normality Test for the Dependent Variable

Normality of the data collected on water provision was tested using Kolmogorov Smirnov test to assess whether the sample was obtained from a normally distributed population. This assessment was important since normal data is an underlying assumption in parametric testing. According to Kolmogorov Smirnov test, if the p-value is greater than 0.05, the data are described as normally distributed.

3.10.4 Test for Homoskedasticity and Heteroskedasticity

Another assumption of OLS is that the variance of each disturbance term conditional on the chosen values of the explanatory variables is homoscedasticity i.e. they have the same or equal variance. Violation of this assumption of homoscedasticity leads to estimates that are unbiased and consistent but inefficient. They do not have a minimum variance as well. To test for heteroskedasticity, the Breusch-Pagan/ Cook-Weisberg test was conducted and p-value used to interpret the results. This test whether the error variances are equal or whether they are different (or are heteroskedastic). Hypotheses was tested as follows:

Null Hypothesis (H_0): The data (residuals) is homoscedastic

Alternative Hypothesis (H_1): The data is heteroscedastic

3.11 Ethical Considerations

Research ethics aims at ensuring that the activities done in the research do not adversely affect or harm any respondent or discredit sources of information (Kayunze, 2003). Before field exercises, the researcher got authorization letter from the Management University of Africa and eventually research permit from NACOSTI, Ministry of Interior and National Coordination in every County in ASAL, as well as office of the County Secretary in the areas of this study.

The researcher made an assurance that the study findings as derived from the analyzed data would ensure integrity with no manipulation whatsoever. At the same time, all the information that would be obtained from the secondary sources and used in this study would be referenced appropriately. Thus, the research instruments in this study were non-invasive. Moreover, data collected was exclusively used for the academic purpose only. Before distributing the instruments, permission was sought from the leaders and management of Devolved governments in ASAL and other concerned institutions as well as the members of the communities involved in the study.

CHAPTER FOUR

DATA ANALYSIS AND RESEARCH RESULTS

4.1 Introduction

In this chapter, data analysis is done and findings presented. The findings are also interpreted in line with the study objectives. The chapter first presents a section on the bio data for the respondents. The findings are then categorized into descriptive, inferential and qualitative findings.

4.2 Response Rate

The researcher administered 89 questionnaires to the Sub-County water officers. Table 4.1 presents response rate for water officers.

Table 4.1: Response rate

Questionnaires	Frequency	Percent
Response	74	83.1%
No response	15	16.9%
Total	89	100%

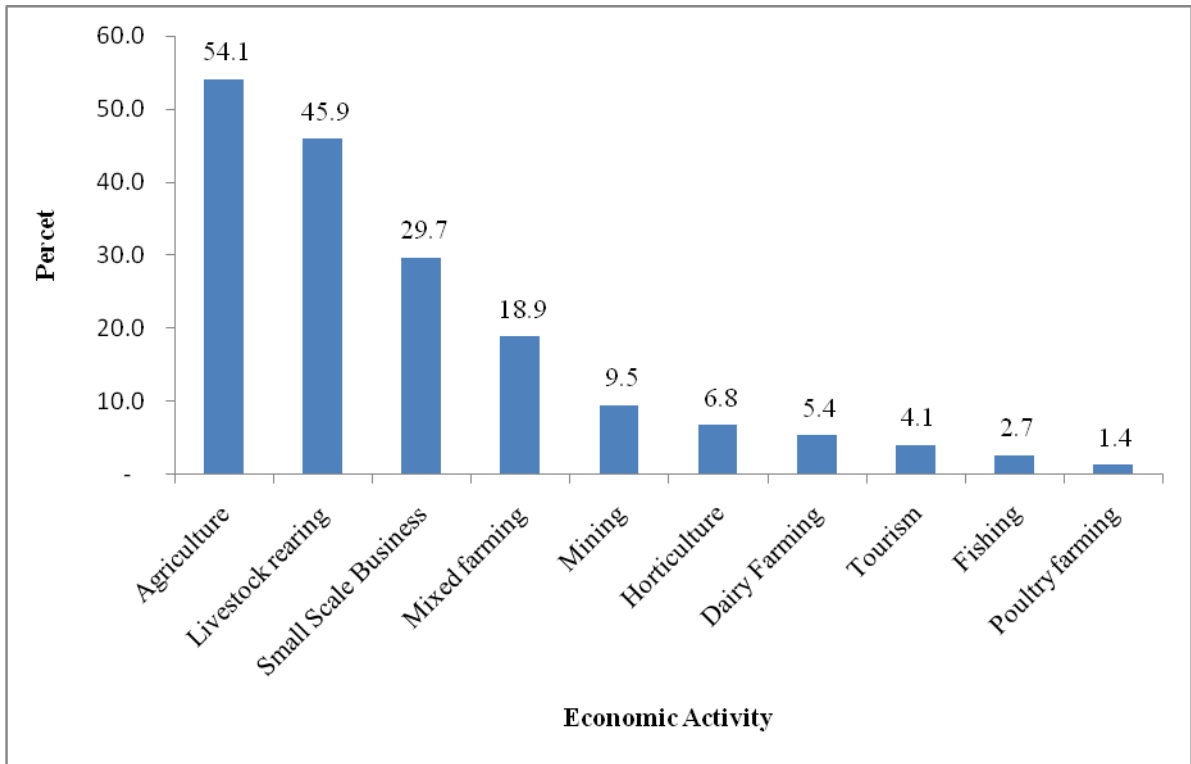
A total of 89 questionnaires were administered to the water officers in the 89 Sub -Counties in ASALs. While 74 of them completed and returned the questionnaires, 15 of them either failed to complete the questionnaire or failed to return. This translates to a response rate of 83.1% as illustrated in Table 4.1. Gall *et al.* (2007) asserts that, a response rate of over 60% of the target is adequate for a study. Therefore, the response rate of 83.1% was considered adequate to generalise findings of this study.

4.3 Demographic Information

The bio data that was collected includes data on economic activity in the areas studied; as well as respondents' gender, level of education, profession and the year they started working in the county. The results are presented in Figure 4.1 to Figure 4.5.

Economic activities practiced by residents in arid and semi-arid lands are presented in Figure 4.1

Figure 4.1: Economic activities in ASALs

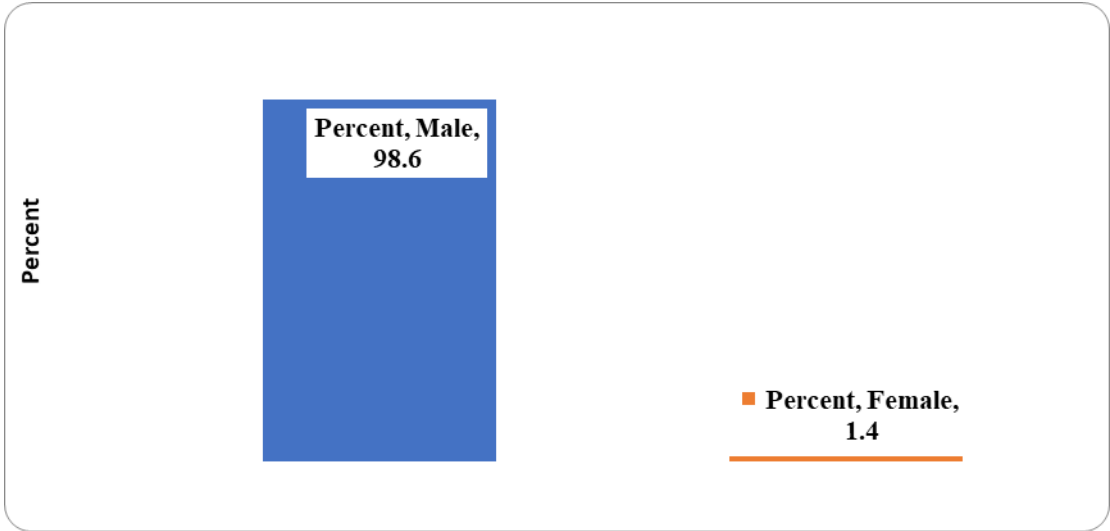


The main economic activities as presented in Figure 4.1 are Agriculture (54.1%) and Livestock rearing (45.9%). However, some also practice Small Scale Business (29.7%) and Mixed farming (18.9%). The least practiced economic activities are fishing (2.7%) and Poultry farming (1.4%). This implies that most people in the ASALs are engaged in Agriculture and Livestock rearing with very few being engaged in poultry farming and fishing.

These results portray ASAL inhabitants as having, over centuries, evolved a complex pattern of survival in a region with extreme climatic conditions and erratic water supply. All their activities

are based on traditional approach to mitigate harsh climatic condition. This pattern includes sophisticated risk-spreading priorities based on an intimate knowledge and understanding of their harsh environment and the human condition. Traditional pastoralism was found to be always less risky than traditionally dry land farming. The economy of the ASAL has therefore evolved mainly towards livestock economy with some farming conducted only in good rain years and in selected sites where water accumulates. How, as a result of administration of devolved water services the approach to sustainable development in the ASAL should not overlook the traditional survival strategies. It should aim at understanding these risk-avoidance strategies and attempting through the introduction of broader knowledge and improved technologies to reduce the risks involved in ASAL living without attempting drastic changes. Devolution must place the welfare of these herders and farmers at the center and make use of their systems to avoid susceptibility to famine disasters.

Figure 4.2: Gender of the respondents



On respondent's gender, findings indicate that a vast majority of water officers are male (98.6%) with only 1.4% being female as shown in Figure 4.2. This is an indication that Sub County water officers in ASALs are mostly men with women being highly sidelined in these positions. This could be explained by the fact that, apart from gender parity that is a challenge in most sectors in the whole world, women maybe perceived not to adapt and work in harsh geographical conditions in ASAL and especially in provision of water services where a lot of movement is

required. The Counties also employ locals who have qualifications in Water Engineering and this profession has attracted mostly men. However, ASAL Counties like Mandera are coming up with deliberate affirmative action measures of training women in technical areas like Engineering to bridge this gap.

Figure 4.3: Respondents' Education Level

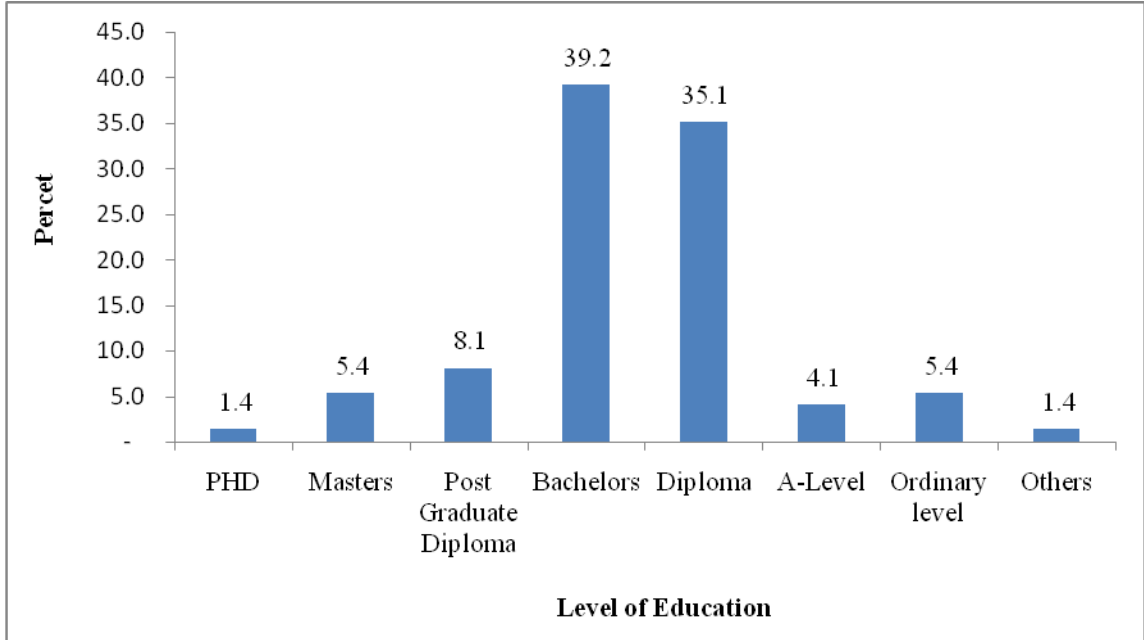
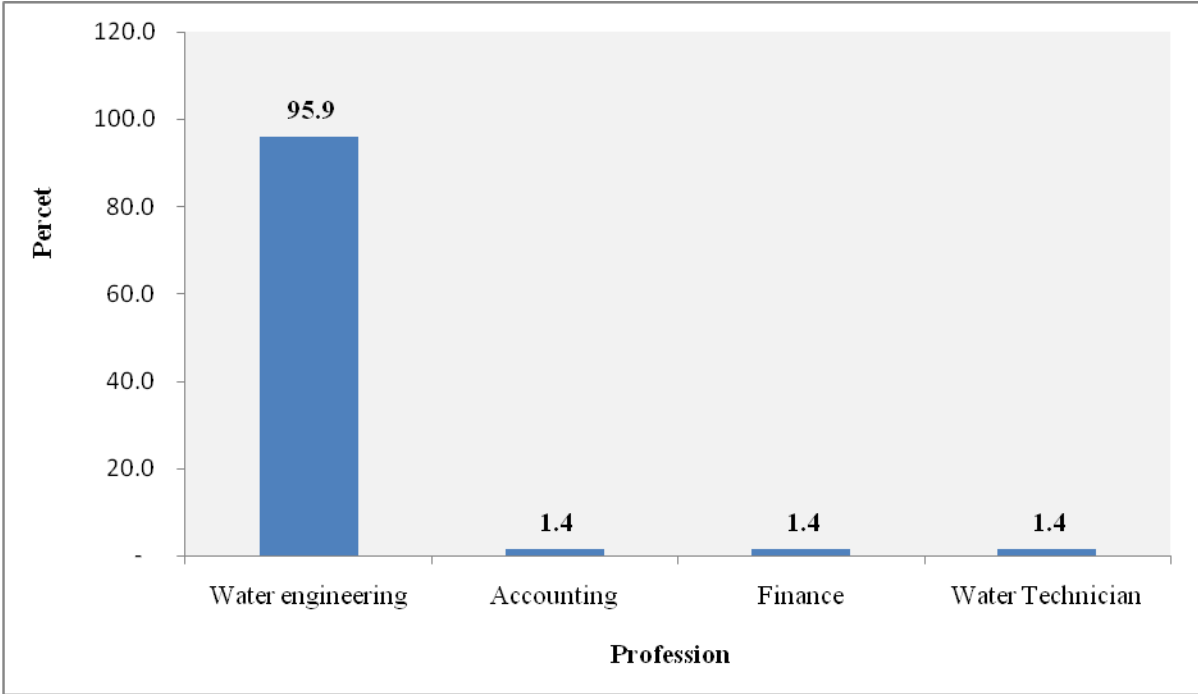


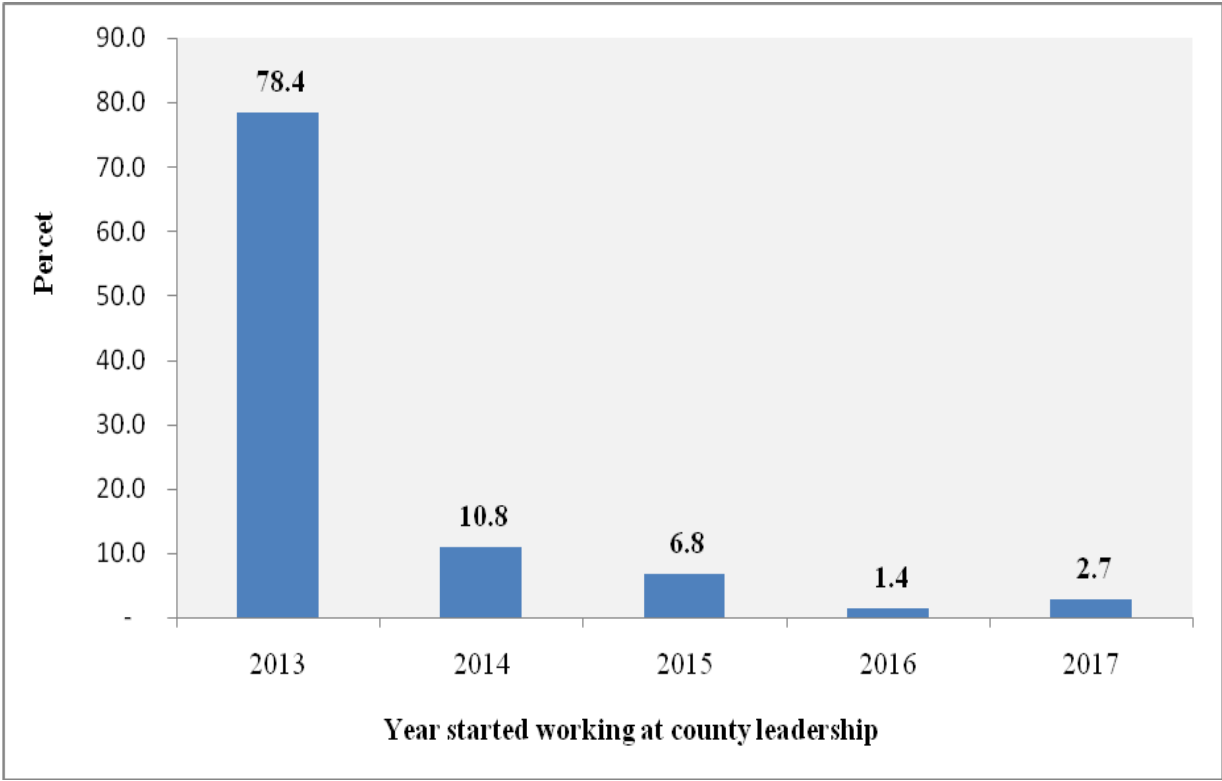
Figure 4.3 presents the education level of the respondents where, 39.2% had a Bachelor degree while 35.1% had a Diploma. A few had Post Graduate Diploma (8.1%), with 5.4% having Masters Degrees. Others had Ordinary level (5.4%); A-Level (4.1%); PHD (1.4%). This indicates that most of the water officers in the Sub Counties in ASALs have tertiary level of education. These results are congruent with societal expectation that, a person employed at a rank of Sob-County Water Officer must be a holder of an advanced academic certificate to enable them articulate both theoretical and practical issues related to water provision. Further analysis could indicate that, those with A-levels or O-levels are the aged lot, who were employed into water sector prior or just after introduction of the 8-4-4 system.

Figure 4.4: Profession of the Respondent



From figure 4.4, it is apparent that the profession background of an overwhelming majority of the water officers in ASAL Sub Counties is water engineering (95.9%). Even so, there were few in with a different profession background including accounting (1.4%), finance (1.4%) and water technician (1.4%). The implication is that in the ASALs, majority of the Sub County water officers have the right professional background. These findings are in line with expectations that Sub-County Water Officers should be people in possession of great knowhow experience on water provision matters

Figure 4.5: Respondents' First Year of Working in the County Leadership



As shown in Figure 4.5, most of the Sub County Water Officers started working in their respective County Governments in 2013 (78.4%). However, there were some who started working in 2014 (10.8%); 2015 (6.8%); 2016 (1.4%) and 2017 (2.7%) as presented in Figure 4.5. This indicates that most of the Sub County water officers had adequate experience to respond to the queries regarding water provision in their respective counties. This further implies that majority of the Water Officers were deployed in county leadership from the National Government during transition from the old constitution to the new constitution.

4.4 Administration of Devolved Water Services

The first objective sought to determine the effect of administration of devolved water services on water provision in ASAL in Kenya. This section presents both descriptive and inferential statistics to establish the relationship between the independent variable (administration of devolved water services) and the dependent variable (water provision).

Descriptive statistics on administration of devolved water services was presented on a 5-point Likert-type scale data that was summarized using measure of distribution (percentages) measures of central tendency (mean, mode, and median) as well as measure of dispersal (standard deviation). Values of mean, mode and median that are relatively close to each other describe data that is highly symmetric and normally distributed. At the same time mean, median and mode were used in this study to rank prevalence of different factors grouped together with high mean indicating high prevalence. On the other hand, larger standard deviation implies a greater spread in the data. This section is organized in three sub-sections based on components of administration of devolved water services including stakeholders’ engagement, human resource development, and application of modern technology.

Table 4.2: Stakeholders’ Engagement as a Component of Administration of Devolved Water Service

	Not at all	Low extent	Moderate extent	Great Extent	Very great extent	SUMMARY			
						Mean	Median	Mode	Standard Deviation
County Governments engages local residents to actively participate in water provision decision making processes	.0%	16.2%	23.0%	41.9%	18.9%	3.64	4.00	4.00	.97
County has increased the number of water management companies	31.1%	20.3%	29.7%	12.2%	6.8%	2.43	2.00	1.00	1.24
Administration of devolved water services in the county has enhanced the rate at which County Governments engages members of county and national assemblies to actively participate in	4.1%	18.9%	27.0%	32.4%	17.6%	3.41	3.50	4.00	1.11

	Not at all	Low extent	Moderate extent	Great Extent	Very great extent	SUMMARY			
						Mean	Median	Mode	Standard Deviation
water provision decision making processes									
Administration of devolved water services in the county has enhanced the rate at which County Governments engages professionals to give valuable advice on emerging efficient water provision techniques and mechanisms	6.8%	21.6%	37.8%	18.9%	14.9%	3.14	3.00	3.00	1.13
Administration of devolved water services in the county has enhanced effectiveness with which issues concerning water provision are communicated to all stakeholders involved	.0%	18.9%	33.8%	32.4%	14.9%	3.43	3.00	3.00	.97
Administration of devolved water services in the county has led to the development of supportive legal frameworks under active participation of all stakeholders	10.8%	17.6%	45.9%	20.3%	5.4%	2.92	3.00	3.00	1.02

Table 4.2 indicates the descriptive statistics on stakeholders' engagement. From the findings, County Governments normally engage local residents to actively participate in water provision decision making processes with mean of 3.64, median of 4.00, mode of 4.00 and standard deviation of 0.97. Respondents, nonetheless distressed that administration of devolved water

services in the county has led to increase in the number of water management companies (mean = 2.43, median = 2.00, mode = 1.00 and standard deviation = 1.24). Study findings also indicate that the county leaderships have to a moderate extent been engaging members of their respective county and national assemblies as well as professionals to actively participate in water provision decision making processes including seeking valuable advice on emerging efficient water provision techniques and mechanisms.

Table 4.3: Human Resource Development as a Component of Administration of Devolved Water Service

	Not at all	Low extent	Moderate extent	Great Extent	Very great extent	SUMMARY			
						Mean	Median	Mode	Standard Deviation
There is recruitment of adequate employees to manage water services in the County	17.6%	33.8%	27.0%	18.9%	2.7%	2.55	2.00	2.00	1.07
There is enhanced principle of meritocracy such that the staff recruited possess the requisite skills, knowledge and experiences to competently manage water services in county	20.3%	27.0%	31.1%	18.9%	2.7%	2.57	3.00	3.00	1.10
There is enhanced level of staff commitment in their work related to water services	9.5%	21.6%	41.9%	18.9%	8.1%	2.95	3.00	3.00	1.06

	Not at all	Low extent	Moderate extent	Great Extent	Very great extent	SUMMARY			
						Mean	Median	Mode	Standard Deviation
There is enhanced the level of professionalism among water service personnel	10.8%	18.9%	33.8%	28.4%	8.1%	3.04	3.00	3.00	1.12
There is enhanced transparency and accountability in procurement processes for water service providers	10.8%	27.0%	32.4%	24.3%	5.4%	2.86	3.00	3.00	1.08
There is enhanced the level of integrity and prudence in management of water service resources among county and sub-county administrators	5.4%	31.1%	33.8%	24.3%	5.4%	2.93	3.00	3.00	1.00

As shown in Table 4.3 regarding the extent to which human resource development as an indicator of devolution has influenced water provision, respondents found that every aspect assessed has enhanced water provision to a moderate extent. These aspects include recruitment of adequate employees to manage water services in the County (mean = 2.55), meritocracy such that the staff recruited possess the requisite skills, knowledge and experiences to competently manage water services in county (mean = 2.57), level of staff commitment in their work related to water services (mean = 2.95), and the level of professionalism among water service personnel (mean = 3.04). Others include transparency and accountability in procurement processes for water service providers (mean = 2.86) and level of integrity and prudence in management of water service resources among county and sub-county administrators (mean = 2.93). Median and mode for the same aspects were also averaging 3.0 with standard deviation of slightly over 1.0. This implies that opinions on the extent to which different aspects of human resource

development influence water provision are highly distributed across the 5-point Likert scale with little unanimity.

Table 4.4: Application of Modern Technology as a Component of Administration of Devolved Water Service

	SUMMARY								
	Low extent	Moderate extent	Not at all	Great Extent	Very great	Mean	Median	Mode	Standard Deviation
There is enhancement of technologies in facilities such as water tanks, storage dams/pans, drilled wells/boreholes across the county	10.8%	31.1%	8.1%	36.5%	13.5%	3.36	3.50	4.00	1.11
There are enhanced efforts on adopting various water technologies which are well suited to the conditions on water provision in the county	21.6%	31.1%	12.2%	31.1%	4.1%	2.93	3.00	3.00	1.09
The technologies applied by county leadership in the various areas of water service have worked better with devolved government as opposed to earlier under the National Government	20.3%	32.4%	20.3%	18.9%	8.1%	2.74	3.00	3.00	1.22

	SUMMARY								
	Low extent	Moderate extent	Not at all	Great Extent	Very great	Mean	Median	Mode	Standard Deviation
As a result of devolution, water technologies applied by county leadership have been widely supported by residents in county	24.3%	31.1%	10.8%	20.3%	13.5%	3.01	3.00	3.00	1.20
There is adoption of more superior water technologies in the county	18.9%	35.1%	21.6%	16.2%	8.1%	2.70	3.00	3.00	1.21
Administration of devolved water services in the county has led to the development of modern technology adoption framework under active participation of all stakeholders	29.7%	37.8%	10.8%	14.9%	6.8%	2.77	3.00	3.00	1.05

Based on results presented in Table 4.4, there is enhancement of technologies in facilities such as water tanks, storage dams/pans, drilled wells/boreholes across the county (mean = 3.36). however, only to a less extent has it enabled development of modern technology adoption framework under active participation of all stakeholders (mean = 2.77) as well as enhancing efforts on adopting various water technologies, which are well suited to the conditions on water provision in counties (mean = 2.93).

At the same time administration of devolved water services is yet to fully enhance adoption of more superior water technologies in counties (mean = 2.70) while the technologies applied by county leadership in ASAL have not worked any better with devolved government as opposed to earlier under the National Government (mean = 2.74) and as a result, water technologies applied

by county leadership have been moderately supported by residents in county (mean = 3.01). This implies that, while devolution has consistently led to enhancement of technologies in facilities such as water tanks, storage dams/pans, and drilled wells/boreholes across ASAL, there is moderate support of these technologies by residents.

4.5 Water Provision

This section presents descriptive statistics (mean and mean difference) as well as tests for normality on the various parameters used to measure water provision. Descriptive statistics are expressed in terms of Water Quality Index (WQI) method proposed by Tiwari and Mishra (1985). The overall WQI classes are expressed in percentages as follows: 76-100 (excellent, grade A), 51–75 (good, grade B), 26–50 (poor, grade C), 0–25 (very poor, grade D), >100 (unfit for domestic consumption, Grade E). The reverse of this scale is applicable for turbidity, color, taste and odor.

4.5.1 Descriptive Statistics on Water Provision

Water provision was based on the average distance in Kilometers covered by a resident to access the nearest water point, average cost in Kenya Shillings incurred by a resident to access a 20-liter jerrican of water, quality of water accessed by residents expressed as a percentage, reliability of water access by residents expressed as a percentage and salinity of water accessible by the residents expressed as a percentage. Other aspects considered included frequency in water treatment expressed as a percentage as well as the clarity of water used by the residents expressed as a percentage. Statistics on post-devolution are as shown in Table 4.5.

Table 4.5: Descriptive Statistics on Water Provision

Aspect	Statistics of Water Provision
Physical Accessibility (%)	19.874
Affordability (%)	24.090
Quality (%)	58.3851
Reliability (%)	59.7972
Salinity (%)	32.5297
Frequency in Water Treatment (%)	51.3648
Clarity of Water Used (%)	66.5675

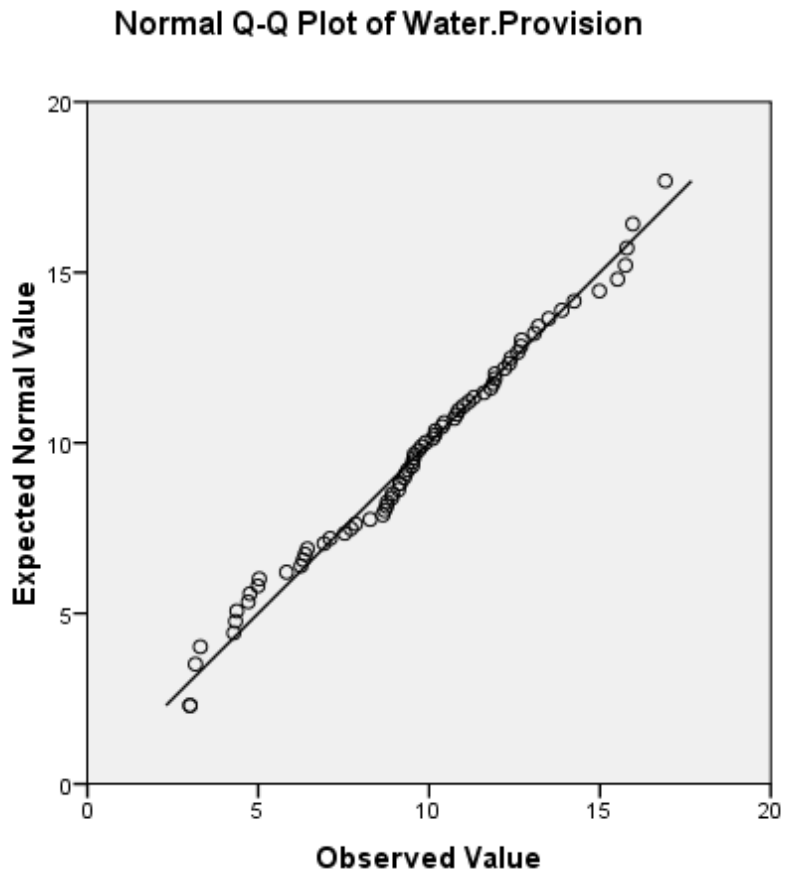
From the findings displayed in Table 4.5, the physical accessibility of water in ASAL approximates 19.874 percent with affordability being at 24.090 percent. Majority (58.385%) of respondents expressed their satisfaction with the quality of water with the remaining 41.615 percent articulating reservations on suitability of the available water resources in ASAL. Likewise, majority (59.797%) stated that available water sources are reliable with salinity levels estimated at 32.530% while frequency in water treatment being 51.365%. Respondents also approximated the clarity of water used to 66.568%. Compared to the Water Quality Index Method proposed by Tiwari and Mishra (1985), the findings imply that the quality of water resources in ASAL is good as well as their reliability and clarity (51% - 75%). However, the accessibility and affordability ranges between 0 – 25 percent.

4.5.2 Tests for Normality

Test for normality was done on the dependent variable (that is data on water provision) given that, when the sample size or the number of cases analyzed are at least thirty (30), violation of normality is not a problem for the predictors (Tabachinick and Fidell, 2007). Further, distribution of (Y) depends on the predictors and therefore the assumptions for the model state that the errors are normal since it (Y) is the only random variable in the model other than the

errors. Normality of data on water provision was tested using Normal Q-Q plot and One-Sample Kolmogorov-Smirnov Test.

Figure 4.6: Normal Q-Q Plot of Water Provision



The output of a normal Q-Q plot was used to determine normality graphically. If the data are normally distributed, the data points will be close to the diagonal line. If the data points stray from the line in an obvious non-linear fashion, the data are not normally distributed. As shown in Figure 4.6, the data is normally distributed.

Table 4.6: One-Sample Kolmogorov-Smirnov Test

N		74
Normal Parameters ^a	Mean	9.6129
	Std. Deviation	3.37640
Most Extreme Differences	Absolute	.090
	Positive	.061
	Negative	-.090
Kolmogorov-Smirnov Z		.776
Asymp. Sig. (2-tailed)		.584

The difference between the observed distribution and a perfectly normal one is checked based on a p value. If the p-value is less than 0.05, the distribution is significantly different from a normal distribution and might be cause for concern. If it is 0.05 or higher, there is no significant difference from normality. As shown in Table 4.6, the data for administration of devolved water services was normally distributed as p-value was greater than 0.05 for water provision with overall p-value using Kolmogorov-Smirnova normality index being $0.776 > 0.05$.

4.5.3 Test for Homoscedasticity

In statistics, a sequence (or a vector) of random variables is homoscedastic if all its random variables have the same finite variance. This is also known as homogeneity of variance. The complementary notion is called heteroscedasticity. The assumption of homoscedasticity simplifies mathematical and computational treatment. Serious violations in homoscedasticity (assuming a distribution of data is homoscedastic when in reality it is heteroscedastic may result in overestimating the goodness of fit as measured by the Pearson coefficient. This study used Breusch-Pagan test (named after Trevor Breusch and Adrian Pagan) as test for homoscedasticity.

Table 4.7: Breusch - Pagan Test for Homoscedasticity

Breusch -Pagan Test Statistic	Degrees of Freedom	p-Value
0.652	1	0.837

For Breusch-Pagan test the null hypothesis assumes homoscedasticity which is stated as follows:

Null Hypothesis (H_0): The data (residuals) is homoscedastic

Alternative Hypothesis (H_1): The data is heteroscedastic

The decision rule is:

If $p\text{-Value} < \alpha$; then null hypothesis is rejected.

If $p\text{-Value} > \alpha$; then we fail to reject the null hypothesis.

Where α is the level of significance (alpha)

Test for homoscedasticity in this study generated a p-Value of 0.837 (Table 4.7) and therefore we fail to reject the null hypothesis and conclude that the data (residuals) is homoscedastic.

4.6 Effect of Administration of Devolved Water Services on Water Provision

The first objective for this study was to establish the relationship between administration of devolved water services and water provision in ASAL in Kenya. Inferential statistics were computed at both composite level and indicators level.

4.6.1 Administration of Devolved Water Services and Water Provision using Composite Scores

Inferential statistics on administration of devolved water services using composite score entailed correlation coefficient, coefficient of determination (R-Square), analysis of variance as well as regression coefficient. Test for autocorrelation was also performed. Composite score was

computed by treating the various key aspects of administration of devolved water service (that is stakeholders’ engagement, human resource development, and application of modern technology) as one cluster as opposed to regressing each component individually.

Table 4.8: Correlation Coefficient for the Administration of devolved water services and Water Provision

		Water Provision	Administration of devolved water services
Water Provision	Pearson Correlation	1.000	.943**
	Sig. (2-tailed)		-
	N	74	74
Administration of devolved water services	Pearson Correlation	.943**	1.000
	Sig. (2-tailed)	-	
	N	74	74

** . Correlation is significant at the 0.01 level (2-tailed).

Table 4.8 indicates a Pearson Correlation coefficient between administration of devolved water services and water provision of 0.943 at 2-tail test and 0.05 significant levels. This indicates that administration of devolved water services and water provision positively influences each other up to 0.943 showing a very strong relationship between the two variables.

Table 4.9: Model Summary for the Administration of Devolved Water Services and Water Provision

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
.943 ^a	.890	.890	1.12727	2.077

Results in Table 4.9 show an R-Square of 0.89 with the standard error of estimate being 1.13. This implies that using composite score, administration of devolved water services significantly influences water provision. The researcher also tested for autocorrelation using Durbin Watson statistic which is always between 0 and 4 where a value of 2 means that there is no presence of

autocorrelation in the residuals (prediction errors) from a regression analysis. The Hypotheses for the Durbin Watson test are:

H_0 = No first order autocorrelation

H_1 = First order correlation exists.

(For a first order correlation, the lag is one-time unit).

A *rule of thumb* is that, test statistic values in the range of 1.5 to 2.5 are relatively normal. Values outside of this range could be cause for concern. Field (2009) suggests that values under 1 or more than 3 are a definite cause for concern. For the current study, Durbin Watson statistic was 2.077 which falls within the relatively-normal range and therefore there was no autocorrelation in the residuals from regression analysis.

Table 4.10: ANOVA for Administration of Devolved Water Services and Water Provision

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	740.710	1	740.710	582.777	.000 ^a
Residual	91.494	72	1.271		
Total	832.204	73			

As shown in Table 4.9, F-Calculated (1, 72) = 582.89 which is greater than F-Critical (1, 72) = 3.96 at 2-tail test and 95% confidence level (see Appendix IX). Results also show that p-value = 0.000 < 0.05. This further confirms that administration of devolved water services positively and significantly influences water provision.

Table 4.11: Regression Coefficients for Administration of Devolved Water Services and Water Provision

	Unstandardized Coefficients		Standardized Coefficients		Sig.
	B	Std. Error	Beta	T	
(Constant)	1.993	.342		5.827	.000
Administration of devolved water services	.275	.011	.943	25.000	.000

Findings presented in Table 4.11 show that when administration of devolved water services is held constant, water provision will remain at 1.993. At the same time, an increase in administration of devolved water services by one unit leads to an increase in water provision by 0.275 units with a p-value of $0.000 < 0.05$. This can be summarized by the following model:

$$Y = 1.993 + 0.275X$$

In summary, given R-Square = 0.890 with F-Calculated (1, 72) = 582.777 which is greater than F-Critical (1, 72) = 3.96 \t 2-tail test and 95% confidence level and p-value = $0.000 < 0.05$ as well as a positive elasticity (0.275) the researcher did not accept the null hypothesis (H_{01}) and therefore concludes that *there is positive and significant effect of administration of devolved water services on water provision in ASAL in Kenya.*

4.6.2 Administration of Devolved Water Services and Water Provision using Component Scores

Inferential statistics on components of administration of devolved water services (stakeholders' engagement, human resource development, and application of Modern Technology) and water provision entailed correlation coefficients, coefficient of determination, ANOVA, and regression coefficient.

Table 4.12: Correlation Coefficients for Components of Administration of Devolved Water Services

		Water provision	Stakeholders engagement	Human resource development	Application of Modern Technology
Water provision	Pearson Correlation	1.000	.771**	.853**	.886**
	Sig. (2-tailed)		.000	.000	.000
	N	74	74	74	74
Stakeholders engagement	Pearson Correlation	.771**	1.000	.681**	.659**
	Sig. (2-tailed)	.000		.000	.000
	N	74	74	74	74
Human resource development	Pearson Correlation	.853**	.681**	1.000	.717**
	Sig. (2-tailed)	.000	.000		.000
	N	74	74	74	74
Application of Modern	Pearson Correlation	.886**	.659**	.717**	1.000
	Sig. (2-tailed)	.000	.000	.000	

Technology	N	Water provision	Stakeholders engagement	Human resource development	Application of Modern Technology
		74	74	74	74

** . Correlation is significant at the 0.01 level (2-tailed).

As indicated in Table 4.12, correlation between water provision and stakeholders' engagement was 0.771 with water provision correlating with human resource development correlating at 0.853 and 0.886 with application of modern technology. There was also a positive correlation between application of modern technology and human resource development with a correlation coefficient of 0.717. All relationships were found to be positive and significant with p-Value of 0.000 at 0.05 significant levels.

Table 4.13: Model Summary on Administration of Devolved Water Services and Water Provision

R	R Square	Adjusted R Square	Std. Error of the Estimate
.949 ^a	.901	.896	1.08660

Results in Table 4.13 show an R-Square of 0.901 with the standard error of estimate being 1.09. This implies that administration of devolved water services through application of modern technology, stakeholders' engagement, and human resource development explains 90.1 percent of any changes in water provision.

Table 4.14: ANOVA for Components of Administration of Devolved Water Services

	Sum of Squares	of	Mean Square	F	Sig.
Regression	749.555	3	249.852	211.613	.000 ^a
Residual	82.649	70	1.181		
Total	832.204	73			

ANOVA was used to test goodness of fit by applying F-tests on the ratio of variances. As shown in Table 4.14, the P-value (p-Value=0.000<0.05) in the ANOVA table gives an overall

confidence that the fit for the regression model was good. Results further indicate that F-Calculated (3, 70) = 211.613 which is greater than F-Critical (3, 70) = 2.74 at 2-tail test and 95% confidence level with p-Value=0.000<0.05. This is an indication that administration of devolved water services has a significant influence on water provision in ASAL.

Table 4.15: Regression Coefficients for Components of Administration of Devolved Water Services

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	2.162	.336		6.435	.000	0.476	2.101
Stakeholders engagement	.164	.045	.198	3.644	.001	0.409	2.445
Human resource development	.287	.047	.364	6.106	.000	0.432	2.315
Application of Modern Technology	.356	.041	.494	8.683	.000	0.476	2.101

Findings presented in Table 4.15 show that when administration of devolved water services through stakeholders’ engagement, human resource development and application of modern technology, is held constant, water provision will remain at 2.162. At the same time, an increase in stakeholders’ engagement by one unit leads to an increase in water provision by 0.164 units with a p-value of 0.001<0.05 while an increase in one unit of human resource development leads to an increase in water provision by 0.287 with a p-value of 0.000<0.05. When application of modern technology increases by one unit, water provision increases by 0.356 with a p-value of 0.000<0.05. This can be summarized by the following model: $Y = 2.162 + 0.164X_{1-1} + 0.287X_{1-2} + 0.356X_{1-3}$ where X_{1-1} is application of modern technology, X_{1-2} human resource development and X_{1-3} stakeholders’ engagement.

Multicollinearity was assessed by examining tolerance and the Variance Inflation Factor (VIF). Tolerance is a measure of collinearity reported by SPSS as $1-R^2$. A small tolerance value indicates that the variable under consideration is almost a perfect linear combination of the independent variables already in the equation and that it should not be added to the regression equation. All variables involved in the linear relationship will have a small tolerance. If a low tolerance value is accompanied by large standard errors and non-significance, multicollinearity may be an issue.

The Variance Inflation Factor (VIF) is $1/\text{Tolerance}$, it is always greater than or equal to 1. There is no formal VIF value for determining presence of multicollinearity. Values of VIF that exceed 10 are often regarded as indicating multicollinearity and therefore a cause for concern. When VIF values are high for any of the variables in the model, multicollinearity is probably an issue. When VIF is high there is high multicollinearity and instability of the b and beta coefficients. It is often difficult to sort this out. as indicated in Table 4.14 VIF was 2.445 (stakeholders' engagement), 2.315 (human resource development) and 2.101(application of modern technology) indicating little or no multicollinearity and thus indicators on administration of devolved water services have stable beta and should be included in the regression equation

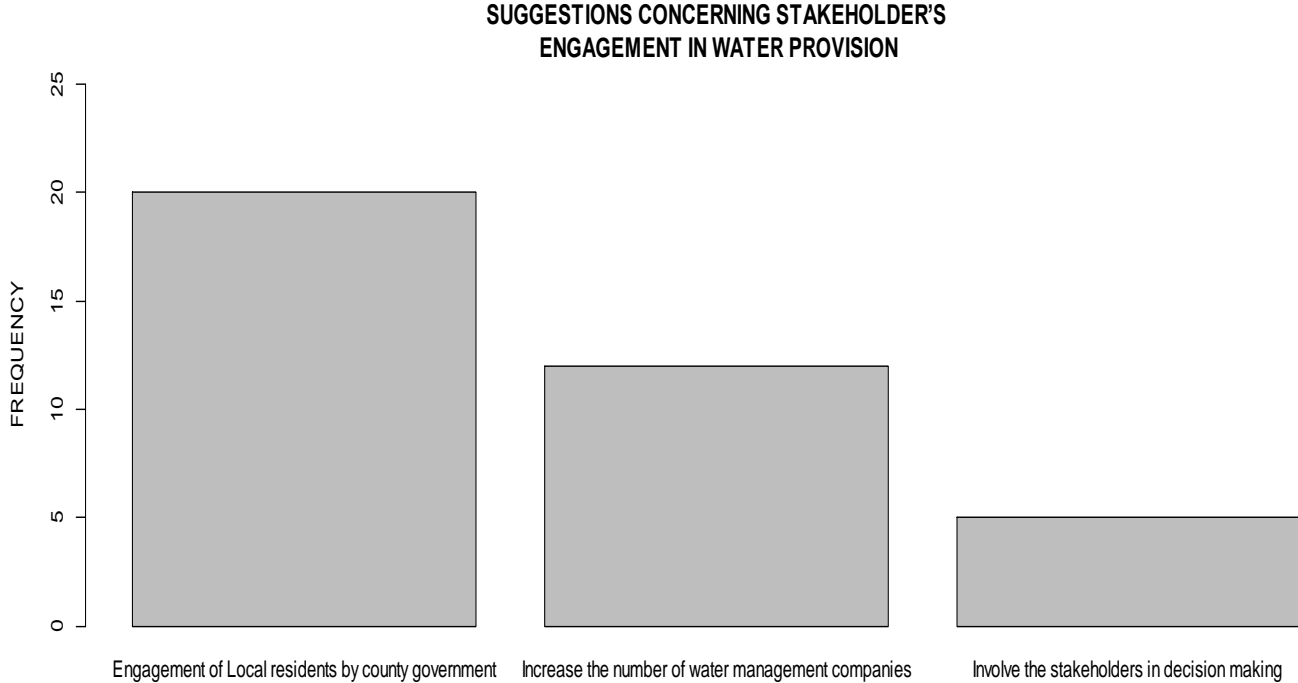
In summary, given $R\text{-Square} = 0.901$ with $F\text{-Calculated} (3, 70) = 211.613$ which is greater than $F\text{-Critical} (3, 70) = 2.74$ at 2-tail test and 95% confidence level and a $p\text{-value} = 0.000 < 0.05$ it can be confirmed that the researcher did not accept null hypothesis H_{01} and therefore conclude that *there is significant positive relationship between administration of devolved water services and water provision in ASAL in Kenya.*

4.6.3 Suggestions for Improvement of Water Provision through Administration of Devolved Water Services

This section presents results of the qualitative (open-ended) questions that sought respondents' opinions on how various components of administration of devolved water services can improve water provision in ASAL. Analysis was done using R-based Qualitative Data Analysis (RQDA) software and results presented in bar plots and word clouds using visual representation of text data in the form of tags. For the case of word clouds, the frequency of occurrence of these tags

indicated level of prevalence as visualized by bar size, text size, text weight as well as the text color.

Figure 4.7: Bar Graph Presenting Suggestions on Stakeholder’s Engagement in Water Provision



As shown in Figure 4.7, at least 20 respondents emphasized on the importance of engaging local residents by county governments with a further stress from some more respondents who indicated the need to involve the stakeholders in water provision in decision making. There is also the need for counties in ASAL to increase in the number of water management companies. For instance, a respondent opined that there is need for community sensitization, regular stakeholders’ meetings should and stakeholders’ views should be respected. In addition, stakeholders should be engaged from the identification of water projects to the implementation. Furthermore, “the engagement of public participation must start from ward level through sub-county to county level especially prioritization of project implementation”. This implies that engagement of local residents by county governments in decisions on water provision as well as

increase in the number of companies managing water resources are some of the outstanding suggestions made by the respondents in this study.

Figure 4.8: World Cloud Presenting Suggestions on Stakeholder’s Engagement in Water Provision



The most occurring words were “water”, “stakeholders”, “engaged”, “participation”, “enhanced”, “county” and “management”. This indicated that there should be enhance stakeholder participation through citizen forums and right watch groups in administration of devolved water services in ASAL. Also, the stakeholders should be involved in all water provision decision making so as to ensure ownership and sustainability of the projects since “currently the county governments are doing their programmes without much involvement of the communities. There is no deliberate effort being made towards their direction somehow in these ASAL counties, the staff are not enough”. Respondents also intimated that stakeholders are better placed in conservation and sustainability therefore should be engaged completely. A word cloud on these findings is presented in Figure 4.8.

Figure 4.9: Bar Graph Presenting Recommendations on Human Resource Development in Water Provision

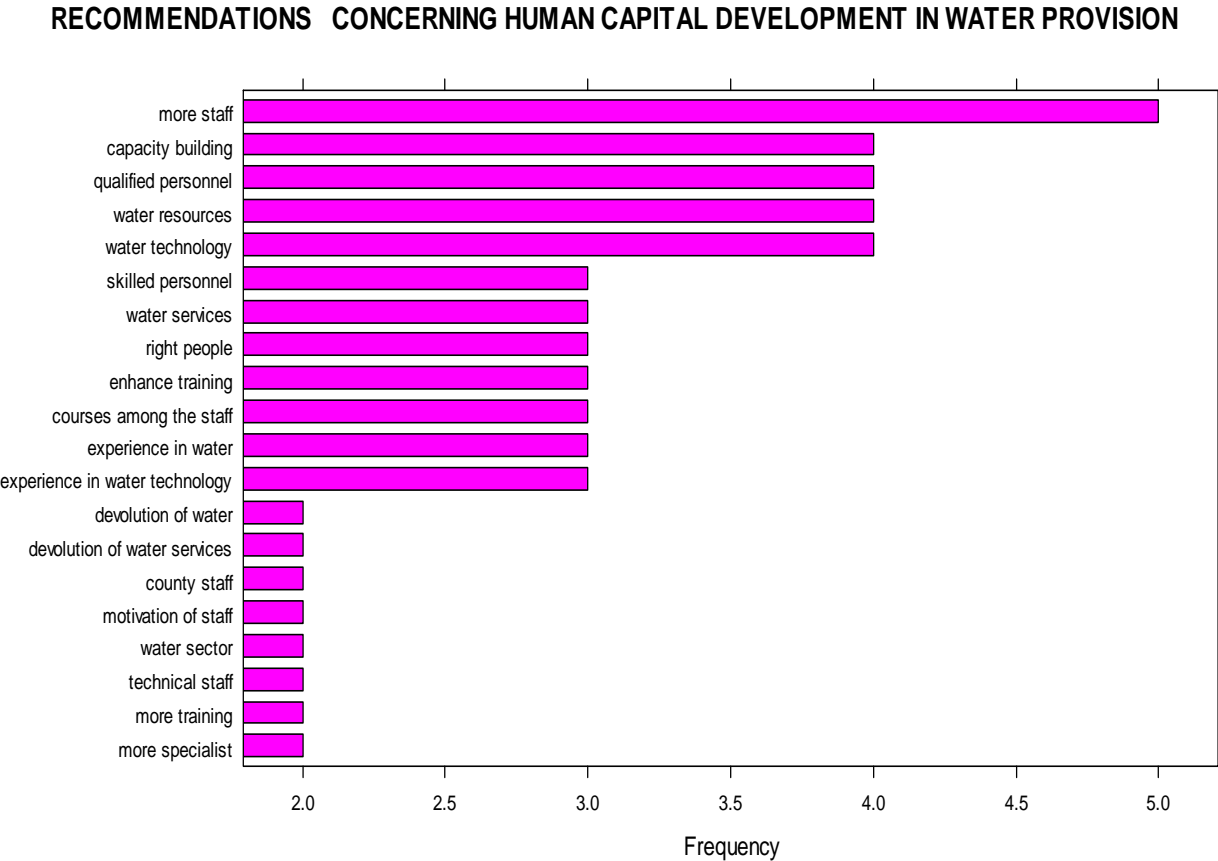


Figure 4.9 presents a bar graph on respondents’ recommendations concerning human resource development in water provision. Respondents were insistent that, counties should employ more staff and invest in capacity building because “most of the current staff have no basics in water skills and counties need qualified personnel”. Importance of employing water technologies was also put across by respondents elaborating that counties in ASAL should engage skilled and competent staff in water technology to replace the existing and worn out water infrastructure due to natural attrition.

Figure 4.10: Word Cloud Presenting Recommendations on Human Resource Development in Water Provision



As shown in Figure 4.10, among the most words included water, staff, county, recruit, training, personnel, leadership and skilled developments. Other largely conspicuous mentions were nepotism, relevant, technical, competent and qualified. A few respondents suggested that counties in ASAL should “shed off excess staff especially those inherited from the National Government and from the defunct Municipal Council” with others underscoring the need to ensure that all staff are well equipped with tools necessary for work and always motivated to ensure effective output. Nonetheless, some respondents supposed that there is adequate human resource development for effective administration of devolved water services in their respective counties and what is only need is to motivate staff and train them on leadership resource management and integrity. This implies that there is need to build sufficient competence around

the staff administering devolved water services. This will be achieved through capacity building, trainings, more recruitments and matching employees to their relevant tasks based on skills.

Figure 4.11: Bar Graph Presenting Recommendations on Application of Modern Technology in Water Provision

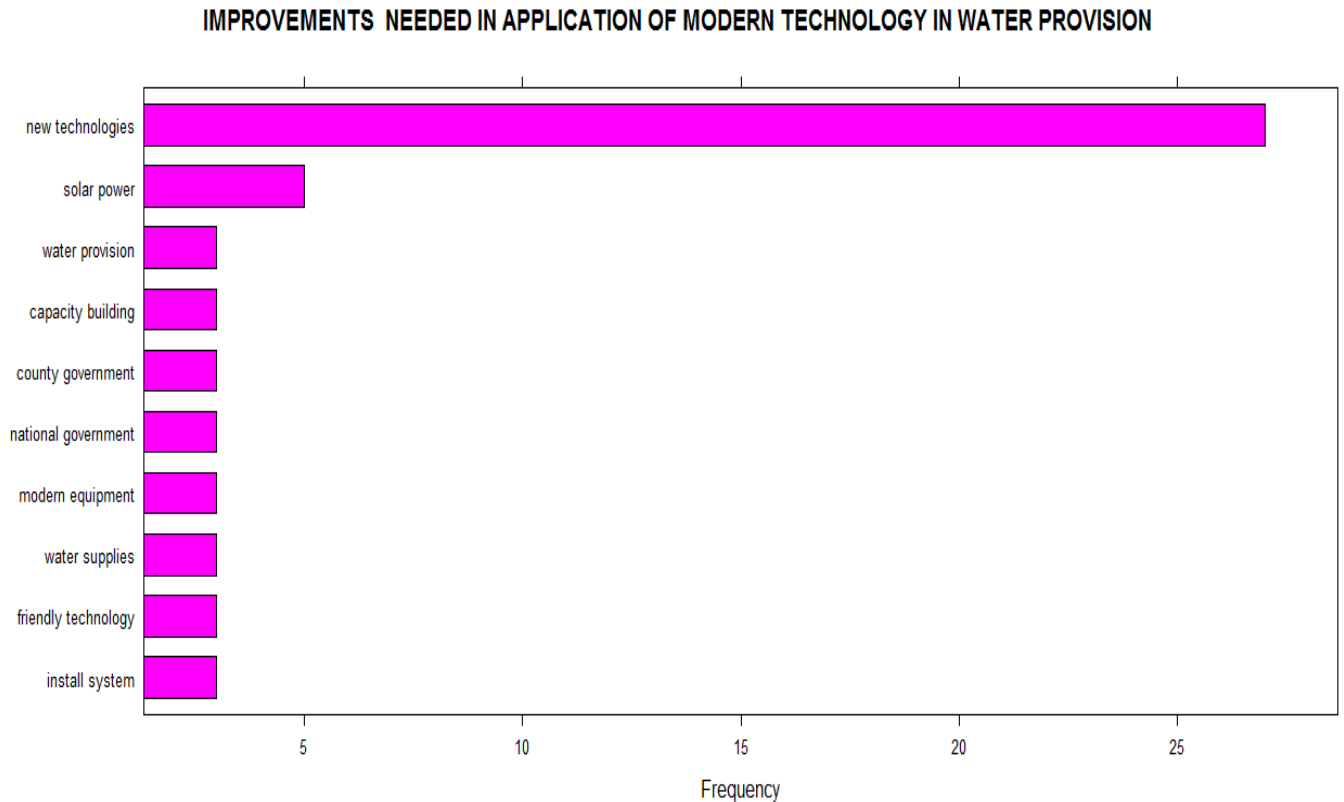


Figure 4.11 indicate displays a significant number of respondents (Over 25) suggesting new technologies can highly aide in water provision in ASAL. There was also the mention of solar power with roughly 6 respondents insisting that solar system should be used instead of diesel engine “to reduce cost of services in water provision” explaining that solar power constitute “simple technologies which communities can easily cope with in water harvesting technologies. Those who mentioned new technologies intimated that, introduction of life cycle cost approach system in the water system could enhance application of new and improved technology in the water sector. Moreover, new technologies would help in water mapping, exploitation and extraction such as solar and Geographical Information System (GIS).

Figure 4.12: Word Cloud Presenting Recommendations on Application of Modern Technology in Water Provision

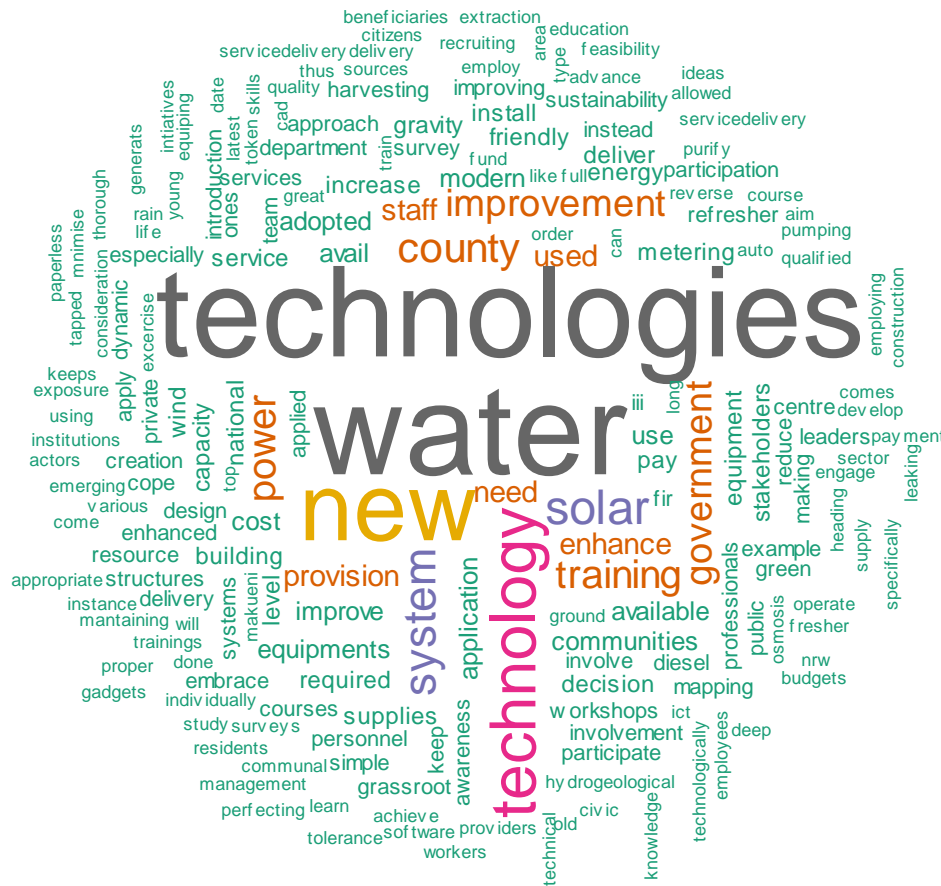


Figure 4.12 presents a word cloud on recommendations for improving application of modern technology in water provision. The most notable words are water, technologies, new, solar, power, improvement, and enhance training. These findings do stress the need to employ new technologies because of dynamics related to in water provision. For instance, a respondent stated that:

“Technology is dynamic and keeps improving and thus I recommended the county to be dynamic technologically instead of using the very old generators driven by diesel to pump water”

This implies that application of modern technology is important in water provision and thus administration of devolved water services ought to apply friendly technology such as solar

power, power gravity systems to deliver water, install system where you pay for consumed water.

4.7 Administration of Devolved Water Services, Transformational Leadership and Water Provision

The second objective for this study was to establish the moderating effect of transformational leadership on the relationship between administration of devolved water services and water provision in ASAL in Kenya. Moderating effect of transformational leadership was tested and results used either to reject or not reject the null hypothesis.

4.7.1 Descriptive Statistics on Administration of Devolved Water Services, Transformational Leadership and Water Provision

This section presents descriptive statistics on transformational leadership

Table 4.16: Descriptive Statistics Results on Administration of Devolved Water Services, Transformational Leadership and Water Provision

	Not at all	Low extent	Moderate extent	Great Extent	Very great extent	SUMMARY			
						Mean	Median	Mode	Standard Deviation
County leaders always inspire and motivate their staff in order to optimize productivity especially on Water services	24.3%	23.0%	31.1%	10.8%	10.8%	2.61	3.00	3.00	1.27
County Leaders always challenge staffs to be creative and generate lasting solutions when faced with challenges on water provisions	23.0%	17.6%	35.1%	18.9%	5.4%	2.66	3.00	3.00	1.19

	Not at all	Low extent	Moderate extent	Great Extent	Very great extent	SUMMARY			
						Mean	Median	Mode	Standard Deviation
County Leaders always intellectually stimulate their staff in order to optimize productivity especially on water provision	16.2%	29.7%	35.1%	12.2%	6.8%	2.64	3.00	3.00	1.11
County leaders always ensure subordinates get recognition and/or rewards when they achieve difficult or complex goals especially on water provision.	24.3%	23.0%	31.1%	10.8%	10.8%	2.61	3.00	3.00	1.27

Findings presented in Table 4.16 indicates that, county leaders do inspire and motivate their staff in order to optimize productivity especially on water services (mean = 2.61; standard deviation = 1.27), challenge their staffs to be creative to generate lasting solutions especially on water provision (mean = 2.66; standard deviation = 1.19). Results also show that county leaders intellectually stimulate their staffs to optimize productivity especially on water provision (mean = 2.64; standard deviation = 1.11) and county leaders always ensure subordinates get recognition/reward when difficult tasks especially on water provision is achieved (mean = 2.61; standard deviation = 1.27).

4.7.2 Inferential Statistics on the Administration of Devolved Water Services, Transformational Leadership and Water Provision

The moderating effect of transformational leadership was assessed and results explained using coefficient of determination (R-Square), Analysis of Variance (ANOVA) and the regression coefficients. Hierarchical regression analysis was performed with an interaction term (a product of transformational leadership and administration of devolved water services) introduced as an additional predictor.

Table 4.17: Regression Coefficients on Administration of Devolved Water Services, Transformational Leadership and Water Provision

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.993	.342		5.827	.000
Administration of devolved water services	0.275	.011	0.943	25.000	.000
2 (Constant)	1.710	.316		5.411	.000
Administration of devolved water services	.252	.012	.864	21.000	.000
Transformational leadership	.185	.045	.167	4.111	.000
3 (Constant)	1.764	.523		3.373	.001
Administration of devolved water services	.250	.018	0.858	13.889	.000
Transformational leadership	.171	.016	0.154	10.688	.000
Devolution.Transformational	.181	.013	0.017	13.923	.000

Table 4.17 presents regression coefficients and their significant values for model 1 (direct effect), model 2 (controlling effect) and model 3 (moderating effect). From the unstandardized coefficients, administration of devolved water services was making a unique significant and positive contribution to water provision with transformational leadership for all the three models (p-Value < 0.05). In model 3, this significance is particularly given by $b=0.250$, $T_{\text{Calculated}}(73, 0.05)=13.889 > T_{\text{Critical}}(0.05, 73)=1.658$ and $p\text{-Value}=0.000 < 0.05$ for administration of devolved water services; $b=0.171$, $T_{\text{Calculated}}(73, 0.05)=10.688 > T_{\text{Critical}}(0.05, 73)=1.658$ and $p\text{-Value}=0.000 < 0.05$ for transformational leadership; and $b=0.181$, $T_{\text{Calculated}}(73, 0.05)=13.923 > T_{\text{Critical}}(0.05, 73)=1.658$ and $p\text{-Value}=0.000 < 0.05$ for interaction term. The autonomous value is 1.764. The regression model can therefore be summarized as:

$$Y = 1.764 + 0.250X + 0.171M_1 + 0.181X * M_1$$

Where $X * M_1$ represents interaction term given as a product of transformational leadership (M_1) is interacted with administration of devolved water services (X)

Table 4.18: ANOVA for Administration of Devolved Water Services, Transformational Leadership and Water Provision

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	740.710	1	740.710	582.777	.000 ^a
	Residual	91.494	72	1.271		
	Total	832.204	73			
2	Regression	758.541	2	379.270	365.385	.000 ^b
	Residual	73.663	71	1.038		
	Total	832.204	73			
3	Regression	758.559	3	252.853	240.355	.000 ^c
	Residual	73.645	70	1.052		
	Total	832.204	73			

The ANOVA (Table 4.18) was intended to evaluate if models 1 is significant and if the amount of variance accounted for in Model 3 (moderating effect) is significantly more than Model 2 (controlling effect). Findings indicate that the model 3 is significant given $F(3, 70) = 240.355$, $p = 0.000 < .05$.

Table 4.19: R^2 for Administration of Devolved Water Services, Transformational Leadership and Water Provision

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate	Change Statistics				
					R^2 -Change	F-Change	df1	df2	Sig. F-Change
1	.943 ^a	.890	.889	1.127	.890	582.777	1	72	.000
2	.955 ^b	.911	.909	1.01858	.021	17.186	1	71	.000
3	0.959	.920	.918	1.0057	.009	10.017	1	70	.037

Table 4.19 presents the percent of variability in the water provision (dependent variable) that can be accounted for by administration of devolved water services and transformational leadership (predictors). With introduction of interaction term (model 3), R^2 changes (an increase) by 0.009 to 0.920 from 0.911 (model 2) with standard error of estimate also decreasing to 1.006 from 1.0185. This change was significant ($p\text{-Value}=0.001<0.05$) implying that transformational leadership had a significant moderating effect on the relationship between administration of devolved water services and water provision in ASAL in Kenya.

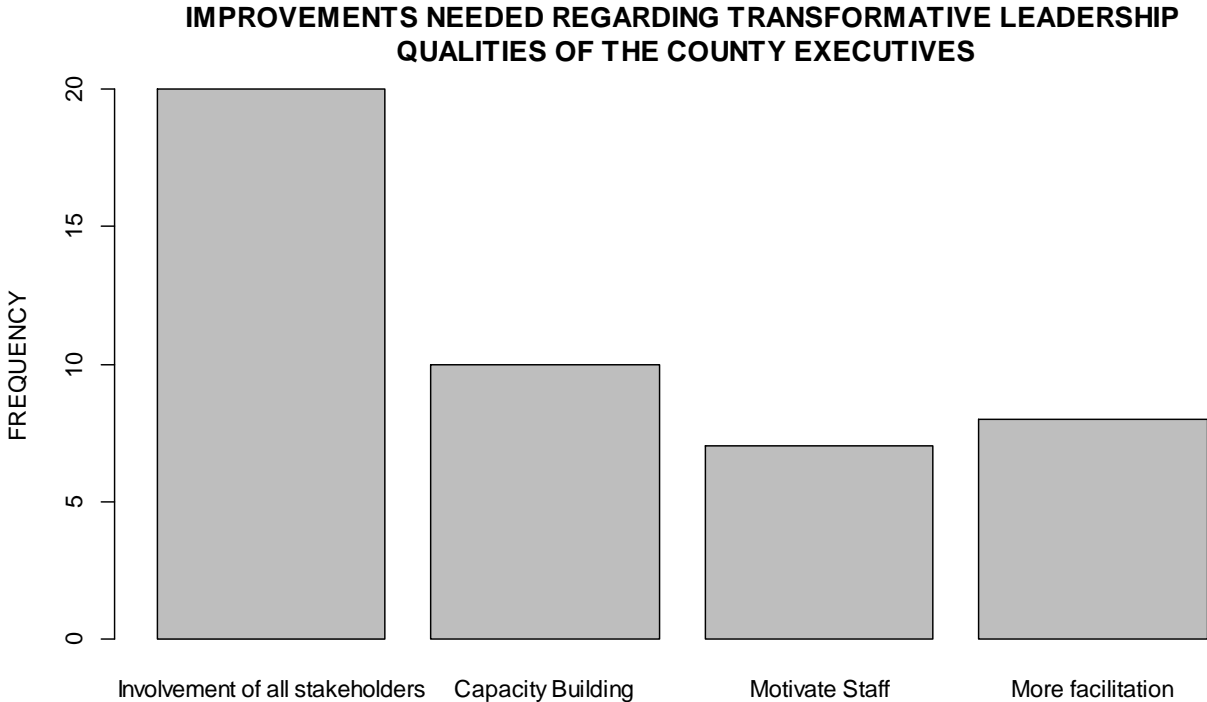
In summary and to test the hypothesis that transformational leadership does not significantly moderate the relationship between administration of devolved water services and water provision in Arid and Semi-Arid Lands in Kenya, a three-steps hierarchical multiple regression analysis was conducted. In the first step, the independent variable was included: administration of devolved water services and water provision. These variable accounted for a significant amount of variance in water provision, $R^2 = 0.890$, $F(1, 72) = 582.777$, $p\text{-Value} 0.000 < 0.05$. Next, the controlling effect was determined which also accounted for a significant effect with $R^2 = 0.911$, $F\text{-Change} (1, 71) = 17.186$, $p\text{-Value} 0.000 < 0.05$. The third and last step entailed introduction of interaction term to the regression model, which accounted for a significant proportion of the variance in water provision, $\Delta R^2 = 0.009$, $\Delta F(1, 70) = 10.017$, $b = .181$, $t(72) = 13.923$, $p\text{-Value}=0.000 < 0.05$. Consequently, the researcher did not accept the null hypothesis (H_{02a}) and therefore concludes that *transformational leadership has a significant moderating effect on the relationship between administration of devolved water services and water provision in Arid and Semi-Arid Lands in Kenya.*

4.7.3 Improvements Needed Regarding Transformational Leadership Qualities in Water Provision

This section presents results of the open-ended questions that sought respondents' opinions on how transformational leadership during administration of devolved water services can be enhanced to achieve the desired levels of water provision in ASAL. Analysis was done using R-based Qualitative Data Analysis (RQDA) software and results presented in bar plots and word clouds using visual representation of text data in the form of tags. For the case of word clouds,

the frequency of occurrence of these tags indicated level of prevalence as visualized by bar size, text size, text weight as well as the text color.

Figure 4.13: Bar Chart Presenting Improvements Needed on Transformative Leadership Qualities in Water Provision



As shown in Figure 4.13, improvements needed regarding transformational leadership quality include involvement of all stakeholders (20 respondents), capacity building (10), staff motivation (8) and more facilitation (9). Respondents further explained that transformational leadership is adequately achieved when there is participation of relevant stakeholders in every decision-making process, project implementation, planning, staff motivation and keeping of records for future references including more involvement in identification of priority created projects for funding in respective areas. Additionally, respondents were of the view that in administration of devolved water services, transformational leaders should be people with knowledge and skills including adequate experience on water provision besides being people who can exploit knowledge of their juniors and involve them in all water activities.

Figure 4.14: Word Cloud Presenting Improvements Needed on Transformative Leadership Qualities in Water Provision



Figure 4.14 is a word cloud presenting improvements needed regarding transformative leadership qualities in water provision. Frequently mentioned words include decision, water, process, staff, sub, county, stakeholders, involvement, facilitation and knowledge. Further assertion from respondents called for regular meetings and wide consultation with all stakeholders. Besides the County Executive Committee member in charge should be a water engineer, respondents cautioned that there should balance between politics and projects to reduce political interference with little or no biasness in allocation of funds.” This implies that county leadership in ASAL should engage sub-county leaders in decision making whilst subordinate leaders should satisfactorily be motivated and inspired.

4.8 Administration of Devolved Water Services, Planning and Water Provision

The third objective for this study was to establish the moderating effect of planning on the relationship between administration of devolved water services and water provision in Arid and Semi-Arid Lands in Kenya. Moderating effect was tested and results used either to reject or not reject the null hypothesis.

4.8.1 Descriptive Statistics for Administration of Devolved Water Services, Planning and Water Provision

This section presents descriptive statistics on planning as a moderating variable presented in Table 4.20.

Table 4.20: Descriptive Statistics Results for Administration of Devolved Water Services, Planning and Water Provision

	Not at all	Low extent	Moderate extent	Great Extent	Very great extent	SUMMARY			
						Mean	Median	Mode	Standard Deviation
The county uses strategic plans and County Integrated Development Plan (CIDP) to guide water provision in county	5.4%	17.6%	41.9%	28.4%	6.8%	3.14	3.00	3.00	.97
County leaders always ensure subordinates get recognition and/or rewards when they achieve difficult or complex goals	1.4%	12.2%	29.7%	43.2%	13.5%	3.55	4.00	4.00	.92

Devolution has enhanced appropriate allocation of resources in county budget towards water projects	13.5%	23.0%	43.2%	18.9%	1.4%	2.72	3.00	3.00	.97
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Devolution has enabled optimal and on-time deliveries on water projects	5.4%	8.1%	21.6%	50.0%	14.9%	3.61	4.00	4.00	1.02
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From the descriptive results illustrated in Table 4.20, respondents indicated that devolution has enabled optimal and on-time deliveries on water projects to a great extent (mean 3.61 and standard deviation of 1.02). Other moderately rated planning aspects included county leaders ensuring subordinates get recognition and/or rewards when they achieve difficult or complex goals (mean = 2.55 and standard deviation = 0.92), and the county using strategic plans and County Integrated Development Plan (CIDP) to guide water provision in county (mean = 3.14; standard deviation = 0.97).

4.8.2 Inferential Statistics for Administration of Devolved Water Services, Planning and Water Provision

The moderating effect of planning was assessed and results explained using coefficient of determination (R-Square), Analysis of Variance (ANOVA) and the regression coefficients. Hierarchical regression analysis was performed with an interaction term (a product of planning and administration of devolved water services) introduced as an additional predictor.

Table 4.21: Regression Coefficients for Administration of Devolved Water Services, Planning and Water Provision

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.993	.342		5.827	.000
	Administration of devolved water services	0.275	.011	0.943	25.000	.000
2	(Constant)	.474	.134		3.537	.000
	Administration of devolved water services	.167	.006	.574	27.833	.000
	Planning	.160	.006	.485	25.003	.000
3	(Constant)	0.556	.085		6.541	.000
	Administration of devolved water services	0.164	.011	.563	14.909	.000
	Planning	0.156	.011	.476	14.182	.000
	AdmWater.Planning	0.763	.131	.020	5.824	.000

Table 4.21 presents regression coefficients and their significant values for model 1 (direct effect), model 2 (controlling effect) and model 3 (moderating effect). From the unstandardized coefficients, administration of devolved water services was making a unique significant and positive contribution to water provision with planning for all the three models (p-Value < 0.05). In model 3, this significance is particularly given by $b=0.164$, $T_{\text{Calculated}}(73, 0.05)=14.909 > T_{\text{Critical}}(0.05, 73)=1.658$ and $p\text{-Value}=0.000 < 0.05$ for administration of devolved water services; $b=0.156$, $T_{\text{Calculated}}(73, 0.05)=14.182 > T_{\text{Critical}}(0.05, 73)=1.658$ and $p\text{-Value}=0.000 < 0.05$ for planning; and $b=0.763$, $T_{\text{Calculated}}(73, 0.05)=5.824 > T_{\text{Critical}}(0.05, 73)=1.658$ and $p\text{-Value}=0.000 < 0.05$ for interaction term. The autonomous value is 1.764. The regression model can therefore be summarized as:

$$Y = 0.556 + 0.164X + 0.156M_2 + 0.763X * M_2$$

Where $X*M_2$ represents interaction term given as a product of planning (M_2) is interacted with administration of devolved water services (X)

Table 4.22: ANOVA for Administration of Devolved Water Services, Planning and Water Provision

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	740.710	1	740.710	582.777	.000 ^a
	Residual	91.494	72	1.271		
	Total	832.204	73			
2	Regression	822.873	2	411.436	3,140.733	.000 ^b
	Residual	9.332	71	.131		
	Total	832.204	73			
3	Regression	822.887	3	274.296	2,062.376	.000 ^c
	Residual	9.317	70	.133		
	Total	832.204	73			

The ANOVA (Table 4.22) was intended to evaluate if models 1 is significant and if the amount of variance accounted for in Model 3 (moderating effect) is significantly more than Model 2 (controlling effect). Findings indicate that the model 3 is significant given $F(3, 70) = 2,062.376$, $p = 0.000 < .05$.

Table 4.23: R² for Administration of Devolved Water Services, Planning and Water Provision

Model	R	R ²	Adjusted R ²	Std. Error of the Estimate	Change Statistics				
					R ² -Change	F-Change	df1	df2	Sig. F-Change
1	.943 ^a	.890	.889	1.127	.890	582.777	1	72	.000
2	.994	.989	.988	.36253	.099	625.140	1	71	.000
3	.996	.993	.990	.36484	.003	25.1907	1	70	.004

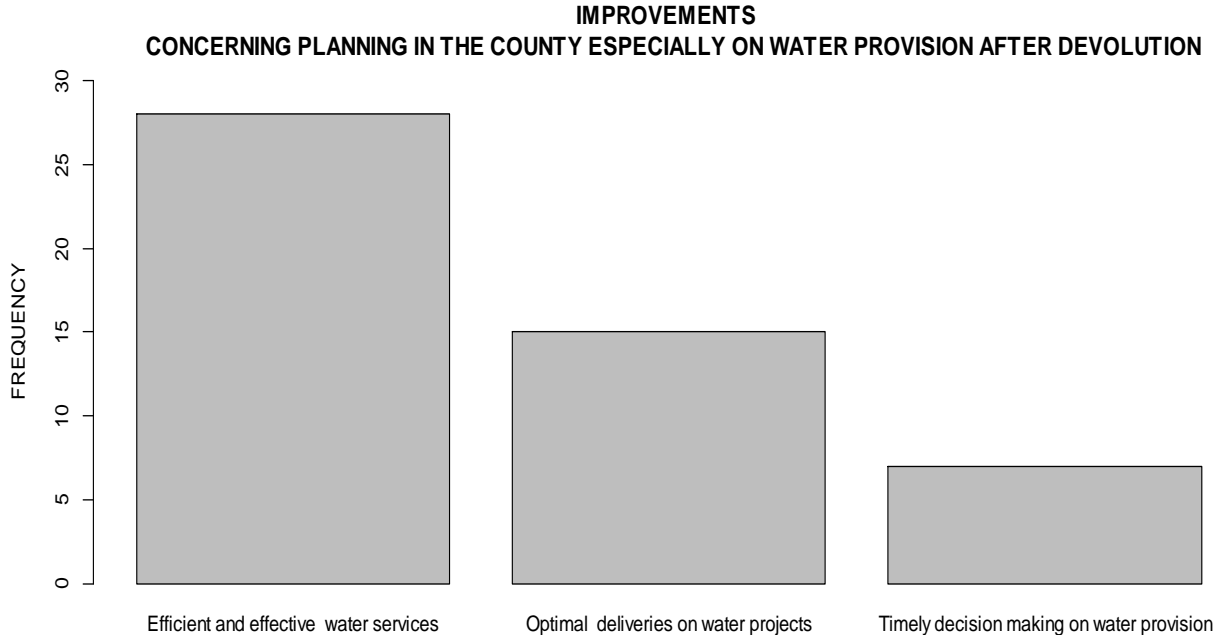
Table 4.23 presents the percent of variability in the water provision (dependent variable) that can be accounted for by administration of devolved water services and planning (predictors). With introduction of interaction term (model 3), R^2 changes (an increase) by 0.003 to 0.993 from 0.989 (model 2) with standard error being 0.365. This change was significant (p-Value=0.004<0.05) implying that planning had a significant moderating effect on the relationship between administration of devolved water services and water provision in ASAL in Kenya.

In summary and to test the hypothesis that planning does not significantly moderate the relationship between administration of devolved water services and water provision in Arid and Semi-Arid Lands in Kenya, a three-steps hierarchical multiple regression analysis was conducted. In the first step, the independent variable was included: administration of devolved water services and water provision. These variable accounted for a significant amount of variance in water provision, $R^2 = 0.890$, $F(1, 72) = 582.777$, p-Value $0.000 < 0.05$. Next, the controlling effect was determined which also accounted for a significant effect with $R^2 = 0.989$, $F\text{-Change}(1, 71) = 625.140$, p-Value $0.000 < 0.05$. The third and last step entailed introduction of interaction term to the regression model, which accounted for a significant proportion of the variance in water provision, $\Delta R^2 = 0.003$, $\Delta F(1, 70) = 25.1907$, $b = 0.763$, $t(72) = 5.824$, p-Value=0.000 < 0.05. Consequently, the researcher did not accept the null hypothesis (H_{03}) and therefore concludes that *planning has a significant moderating effect on the relationship between administration of devolved water services and water provision in Arid and Semi-Arid Lands in Kenya.*

4.8.3 Responses for Improvements Needed Regarding Planning in Water Provision

This section presents results of the open-ended questions that sought respondents' opinions on how planning during administration of devolved water services should be enhanced to improve water provision in ASAL. Analysis was done using R-based Qualitative Data Analysis (RQDA) software and results presented in bar plots and word clouds using visual representation of text data in the form of tags. For the case of word clouds, the frequency of occurrence of these tags indicated level of prevalence as visualized by bar size, text size, text weight as well as the text color.

Figure 4.15: Bar Chart Presenting Improvements Needed on Planning in Water Provision



Respondents mentioned that efficient and effective management of water services, optimal deliveries on water projects, and timely decision making on water provision, more so in administration of devolved water services, are the key elements of planning that would improve water provision in ASAL as summarised in Figure 4.15. This can only be achieved if devolved leadership ensure that skills of the staff are matched to their designated responsibilities in the county and ensure appropriate structure are being created as well as enhancing appropriate allocation of resources in county budget towards waste project. Moreover, respondents indicated that county government should train the community on the management of water facilities to improve their skills while Identification of water projects should be demand driven and not political mileage. Over and above, more effort for improvement should be done especially in water distribution systems besides increasing qualified staff in the water administrative field and undertaking adequate induction and trainings.

4.9 Administration of Devolved Water Services, Transformational Leadership, Planning and Water Provision

The fourth objective for this study sought to establish if the joint moderating effect of transformational leadership and planning on the relationship between administration of devolved water services and water provision in ASAL in Kenya is different from their separate effects.

4.9.1 Inferential Statistics for Administration of Devolved Water Services, Transformational Leadership, Planning and Water Provision

Hierarchical multiple regression was used to assess the joint effects of the two moderating variables particularly by looking at the interaction effect between administration of devolved water services and transformational leadership ($X*M_1$) as well as that for administration of devolved water services and planning ($X*M_2$) and whether or not such an effect is significant different from their separate moderating effects in predicting water provision (Y). This was achieved by interacting the variables in three blocks using multiple additive approach as explained by Darlington and Hayes (2017) and Hayes (2018) to generate three models as follows:

Block 1: Y as a function of X (to test the significance of the direct effect of administration of devolved water services on water provision);

Block 2: Y as a function of X , M_1 , and M_2 (to test the control effect of the three predictors, that is administration of devolved water services, transformational leadership and planning, on water provision);

Block 3: Y as a function of X , M_1 , M_2 , $X*M_1$, and $X*M_2$ (to test the joint moderating effect of transformational leadership and planning on the relationship between administration of devolved water services and water provision) as applied by Hayes (2018).

This was determined by coefficient of determination (R^2), analysis of variance (ANOVA) as well as regression model.

Table 4.24: R² for Administration of Devolved Water Services, Transformational Leadership, Planning and Water Provision

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.943	.890	.890	1.12727	.890	582.777	1	72	.000
2	.973	.948	.940	.13490	.058	478.657	2	70	.000
3	.994	.989	.982	.13403	.041	111.459	2	68	.000

Table 4.24 shows model summary on water provision with R-square being 0.989 (p-value of 0.000) when both transformational leadership and planning are jointly moderating the relationship with change in R-square being 0.041. This value when compared with separate change in R-square (0.009 for transformational leadership and 0.003 for planning as shown in Tables 4.19 and 4.23 respectively) shows that there exists a significant joint moderating effect of transformational leadership and planning on the relationship between administration of devolved water services and water provision in ASAL in Kenya.

Table 4.25: ANOVA for Administration of Devolved Water Services, Transformational Leadership, Planning and Water Provision

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	740.710	1	740.710	582.777	.000 ^a
	Residual	91.494	72	1.271		
	Total	832.204	73			
2	Regression	830.930	3	276.977	15,387.611	.000 ^b
	Residual	1.274	70	.018		
	Total	832.204	73			
3	Regression	830.983	5	166.197	9,233.167	.000 ^c
	Residual	1.222	68	.018		
	Total	832.204	73			

Table 4.25 shows ANOVA on Water Provision. $F\text{-Calculated} (5, 68) = 9,233.167 > F\text{-Critical} (5, 68) = 2.346$ when both transformational leadership and planning are jointly moderating the relationship between administration of devolved water services and water provision. The significance is further emphasized by comparison with model 1 (direct effect) and model 2 (controlling effect).

Table 4.26: Regression Coefficients for Administration of Devolved Water Services, Transformational Leadership, Planning and Water Provision

Model		Unstandardized Coefficients		Standardized Coefficients		T	Sig.
		B	Std. Error	Beta			
1	(Constant)	1.993	.342			5.827	.000
	Administration of devolved water services	.275	.011	.943		25.000	.000
2	(Constant)	.223	.050			4.460	.000
	Administration of Devolved Water Services	.157	.002	.538		78.500	.000
	Transformational Leadership	.126	.006	.113		21.000	.000
	Planning	.152	.002	.461		76.000	.000
3	(Constant)	.712	.106			6.717	.000
	Administration of devolved water services	.160	.004	.547		40.000	.000
	Transformational leadership	.151	.020	.135		7.550	.000
	Planning	.151	.005	.461		30.200	.000
	Administration of devolved water services * Transformational leadership	.289	.054	.195		5.352	.000

Administration of devolved water services *	.235	0.015	.109	15.667	.000
Planning					

a. Dependent Variable: Water Provision

Table 4.26 show that when all predictors are held constant, water provision will be at 0.712. In addition, an increase in administration of devolved water services by one unit leads to an increase in water provision by 0.160 units. The increase in water provision was found to be 0.151 units (when transformational leadership increases by one unit) and 0.151 units (for unit increase in planning). When an interaction term is introduced, a unit increase in administration of devolved water services with transformational leadership would yield in an increase in water provision by 0.289 units and 0.235 units when administration of devolved water services when interacted with planning increases by one unit. Model summarizing these relationships is as follows:

$$Y = 0.712 + 0.160X + 0.151M_1 + 0.151M_2 + 0.289XM_1 + 0.235XM_2$$

Where X is the administration of devolved water services, M₁ is transformational leadership, and M₂ is the planning while X*M₁ and X*M₂ represents interaction terms when transformational leadership and planning are interacted with administration of devolved water services respectively.

In summary, given change in R-Square = 0.041 compared with separate moderating effects (0.009 for transformational leadership and 0.003 for planning) with p-value = 0.000 < 0.05 as well as positive elasticities for regression coefficients the researcher did not accept the null hypothesis (H₀₄) and therefore concluded that, *the joint moderating effect of transformational leadership and planning on the relationship between administration of devolved water services and water provision in ASAL in Kenya is significantly different from their separate effect.* This implies that the joint moderating effect of transformational leadership and planning on the relationship between administration of devolved water services and water provision in ASAL in Kenya is stronger that the separate effect of each of the t variable two moderating.

4.9.2 Responses for Enhancing Water Provision in ASAL

This section presents results of the open-ended questions that sought respondents’ opinions on what can be done to enhance water provision in ASAL. Analysis was done using R-based Qualitative Data Analysis (RQDA) software and results presented in bar plots and word clouds using visual representation of text data in the form of tags. For the case of word clouds, the frequency of occurrence of these tags indicated level of prevalence as visualized by bar size, text size, text weight as well as the text color.

Figure 4.17: Bar Graph on Suggestions to Enhance Water Provision

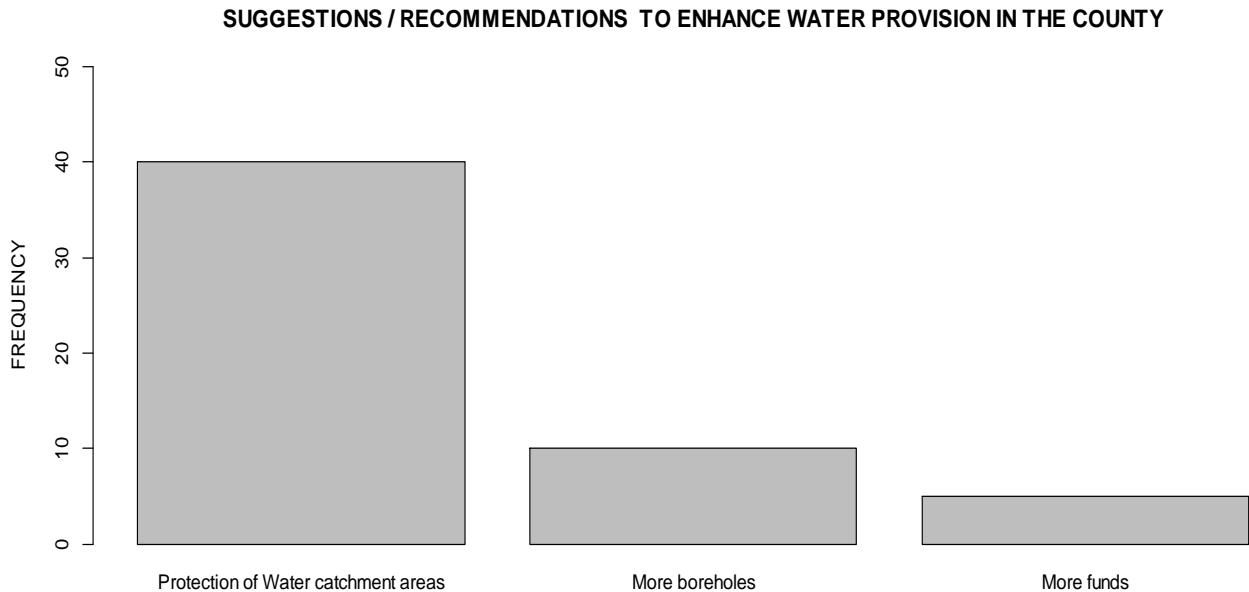


Figure 4.17 outlines protection of water catchment areas, more boreholes and more funding as the key aspects that would enhance water provision in arid and semi-arid lands. This can be achieved mainly through improvements in rain water harvesting through dams, pans and roof catchment as well as drilling of boreholes. One of the respondents summarized the recommendations by indicating that:

“... budget should adequately serve to build mega dams with provision of sola pumping, treatment works and distribution network that should be able to last the whole year. ii) Build mega dams with the capacity of above 10 million liters of water than have very

CHAPTER FIVE

FINDINGS AND DISCUSSION

5.1 Introduction

This chapter explains the findings of the study and discusses the study results describing the consistencies and contradictions of the findings with the findings of previous studies in regard to the issues investigated.

5.2 Administration of devolved water services and Water Provision in ASAL

Study findings reveal that administration of devolved water services has had a positive and significant relationship with water provision through the impact of stakeholders' engagement, human resource development and application of modern technology. Additionally, and in most counties, the respondents indicated that there is adequate stakeholders' engagement at all with some respondents stating that the county governments is ensuring involvement of the communities in decisions. Efforts have also been made towards their direction. However, a few respondents were of the opinion that stakeholder engagement in water provision "is still very low" with some more adding that "though they are engaged, little from their opinion is importantly considered." Generally, respondents were contented with the outcome of administration of devolved water services especially in embraced stakeholders' engagement in delivery of water services.

From the findings it also emerged that County Governments in ASAL have made considerable efforts to ensure stakeholders are involved in water provision services. One of the officers described it as "*good progress.*" Another officer asserted that there is "good involvement of residents and water boards in decision making." Explaining the situation in one of Counties, a respondent argued that "we have developed water management development committees and they are functional." These assertions point out that in some counties, the county leaders have made some efforts by creating some platforms to engage the community in water provision. In few cases, however, one of the respondents highlighted the sidelining of technical staff by

expressing that “public participation has been upheld in the county but involvement of technical staff has some room for improvement.” In one of the counties that have made efforts to engage the stakeholders, one of the officers asserted that “their engagement is very resourceful.” This implies that where stakeholders’ engagement is done, it greatly enhances the effectiveness in water provision.

The findings are consistent with the theory of fiscal decentralization where Oates (1972) noted that, fiscal decentralization hinges heavily on the two concepts of efficient and effective distribution and allocation of financial resources for enhanced service delivery in the public sector. This also echoed the findings by Wachira (2014) which asserted that although there is stakeholders’ engagement in the devolved water provision services; it is rarely recognized by the local people. Administration of devolved water services has also moderately enhanced the level of professionalism among water service personnel. Given that studies like Olufemi (2009) have established a positive correlation between competent human resource development and effectiveness in performance, it is unlikely that the current impact of devolution on human resource development can enhance provision of water services in the counties. The administration of devolved water services has further moderately enhanced technologies in facilities such as water tanks, storage dams/pans, and drilled wells/boreholes across the county. The findings affirm the assertions by Harvey and Reed (2004) that averted that technological choice which are easy to understand and of low costs have the likelihood of higher sustainability compared to those requiring some specialized knowledge, skills and equipment.

According to Greenwood (2007) the nexus between stakeholder engagement and responsibly treating stakeholders is thus simplistic. Considerably, various scholars revealed contending views on the suitable motivation, the mode and style of engaging the stakeholders that has ended up in the materialization of better consciousness of the necessity to re-visualize the function of the organization and the nature of its activities. Notably, the late development is put forward by the scholars who have an interest in ethical strategist outlook. Their explanation gives a theoretical ground for the inclusion of honesty, openness and a respectful engagement of stakeholders as a crucial tool in the firm’s strategy (Phillips & Noland, 2010).

Respondents however highlighted the need to improve and enhance stakeholders' engagement in the County Governments with one of the respondents making an outright suggestion that "*there should be more engagement of stakeholders by the County Governments.*" In the opinion of one of the officers, "*There must be thorough and proper engagement on how projects and other water services are to be conducted.*" According to one of the respondents, "*Inclusiveness of all stakeholders will make most water services decision at the ground level and it becomes a bottom up approach.*" This implies that most of the County Governments in ASALs need to take measure that will enhance stakeholders' engagement in their delivery of services to the constituents.

Study findings also reveal that There is enhanced the level of integrity and prudence in management of water service resources among County and Sub-county administrators. Staff commitment in their work related to water services has also been enhanced as well as level of professionalism among water service personnel. The findings imply that human resource development in water services provision has been moderately influenced by devolution. According to Armstrong (2008), human resource development is a key aspect in organizational performance given that previous studies for instance Olufemi (2009) established a positive correlation between human resource development and effectiveness in performance, it is likely that the current impact of devolution on human resource development has enhanced provision of water services in the counties.

Suggestions were also made on how the stakeholders' engagement can be enhanced. One of the officers suggested that, "Stakeholders should be engaged from the identification of water projects to the implementation." Another one suggested that it should be enhanced "through citizen forums and right watch groups." This was echoed by another officer who recommended that "A water stakeholder forum should be established which should be meeting regularly to address all water issues." In his opinion, one of the Sub County Water Officer was categorical that, "The engagement of public participation must start from ward level through sub-county to county level especially prioritization of project identification and implementation." Another one added that the County Governments "...should put in place supportive legal frameworks for easy participation of all stakeholders." In his opinion, one of the water officers suggested that "The

water officer should be the entry point of all water activities to be carried out within the county.” Another one opined that “The stakeholders to be meeting quarterly to share experience and plans.”

It emerged that in several ASAL areas, there is sufficient matching of skills to tasks in the recruitment and placement of employees. According to one of officers, “*Most of the current staff has adequate basics in water skills.*” Another one emphasized that it was necessary to “continue recruiting the right qualified personnel for productivity efficiency.” This was further reflected in the strong assertions by majority of the respondents on the need to recruit competent staff in the County Governments. One of the officers generalized that the County Governments should “Recruit competent qualified staff relevant in the water sector.” Echoing the same, another officer posited that they need to “Recruit qualified personnel with experience in water technology.” One of the respondents boldly stated that the counties need “... to engage skilled and competent staff in water technology to replace those existing.” In another perspective, one of the chief officers expressed that: “There is need to shed off excess staff especially those inherited from the National Government and from the defunct Municipal Council.” The findings indicate that most of the staff placed in water provision services in most County Governments have adequate requisite skills. However, continues training to impart new and emerging skills is encouraged.

Findings further show that, through good policies that have been put in place by devolved administration in ASAL, there has been improvement of the human resource development, service delivery to the public in all sectors including water services. This is in line with Keith (2009) who suggested that the customers are the most important and their needs ought to be fully satisfied and this can only be achieved after addressing the needs of the employees (Human Resource) in the organization. Improvement on quality and efficiency in water provision is achieved by service providers, regulators and other decision makers to bring in relevant managerial tools to measure and monitor performance of water utilities. In addition, management of water resources must be in possession of knowledge on data collection, processing, verification and storage to analyze the success of water utility. Moreover, the operators of private and public water utilities should be in knowhow of financial implications at

the point of the task as well as the usefulness of the data on management (Berg & Corton, 2007).

The case for regional and local redistributive policies rests on the fact that sub-national levels of government provide the services most used by low-income families. However, most economists view the national role as primary. The *allocation function* is government's role in deciding the mix of public and private goods that are provided by the economy or by government. Each level of government may be more efficient in delivering certain governmental goods and services. This opposes the Fiscal Decentralization theory which holds that fiscal decentralization can act as a critical vehicle to achieving sustainable development in the health care sector especially the implementation of projects if it is used to provide a logical framework for mobilizing local support and resources, and promoting participation among beneficiaries of these public service development programs (Porcelli, 2009).

The study findings further confirm Wachira (2014) study on challenges and prospects for effective water conservation in Mwingi North District, Kitui County, Kenya. The study showed that there is stakeholders' engagement in water conservation though it is not recognized by the local people. A few of them were aware of some NGO's that were involved in community water projects but most of them did not know any of them by name. The stakeholders' engagement showed efforts to provide water projects and also offer community awareness to the community. In addition, Cherunya *et al.* (2015) explored sustainability of supplying water that is safe for drinking where it is underserved focusing on devolved solutions in Kenya. From the study, majority of households often obtained water from different sources. Households largely perceived the sources of water to be unsafe for drinking forcing them to chlorinate or boil the drinking water.

The respondents nonetheless highlighted several issues on human resource development training of the current workforce. Inadequacy of the skilled human resource in water provision was highlighted in several counties. One of the officers observed that "*There is shortage of employee and majority who are working are almost retiring*". This was affirmed by an overwhelming majority of the respondents suggesting that the counties needed to employ more staff skilled in water services management. One of the respondents generalized that the counties needed to

“Employ more staff.” Another officer was categorical that they should *“Employ more specialists.”* One of the Sub County Water officer was more specific that they need to *“Recruit more water professionals.”* This was seconded by another officer who recommended that the counties ought to *“Employ more skilled and knowledgeable staff on water sector.”* The indication is that though the Counties in ASAL have human resource development there is still need to recruit more staffs for effective water provision in the counties in ASALs.

At the same time, the study indicated that the County Governments in the ASALs have not fully attained the utmost requirement of stakeholder engagement. According to Greenwood (2007), Stakeholder Engagement simply encompasses practices that an organization undertakes in the interest of increasing the participation of the stakeholders in an affirmative way in organizational activities. This is in line with the utmost purpose of administration of devolved water services which according to Mukabi *et al.* (2015) was meant to ensure devolved decision making through stakeholders’ engagement. Notably, the late development is put forward by the scholars who have an interest in ethical strategist outlook. Their explanation gives a theoretical ground for the inclusion of honesty, openness and a respectful engagement of stakeholders as a crucial tool in the firm’s strategy (Phillips & Noland, 2010). Moreover, a study by Gambe (2013) on water provision in Harare, Zimbabwe indicated that residents were yearning for involvement in the process of finding solutions to water problems bedeviling Harare. They felt sidelined and this caused a vinegary relationship between the residents and city fathers.

From the findings, counties are making efforts to use modern technologies in water provision. The water technologies tools used fall into these main categories, data acquisition and integration (sensor, networks, smart pipes, smart meters), modelling and analytics (radio transmission and internet), data processing and storage (use of Cloud computing), management and control as well as visualization and decision supporting (such as Web-based communication tools). The real work on technology choice lies in approaching development as a dynamic and hard-to-control process as opposed to a linear process, constrained to sequential phases, with expected outcomes based on an approved strategy or business plan. Technology choice needs to come to be understood as a complex interaction of technical and social processes, and policy on implementation should reflect this at every stage. All the players in this process are important,

but the key decisions are often made by government officers/engineers, community leaders and NGOs. These groups need information at the relevant time and in a format that they can understand and use.

Several areas where improvement is evident in water provision as a result of application of modern technologies were highlighted. It facilitates real-time monitoring. Technologies such as smart metering, GIS, telecommunication sensors and decision support systems are effective tools for the provision of real-time reliable data. This means that water utilities have the opportunity to make improvements in demand response and in reducing water losses in the water distribution system. There is also reduction in water consumption. ICTs provide the tools needed to create advanced water use efficiency in all sectors. Incorporation of sensors in the water sectors ensures that water is utilized when needed reducing large volumes of water normally lost due to over use. It has also helped to reduce operation costs. Improvement in operational efficiencies means that administrations cost can be reduced, creating an optimization of expenses. Technology was also asserted to contribute in greater public involvement. One of the benefits of ICTs is the improvement in communication between water management staff and the public which will lead to an enhancement in public awareness with respect to consumption and water usage.

Therefore, there is enhancement of technologies in facilities such as water tanks, storage dams/pans, drilled wells/boreholes across the ASAL counties. It has also enabled development of modern technology adoption framework under active participation of all stakeholders as well as enhancing efforts on adopting various water technologies which are well suited to the conditions on water provision in counties. This is in line with findings from a study by Maimuna and Kidombo (2017) which found that community participation had the greatest effect on the performance of water projects in Ewaso Ng'iro north borehole projects, followed by project management then water infrastructure while maintenance funds had the least effect to the performance of water projects in Ewaso Ng'iro north borehole projects.

The study findings affirm the assertions by Harvey and Reed (2004) that technological choices which are easy to understand and of low costs have the likelihood of higher sustainability compared to those requiring some specialized knowledge, skills and equipment. Additionally, they also affirm that locally innovated options that would bring the relevant technologies to the

residents in ASAL must also be advocated (Harvey & Reed, 2004). However, the findings concur with Bhatnagar (2014) study that suggested that there ought to be diversification of water sources and intake technologies that include rainwater (roof rainwater harvesting, catchment and storage dams); ground water (spring water collection, dug well, drilled wells, subsurface harvesting systems); surface water (protected side intake, river-bottom intake, sump intake).

It can also be said that, local innovation that brings the technology closer to the people should also be encouraged. Bhatnagar (2014) suggest several water sources and intake technologies that can be considered. These include: rainwater (roof rainwater harvesting, catchment and storage dams); ground water (spring water collection, dug well, drilled wells, subsurface harvesting systems); surface water (protected side intake, river-bottom intake, sump intake). Over and above, Gleitsmann (2015) suggested that ownership of water supply project is dependent upon the degree to which the technology corresponds to the needs of the users and the users' ability and willingness to maintain and protect it over time. According to Harvey and Reed (2013), low sustainability rates are related to community issues such as limited demand, perceived lack of ownership, limited community education, and limited sustainability of community management structures, such as water use committees (WUCs). Harvey and Reed (2013) in addition described forms of contribution such as the expression of demand for water, selection of the technology and area, financial contributions, provision of labor and materials, and selection of management systems.

Some challenges were also highlighted in application of modern technology in water provision. One is lack of standardization. In spite of the efforts carried out by the County Governments in this field, there still need for further standardization. Standardization maintains integrity, and adherence ensures that there is compatibility, interoperability, and certain level of quality therefore reduction of risks. Lack of awareness was also mentioned. Awareness, proper education as well dissemination is essential for proper water resources management. Many Counties are not conscious about the role technology can play in water management or its usefulness, with little attention on how to use ICT as an enabler of sustainable water provision. Proper ICTs governance is also a challenge. Lack of ICTs governance impacts investments as

well as prevents stable coordinated and comprehensive planning to address future requirements and proper integration of water technologies.

A study by Nyong (1998) investigated domestic water use in the water deficient semi-arid Nigeria, using a case study of Katarko. Detailed socio-demographic data known to affect water demand were compared with aggregate data at the national and regional levels. A tradeoff exists between using good quality water and the effort it takes to obtain it. Using culturally constructed measures of water quality, the study found that the locals perceive the quality of water they use as higher in the rainy than in the dry season. Overall, the results revealed that although most of the determinants of water demand in both seasons are subject to social-cultural interpretations, one can approach the management with economic principles. The research recommended the provision of a new set of optimal wells, in view of the offsetting benefits associated with them.

As can be drawn from these studies, direct management of water services by government (whether at the national, regional or local levels) carries with it the risk that politicians become too directly involved in the day-to-day management and operations of the utility, rather than performing a supervisory role to provide strategic direction and hold the service provider accountable for performance, including the direction of resources for investments to particular political constituencies and involvement in recruitment. These interventions are often at the expense of sound and rational allocation of resources and optimal recruitment practices, with negative impacts on service improvements and on utility performance. The establishment of a corporatized structure (with a Board of Directors, clear policies and procedures based on sound government principles, and a clear mandate to management to operationalize the strategies developed by the board) provides greater protection to management from interference, and allows management to undertake their responsibilities professionally.

It was affirmed that the levels of community participation in the water sector in most County Governments is still low due to the weaknesses and inadequacy of the community participation platforms. The Constitution of Kenya 2010, and other statutes such as the County Governments Act, 2012 and other laws make adequate provisions for citizen participation in the County Governments affairs. In the water Act 2016, this is further reinforced by the provision of public participation platforms such as Water Resources Users Associations (WRUAs) and Water Users

Associations (WUAs) where communities get effective representation in management of water resources and services.

Findings of this study are therefore consistent with the underlying principles of devolution are economic development, self-governance and the equitable sharing of resources at the national and county levels (Holmquist, 2014). The main devolution ideologies, power as well as functions for the National Government and County Governments are spelt out in chapter 11 of the Kenya constitution 2010. The 47 counties were established to achieve these objectives. It is the Kenyan constitution that brought about devolvement of many National Government functions such county transport, health services and the disposal of solid waste to the counties. Through devolution, Arid and Semi-Arid Lands governments are able to deliver quality services and in time (Wagana *et al.*, 2015). Additionally, article 189 of the Kenyan constitution obliges both levels of the government to respect the functionality and institutional integrity (Republic of Kenya, 2010).

5.3 Administration of Devolved Water Services, Transformational Leadership and Water Provision

This study found a significant moderating role of transformational leadership on the relationship between devolved water services and water provision. Adeyemi (2012) posited that transformational leaders engage followers not only to get them to achieve something of significance, as he described them as visionary change agents, but also to morally uplift them to be leaders themselves hence, enriching the relationship by creating followers' interdependence. Bass (1985) added that to be transformational, the leader has to learn the needs, abilities and aspirations of the followers to develop them into leaders. The outcome of implementing transformational leadership is a mutual relationship that converts followers to leaders and leaders into moral agents to satisfy the needs of their followers (Gill, 2006). Groves and LaRocca (2011) stated in their analysis of the ethical emphasis of transformational leaders that, "transformational leadership is predicated on deontological ethics and a focus on the morality of the means rather than the ends ... predicated on the norm of social responsibility" (p. 513).

The study findings indicate that County Governments in the ASALs use transformational leadership in water provision. In particular, the study findings imply that County leaders emphasize on incorporating subordinate advice when making final decisions. The study findings concur with Iqbal, Anwar and Haider (2015) study that who highlighted that transformational leadership is where the leader engages others in identifying the important goals and formulating strategies to attain the goals. This style has been affirmed to enhance employees' satisfaction, collaboration and commitment as well as a great flexibility in decision making which results in improved service delivery (Geib & Swenson, 2013). The study findings concur with Iqbal, Anwar and Haider (2015) study that who highlighted that transformational leadership is where the leader engages others in identifying the important goals and formulating strategies to attain the goals. This style has been affirmed to enhance employees' satisfaction, collaboration and commitment as well as a great flexibility in decision making which results in improved service delivery (Geib & Swenson, 2013).

Leaders implementing transformational leadership can gain the trust, admiration, confidence, and respect of other team members by personally demonstrating an extraordinary ability of one kind or another. These leaders put the needs of their followers before their own and display high standards of ethical and moral behavior that results in a high percentage of trust. Doing so will result in increased motivation, intrinsic and extrinsic, in leaders and followers. Trust may be the single most important factor in transformational leadership (Bass, 1999). Leaders implementing transformational leadership will result in leaders becoming role models for their followers: people identify with them and want to follow and emulate them. In general, organizations can acquire the needed leadership either by recruiting new leaders or by building a leader from the followers.

In essence, leadership is about the understanding of the behaviors and functions of individuals and circumstances that are present in the workplace. The transformational style of leadership (Geib & Swenson, 2013) builds on this concept to be the next step beyond the transactional leadership paradigm, which is one of leader-follower relationship in the context of a formal exchange seeking something more than just obedience and compliance from the followers (Lindgreen, Palmer, Wetzels & Anticco, 2009). Individual job performance is reported by

Walumbwa, Avolio & Zhu (2008) and further supported by Tsai *et al.* (2009) to be related to the leader's transformational leadership input. Therefore, supporting identification of the leader/follower relationship, and resulting in the improved work unit and individual performance of the follower.

Transformational leaders believe there is a need, as demonstrated in Hemsworth *et al.* (2013) whatever the situation, to change the followers' beliefs, attitudes and values, for the good of the organization and individual, and in doing so achieve a superior level of performance and competitive advantage. According to Bass (1990) managers who behave like transformational leaders are more likely to be seen by their colleagues and employees as satisfying and effective leaders. In consideration, Robbins & Judge (2007, p. 437) explain transformational leadership as "leaders who inspire followers to transcend their own self-interests and who are capable of having a profound and extraordinary effect on followers". In support are Castro, Perinan, Carlos & Bueno (2008) who acknowledge that transformational leadership is positively related to leadership effectiveness and has a significant influence on the attitudes and behaviors of followers, and is a style that has a positive advantage for both the organization and the individual.

Respondents highly attested that County leaders inspire and motivate their staffs to optimize productivity on water provision (mean = 2.61, standard deviation = 1.27). Ratings on other aspects revealed that County leaders challenge their staffs to be creative to generate lasting solutions (mean = 2.66, standard deviation = 1.19); County Leaders intellectually stimulate their staffs to optimize productivity (mean = 2.64, standard deviation = 1.11); County leaders always ensure subordinates get recognition/and or reward when they achieve difficult complex goals on water provision (mean = 2.61, standard deviation = 1.27).

The findings imply that County Governments in the ASALs use transformational leadership in delivery of water provision service. If Leaders in ASAL use transformational leadership, the implication is that all the stakeholders in water provision are involved hence improving service provision especially on water. This in turn will lead to more efficiency and effectiveness in responding to the constituents' needs. Transformational Leadership may cause positive effects

like innovation among subordinates leading to better ways of doing things especially in water provision. However, one shortcoming identified to have transformational aspect in county leadership was the lack of management capacity. Many counties have put in place the basic management processes to operate efficiently and professionally, such as book keeping, record keeping and payment collection systems. Their tariffs are based on real costs or on government guidelines. Furthermore, in many cases, communication and accountability between the county water officials and the community (its clients) is weak. Most of them do not hold regular open meetings to report their plans and progress for the water system and to receive and discuss complaints or other issues with customers. Citizens are rarely involved in the main decisions related to the management of the system, including tariff setting. As a result, citizens have little trust in the community group and are hardly willing to pay for water services.

It has been argued that when organizations find efficient methods to outdo others, the best choice is to emphasize on the leadership effect (Mehra, Smith, Dixon & Robertson, 2006). Team leaders are critical in determining collective norms, assisting groups to make it in their situations, as well as co-ordination of organizational actions. According to Purcell *et al.* (2004), intangible assets like styles of leadership, culture, competency, skills and motivation are considered fundamental aspects in organizations capable of combining people, processes and efficient service delivery.

Kinicki and Kreitner (2008) affirmed that transformative leaders are capable of developing valuable change in an organization, instilling in follower's great intrinsic motivation and loyalty, newly establishing the future image and stirring followers' commitment to realize the image. The approach consists of the following aspects: individualized attention, inspiring incentive, idealized influence (behavior and attribute) and logical stimulation (Moss & Ritossa, 2007). In addition, a study by Bass, Avolio, Jung and Berson (2003), portray transformative leadership as one that has a direct relationship with organizational productivity. This was confirmed by Dum Dum, Lowe and Avolio (2002) for the case of private organizations.

The study findings also support Sarros & Santora (2001, 2002) and Alimo-Metcalfe & Alban-Metcalfe (2000, 2001 & 2006) studies on transformational leadership construct as one that provides an extensively well researched and supportive platform that endorses the facets and

virtues of the transformational leadership aspect of the visionary paradigm. In support of the study findings, Avery (2004, p. 34) endorsed the transformational leadership as being within the “ideal leadership paradigm, especially for transforming organizations”. A raft of authors that have cross-supported the benefits of transformational leadership and publicly bestowed the virtues, as a must have, for an organization to move forward, have contributed significantly to reinforcing the base model (Bass, 1985a, 1985b; Cacioppe, 1997; Cardona, 2000; Sarros & Santora, 2001, 2002; Alimo-Metcalfe & Alban-Metcalfe, 2001, 2006). The above authors have provided the substance for the continual evolvement of the transformational leadership and have continually cross-referenced each other, adding their particular thread of evolvement to the transformational leadership construct, therefore, and increasing support.

Michel, Lyons and Cho (2011) as well as Babcock Roberson and Strickland (2010) confirm findings of this study that, transformational leadership has a positive correlation with subordinate outcome of intrinsic motivation, self-efficacy, creativity, justice perceptions, work engagement, job performance, positive psychological capital, organizational performance, organization citizenship, and leader effectiveness. Studies have also shown that organizations with transformational leadership are perceived to be effective organizations (van Eeden, Colliers & van Deventer, 2008).

Boga and Ensari (2009) examined transformational and transactional leadership styles and their influence on workforce, and concluded that organizations managed by transformational leaders are perceived as more successful under situations of high organizational change in comparison to low organizational change. They suggested that an organization’s well-being depends on the employees’ perceptions rather than financial data, citing examples of how corporations like Enron misrepresented the financial well-being of the organization. Toor and Ofori (2009) revealed that there is significant relationship between ethical leadership attributes and transformational leadership attributes and effective leadership, employee commitment, and job satisfaction.

The five factors of transformational leadership include idealized influence (attributed), idealized influence (behavior), inspirational motivation, intellectual stimulation, and individualized

consideration. According to Babcock-Roberson and Strickland (2010), the idealized influence (charisma) component of transformational leadership “consists of providing subordinates with a role model of ethical conduct and clear sense of purpose that is energizing, and building identification with the leader and his or her articulated vision” (p. 314). Idealized influence occurs when a leader shows consistent ethical conduct and personal principles and values that inspire subordinates; the leader builds respect, trust, and admiration of the followers to the point that followers would want to emulate the leader. The leaders develop this relationship by putting the interest of the followers above their own needs or interests (Bass, Avolio, Jung and Berson, 2003; Bhat *et al.*, 2013).

Transformational leadership exercises influence rather than power or authority over followers and motivates followers to achieve beyond what they could have done by themselves without the influence and motivation of the leader (Bhat *et al.*, 2013; Boga & Ensari, 2009). According to Bhat *et al.* (2013), transformational leaders are those who motivate and inspire followers to both achieve extraordinary outcomes and, in the process, develop their own leadership capacity. Transformational leaders help followers grow and develop into leaders by responding to individual followers’ needs by empowering them and by aligning the objectives and goals of the individual followers, the leader, the group, and the larger organization. Transformational leaders have the ability to influence the behavior of their subordinates and get them into foregoing self-interest for the good of their group. Transformational leaders build trust and instill confidence in their subordinates; they stimulate subordinates by questioning status quo, assumptions, and traditions; they encourage organization learning and risk taking, and innovation (Boga & Ensari, 2009).

The effect of transformational leaders on service delivery in devolved governments can therefore be seen in the output of employees in those governments. Transformational leaders help subordinates discover who they are and what part they play in helping the organization achieve its mission. By interacting with subordinates in this manner, transformational leaders help subordinates increase their level of commitment to the organization (Tucker & Russell, 2004). Transformational leaders also influence the organization’s culture through its impact on organizational productivity. When the values and the culture of an organization are accentuated by transformational leaders, productivity

and innovation within the organization improves (Niehoff, Enz, & Grover, 1990). Moreover, transformational leaders influence organizational culture by helping organizations see the world in different ways (Mink, 1992). As the external environment of the organization changes, transformational leaders influence organizational culture by helping organizations adapt to this new environment (Smith, 1990).

This study has also affirmed that effective planning is a critical ingredient for sustainable development especially in devolved units (Hope, 2012). Consequently, public sector reforms remain necessary and on-going policy objectives for many countries. Many countries are taking steps to streamline governments, strengthen institutions and modernize management (Obong'o, 2009). According to Wilkins (2014) there can be no meaningful public sector reforms without public service renewal. The history of post – independent African states is that of monumental democratic and developmental failures (Njiru, 2008). After almost five decades of independence, most countries on the continent are characterized by underdevelopment and poverty among vast majority of the citizens. These can be seen in Africa's dominance in the primary sectors (not manufacturing or industrial) such as agriculture, low domestic capital, heavy debt and high unemployment rates.

It can thus be argued that, transformational leadership rests on the assertion that leader behavior can arouse followers to a higher level of thinking (Bass, 1985; Burns, 1978). By appealing to follower ideals and values, transformational leaders enhance subordinates' commitment to a well-articulated vision and inspire them to develop new ways of thinking and solutions to problems. Indeed, the positive association between the transformational leader and follower is well documented (Fuller, Patterson, Hester, & Stringe, 1996) and many studies too have begun to examine the process by which those effects are ultimately being realized (Bono & Judge, 2003). It has been suggested that leadership is one of the most important factors that influence work engagement (Schaufeli & Salanova, 2007). Miring'u and Muoria, 2011) found that leadership can be used as an antecedent for institutional commitment. In particular Aditya (2009) asserts that leadership style is crucial in encouraging employee engagement. Most studies also indicate that leadership style has not only been recognized as a critical component in the effective management of employees, but has also been suggested as one of the single biggest

elements contributing to employee perceptions in the workplace and workforce engagement (Wang & Walumbwa, 2007; Macey & Schneider, 2008). Empirical data suggest that there are many ways through which leaders for example focus on follower influence such as by forming and communicating inspirational vision (Chung – Fang, & Yi Ying, 2012).

A central aspect of transformational leadership is the need for change for the benefit of residents in the counties they lead. These leaders create an inspiring vision of their institutions, and motivate their followers to work towards achieving institutional success (De Rue & Ashford, 2010). As promoters of change, the leader will influence their subordinates to follow in their direction and act as a bridge between leadership behaviors and institutional performance. The leaders elevate their followers' interest, values and motivational levels (Bass, 1994) to perform beyond expectation and achieve the institutions goals.

5.4 Administration of Devolved Water Services, Planning and Water Provision

This study found a significant moderating role of planning on the relationship between administration of devolved water services and water provision in ASAL. The study findings indicate that County Leaders use strategic plans; County Integrated Development Plans (CDIP). The Counties in ASAL have also developed appropriate structures for water provision from the County Headquarters to lower levels in Sub Counties as well as allocating resources to meet the water demands by residents that has ensured timely delivery of services.

The study findings affirm the assertions by Sifuna (2012) that it is the management that puts into action the formulated goals in the organization. They further echo Hughes *et al.* (2012) assertion that it is the task of the management in all organizations is to lay down the structure of the organization and the orders to be followed. These functions have been affirmed as necessary in ensuring effectiveness and efficiency of the organization (Leung & Kleiner, 2004). However, in Hirsch (2006) views, issues affecting management of water persist to be highly context-specific hence the approaches used to manage the utilization of water sources may vary from one manager to the other (Owuor & Foeken, 2009). However, water provision projects have been strongly criticized for their planning approaches, which have focused excessively on physical

construction and increasing coverage targets, but largely ignored what happens at the water sources after construction (Lockwood, 2014). For the last few decades, literature in the water supply sector has shown that sustainability of rural water supply structures has become positively associated with small-scale initiatives, which maintain public participation. Thus, the key to sustainability is to meaningfully involve the users in the planning, implementation, operation, protection and maintenance of water supply systems according to their needs and potentials (Davis & Liyer, 2012). Findings also approves that, improved planning procedures which fully consider the value and demand placed on different levels of service by the community are a necessity for the ownership of rural water projects (Mbata, 2014). However, in spite of the ever-increasing importance placed on the role of participation in development efforts, there have been few quantitative studies to demonstrate the proposition that participation measurably increases development outcomes (Prokopy, 2015).

Water management is particularly dependent on strong capacity, a solid knowledge base and awareness at all levels, including those of the individual, the organization, the sector institutions and the ‘enabling environment’. Yet getting all levels to operate in a coherent manner is challenging, and requires vision and leadership. Leadership is needed to improve cooperation and interaction between interdependent water uses such as food, energy, industry and the environment in order to increase water security and promote sustainable development.

The respondents further reported that planning at the County is inclusive formal process and stakeholder participation is an integral part of the water provision in ASAL. This has been possible where the National Government, independent commissions, development partners, general public, the representatives of the business community, employees, financial partners, and the County executive participate in planning through public consultative meetings and forums organized by the County’s planning. Findings in this study effectively advocates for improved planning procedures which fully consider the value and demand placed on different levels of service by the community are a necessity for the ownership of rural water projects (Mbata, 2014). However, in spite of the ever-increasing importance placed on the role of participation in development efforts, there have been few quantitative studies to demonstrate the proposition that participation measurably increases development outcomes (Prokopy, 2015).

As advocated by Sorel and Pennequin (2008), planning should involve developing objectives or the organizational strategic plans and looking for resources that would best be suited in achieving the organizational goals as outlined in strategic plans. Each goal should have financial and human resource projections associated with its completion so that it becomes successful. The planning process also creates timelines for when the plans should be achieved. According to Ballou (2007), planning also involves developing the tracking and assessment method that will be used to monitor the project process.

Daft and Marcic (2016) emphasize the primacy of planning among the manager's tasks. Hence, planning logically precedes the execution of all the other managerial functions. Awino *et al.* (2012) argues that the more emphasis there is on planning, the greater the positive change in firm's performance. Planning is typically where the direction of the organization is established through a variety of activities including the development of goals. As such, the planning embodies various levels of decision making (Schraeder, *et al.* 2015).

These findings therefore support the contention that planning provides the basic direction and rationale for determining the focus of an organization; and also provides the specification against which any organization may best decide what to do and how to do it. Planning is simply defined as a process for creating and describing a better future in measurable terms and the selection of the best means to achieve the results desired. It is said that failure to plan is akin to planning to fail. Thus, Abdalkrim (2013) summarized the importance of planning as; the increase in effectiveness, development of a sustainable competitive position, developing a good fit between the external environment and the internal capabilities and helping managers to consider the future implications of the current decisions. Having a good vision, objective and strategy is no guarantee that the project performance will be good. Creative planning by the management can help in improving performance outcome of the project. But on the other side, without a vision, good plan or strategy, the performance of a project is sure to fail or at best will be poor.

5.5 Administration of Devolved Water Services, Transformational Leadership, Planning and Water Provision

The researcher established that the joint moderating effect transformational leadership and planning on the relationship between administration of devolved water services and water provision in ASAL in Kenya is stronger than that of their separate effect. This is given by R-square being 0.989 (p-value of 0.000) when both transformational leadership and planning are jointly moderating the relationship with change in R-square being 0.041. This value when compared with separate change in R-square (0.009 for transformational leadership and 0.003 for planning. In addition, to access the nearest water point before devolution, 45.9% of the residents covered an average distance of approximately 5km or less compared to 74.3% who cover the same distance after devolution. This indicates a probability that after devolution, more water points were established within a close proximity to the residents. Moreover, 8.1% of residents covered the longest distance (over 20km) to access the nearest water point before devolution, compared to 1.4% who covers the same distance after devolution. This further implies that devolution has indeed helped to reduce the average distance that majority of the residents in ASALs have to cover to access water.

This is a fulfillment of the aspect of physical accessibility requirement in water provision which according to Kaushik (2011), entails the presence of water sources within a reasonable physical reach by the population in terms of distance and time brought about by proper planning and leadership. The findings further met the aspect that physical accessibility to water should be characterized by spending of less time influenced by short distance to the water infrastructure, thus saving time for other productive engagements (Jones *et al.*, 2002). The study also established that, before devolution came into place, 51.4% of the residents incurred an average cost of Ksh.10 and above to access a 20-liter jerican of water compared to 64.9% who incur the same cost after devolution. Similarly, the proportion that incurred an average cost of more than Ksh.10 to Ksh.20 increased from 28.4% (before devolution) to 32.4% after devolution. Moreover, the proportion of residents incurring the highest cost (of over Ksh.40) to access the water reduced from 5.4% before devolution to 1.4% after devolution. The implication is that devolution has helped to lower the cost of accessing water in ASALs. These positive changes

could be as a result of better administration of devolved water services. For instance, engagement is viewed as a machinery of attaining certain objectives that include involvement and accountability, cooperation, consent, control, and cooperation, as a way of boosting trust, or an alternative for true trust, as a dissertation to improve fairness or as a device of corporate governance (Greenwood, 2007).

This is also in line with the recommendations by Peprah *et al.* (2015) that it is critical to have a mechanism that regulates water provision to ensure a reduced and reasonable price is charged on water so as to avoid exploitation, and to protect the interest of citizens especially in the rural areas. Moreover, the findings imply that devolution has helped to minimize the problem of water companies taking advantage of the poor by establishing water kiosks selling water at high prices. This according to Wagah *et al.* (2010) is due to a culture among these companies of perceiving the poor as unattractive ‘investment’ who prefer to meet daily water costs as opposed to monthly bills. More specifically, the development in the direction of a better spotlight on the shareholders led to the development of a wide spectrum of engagement strategies that range from amplified distribution of information in a specified report practice in the realization of better interactive stakeholder relationships (Cook & Burchell, 2006). In respect of stakeholder engagement, whereas, rigid classification of the precise persons who are eligible as shareholders could eventually be dislodged, recognition of what adds up as a stakeholder claim is crucial. After the identification, amplified emphasis follows on the stakeholders, concept communication and also the dialogue in its many forms (Cook & Burchell, 2006). Regardless of institutional status accorded to stakeholder engagement in water related procedures, what is more important is accommodation of stakeholders in the management of water to achieve water governance

Access to water and management of water resources are among the main drivers of change in the ASALs. Improving water access and resources management is said to open up new areas for dry lands production and can also increase carrying capacity of the rangelands, only if strategically placed and managed. Dry lands fodder and crop production is also promoted and is generally seen as one, intervention, among others, that can contribute to resilience of people living in the dry lands. Improved water access and more strategic management of water resources can be an effective contribution to positive drivers of change with positive impact on poverty reduction

and increased productivity in dry lands production systems. Additionally, it promotes businesses linked to ASAL production and water services for the ASAL populations. The dry lands economic potentials can be unlocked with positive impact on green growth.

The engagement has a strong focus on reaching the poorest segment of society and of impacting positively on domestic and productive needs of the ASAL communities. Water service needs are relevant to all sections of society in the ASALs, including particularly the poorest of the poor. WSTF and the counties target investments to the neediest areas and the actual investments will be implemented following guidelines that seek to ensure benefits also to the poorest in the respective investment areas. Community involvement will be in focus and capacity development in water planning and implementation will be provided to counties and implementing agents. Moreover, promoting indigenous knowledge through community participation will enhance sustainability through ownership at grassroots level.

Results of this study also commensurate with argument by Veronica (2010) that, accessibility to adequate supplies of water for domestic and industrial use has shaped the geographic distribution of population, its quality of life and culture. In addition, adequate supply of quality water is central to the integrity of the environment and the maintenance of the ecosystem (Govt. of Australia, 2009). It enormously contributes to economic productivity and social wellbeing of the human population (GWP, 2000). UNEP (2015) also emphasizes that estimated that in 2014, 40% and 60% respectively of the world's population in ASAL do not access safe drinking water and access to safe sanitation systems hence leading to serious water shortages and waterborne related diseases. With the world's population growing at the rate of 80 million people annually, there is need to add about 64 billion m³ of water annually (GWP, 2000). Thus, although domestic water consumption accounts for only 7% of the total water use in Africa (Hinrichsen *et al.*, 1997), the benefits related to an improved water supply, such as effects on health, time savings and high productivity are quite immense.

Further, results are in tandem with World Bank (2015) findings that even though access to clean drinking water has progressed enough to reach the MDG target, 780 million people remain without access to clean drinking water. Only 61% of the population in Sub-Saharan Africa has access to improved water supply sources. People lack proper services because systems fail, often

because not enough is invested to appropriately build and maintain them, and also because of the stress that urbanization places on the existing infrastructure. In the past decade, Africa's population grew at an annual average of 2.5 percent, and the urban and slum population grew at almost double that rate. In addition, water utilities in Africa differ greatly in terms of size, organizational culture and operating environments. They share one major challenge of expanding access to appropriate levels of services to their growing urban populations as can be seen clearly in the context of the MDGs where Africa lags far behind other regions. It is now widely acknowledged that the inefficiencies of African water utilities are a major cause of poor access to water services.

As Demand theory dictates, as the price of good increases, the demand for those good decreases (Froukh, 2001). Therefore, it is expected that price will negatively influence the quantity of water use from purchased sources by residents in ASAL. When a price of water exists, then it is quite easy to compute a per unit price for each household and each source. The price of non-piped water has been considered exogenous in all studies except in David and Inocencio (1988). These authors argue that the price of vended water is endogenous because price is determined by demand and supply factors. Due to the fragmented nature of the water vending market especially in ASAL, household decisions of water demand are likely to influence its price. Even if free of charge, the collection of water from non-piped sources usually involves costs for hauling water from distant sources.

Comparison of findings in this study in terms of affordability of water is nonetheless challenging given that many analysts have not attempted to convert the time cost of water collection into a pecuniary collection cost or other words, affordability. For example, Larson and others (2006) consider round-trip walking time to water source and waiting time at the source. David and Inocencio (1998), on a sample from Metro Manila in the Philippines, use distance from source in metres as an explanatory variable in their demand model. Strand and Walker (2005) consider hauling time per unit of water consumed. Whittington and others (1990b) are among the only authors to provide some empirical evidence about the pecuniary cost of collecting water from non-tap sources. Using data from Ukunda, a small market town in Kenya, they develop two approaches, based on discrete choice theory, for estimating the value of time spent collecting

water. Their results indicate that the value of time for households relying on non-tap sources (kiosks, vendors, or open wells in the village) was at least 50% of the market wage rate and likely to approach the market wage rate for unskilled labour for some households.

Before devolution came into place, 36.5% of the residents accessed water whose quality was greater than 40% to 60% compared to 31.1% who accessed this type of water after devolution. Water with a quality of greater than 60% to 80% was accessed by 10.8% of the respondents before devolution compared to 24.3% of them who accessed it after devolution. Similarly, the highest water quality (over 80%) was accessed by 12.2% of the residents before devolution compared to 17.6% after devolution. On the other hand, the least quality water (20% and below) was accessed by 14.9% of the residents before devolution compared to 6.8% who accessed this type of water. The findings imply that devolution has managed to enhance accessibility to high quality water in the ASALs; this is by increasing the proportion of residents accessing the high-quality water in these areas. Frone and Frone (2013) maintain that water accessible for consumption should be of good quality that poses little or no threat to a person's health.

Also confirming these findings is SCMP (2011) who reported that many communities living ASAL experience water woes rooted in deteriorating access to quality water, unreliable availability of water and the inefficiency of water providers (DFID, 2002). Residents in these dry lands fear that the vital source of food, water and livelihoods is threatened. Women and young girls bear the burden of water collection usually in unsafe environments, making them vulnerable to sexual assault and accidents. The time and energy spent walking and hauling water from distant sources and the resulting water borne diseases keeps them from school work and care of their families (UN Water/ Africa, 2003). Water is central to the conservation of ecosystems and also for the development of health, agriculture, power generation, livestock production and other important economic activities (Winpenny, 1994). DFID (2002) village report, affirms that there is hardly no enough water in ASAL to sustain any worthy investment as the river water pollution increased to the highest limit in 2001 at which over 100 cases of typhoid were reported.

Interviewees for this study also expressed that increasing competition for domestic water use exacerbated by inconsistent water supply and the ever-mounting demands from other water

sectors has led compromised water quality due to abuse of the scarce water sources. For example, people use the river water to drink and at the same time bathe and wash clothes. Pollution from cattle dips along the river has greatly affected water quality of water sources. These water challenges call for the need for new water demand management strategies and expansion of water distribution networks (Conradie, 2002).

Therefore, inadequate access to quality water in the area is a priority problem in many counties in arid lands. For semi-arid lands, inadequate knowledge in rain water harvesting techniques has played an important role in contributing to water shortage and compromise in quality of water. For example, Gichana (2014) found that water fetched using mainly donkeys, women and children pose a great threat that has pushed many communities living in rural areas into abject poverty (Molden, 2007). Efficient management of water resources to benefit rural and urban communities requires a full understanding of existing patterns of water demand (Nyong, 1999).

The number of residents who reliably accessed water (reliability of over 80%) increased from 9.5% before devolution to 16.2% after devolution. Similarly, those whose access to water were >60% to 80% reliable increased from 9.5% before devolution to 21.6% after devolution. In contrast, the proportion of residents with unreliable water access (20% and below) reduced from 9.5% before devolution to 2.7% after devolution. This is a clear indication that devolution has indeed improved the reliability of water access in ASALs, this is because more residents in these areas having more reliable water access than before devolution came into place. Reliability of water is a clear implication of the ease of access to water resource with water that does not usually require to be treated for consumption, and whose water supply is rich enough to meet the needs of the people in all seasons (Harvey & Reed, 2004).

To cope with unreliable water provision, respondents suggested that residents in ASAL should adopt different water conservation methods either through conservation agriculture or construction of rainwater control and management structures and rainwater storage in farm ponds, water pans, sand/sub-surface dams, earth dams, tanks for supplemental irrigation are gaining prominenc. Either through their own experiences or with technical assistance from development agents especially local NGOs and development partners, rural communities are adopting a variety of innovative technologies to cope with recurrent droughts (Mati, Mwepa, &

Temu, 2008). In the same area, Malesu, Odhiambo, Oduor, & Nyabenge (2006) found nine farm ponds per km² using satellite imagery, with most households possessing ponds. There has been notable improvement in water security, crop production, diversification, and rural community incomes.

The number of residents accessing less saline water (salinity of 20% and below) has slightly reduced; from 43.2% before devolution to 41.9% after devolution. However, residents accessing moderately saline water (salinity of >40% to 60%) increased from 17.6% before devolution to 21.6% after devolution. The findings indicate that though devolution good impact it needs to improve its impact on the salinity of water accessed by residents in the ASALs. This is probably because salinity of the water sources in these areas is more or less a natural aspect and the County Governments have not implemented technologies to reduce the salinity of water accessible to the residents. According to Peprah *et al.* (2015), salinity of water for consumption provided to the citizenry should be low.

It was attested that after devolution, 29.7% of resident's access water that is infrequently treated (treatment frequency of 20% and below) compared to 32.4% of them before devolution. On the other hand, residents accessing frequently treated water (treatment frequency of over 80%) increased from 18.9% before devolution to 20.3% after devolution. Similarly, the number of residents accessing water that is regularly treated (treatment frequency of >60% to 80%) increased from 10.8% before devolution to 18.9% after devolution. The implication is that although a simple majority of the residents in ASALs still access water that is infrequently treated, devolution has made substantial efforts to increase the residents' accessibility to treated water in these areas. In line with Harvey and Reed (2004), the findings could mean that most of the water sources are reliable since they do not need frequent treatment. However, they also fulfill the recommendation by Wagah *et al.* (2010) that it is important to upgrade the water treatment to enhance accessibility to safe water services.

After devolution, 28.4% of the residents used water whose was clarity over 80%. This was an increase from 17.6% of residents who used such water before devolution. A similar trend was affirmed for water whose clarity was >60% to 80% where the proportion of residents accessing it increased from 27.0% before devolution to 29.7% after devolution. On the other hand, the

number of residents using unclear water (clarity of 20% and below) decreased from 8.1% before devolution to 4.1% to after devolution. The findings imply that devolution has enhanced the accessibility to clear water in the ASALs. This is line with Cherunya *et al.* (2015) description of water accessibility that should also be reflected by ability to access clean water for consumption.

The findings on water provision indicate that devolution has largely enhanced the requirements that define water accessibility: availability, quality and affordability of the water (Cherunya *et al.*, 2015). Physically accessibility is indicated by the ability for the community to get safe, sufficient and consistent water supply; having an adequate number of water channels which leads to less waiting time; practical distance from the point of household to the point of drawing water; and reasonable supply of all accessible water infrastructures (Cherunya *et al.*, 2015). Economic accessibility is indicated by ease of affordability of water facilities by every household regardless of their level of affluence (Frone & Frone, 2013).

Respondents were also categorical on the need to enhance water provision through improved governance of the water sector. The County Governments should dedicate efforts to ensure appropriate governance instruments are in place to support service delivery and sector coordination. Some suggested that, the county water legislations should be enacted. This was echoed through suggestions for development of water sector rules and regulations especially for the coordination of operations of rural water supplies which are traditionally not included within WASREB's regulatory regime. At the same time, it was highlighted that water provision is not being properly managed by the County leaders due to their lack of proper knowledge of where the resource is, in what quantity and quality, and how variable it is likely to be in the foreseeable future. In some counties, it was asserted that there is proper mechanism under which the County Governments can access this information for planning, designing, operating and maintaining multipurpose water provision leadership and service delivery systems.

Counties require a lot of information and data support in the management of the water facilities at the communal level especially with respect to the number of water sources, status of systems of management especially among water committee, facility ownership, capacity requirements and operational reliability of water sources. However, in several counties, it was asserted that

currently there is no system in place to support knowledge management, monitoring and evaluation resulting to erratic and unreliable decision making at the county level.

The way most County Governments run their water provision systems does not reflect their understanding of the key areas of concern in their respective counties. According to one of the officers, the communities rarely see the link between the county's allegation of improved water services and economic benefits of water services. There is hardly any appreciation of the value of water services provision in advancing the productive economic activities of the community such as farming. The main benefits perceived are associated with enhancing the social welfare of members of the community. This partly explains the challenge that some counties face in enforcing payment of tariffs for water use.

The lack of capacity, adequate processes and oversight can lead to mismanagement, where committee members abuse their position for private gains. With no by-laws, constitutions or codes of conduct in place, being in charge of operating the water system can be used as a means of power, for example by cutting off some community members, serving others for free or pocketing part of the money. Respondents mentioned some cases (especially in very arid areas) where community groups conspire with informal vendors and systematically overcharge people for water.

Respondents effectively brought around a significant and positive joint moderating effect of transformational leadership and planning on the relationship between administration of water services and water provision in ASAL is significantly different from their separate effect. Majority of them highlighted the importance of transformational leadership that encourages stakeholders' engagement by the County Governments. According to one of the respondents, "Stakeholders are better placed in conservation and sustainability and, therefore, should be engaged completely." One of the officers added that "They hold the best information as they are the consumers and their input is important." This was echoed by another officer who said that, "They hold the vital information as they are the end users and need to be engaged." On the same note, another respondent pointed out that "They play a major role and decisions made directly affects them and therefore they should be greatly involved." Even so, one of the officers critiqued that, "Technicians' advice should be given a priority since they have the technical

knowledge as opposed to local community leaders who play politics more.” A general statement from one of the respondents was that “We need stakeholder engagement for precise and effective decision making.” This implies a paradox that the importance of stakeholders’ engagement is well recognized in the County Governments in ASAL. The findings are consistent with dictates of The Souffle theory that successful program of decentralization must include the right combination of political, fiscal, and institutional elements to improve rural development outcomes (Farooq, Shamail, & Awais, 2008; Laryea-Adjei, 2006). There is therefore the need to include all dimensions of political, fiscal and administrative decentralization. Parker suggests a conceptual model, the soufflé theory, which incorporates the essential elements of political, fiscal and administrative decentralization as they combine to realize desired outcomes.

McIntosh and Taylor research (2013) argue that strengthening planning and transformational capacities among water professionals leads to change in policy, planning, management and communities is an essential component of the collective response to global water challenges. Cole and Phil (2011) asserted that managers ought to ensure there is a clear organizational vision and challenging goals/targets. Achievement of organizational objectives can only be realized through unified purpose and direction of employees. Employees at all levels are essential in any firm and their total engagement allows their capabilities to be used for the company’s benefit. Motivating and holding employees accountable as well as engaging them in decision making instills innovation and creativity.

It was also apparent from the respondents that appropriate recruitment and placement of rightly skilled personnel is needed. One of the respondents complained that “The issue of politics, nepotism and clannism should be discouraged and embrace the issue of professionalism and transparency in recruitment.” Another officer opined that “Right people should be placed in their right place of work.” This was reverberated in a suggestion by one of the Sub County Officer that “Right people with right qualifications and experience be employed.” Another opined that there is need to “Employ well trained staff in the water docket.” The need for succession planning was also highlighted by some respondents where one of them warned that “If County Governments does not employ more technicians there will be a vacuum.” One of the officers was also critical that “Retired officers are not being replaced therefore all departments are

having crisis.” This was resounded by another respondent expressing that the County Governments ought to “Train and employ new staff to have a successful succession planning.”

Godda (2014) cited (Hossain, 2000) and opined that administrative decentralization seeks to redistribute authority, responsibility and financial resources for providing services among different levels of government. Saito (2001) posits that decentralization may foster more local loyalty to regional identities than the national identity, and this may encourage more autonomy from the central government and even a territorial secession in multi-ethnic and multi-religious societies, particularly in Africa. The *distribution function* involves the role of government in changing the distribution of income, wealth or other indicators of economic well-being to make them more equitable than would otherwise be the case.

Another notable issue was the need for capacity building especially through training. The County Governments appreciate that they have a mix of public servants. The first category is the public servants that they inherited from the National Government and, relatively, have some good level of skills and understanding of government operations. The other is staff employed by the County Governments upon inception in 2013. There was also concern that most of these were largely employed based on county regional dynamics, clannism, nepotism and other non-professional to reward political supporters. They, therefore, require greater training support. However, they still need to be capacity-enhanced to adopt the best practices for County Governments in water provision. Most significantly, the counties need to undertake demand-driven training programs based on the mandate and core business of the County Governments that is adequately informed by their respective areas of comparative advantage as opposed to supply-driven ones based on personal staff desire.

Respondents largely affirmed that a lot of progress has been made in the water sector in the counties since the inception of devolution. This includes: additional of water resources towards enhancement of water service provision (drilling of boreholes and wells, connecting more people to piped water); adoption of new technologies in hydrological/geophysical exploration of underground water; construction of water treatment plant; and enforcement of water catchment areas protection. As a result, increased water provision has been accorded to more people more reliably.

Even so, several issues are still manifest regarding water provision in the counties. Some people still have difficulty in accessing water partly as a result of increasing population in some areas. In another concern, most residents in some counties access water from unhygienic sources such as rivers and unprotected wells. It was also mentioned that despite residents' reliance on multiple water sources such as rivers, wells, and pipe borne water in the county, regular flow of water from the available sources is also problematic. Water shortage was also mentioned to have affected education in some regions where children miss crucial hours of school in search of water. One of the main challenges was highlighted as the perception amongst citizens that water should be a commodity and service provided by the County Governments for free. This was alleged to have created the lack of willingness to pay for water in some of the counties.

To address water scarcity in ASAL, respondents gave suggestions that to expand access to safe water services, there is need for upfront investment on rehabilitation and extension of existing water network in addition to upgrading of treatment plant, thus reducing the cost of maintenance and unaccounted for water and making better use of economies of scale. Others opined that public investment in the water network could be the route to achieve reduction in unaccounted for water and hence increasing accessibility to safe water services. Cost recovery with poor infrastructure and small size of network seems a pipe dream. Among the world's regions, Sub-Saharan Africa (SSA) faces the greatest problem of water scarcity because the freshwater resources are unevenly distributed over time and space. Africa uses only 4% of its water resources (UNDP, 2007b) yet it faces the greatest problem of water shortage (Hopkins, 1998). Despite the abundant fresh water resources in Africa's lakes and rivers, still a great disparity in water availability and use is experienced. Most freshwater in Africa comes from rain along the equator, specifically around the Congo basin and Niger delta (UN-CSD, 1994).

In the period to 2025, it is expected that the world will need 17% more water to grow food for the increasing population in developing countries, and that total water use will increase by some 40% (UNFPA, 2003). Both the shortage and the uncontrolled excess use of water can be life-threatening, and the essential balance in-between must look to achieve appropriate priorities, equity and economy in the dispensing of this most vital resource. It is with this understanding that world leaders meeting at the Millennium Summit in 2000 set a target of halving by 2015 the

proportion of people without sustainable access to safe drinking water. According to the Population Institute (2010), there has been a widespread failure to recognize that water provides food, energy, sanitation, disaster relief, environmental sustainability and other benefits. This has left hundreds of millions of people suffering from poverty and ill health and exposed to the risks of water-related diseases. Given clean drinking water, fewer children will die from water-borne diseases, more women will have time to engage in productive activities, reducing income poverty and enlarging their social and economic opportunities (UNFPA, 2003). The most immediate impact of measures to protect water sources and increase access to clean water will be to reduce social and environmental vulnerability (UNWWAP, 2009). By so doing, reductions in child and maternal mortality and improvements in child and maternal health are to be anticipated, as well as reductions in the incidence of malaria and other water-borne diseases (WHO, 2003). The availability of safe drinking water will also help in achieving the goal of gender equality and empowerment of women, as time spent on water collection can be devoted to more productive pursuits. In many localities, this task is undertaken by school-age girls, so this measure should have a positive impact on girls' education (Guisse, 2004).

Sub-County Water Officers in the ASALs stressed the need for enhanced follow-up, monitoring and control activities in order to ensure efficient implementation and sustained infrastructure. WSTF will, through County Resident Monitors (CRMs) and closer collaboration with the counties improve follow up, monitoring and evaluation to ensure efficient implementation and sustainability. WSTF has engaged County Resident Monitors with relevant skills who will monitor the whole programme cycle. The CRMs will, within the framework of their assignments, be able to address technical, social and financial issues related to all WSTF Projects and will be based within each County where WSTF-funded projects are implemented. They will work closely with WSTF's implementing agents such as the Water Resources Management Authority (WRMA), Water Resources Users Associations (WRUAs), Community Based Organizations (CBOs) and Water Services Providers (WSPs). The CRMs will be the liaison persons on the ground between the County, implementing agents, other stakeholders and WSTF.

This harmonized monitoring of WSTF programmes at County level is intended to streamline WSTF's activities. Where Danida and EU programmes are implemented in the same County, the Resident Monitors in that County will monitor both programmes. Projects in ASALs require strong involvement of communities, as they are often the only option for outreach to many of the underserved areas. Limited capacities for such specific project implementation are often found, and continued capacity building to enhance proper governance, financial management and projects implementation is needed. WSTF strategy is to include capacity building as part of programme to ensure proper implementation, governance, management and sustainability of projects. However, decentralization may also jeopardize equity among different localities. The Soufflé theory is at the center of devolution. The theory is relevant to the current study as it provides insights on various dimensions of decentralization adopted by County Governments in Kenya.

CHAPTER SIX: SUMMARY AND CONCLUSION

6.1 Introduction

Even though, and with promulgation of Constitution (2010), Kenya as a water scarce country did devolve water provision to counties, the question of whether administration of devolved water services has assisted in solving challenges related to water provision as desired and anticipated by target six (6) of the Sustainable Development Goals (SDGs) as well as Kenya's Vision 2030 still remain unresolved.

The purpose of this study was therefore to establish the role of administration of devolved water services, transformational leadership and planning on water provision in Arid and Semi-Arid Lands in Kenya. Specifically, the study determined the effect of administration of devolved water services, analyzed the moderating effect of transformational leadership on the relationship between administration of devolved water services and water provision, assessed the moderating effect of transformational leadership on the relationship between administration of devolved water services and water provision, and as established if the joint moderating effect of transformational leadership and planning on the relationship between administration of devolved water services and water provision in ASAL in Kenya is different from their separate effects.

The study used positivism research orientation and was guided by the cross-sectional survey research design targeting 113 sub-counties within the 23 ASAL counties with a sample of the 89 sub counties. A structured questionnaire was used in collecting primary data from sub-county water officers with secondary data collection being done via desk study. The Data collected was cleaned before analyzing using descriptive and inferential statistics (quantitative data) as well as content analysis (qualitative data).

This chapter summarizes the study findings for each study objective and explains the research conclusion for each objective. The conclusion indicates the inference made from the findings on every objective. Thus, the conclusion explains whether every study objective was achieved or not with reference to the study findings.

6.2 Summary

6.2.1 Administration of Devolved Water Service and Water Provision in ASAL

Administration of devolved water services was highly affirmed to have enhanced the rate at which County Governments engages local residents to actively participate in water provision decision making processes. However, it has not enhanced the effectiveness with which issues concerning water provision are communicated to all stakeholders involved.

6.2.2 Administration of Devolved Water Services, Transformational Leadership and Water Provision

The study findings indicate that the leadership in County Governments in the ASALs inspire and motivate their teams to achieve reliable, accessible, quality water. In particular, the study findings imply that County leaders emphasize on incorporating subordinate advice when making final decisions. The findings imply that County Governments in the ASALs use transformational leadership in delivery of water provision service. If Leaders in ASAL use transformational leadership, the implication is that all the stakeholders in water provision are involved hence improving service provision especially on water. This in turn will lead to more efficiency and effectiveness in responding to the constituents' needs. Transformational Leadership may cause positive effects like innovation among subordinates leading to better ways of doing things especially in water provision.

6.3.3 Administration of Devolved Water Services, Planning and Water Provision

Planning was found to have been at the center of success in water provision given the significant change in water provision when planning is factored in. The study revealed that county leaders clarify and gain consensus on the vision and mission in water provision and the need for planning. Devolution was therefore affirmed to have enabled optimal and on-time deliveries on water projects to a great extent.

6.2.4 Administration of Devolved Water Services, Transformational Leadership, Planning and Water Provision

From the findings, all the parameters of water provision were found to have improved after devolution as a result of both transformational leadership and planning which has significantly affected administration of devolved water services. Nonetheless, reliability of water access by residents was found to have been the most improved. Closely following was clarity of water used by the residents expressed and quality of water accessed by residents expressed. On the other hand, those services that were found to have least improved included average distance in Kilometers covered by a resident to access the nearest water point and salinity of water accessible by the residents expressed as a percentage. This implies that water provision has significantly improved after devolution particularly in terms of distance covered, cost, quality, reliability of water access, and frequency in water treatment as well as clarity of water used.

Table 6.1: Summary of key findings

Objective	Hypothesis	Findings	Conclusion
To determine the effect of administration of devolved water services on water provision in ASAL in Kenya	H0₁ = There is no significant effect of administration of devolved water services on water provision in ASAL in Kenya;	Administration of devolved water services explains changes in water provision up to 0.911 and p-value of 0.000	Given the p-value of 0.000 < than 0.05 the researcher therefore fails to accept null hypothesis and conclude that, administration of devolved water services positively and significantly influences water provision in ASAL in Kenya
To establish the moderating effect of	H0₂ = There is no significant moderating	With the interaction between	Given the p-value of 0.000 < than 0.05 the

Objective	Hypothesis	Findings	Conclusion
transformational leadership on the relationship between administration of devolved water services and water provision in ASAL in Kenya	effect of transformational leadership on the relationship between administration of devolved water services and water provision in ASAL in Kenya;	administration of devolved water services and water provision accounted for a positive and significant variance when transformational leadership is used as a moderating variable compared to when just administration of devolved water services and water provision by themselves with R-square being 0.890 and p-value of 0.000	researcher therefore fail to accept null hypothesis and conclude that, transformational leadership has a positive and significant effect on the relationship between administration of devolved water services and water provision in ASAL in Kenya
To establish the moderating effect of planning on the relationship between administration of devolved water services and water provision in ASAL in Kenya	H0₃ = There is no significant moderating effect of planning on the relationship between administration of devolved water services and water provision in ASAL in Kenya;	With the interaction between administration of devolved water services and water provision accounted for a positive and significant variance when planning is factored in compared	Given the p-value of 0.000 < than 0.05 the researcher therefore fails to accept null hypothesis and conclude that, planning has a positive and significant effect on the relationship between administration of devolved water services

Objective	Hypothesis	Findings	Conclusion
To establish if joint moderating effect of transformational leadership and planning on the relationship between administration of devolved water services and water provision in ASAL in Kenya is different from their separate effect.	H04 = The joint moderating effect of transformational leadership and planning on the relationship between administration of devolved water services and water provision in ASAL in Kenya is significant from their separate effects	to when just administration of devolved water services and water provision by themselves with R-square being 0.98.9 and p-value of 0.000 The interaction between administration of devolved water services and water provision accounted for a significant variance compared to when just administration of devolved water services and water provision by themselves, $R^2 = 99.9$ and p-value of 0.000	water provision in ASAL in Kenya Given the p-value of $0.000 >$ than 0.05 the researcher therefore fail to accept null hypothesis and conclude that, the joint effect of transformational leadership and planning on the relationship between administration of devolved water services and water provision in ASAL in Kenya is significantly different from their separate effect

6.3 Conclusion

This section draws conclusion from findings from the study. The section is divided into sections based on the research objectives in conclusion all the study objectives were achieved.

6.3.1 Administration of Devolved Water Services and Water Provision in ASAL

The first objective was to determine the effect of administration of devolved water services on water provision in ASAL in Kenya. This objective was achieved and the study concludes that administration of devolved water services has a positive and significant influence on water provision in ASAL in Kenya. Engagement of different stakeholders' management, adequate and trained human resource development as well as information technology greatly contributed to provision of water services in ASAL Counties.

Delivering better governance in water provision is therefore a matter of gradually changing the values, perceptions and incentives of individual decision makers, managers and staff in this sector. It will require a shift in the underlying power relationships and interests, and in the formal and informal rules currently governing the sector. This leads to a more effective water sector and also to more accountable practices at the sector and country levels in the long run. This will pave the way to fulfilling the rights enshrined in the Constitution of Kenya as well as the human right to safe drinking water and sanitation.

6.3.2 Administration of Devolved Water Services, Transformational Leadership and Water Provision

The second objective was to establish the moderating effect of transformational leadership on the relationship between administration of devolved water services and water provision in ASAL in Kenya. The null hypothesis for this objective also not accepted and it was concluded that transformational leadership has a positive and significant moderating effect on the relationship between administration of devolved water services and water provision in ASAL in Kenya. Transformational leadership has a positive influence on personal outcomes especially

stakeholders' engagement, human resource development and application of modern technologies. This comes as a result of empowerment, job satisfaction, commitment, trust, self-efficacy beliefs, and motivation on the part of employees in the devolved units. Transformational leadership is significantly correlated with personal outcomes. Thus, transformational leaders apply their influence on followers for service delivery in counties. There is a clear need for greater attention in this area to understand the mechanisms through which transformational leadership influences personal attitudes and increase performance. Literature review demonstrated that organizations can benefit greatly by providing transformational leadership which would enhance positive personal outcomes among followers.

One might expect the greatest impact of transformational leadership on devolution is when those seen as high on transformational leadership also engage in appropriate change-specific behaviors in a transformative way and involving the stakeholders in major decisions, as followers feel inspired by, and committed to, both the longer-term prospects for the work unit as well as the change-specific vision communicated by the leader. Conversely, we would expect the lowest levels of commitment to the change to be associated with leaders who are neither transformational nor adept at managing the specific change. The enhanced positive personal outcomes would then positively affect the overall productivity and organizational performance.

6.3.3 Administration of Devolved Water Services, Planning and Water Provision

The third objective was to establish the moderating effect of planning on the relationship between administration of devolved water services and water provision in ASAL in Kenya. The objective was achieved and the study concludes that planning has a positive and significant moderating effect on the relationship between administration of devolved water services and water provision in ASAL in Kenya. County leadership ought to ensure there is a clear institutional vision and challenging goals/targets. Achievement of institutional objectives can only be realized through unified purpose and direction of employees. Employees at all levels are essential in any firm and their total engagement allows their capabilities to be used for the company's benefit.

Motivating and holding employees accountable as well as engaging them in decision making instills innovation and creativity. Engagement of employees should include involving them in simple information sharing on job related concerns, providing recommendations, goal setting, business decision making and problem solving in cross-functional groups.

When County leaders use departmental strategic plans and County Integrated Development Plans that was developed through a participatory process, allocation of adequate financial and human resource as well as timely delivery of services especially water services, then efficiency is achieved leading to better performance in water sector especially better water quality, reliability of water, accessibility of water and cost of water by all residents among others. In this study the ASAL counties achieved this by engaging stakeholders in coming up with strategic plans, allocated resources towards achieving these results especially on water provision.

6.3.4 Administration of Devolved Water Services, Transformational Leadership, Planning and Water Provision

The fourth and last objective was to establish if the joint effect of transformational leadership and planning on the relationship between administration of devolved water services and Water Provision in ASAL in Kenya is different from their separate effects. This was also achieved and the study concludes that the joint effect of administration of devolved water services, transformational leadership and planning on water provision in ASAL in Kenya is not significantly different from their separate effect. County Governments are required by the County Governments Act to ensure that devolved services are provided to citizens and National Government to provide resources towards achieving it. A lot of progress has been made in the water sector in Kenya over the last six years by applying principles of financial viability and sustainability. As a result, increased services have been provided to more people more reliably. There is evidence that customers can contribute to the full cost of providing services. This means that a water service provider can deliver reliable services through proper maintenance and on-going investment in the service without relying on external support. In rural areas the cost and quality of water has greatly improved.

Administration of devolved water services through engagement of stakeholders, proper human resource development and use of modern information technology has greatly contributed to effective and efficient water provision in ASAL counties. Leaders in such Counties where proper resource allocation is made to the water sector and who motivate employees have been found to have greatly reduced cost of water to residents, water quality having improved as well as reliability of water.

CHAPTER SEVEN

RECOMMENDATIONS

7.1 Introduction

Recommendations for this study were based on the study objectives, findings and conclusion of the study findings. These recommendations are therefore drawn to address and contribute towards theories, policy framework as well as future studies. The researcher based the recommendations on action and managerial practices, policy contributions, contribution to theory and suggestions for further studies.

7.2 Recommendations on Action and Managerial Practices

The first objective of the study was to find out the effect of administration of devolved water services on water provision in ASAL. From the study findings, it was established that administration of devolved water services has a significant and positive effect on water provision in ASAL in Kenya. The study therefore recommends that administration of devolved water services should be enhanced by ensuring there is frequent stakeholders' engagement, enhanced information technology as well as developed human resource. This can effectively be achieved by carrying out regular stakeholders' fora as well as real time communications on matters pertaining to water provision. In addition, county governments should ensure employees of all cadres in the water sector are taken through relevant and effective skills and knowledge enhancement programs. These programs should be performed in tandem with employees' level of experience to enhance the levels of responsibilities, transparency and accountability. Given the dynamic nature of water resources needed for human, animal and industrial consumptions, the researcher recommends use of the most appropriate and adequately applicable technologies in water provision in ASAL. This would ensure efficient and sustainable water provision meeting the expected qualities. The county administrations should also ensure that, technologies used are supported by residents through stakeholders' engagement;

The second objective of the study was to find out the moderating effect of Transformational Leadership on the relationship between administration of devolved water services and water provision in ASAL in Kenya. Findings indicate that Transformational leadership was found to be having a significant moderating effect on the relationship between the administration of devolved water services and water provision. Given these findings, county administrations in ASAL should adopt leadership that would nurture inspiration, motivation and creativity/innovation among the staff. At the same time, the leadership should promote reward and recognition system as well as build trust and be role models for desired service delivery in water provision to be realized.

The third objective was to find out the moderating effect of planning on the relationship between administration of devolved water services and water provision. Findings indicate that moderating effect of planning has had a significant and positive effect on the relationship between administration of devolved water services and water provision. The study therefore recommends county leadership to delegate decision making on water provision to water officers at the sub-county levels. This should be done in tandem with the budget appropriation which should involve officers at the ground for efficient water provision. This can be accomplished by incorporating in the county budget sub-county water provision fund that will be managed by sub-county water officers. When this is done, there will be an effective and more participation of residents in decision making on matters concerning water provision.

In addition, the study recommends that leaders in ASAL County Governments should formulate comprehensive county water sector policies as well as strategic plans. The study further recommends adoption, training and use of ICT as an enabler of sustainable water provision. There is need for ASAL Counties to standardize water technologies since they have similar conditions. Standardization achieves integrity and reduction of risks. Water projects in ASAL areas should have a standardized way of doing them to reduce risks and wastage.

It is also necessary to ensure all water sector institutions develop and operationalize a services charter. This can be adequately achieved if sub-county water officers are engaged in short term, medium term and long-term decision making at both sub-county and county levels. Results should be benchmarked with those of other counties that are either within or outside ASAL

delineation. Consumer satisfaction surveys should be conducted annually to establish the citizen's satisfaction with the water services and its management as well as the prevailing leadership regarding water provision. Issues raised should be addressed accordingly. For adequate planning and ensure effective water provision in counties, the study recommends the need for county leadership to devolve further water provision to sub-counties. Moreover, the study recommends an integrated approach by all stakeholders including National and County Governments in ASAL, Non-State Actors and the Communities to address perennial water crisis. There is also need for County Governments in ASAL to set up desalination plants to provide safe and fresh water to its residents.

The forth objective for this study sought to establish if the joint moderating effect of transformational leadership and planning on the relationship between administration of devolved water services and water provision in ASAL in Kenya is different from their separate effects. From the findings, it was established that the joint moderating effect of transformational leadership and planning on the relationship between administration of devolved water services and water provision in ASAL in Kenya is stronger than the separate effect. The study therefore recommends that leaders should adopt transformational leadership traits like motivation, inspiration, recognition and reward and blend with proper resource allocation and prudent management of such funds to achieve accessible, quality and reliable water for its residents.

7.3 Policy Contributions

The first objective of the study was to find out the effect of administration of devolved water services on water provision in ASAL. From the findings, it was established that administration of devolved water services has a significant and positive effect on water provision in ASAL in Kenya. This study therefore recommends policy documents to be developed and enhanced including effective policies on stakeholder engagement, use of Information technology on water as well as human resource development to achieve quality, reliable, accessible water for residents in ASAL. For administration of devolved water services to be effective planning should be done through proper resource allocation and strategic planning, as well as optimal and

on-time deliveries. This would lead to formulation of relevant and suitable policies on water provision.

In addition, there is need to increase community awareness and participation in the decision making. This should be a continuous process engaging all stakeholders and identify the issues of concern among the public regarding water provision. Policy framework should ensure effective, efficient and sustainable management of both urban and rural water services. The study recommends building of the capacity of water management committees and strengthens the operational capacity of water sector staff. This should entail skills development through training of persons in the committees and the water officers from the senior positions to the lower positions. Regulations should also be enacted on the minimum skills needed to serve in the technical positions related to water provision management. This should be implemented by the County Public Service Boards in collaboration with the office of the Governor. This should be done regularly to ensure the members of staff are up to date with the current issues in the water management concerns in their respective sub counties. Employees' skills inventory should be kept and updated after each training session. This should be used to continuously check on the water management personnel continuously harnessing the skills.

For provision of water services to achieve social equity and affordability for residents in ASAL, administration of devolved water services should apply effective tariff structure policy and social income support policy. For tariff structure, water should be charged at a very low price for the essential amount of water for drinking, domestic and sanitation purposes to enable residents in the subject areas access the resources.

The second objective of the study was to find out the moderating effect of Transformational Leadership on the relationship between administration of devolved water services and water provision in ASAL in Kenya. Findings indicate that Transformational leadership was found to be having a significant moderating effect on the relationship between the administration of devolved water services and water provision. Given these findings, County Leadership should promote culture of recognition and reward so that staffs can be motivated and achieve more. This can be done at end year staff parties.

The third objective was to find out the moderating effect of planning on the relationship between administration of devolved water services and water provision. Findings indicate that moderating effect of planning has had a significant and positive effect on the relationship between administration of devolved water services and water provision. The study recommends policies developed to enhance this relationship. This policy include policies on funds devolved to sub counties and managed by Sub County Water Officers, increased allocation to water sector in the budget appropriation as well as ensure implementations of water projects as outlined in the County Integrated Development Plan (CIDP) as well as strategic plans.

The County Assemblies in ASAL should come up with County Laws to ensure standardization of water sector processes to achieve efficient and effective water service delivery. At the same time, clear legislation and water policies enhanced at devolved levels. This would greatly enhance the effectiveness of regulation in water sector. Without policy, it is not possible for regulators to know what they need to regulate, and what the underlying premise for the delivery of good services is. With a policy framework in place, it becomes more feasible for them to manage the rules, for example to ensure that as many people as possible can afford water services and that the quality of services is adequate. In addition, the type of regulation should be considered. For example, economic regulation may be the mode for keeping tariffs in water provision well related to reasonable costs, but there may be a need for additional measures to enable regulators to uphold social objectives, such as incentivizing providers to extend services to poor people who cannot afford to pay the full cost of service.

The forth objective for this study sought to establish if the joint moderating effect of transformational leadership and planning on the relationship between administration of devolved water services and water provision in ASAL in Kenya is different from their separate effects. From the findings, it was established that the joint moderating effect of transformational leadership and planning on the relationship between administration of devolved water services and water provision in ASAL in Kenya is stronger than the separate effect. The study therefore recommends that leaders should adopt transformational leadership traits like motivation, inspiration, recognition and reward, blend with proper planning of resources and develop policies to achieve results.

7.4 Study's contribution to theory

This study has found that administration of devolved water services has significantly improved water provision in Arid and Semi-Arid Lands. This was empirically ascertained through hierarchical multiple regression analysis with transformational leadership as well as planning separately and jointly influencing the relationship between administration of devolved water services and water provision. This study was carried out in counties in Arid and Semi-Arid Lands. These findings can therefore be adopted in the 47 counties in Kenya.

7.5 Suggestions for Further Studies

Given the limitations and the delimitations as well as findings of this study, the researcher recommends a similar study to be carried out targeting residents in Arid and Semi-Arid Lands as the respondents.

REFERENCES

- Abdalkrim, G. M. (2013). The impact of strategic planning activities on private sector organizations performance in Sudan: An empirical research. *International Journal of Business and Management*, 8(10), 134.
- Abdumlingo, H., and Mwirigi, M. F. (2014). Challenges of managing devolved funds in the delivery of services: A case study of Mombasa county. *International journal of research in commerce & management*, 5(5), 1-4.
- About, E. A. (2002). Effects of Land use type on the level of Microbial Contamination based on total Caliform and Escherischia Coli count on the Mara River, EA.
- Adanri, A. A. & Thakkar, B. (2016). Nigerian public administrator's leadership practices and their perceived effectiveness. *International Journal of Academic Research in Business and Social Sciences*. 6(9) 1-16.
- Adanri, A. A. (2016). *The relationship between Nigerian local government administrative leadership styles and organization outcomes (Order No. 10134346)*. Available from Dissertations & Theses @ Walden University. (1803939357). Retrieved from <http://ezp.waldenulibrary.org/login?url=http://search.proquest.com/docview/1803939357?accountid=14872>
- Adebisi, A. (2012). Local government and good governance in Nigeria's emerging democracy, 1999-2011: An analysis of the constraining factors. *Canada Social Science*, 8(6), 114-122.
- Aderonmu, J. A. (2010). Local government and poverty eradication in rural Nigeria. *Canadian Social Science*, 6(5), 200-208.
- Adeyemi, O. O. (2012). Corruption and local government administration in Nigeria: A discourse of core issues. *European Journal of Sustainable Development*, 1(2), 183-198.
- Allix, N. M. (2000). Transformational Leadership Democratic or Despotic? *Educational Management & Administration*, 28(1), 7-20.

- Adeyemi, O. O., Akindele, S. T., Aluko, O. A., & Agesin, B. (2012). Institutionalizing the culture of accountability in local government administration in Nigeria. *African Journal of Political Science and International Relations*, 6(4), 81-91.
- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, London, Sage.
- Ajzen, I., & Madden, T. J. (1986). Prediction of Goal-Directed Behavior: Attitudes and Perceived Behavioral Control. *Journal of Experimental Social Psychology*, 22, 453- 474.
- Akhmouch L. & Clavreul, K, (2016). Stakeholder engagement for inclusive water governance: “Practicing what we preach” with the OECD water governance initiative. *Water*, 8(204), 1-17
- Akinyele, S. T., & Fasogbon, O. I. (2010). Impact of strategic planning on organizational performance and survival. *Research Journal of Business Management*, 4(1), 73-82.
- Al Radif A. (1999). Integrated water resources management (IWRM): An approach to face the challenges of the next century and avert future crises.
- Aldehayyat, J. S. & Twaissi, N. (2011). Strategic planning and corporate performance relationship in small business firms: Evidence from a Middle East country context. *International Journal of Business and Management*, 6(8), 255-263. doi:10.5539/ijbm.v6n8p255.
- Aldehayyat, J. S., & Al Khattab, A. A. (2013). Strategic planning and organizational effectiveness in Jordanian hotels. *International Journal of Business and Management*, 8(1), 11-25. doi:10.5539/ijbm.v8n1p11
- Ali, B. J. & Abedalfattah, Z. A. (2012). The effect of quality management practices on organizational performance in Jordan: An empirical study. *International Journal of Financial Research*, 4(1), 37- 46

- Alika, I. J., & Aibieyi, S. (2014). Human capitalHuman resource development: Definitions, approaches and management dynamics. *Journal of Business Administration and Education*, 5 (1), 55-68.
- Alison M. J. (2004). No Water No Life, Watersheds of Africa and North America, IRC 501(c) (3).
- Allen, A., Dávila, J. D., & Hofmann, P. (2006). *Governance of Water and Sanitation Services for the Peri-urban Poor, A Framework for Understanding and Action in Metropolitan Regions*. London: The Development Planning Unit, University College.
- Alvesson, M., & Willmott, H. (2012). *Making sense of management: A critical introduction*. Sage.
- America Water Works Association (1999). Water Statistics, Michigan.
- American Water Works Association (2007). Water use efficiency and conservation management strategies, Michigan. An Economic Analysis, Oxford Clarendon Press.
- Andrews, R., Boyne, G. A., Law, J., & Walker, R. M. (2009). Centralization, organizational strategy, and public service performance. *Journal of Public Administration Research and Theory*, 19(1), 57-80.
- Antonakis, J., Avolio, B. J., & Sivasubramaniam, N. (2003). Context and leadership: an examination of the nine-factor full range leadership theory using the Multifactor Leadership Questionnaire. *The Leadership Quarterly*, 14(3), 261-295.
- Arbués, F., Garcí a-Valiñas, M. Á. & Martínez- Espiñeira, R. (2003). Estimation of residential water demand: a state-of-the-art review. *Journal of Socio-Economics*, 32, pp. 81-102.
- Ariola, M. (2006). Principles and methods of research. *Slovin's Formula*, 7, 140-141.
- Ariyabandu R.De.S. (1999). Household water security using rainwater harvesting RWH, Conference, New Delhi.
- Armstrong, M. (2008). *Strategic Human Resource Management: A Guide to Action*. London. Kogan Page.

- Arouna, A; Dabbert, S. (2009). Determinants of domestic water use by rural households without access to private improved water sources in Benin.
- Asadi, S. S., Vappala, P., Reddy, A. M. (2007). Remotely sensing and GIS techniques for evaluation of groundwater quality in municipal Corporation of Hyderabad (zone-V), India. *International Journal of Environmental Research and Public Health*. 4(1):45-52
- Atieno, Y. A. (2009). Corporate governance problems facing Kenyan parastatals: A case study of the sugar industry. *Unpublished Thesis, University of Nairobi, Kenya*.
- Avila, R., Feigenblatt, H., & Heller, N. (2010). *Global Mapping of Technology for Transparency and Accountability: New Technologies*. London, UK: Transparency & Accountability Initiative c/o Open Society Foundation.
- Awino, Z. B., Muturia, J. M., & Oeba, L. K. (2012). Strategic planning, Planning outcomes and organizational Performance.
- Azfar, O. (1999). *Decentralization, Governance and Public Services: The Impact of Institutional Arrangements*. Working Paper No.255, IRIS Center.
- Babcock-Roberson, M. E., & Strickland, O. J. (2010). The relationship between charismatic leadership, work engagement, and organizational citizenship behaviors. *Journal of Psychology*, 144(3), 313-326.
- Babel, M.S.; das Gupta, A.; Nayak, D.K. (2005). A Model for Optimal Allocation of Water to Competing Demands. *Water Resour. Manag.* 19, 693–712.
- Bagaka, O., & Kobia, M. (2013). *Separation of Powers in Kenya's Devolved Administrative System: Opportunities and Challenges*. Commonwealth Governance Handbook 2013/14
- Bahri, A. (2012). *Integrated Urban Water Management*. Stockholm: Global Water Partnership.
- Ballou, R. H. (2007). *Business logistics/supply chain management: planning, organizing, and controlling the supply chain*. Pearson Education India.

- Bancy, M. M. (2012). Annual Water Sector Conference Research and Resource Centre (WARREC). Jomo Kenyatta University of Agriculture and Technology (JKUAT), Nairobi.
- Barney, J. B. (2001). Organizational culture: Can it be a source of sustained competitive advantage? *Academy of Management Review*, 11: 656-665.
- Bass, B. M. (1985). *Leadership and Performance beyond Expectations*. New York, NY: The Free Press.
- Bass, B. M. (2000). *Transformative leadership: Industry, Military, and Educational Impact*. Mahwah, NJ: Lawrence Erlbaum Associates
- Bass, B. M., Avolio, B. J., Jung, D. I., & Berson, Y. (2003). Predicting unit performance by assessing transformational and transactional leadership. *Journal of Applied Psychology*, 88(2), 207-218.
- Bass, B. M., Avolio, B. J., Jung, D. I., & Berson, Y. (2003). Predicting unit performance by assessing transformational and transactional leadership. *Journal of Applied Psychology*, 88(2), 207-218.
- Belias, D. & Koustelios, A. (2014). Transformational leadership and job satisfaction in the banking sector: A review. *International Review of Management and Marketing*, 4(3), 187-200.
- Berg, S., & Corton, M. (2007). Water utility benchmarking for managerial and policy decisions: lessons from developing countries. *Paper Prepared for the International Water Association Conference on Performance Assessment of Urban Infrastructure Services* (March 2008, Valencia, Spain). Available at: http://bear.warrington.ufl.edu/centers/purc/docs/papers/0724_Berg_Water_Utility_Benchmarking.pdf
- Bevan, D., Collier, P., & Gunning, J. W. (1989) .Village labour markets in Kenya and food processing, grain, fetching wood and water and caring for children.

- Bhat, A. B., Rangnekar, S., & Barua, M. (2013). Impact of transformational leadership on organizational learning. *Elite Research Journal of Education and Review*, 1(4), 24-31.
- Bhatnagar, S. (2014). *Public service delivery: Role of information communication technology in improving governance and development impact*. Manila: Asian Development Bank.
- Bhutta, M. N. & Van der Velde E. J. (1992). Equity of water distribution along secondary canals, Punjab.
- Biamah, E. K & Gichuki F. (2004). Land and Water Management for Poverty Alleviation: Experiences from Iiuni Watershed, Machakos District, Kenya.
- Bibhabasu M (2010). Water distribution system, Department of Civil Engineering.
- Bloisi, W. (2007). *An introduction to human resource management*. McGraw-Hill.
- Boga, I., & Ensari, N. (2009). The role of transformational leadership and organizational change on perceived organizational success. *Psychologist-Manager Journal*, 12(4), 235-251.
- Bolton, P., Brunnermeier, M. K., & Veldkamp, L. (2013). Leadership, coordination, and corporate culture. *The Review of Economic Studies*, 80(2), 512-537.
- Bomet County Development Plan (2010). *Planning and natural development, vision 2030*.
- Bonett, D. G. (2002). Sample size requirements for testing and estimating coefficient alpha. *Journal of Educational and Behavioral Statistics*, 27(4), 335-340.
- Bontis, N., Crossan, M.M., & Hulland, J. (2002). Managing an organizational learning system by aligning stocks and flows. *Journal of Management Studies*, 39 (4), 437-69.
- Bos, R., Alves, D., Latorre, C., Macleod, N., Payen, G., Roaf, V., Rouse, M. (2016). *Manual on the Human Rights to Safe Drinking Water and Sanitation for Practitioners*. London, UK: IWA Publishing; 2016
- Broaweys, M. J., & Price, R. (2011). Understanding cross-cultural management. Harlow: Pearson Education Ltd.

- Brown, L.R. (2001). How water scarcity will shape the new century, *Water Science and Technology*, 43(4), pp. 17-22. Water Security for the 21st Century-Innovative Approaches, the 10th Stockholm Water Symposium, August 14-17, 2000.
- Bruns, B.R (2004). *Pro-poor people lack water rights*. Paper presented at the ADB water week, Manila, 26th -30th August.
- Burchi, S. & Andrea A. D. (2003). Preparing national regulations for water resources management, Principles and practices, Rome.
- Burns, J. M. (1978). *Leadership*, N.Y, Harper and Row
- Business Dictionary (2017). *Desk Research: Definition*. WebFinance Inc. Retrieved from: <http://www.businessdictionary.com/definition/desk-research.html>. Accessed on July 11, 2017.
- Carl, B. (2010). *Journal for contemporary water research and education* vol.
- Cavana, R., Delahaye, B., & Sekaran, U. (2001). *Applied Business Research: Qualitative and Quantitative Methods* (3rd ed.). Sydney: John Wiley & Sons.
- Cave, R. R. (2003). The Humber Catchment and Coastal Area, from U.K to European perspectives, the science of the total environment, 314pp.31-52.
- Certo, S. C. & Certo, S. T. (2006). *Modern Management* (10th ed.). New Delhi: Prentice Hall Inc.
- Chaudhry, A. Q. & Javed, H. (2012). Impact of transactional and laissez-faire transformational leadership on motivation. *International journal of business and social science*, 3(7), 258-264
- Cherunya, P. C., Janezic, C., & Leuchner, M. (2015). Sustainable supply of safe drinking water for underserved households in Kenya: Investigating the viability of decentralized solutions. *Water* 2015, 7(10), 5437-5457. doi:[10.3390/w7105437](https://doi.org/10.3390/w7105437)
- Chimbugia, P. (2011). *Internal Communication for Developing Good Communication*.

- Chin D.A. (2000). Performance criteria for water use distribution, USA.
- Choi, S. (2007). Democratic leadership: the lessons of exemplary models for democratic governance. *International Journal of Leadership Studies*, 2(3), 243–262
- Chowns, E. (2015). Is Community Management an Efficient and Effective Mode of Public Service Delivery? Lessons from the Rural Water Supply Sector in Malawi. *Public Administration and Development*, 35(4), 263-276. 10.1002/pad.1737
- Chung – Fang, C. & Yi Ying, W. (2012). The effects of transactional and transformational leadership on organizational commitment in Hotels: The mediating effect of trust. *Journal of hotel and business management*, 1: 103.
- CMWSP (Community Management of Water Supplies Project, 1997). Guidelines, Modalities and Selection Criteria for Handing over Water Supply Schemes vol.II.
- Cohn, J. B., Gillan, S. L., & Hartzell, J. C. (2016). On Enhancing Shareholder Control: A (Dodd-) Frank Assessment of Proxy Access. *The Journal of Finance*.
- Cole, G. A. & Phil, K. (2011). *Management: Theory and Practice* (7th ed.). Hampshire, UK: South-Western Cengage Learning
- Collier, N., Fishwick, F., & Floyd, S. W. (2004). Managerial involvement and perceptions of strategy process. *Long Range Planning*, 37(1), 67-83.
- Conradie B. (2002). The value of water in the South African Economy: The opportunity for efficient allocation through price, an extensive study on domestic water demand in low income communities.
- Cook, J., & Burchell, J. (2006). It's good to talk? Examining attitudes towards corporate social responsibility dialogue and engagement processes. *Business Ethics: A European Review*, 15(2), 154-170.
- Cooper, R.D., & Schindler, P.S. (2003). *Business Research Methods*. Tata-McGraw Hill.

- CORDAID & Acacia Consultants (2004). *Drought Cycle Management: A Toolkit for Dry lands of the Greater Horn of Africa*. Institute of Rural Reconstruction.
- Costa, A. C., & Bijlsma-Frankema, K. (2007). Trust and control interrelations: New perspectives on the trust-control nexus. *Group & Organization Management*, 32(4), 392-406.
- Cramer, D., & Howitt, D. L. (2004). *The SAGE Dictionary of Statistics: A Practical Resource for Students in the Social Sciences*. London: Sage Publications Ltd.
- Crook, T. R., Ketchen, D. J., Jr., Combs, J. G., & Todd, S. Y. (2008). Strategic resources and performance: A meta-analysis. *Strategic Management Journal*, 29, 1141–1154. doi:10.1002/smj.703
- DAAD – German Academic Exchange Programme (2008). Sub-catchment Management Plan – Keuyaritha – Ngaciuma Watershed Kenya.
- Daft, R. L., & Marcic, D. (2011). *Understanding Management*. Mason, OH: South-Western, Cengage Learning.
- Dale W. (1990). Calculating the value of time spent collecting water. Some Estimates for Ukunda, Kenya, University of North Carolina, Washington DC.
- Darlington, R. B., & Hayes, A. F. (2017). *Regression Analysis and Linear Models. Concepts, Applications, and Implementation*. New York London: The Guilford Press.
- Datche, E. A. (2015). Influence of Transformational Leadership on Organizational Performance of State Corporations in Kenya
- David S. (2006). Water we drink beyond 2006, Managing Uncertainty in the Provision of Safe drinking water, Alberta Research Institute and the Ontario Centres.
- David, C. C. & Inocencio A. B. (1998). Understanding Household Demand for Water: The Metro Manila Case, Research Report, EEPSEA, Economy and Environment Program for South East Asia, available at <http://web.idrc.ca/en/ev-8441-201-1->
- Davis, J. & Liyer, P. (2012). Taking Sustainable Rural Water Supply Services to Scale: A Discussion Paper, Bank of Netherlands Water Partnership Energy and Water Department, World Bank, Washington DC.

- de Montalvo, U. W. & Alaerts, G. (2013). Leadership in knowledge and capacity development in the water sector: A status review. *Water Policy*, 15 (2013) 1–14
- De Rue, D. S. & Ashford, S. J. (2010). Who will lead and who will follow? *A social process of leadership identity construction in organizations*. *Academy of management review*, 35 (4), 627-647.
- Denhardt, R. B. & Denhardt, J. V. (2003). The new public service: An approach to reform. *International Review of Public Administration*, 8(1), 3–10
- Dent, Martin J. (2004). *Identity Politics: Filling the gap between federalism and independence*. Hants: Ashgate Publishing Limited.
- DePree, M. (2011). *Leadership is an art*. Crown Business.
- Detert, J. R. & Burris, E. R. (2007). Leadership Behavior and Employee Voice: Is the Door Really Open? *Academy of Management Journal*, Vol. 50, No. 4
- DeVellis, R. (2003). *Scale Development: Theory and Applications: Theory and Application*. Thousand Okas, CA: Sage Publications.
- DFID (2002). Mara River Basin wide Water Allocation Plan, Nyangores sub-catchment Village report.
- Dinar A. (1990). Economics of Water Resources allocation mechanisms: The effects of pricing policies on water conservation and drainage. *American Journal of Agricultural Economics*, 55:77-82
- Dinka, M. O. (2010). Analyzing the Extents of Basaka Lake Expansion and Soil and Water Quality Status of Matahara Irrigation Scheme, Awash Basin (Ethiopia). [dissertation]. Vienna, Austria: University of Natural Resources and Applied Life Sciences
- Dirks, K. T., & Ferrin, D. L. (2002). Trust in Leadership: Meta-analytic findings and implications for research and practice. *Journal of Applied Psychology*, 87(4), 611-628.

- Domnisoru, S., Gherghinescu, O., & Ogarca, R. (2010). Some issues concerning the elements of control function of management. *Annales Universitatis Apulensis: Series Oeconomica*, 12(1), 112.
- Douglas, T.J. & Fredendall, L.D. (2004) Evaluating the Deming Management Model of Total Quality in Services. *Decision Science*, 35, 393-423.
<http://dx.doi.org/10.1111/j.0011-7315.2004.02569.x>
- DuBrin, A.J. (2013). *Leadership Research: Findings, Practice and Skills* (5th ed.). Boston, MA: Houghton Mifflin Company.
- Dumdum, U. R., Lowe, K. B., & Avolio, B. J. (2002). A Meta-Analysis of Transformational and Transactional Leadership Correlates of Effectiveness and Satisfaction: An Update and Extension. In B. Avolio & F. Yammarino (Eds.), *Transformational and Charismatic Leadership: The Road Ahead* (pp. 35-66). New York: Elsevier Science.
- Dunford, R. W. (1992) *Organisational Behaviour: An Organisational Analysis Perspective* Sydney: Addison Wesley
- ECHO/UNICEF (2005). *Response to the Kenya Drought Emergency 2004–2005: End of Project Report*. Nairobi: ECHO/UNICEF.
- Elsageer, A., & Mbwambo, J. (2004). Does Decentralization Have a Positive Impact on the Use of Natural Resources? *A Paper for Interdisciplinary Course, International Doctoral Studies at University of Bonn*.
Environmental and Resource Economics 21 (2), 161–187.
- EPD (Environmental Development Plan). Guidance Document (2007). *Methods for determining future water demand*, Georgia.
- FAO (Food and Agriculture Organization, 2008). Coping with water scarcity, water Report 38.
- Farooq, M. K., Shamail, S., & Awais, M. M. (2008). Devolution in a virtual enterprise. *IFIP International Federation for Information Processing*, 283, 433–440.

- Ferdous, J. (2016). Organization theories: From classical perspective. *International Journal of Business, Economics and Law*, 9(2), 1-6
- Fitzgerald, S., & Schutte, N. S. (2010). Increasing transformational leadership through enhancing self-efficacy. *Journal of Management Development*, 29(5), 495-505.
- Folkman, J. (2010). Top 9 Leadership Behaviors that drive employee commitment. *Retrieved on May, 1, 2012.*
- Frone, S., & Frone, D. F. (2013). Promoting access to water supply and sanitation: Issues and challenges in Romania. *Economic Engineering in Agriculture and Rural Development*, 13(2), 1-6.
- Froukh LM (2001). Decision-support system for domestic water demand forecasting and management. *Water Resource Management*, 15(6):363-382
- Fugate, M., Kinicki, A. J., & Prussia, G. P. (2008). Employee coping with organizational change: An examination of alternative theoretical perspectives and models. *Personnel Psychology*, 61: 1-36
- Fuller, J.B., Patterson, C.E. P., Hester, K., & Stringer, D. Y. (1996). A quantitative research on charismatic leadership. *Psychological Reports* 78, 271 – 287
- Fung, A. (2006). Varieties of participation in complex governance. *Public Adm. Rev.*, 66, 66–75.
- Fürst, J; Herrnegger, M. & Olang, L O.(2014): MaMa-Hydro: Exploring Water Resources Planning and Management of Options in Nyangores Headwater Catchment of the Vulnerable Maasai Mara River Basin in Kenya. MID-TERM PROJECT REPORT KEF Project p196.
- Gakubia, M. (2009). *Impact: A performance report of Kenya's water service sub-sector (Issue2)*. Ministry of Water and Irrigation: Annual Water Sector Review, pp. 32 –34.
- Galetic, L. (2008, June). Environmental performance as a function of strategic orientation and organization design-case of Croatian firms. In *An Enterprise Odyssey. International*

- Conference Proceedings* (p. 1110). University of Zagreb, Faculty of Economics and Business.
- Gall, M. D., Gall, J. P., & Borg, W. R. (2007). *Educational Research* (8th Ed.). Boston: Pearson Education, Inc.
- Gambe, T. R. (2013). Stakeholders' engagement in water provision: Lessons from Msasa park, Harare, Zimbabwe. *International Journal of Politics and Good Governance*, 4(42), 1-21
- García-Morales, V. J., Llorens-Montes, F. J. & VerduJover, A. J. (2008). The effects of transformative leadership on organizational performance through knowledge and innovation. *British Journal of Management*, 19(4), 299–319
- Gazzinelli A, Souza MCC, Nascimento I *et al* (1998) Domestic water use in a rural village in Minas Gerais, Brazil, with an emphasis on spatial patterns, sharing of water, and factors in water use. *Cad Saude Publica* 14:265-277.
- Geib, P. & Swenson, J. (2013). China: 'Transformational Leadership for Policy and Product Innovation'. *Advances in Management*, 6(5), 3-10
- George, J. M. & Jones, G. R. (2008). *Organizational Behavior*. New Delhi: Pearson Publication
- Gică, O. A., & Negrușă, A. L. (2011). The Impact of Strategic Planning Activities on Transylvanian SMEs-An Empirical Research. *Procedia-Social and Behavioral Sciences*, 24, 643-648.
- Gichana Z. M., Njiru M., Raburu P.O., Masese F. O. (2014). Effects of Human Activities on Microbial Water Quality in Nyangores stream Mara River Basin, Kenya.
- Glaister, K. W., Dincer, O., Tatoglu, E., Demirbag, M., & Zaim, S. (2008). A causal analysis of formal strategic planning and firm performance: Evidence from an emerging country. *Management Decision*, 46(3), 365-391.
- Gleick, P.H (1986). Methods of Evaluating the Regional Hydrological Impacts of Global Climatic Changes, *Journal of Hydrology*, 8: 99-116.

- Gleitsmann, B. (2015). The importance of community involvement in the planning and design phases of rural water supply development projects in the Koro Region of Mali, West Africa
- Glenn, D. I (1992). Sampling the Evidence of extension program Impact. Programme Evaluation and Organizational Development, IFAS, University of Florida.
- Godda, H. G. (2014). Decentralization of secondary school management in Tanzania: Strengths and prospects. *Journal of Education and Practice*, 5(37), 116-124.
- Goetsch, D. L. & Davis, S. B. (2013). *Quality Management for Organizational Excellence: Introduction to Total Quality* (7th ed.). NJ: Pearson
- Golooba-Mutebi, F. (2012). In search of the right formula: Public, private and community-driven provision of safe water in Rwanda and Uganda. *Public Administration and Development*, 32(4-5), 430-443.
- Gopakumar, G. (2010). Transforming water supply regimes in India: Do public private partnerships have a role to play? *Water Alternatives*, 3(3), 492-511.
- Government of Kenya (2002). An Act of Parliament to provide for the Management, Conservation, Use and Control of Water Resources and Acquisition.
- Government of Western Australia (2009). *Operational policy no.1.02 – Policy on water Conservation /efficiency gains through water licensing*, Department of Water, Perth.
- Greenwood, M. (2007). Stakeholder engagement: Beyond the myth of corporate responsibility. *Journal of Business Ethics*, 74, 315-327
- Griffie, D. T. (2012). *An Introduction to Second Language Research Methods: Design and Data* (1st ed.). CA: TESL-EJ Publications.
- Groves, H. & LaRocca, L. (2011). An Empirical Study of Leader Ethical Values, Transformational and Transactional Leadership, and Follower Attitudes Toward Corporate Social Responsibility. *The Journal of Business Ethics*

- Guisse, E. H (2004). Final report on human rights commission on the promotion and Protection of human rights to water, South Africa.
- Gujarati D. (2003). Basic Econometrics (4th edition). *New York: McGraw Hill*.
- Gupta, D. M., Purohit, K. M., Jayita, D. (2001). Assessment of drinking water quality of river Brahmani. *Journal of Environmental and Pollution*.8:285-291
- Gupta, M. P., Solis, P.N. & Calderon, A. J. (2005). Medical ethnobotany of the tribes of Bocas del Toro, Panama. *Journal of Ethnopharmacology* 96:389-401.
- Gustainis, J. J. (2004). Autocratic Leadership. *Encyclopedia of Leadership*, 68–72.
- GWP (2000). TAC background paper No 4. Integrated Water Resource Management, GWP, Stockholm, Sweden.
- Hackman, M. Z. & Johnson, C. E. (2013). Leadership and Communication. *Faculty Publications - School of Business*. 54.
- Hansen, J.R. & Villadsen, A. R. (2010). Comparing public and private managers' leadership styles: Understanding the role of job context. *International Public Management Journal*, 13(3), 247-274, DOI: 10.1080/10967494.2010.503793
- Harvey, P., & Reed, B. (2004). *Rural Water Supply in Africa: Building Blocks for Handpump Sustainability*. Leicestershire, U.K.: Loughborough University, Water, Engineering and Development Centre
- Hayes, A. F. (2018). *Introduction to Mediation, Moderation and Conditional Process Analysis. A Regression-Based Approach* (2nd Edition ed.). New York London: The Guilford Press.
- Hazelton, D. (2015). The development of community water supply systems using deep and shallow well hand pumps. WRC Report No, TT132/00, Water Research Centre, South Africa.
- Helldorff, H. & Lemuna, J. (2010). *Rural Development and Natural Resource Management*. Swedish University of Agricultural Sciences Department of Urban and Rural Development

- Hemlin, S. (2006). *Creative knowledge environments for research groups in biotechnology: The influence of leadership and organizational support in universities and business companies*. *Scientometrics*, 67, 121–142
- Hemsworth, D., Muterera, J., & Baregheh, A. (2013). Examining Bass's transformational leadership in public sector executives: A psychometric properties review. *Journal of Applied Business Research (JABR)*, 29(3), 853-862. Retrieved from <http://search.proquest.com/docview/1370363950?accountid=14872>
- Herold, D. M., Fedor, D. B., Caldwell, S., & Liu, Y. (2008). The effects of transformational and change leadership on employees' commitment to a change: A multilevel study. *Journal of Applied Psychology*, 93(2), 346-357.
- Herrnegger, M. Senoner, (2014). Climate change scenarios for the assessment of future Drinking water availability in the Alps, Australia.
- Hinkin, T. R., & Schriesheim, C. A. (2008). A theoretical and empirical examination of the transactional and non-leadership dimensions of the Multifactor Leadership Questionnaire (MLQ). *The Leadership Quarterly*, 19(5), 501-513.
- Hinkin, T. R., & Schriesheim, C. A. (2008). An examination of "no leadership": from laissez-faire leadership to leader reward omission and punishment omission. *Journal of Applied Psychology*, 93(6), 1234-1248. doi: 10.1037/a0012875
- Hinrichsen D, Robey B, Upadhyay UD (1997). Solutions for a water-short world. Population Reports 14. Johns Hopkins School of Public Health, Population Information Program, Baltimore, Maryland.
- Hirsch, P. (2006). Water governance reform and catchment management in the Mekong region. *The Journal of Environment & Development*, 15(2), 184-201
- Hitt, M.A., Bierman, L., Shimizu, K. & Kochhar, R. (2001). Direct and moderating effects of human capitalhuman resource development on strategy and performance in professional service firms: A resource-based perspective. *Academy of Management Journal*, 44(1), 13-28.

- Hoffman, C. M. (2009). Geospatial mapping and analysis of water availability-demand-use within the Mara River Basin. MSC. Thesis. Florida International University, Miami, FL, USA. pp 114 - 2007.
- Holmquist, F. (2014). Kenya: *On Edge, Rights at Risk*.Jadaliyya, 5 August 2014. http://www.jadaliyya.com/pages/index/18734/kenya_on-edge-rights-at-risk
- Hope Snr, R. K. (2012). Managing public sector in Kenya: Reform and transformation for improved service performance. *Journal of Public Administration and Governance*. 2 (4), 128 – 143
- Hopkins J. (1998) . Solutions for a Water- Short World. Population Informed Program, Baltiware, Maryland, USA.
- Howell, J. P. & Costley, D. L. (2006), *Understanding Behaviors for Effective Leadership*, 2nd ed., Pearson Prentice Hall, Englewood Cliffs, NJ.
[http://www.iboro.ac.uk/departments/cv/wedc/23 conts.htm](http://www.iboro.ac.uk/departments/cv/wedc/23%20conts.htm).
- Hughes, R. L., Ginnett, R. C., & Curphy, G. J. (2012). *Leadership: Enhancing the Lessons of Experience*. New York, NY: McGraw-Hill Irwin.
- Huselid, M. A., Jackson, S. E., & Schuler, R. S. (1997). Technical and strategic human resources management effectiveness as determinants of firm performance. *Academy of Management journal*, 40(1), 171-188.
- Huttly, S., *et al.* (1990). The Imo State (Nigeria) drinking water supply and sanitation project, 2. Impact on dracunculiasis, diarrhea, and nutritional status.” *Transactions of the Royal Society of Tropical Medicine and Hygiene* 84, pp. 316- 321.
- IEA (2012). *World Energy Outlook: Executive Summary*. Paris: IEA
- Institutional Reform in the New Constitution of Kenya, 2013
- International water management institute (IWMI), vii 20p, Research Report 39.
- Iqbal, N., Anwar, S., & Haider, N. (2015). Effect of transformational leadership on employee performance. *Arabian Journal of Business and Management Review*, 5(5), 1-6

- Irefin, M. P., & Bwala, D. (2012). Organizational theories and analysis: A feminist perspective. *International Journal of Advancements in Research & Technology*, 1(1), 71-97.
- Irshad, R., & Hashmi, M. S. (2014). How transformational leadership is related to organizational citizenship behavior? The mediating role of emotional intelligence. *Pakistan Journal of Commerce and Social Sciences*, 8(2), 413-425.
- Jack S. (2011). Water systems modeller, Stockholm Environmental Institute (Hydrologic Engineering Centre).
- Jagadeeswari, P., Ramesh, K. (2012). Water quality index for assessment of water quality in South Chennai coastal aquifer, Tamil Nadu, India. *International Journal of ChemTech Research*. 4(4):1582-1588
- James, (2006). The 'Q' root 'n' approach in determining household water demand.
- James, J., McKechnie, S., & Swanberg, J. (2011). Predicting employee engagement in an agediverse retail workforce. *Journal of Organizational Behavior*, 32, 173-196. doi:10.1002/job.681
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of financial economics*, 3(4), 305-360.
- Jerald L. (2008). Technologies for clean water: Living with changing water environment, National Academy of Engineering, Annual Report vol. 38 No.3, Bangladesh.
- Joanne M. P. & Robert L. W. (2012). Quantify household water demand: A review of Theory and Practice in the U.K
- Johnson, M. W., Christensen, C. M., & Kagermann, H. (2008). Reinventing your business model. *Harvard business review*, 86(12), 57-68.
- Jones, H., Parker, K. J., & Reed, R. (2002). *Water Supply and Sanitation: Access and Use by Physically Disabled People*. Loughborough: WEDC Publications.
- Judge, T. A., & Piccolo, R. F. (2004). Transformational and Transactional leadership: A meta-analytic test of their relative validity. *Journal of Applied Psychology*, 89(5), 755-768.

- Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal*, 33, 692-724. doi: 10.2307/256287
- Kanten, P., Kanten, S., & Gurlek, M. (2015). The effects of organizational structures and learning organization on job embeddedness and individual adaptive performance. *Procedia Economics and Finance*, 23, 1358-1366.
- Kaplan, R. S., & Norton, D. P. (2008). *The execution premium: Linking strategy to operations for competitive advantage*. Harvard Business Press.
- Karamat, A. U. (2013). Impact of leadership on organizational performance. *Unpublished doctoral dissertation, University of Applied Sciences, Finland*.
- Kathama, L. K. (2012). *Strategic planning practices and performance of state corporations in Kenya* (Doctoral dissertation, University of Nairobi).
- Kaushik, A. (2011). *Literature Review on Right to Water for Basic Needs (Drinking and Domestic Water, Sanitation): Forum for Policy Dialogue on Water Conflicts*. Maharashtra: Society for Promoting Participative Ecosystem Management (SOPPECOM).
- Kayunze, K. (2003), *Social Science Research Methods – DS 300 Notes*. Development Studies Institute, Sokoine University of Agriculture, Morogoro.
- Kearns, P. (2005). *Human Capital Human resource development Management*. Sutton, Surrey: Reed Business Information.
- Keith, K. M. (2009). Servant leaders. *Leadership Excellence*, 26(5), 18-27.
- Keller A. & Seckler D. (2000). Water scarcity and the role of storage in development:
- Keller, J., Keller, J. & Davis, G. (1998). River basin development phases and implementations of closure, *Journal of applied irrigation science*, 33(2): 145-164.
- Kelly, S. (2008). Leadership: A categorical mistake? *Human Relations* 61, 763–782. doi: 10.1177/0018726708092403

- Kenny, D. (2005). Prior allocation of water right reform journal Vol. 1 US.
- Kenya & UNICEF (1998). Access to improved water resources.
- Keshavarzi AR, Sharifzadeh M, Haghighi AAK *et al* (2006) Rural domestic water consumption behaviour: a case study in Ramjerd, Fars province, I.R. Iran. *Water Res* 40(6):1173-1178.
- Khan, M. W. J., & Khalique, M. (2014). Strategic Planning and Reality of External Environment of Organizations in Contemporary Business Environments. *Business Management and Strategy*, 5(2).
- Kibachia, K. Iravo, M. & Luvanda, A. (2014). A survey of risk factors in the strategic planning process of parastatals in Kenya, *European Journal of Business and Innovation Research* 2(3): 51-67.
- Kihanya, T. (2013), Challenges influencing the implementation of business strategies in public sector firms in Kenya: A survey of parastatals in the Ministry of Agriculture, *International Journal of Social Sciences and Entrepreneurship*. Vol.1, Issue 2, 2013, 1 (2), 635-649.
- Kihara, J. C. (2013), Factors affecting the implementation of strategic performance measurement system of parastatals in Kenya: A case study of the Kenya Rural Roads Authority, *International Journal of Social Sciences and Entrepreneurship*. Vol.1, Issue 2, 2013, 1 (2), 621-634
- Kim, W. G., & Brymer, R. A. (2011). The effects of ethical leadership on manager job satisfaction, commitment, behavioral outcomes, and firm performance. *International Journal of Hospitality Management*, 30(4), 1020-1026.
- Kimberlin, C. L., & Winterstein, A. G. (2008). Research fundamentals: Validity and reliability of measurement instruments used in research. *Am. J. Health-Syst Pharm*, 65(6), 2276 – 2284

- Kimenyi, S. M. & Meaghar, P. (2004). General introduction. In: Kimenyi, S. Mwangi and Meagher, P., ed. 2004. in *Devolution and development: Governance prospects decentralising states*. Hants: Ashgate Publishing Ltd., Ch 1.
- Kinicki, A., & Kreitner, R. (2008). *Organizational Behavior: Key Concepts, Skills & Best Practices* (3rd ed.). New York, NY: McGraw-Hill/Irwin.
- Kiprono, P., & Wanyoike, D. (2016). Influence of selected County Governments funded projects on the living standards of the beneficiaries. A survey of Kericho County, Kenya. *International Journal of Economics, Commerce and Management*, IV(5), 579-590
- Kiragu, D. (2009). Daily sediment load in relation to flow level at Bomet Bridge on Nyangores River, Kenya.
- Kisiangani, R. N. (2015). *An Analysis of Land Use Potential in Arid and Semi-Arid Areas: Central Location, Isiolo County*
- Klettner, A., Clarke, T., & Boersma, M. (2014). The governance of corporate sustainability: Empirical insights into the development, leadership and implementation of responsible business strategy. *Journal of Business Ethics*, 122(1), 145-165.
- KNBS (Kenya National Bureau of Statistics), Nekessa (2009). *Population and Housing Census*, Vol.1c, Kenya.
- Koech J. C. (2016). Analysis of Household Water Demand, Distribution and Community Management Strategies in Nyangores Subcatchment, Bomet County, Kenya
- Koech, P. M. M. & Namusonge, G. S. (2012). The effect of transformational leadership on organizational performance at state corporations in Kenya. *International Journal of Business and Commerce*, 2(1), 01-12.
- Koene, B. A. S., Vogelaar, A. L. W., & Soeters, J. L. (2002). Leadership effects on organizational climate and financial performance: Local leadership effect in chain organizations. *The Leadership Quarterly*, 13(3), 193-215

- Koontz, H., & O'donnell, C. (2011). *Principles of Management; An Analysis of Managerial Functions*.
- Korir, P. K. & Moronge, M. (2016) Drivers of implementation of corporate strategic plans in government parastatals in Kenya: a case of Postal Corporation of Kenya, *The Strategic Journal of Business and Change Management*, Vol. 3, Issue. 4 (67): 1275-1290.
- Korir, V. C. (2013). Challenges affecting devolution of public sector services in local authorities in Kenya: Case of county government of Kericho. Accessed from <http://ir-library.ku.ac.ke/handle/123456789/10158>
- Kothari, C. R. (2004). *Research Methodology: Methods and Techniques* (2nd Revised ed.).New Delhi: New Age International (P).
- Kouzes, J. M., & Posner, B. J. (2002). *Leadership challenge* (3rd ed.). San Francisco: Jossey-Bass.
- Kraus, S., Harms, R., & Schwarz, E. J. (2006). Strategic planning in smaller enterprises-new empirical findings. *Management Research News*, 29(6), 334-344.
- Larson E. A. (2006). *Combating Water Scarcity in Southern Africa: A case study in Namibia; Water use patterns*.
- Laryea-Adjei, G. Q. M. (2006). *Central-Local Relations in the Provision ofBasic Services Provision of Water and Sanitation Services in Ghana*. A PhD Thesis, Erasmus University: Rotterdam.
- Latif, K. I., Baloch, Q. B., & Khan, M. N. (2012). Structure, Corporate strategy and the overall effectiveness of the organisation. *Abasyn Journal of Social Sciences*, 5(2), 1-13.
- Leana, C. R. & Pil, F. & (2009). Applying organizational research to public school reform: The effects of teacher human and social capital on student performance. *Academy of Management Journal*, 23(4), 145-158.

- Lee, D. (2012). The Role of Transformational leadership in the Home Health Care Industry. *Home Health Care Management & Practice*, 24(4), 169-174.
- Lee, N., & Chuang, T (2009). *The Impact of Transformational leadership on Job Stress and Turnover Intention: Taiwan Insurance Industry as an Example*. Available at: www.hclee@ttu.edu.tw
- Leon, A. C., Davis, L. L., & Kraemer, H. C. (2011). The role and interpretation of pilot studies in clinical research. *Journal of Psychiatric Research*, 45(5), 626–629.
- Leung, J., & Kleiner, B. H. (2004). Effective management in the food industry. *Management Research News*, 27(4/5), 72-81
- Lindgreen, A., Palmer, R., Wetzels, M. & Anticco, M. (2009). Do different marketing practices require different leadership styles? An exploratory study*, *Journal of Business & Industrial Marketing*, vol. 24, no. 1, pp. 14-26.
- Lockwood, H. (2014). Institutional Support Mechanisms for Community-Managed Rural Water Supply and Sanitation Systems in Latin America, Prepared for the Bureau of Latin American and the Caribbean USAID under EHP Project.
- London School of Hygiene and Tropical Medicine; (2009). Indicators of Access to Household Water Demand.
- Mahmood, Z., Basharat, M., & Bashir, Z. (2012). Review of classical management theories. *International Journal of Social Sciences and Education*, 2(1), 512-522.
- Maidment, D.R., Miaou, S.P.,(1986). Daily water use in nine cities. *Water Resources Research* 22 (6), 845–885.
- Maimuna, M. & Kidombo, H. (2017). Factors influencing performance of water projects in arid and semi-arid areas: A case of Ewaso Ng’iro North borehole projects, Isiolo County, Kenya. *International Academic Journal of Information Sciences and Project Management*, 2(1), 217-238
- Maitlis, S. & Sonenshein, S. (2010). ‘Sense-making in crisis and change: inspiration and insights from Weick (1988)’. *Journal of Management Studies*, 47, 551–80

- Makule, D. E. (1997). "Water and sanitation—gender perspective." Proceedings of the
- Malesu, M. M, Sang, J. K, Odhiambo, J. O., Oduor, A. R. & Nyabenge, M. (2006) Rainwater Harvesting Innovations in Response to Water Scarcity: The Lare Experience. Technical Manual No.5. SearNet Secretariat, RELMA-in-ICRAF, World Agroforestry Centre, Nairobi, Kenya.
- Martínez-Espiñeira, R. (2002). Residential water demand in the Northwest of Spain.
- Marwa, S. M. (2014). *Nurturing Corporate Excellence: Glimpses of Quality Challenges and Management in Contemporary Corporate Africa. A Managerial Imperative*. The Jomo Kenyatta Foundation: Nairobi, Kenya.
- Mati, B. M., Mutie, S. P. Home, F. M. & Gadain, H. (2005). Land use changes in the Transboundary Mara Basin, 8th International River Symposium, Brisbane, Australia.
- Mati, B. M., Mutie, S., Gadain, H., Home, P., and Mtalo, F. (2008). Impacts of land use / cover changes on the hydrology of the transboundary Mara River, Kenya / Tanzania, Lake. *Reserv. Manage.*, 13: 169 – 177.
- Mati, B. M., Mwepa, G. & Temu, R. (2008). *Farmer Initiatives in Managing Water for Agriculture in Eastern and South Africa*. A Booklet of Farmer Innovations in AWM. IMAWESA, SWMnet-ICRISAT, Nairobi.
- Mati, B. M., Siame, D. & Mulinge, W. M. (2008). AWM on the Ground: *Lessons from Projects and Programs in Eastern and Southern Africa*. IMAWESA, SWMnet ICRISAT, Nairobi.
- Mbata, J. (2014). Estimating Household Willingness for Water Services in Rural economy: the Case of Kanye in Southern Botswana. *Development of Southern Africa*, 23(1), 29-43.
- McDonald, P. (2010). Teaching the concept of management: Perspectives from 'six honest serving men.' *Journal of Management and Organization*, 16(5), 626-640.
- McIntosh, B. & Taylor, A. (2013). Developing T-shaped water professionals: reflections on a framework for building capacity for innovation through collaboration, learning and leadership. *Journal of Contemporary Water Research & Education*, 150(1), 42–60.

- MCKinney, D. C, Cai, X, Rosegrant M. W., & Ringler, C. (1999). Modelling water resources management at the basin level, Colombo, Sri Lanka.
- McShane, S. L. & Von Glinow, M. A. (2000). *Organisational Behaviour*. Burr Ridge,IL: Irwin/McGraw-Hill.
- Mehra, A., Smith, B., Dixon, A., & Robertson, B. (2006). Distributed leadership in teams: The network of leadership perceptions and team performance. *Leadership Quarterly*, 17, 232-245.
- Mehretu, A. & Mutambirwa, C. (1992) “Time and energy costs of distance in rural life space of Zimbabwe: case study of the Chiduku Communal Area.” *Social Science and Medicine* 34(1), pp. 17-24.
- Melesse, A., McClain, M. Abira, M. & Mutayoba, W. (2008). Hydrometeorological Analysis of the Mara River Basin, World Environmental Resources Congress.
- Memon, M. A., Ahmad, M., & Chandan, L. (2009). Human Capital, Human resource development a source of competitive advantage: Ideas for strategic leadership. *Australian journal of Basic and Applied Sciences*, 3(4), 4182-4189.
- Michel, J. W., Lyons, B. D., & Cho, J. (2011). Is the full-range model of leadership really a fullrange model of effective leader behavior? *Journal of Leadership & Organizational Studies*. 18(4), 493-507.
- Minaya, V. (2010). land use influence on the benthic macro invertebrate communities of streams in the Nyangores and Amala tributaries of Mara river, Kenya. UNESCO, Paris.
- Ministry of Planning and Devolution (2016). *National Policy for the Sustainable Development of Northern Kenya and other Arid Lands: Unlocking Our Full Potential for Realization of the Kenya Vision 2030*. Government Press
- Ministry of Water and Irrigation, (1998). Water Quality Improvement and Conservation Project, Ruseifa Area, Water quality study training model, 1998.4.

- Ministry of Water and Lands, (2006) Livestock Watering requirement requirements, quality and quantity, British Columbia.
- Mink, O. (1992). Creating new organizational paradigms for change. *International Journal of Quality & Reliability Management*, 9, 21-23.
- Miring'u, A. & Muoria, E. T. (2011). An analysis of the effect of corporate governance on the performance of commercial state corporations in Kenya. *International journal of business and public management*; 1 (1), 36-41.
- Miriti, A. K. & Keiyoro, P. (2017). Influence of devolution of government service delivery on provision of healthcare: A case of level five hospital in Meru County, Kenya. *International Academic Journal of Information Sciences and Project Management*, 2(1), 300-315
- Mitchelmore, S., & Rowley, J. (2013). Entrepreneurial competencies of women entrepreneurs pursuing business growth. *Journal of Small Business and Enterprise Development*, 20(1), 125-142.
- Molden E. A. (2010). Improving Agricultural Water productivity and Land management, p528-535.
- Molden, D., Sakthivadivel, R.& Keller J. (2007). *Hydronomic Zones for developing basin water conservation strategies. Research Report No.56. International Water Management Institute, Colombo, SriLanka p30.*
- Moor J. W (1989). Balancing the need for water use. Springer-Verlag, New York.
- Moss, S. A., & Ritossa, D. A. (2007). The impact of goal orientation on the association between transformational leadership, planning and follower performance, creativity and work attitudes. *Leadership & Organization Development Journal*, 3(4), 433-456.
- Mott Lacroix, K. E., & Megdal, S. B. (2016). Explore, synthesize, and repeat: Unraveling complex water management issues through the stakeholder engagement wheel. *Water*, 8, 13-19.

- MOWRD (Ministry of Water Resource Management and Development, 2002).
- Mugenda, O. M & Mugenda, A. G. (2003). *Research methods: Quantitative and qualitative approaches*. Nairobi: ACTS Press.
- Mukabi, F. K., Barasa, P. W. & Viola, C. (2015). Devolved governance in Kenya: Is it a false start in democratic decentralization for development? *International Journal of Economics, Finance and Management*, 4(1), 27-37
- Mullins, L. J. (2008). *Essentials of organisational behaviour*. Pearson Education.
- Munive-Hernandez, E. J., Dewhurst, F. W., Pritchard, M. C., & Barber, K. D. (2004). Modelling the strategy management process: An initial BPM approach. *Business Process Management Journal*, 10(6), 691-711.
- Musangi, R.S. (2009). Water Resources Management Authority, Athi River, Kenya.
- Mwendamseke, E. (2016). Assessment of Community-Owned Water Supply Organizations (COWSOs) Strategy for Sustainability of Rural Water Supply in Dodoma Region
- Nagendra, A., & Farooqui, S. (2016). Role of Transformational leadership on Organizational Performance. *International Journal of Research in Commerce & Management*, 7(4).
- Naidu, S. P. (1996). *Public Administration: Concepts and Theories*. Delhi: New Age International Publishers.
- Naiga, R., Penker, M., & Hogl, K. (2015). Challenging pathways to safe water access in rural Uganda: From supply to demand-driven water governance. *International Journal of the Commons*, 9(1), 237–260
- Nalenga, D.W. (2010). Water allocation challenges in rural basins: report, South Africa.
- National Housing and Population (1999). Kenya Population and Housing Census, Ministry of Planning and National Development and Vision 2030.
- National Water Policy (2006). Kenya National Water Development Report, 2nd UN World Water Development Report Water: A shared Responsibility.

- Newzealand (2004). *Water allocation and use: Technical working paper, Ministry for environment, Newzealand.*
- Ngari, S. (2001). *The impact of these dams on the recipient communities.* Analyzing the government policies on water and Arid and Semi-Arid Lands (ASALs).
- Ngigi, S. N, H. Savenije, H. G. & Gichuki, F. N. (2008) *Hydrological Impacts of Flood Storage and Management on Irrigation Water Abstraction in Upper Ewaso Ng'iro River Basin, Kenya.* *Water Resources Management*, 22: 1859-1879. <http://www.springerlink.com>
- Ngodo, O. E. (2008). Procedural justice and trust: The link in the transformative leadership–organizational outcomes relationship. *International Journal of Leadership Studies*, 4(1), 82-100.
- Nguni, S., Slegers, P. & Denessen, E. (2006). School Effectiveness and School Improvement, Volume 17, Number 2, June 2006, pp. 145-177(33)
- Nhema, A. G. (2015). Relevance of classical management theories to modern public administration: A review. *Journal of Public Administration and Governance*, 5(3), 165-179
- Niehoff, B., Enz, C., & Grover, R. (1990). The impact of top-management actions on employee attitudes and perceptions. *Group & Organizational Studies*, 15(3), 337-352
- Nongo, S. (2015). Effects of transformational leadership on organizational performance in small and medium scale enterprises (SMES) in Nigeria. *International Journal of Research in Management & Business Studies (IJRMBS)*, 2(2), 23-30
- Northouse, P. G. (2013). *Leadership: Theory and practice.* Thousand Oaks, CA: SAGE Publications.
- Nthenge, A. K. (2016). *Water Access Challenges and Coping Strategies in Selected Sites of Makueni County, Kenya*
- NWSB (2011). *Access to Water and Sanitation: Isiolo Town Water and Sanitation Project Rehabilitation and Augmentation works*

- Nyong, A. (1998). *Topographic Survey of Katarko village. Sub-Project report*, JosMcMaster Drought and Rural Water Use Research Project. University of JOS, Nigeria.
- Nyong, A. O, Kinarogbu P. S, (1999). Domestic water demand in rural and semiarid North eastern Nigeria: Identification of determinants and implementation for domestic water demand.
- Obongo, S. O. (2009). Implementation of performance contracting in Kenya. *IPMR Journal*.10 (2), 32 -38.
- OECD (2015). *OECD Studies on Water: Stakeholder Engagement for Inclusive Water Governance*. Paris: OECD Publishing. <http://dx.doi.org/10.1787/9789264231122-en>
- Ogallo, L. A. (1996): *Human induced climate changes: Myths or reality*; Kenya National Academy of Science (Ed.): Environment and Development in Kenya, pp.169-194, Nairobi.
- Ogendi, G. M. & Ong'oa, I. M. (2009) Water policy, accessibility and water ethics in Kenya. *Santa Clara Journal of International Law*, 7(1), 177-196
- Ojokuku, R. M., Odetayo, T. A., & Sajuyigbe, A. S. (2012). Impact of transformational leadership on organizational performance: a case study of Nigerian banks. *American Journal of Business and Management*, 1(4), 202-207.
- Ololube, N. P. (2013). *Educational Management, Planning and Supervision: Model for Effective Implementation*. Owerri: Springfield Publishers.
- Olufemi, A. J. (2009). Human Capital Human resource development Development Practices and Organizational Effectiveness: A focus on the contemporary Nigerian Banking Industry. *Pakistan Journal of Social Sciences*, 6(3), 194-199.
- O'Regan, N., & Ghobadian, A. (2002). Effective strategic planning in small and medium sized firms. *Management Decision*, 40(7), 663-671.
- Orie K.K. (1995): *Legal regime of water allocation and the conservation of aquatic environmental values in Kenya*: Journal of Eastern African Research and Development No. 25, pp 76-114.

- Osama, A. H., & Issa, S. M. (2015). A pilot study: Vital methodological issue. *Business: Theory and Practice*, 16(1), 53-62
- Osei A.Y. (2004). *Household water security and water demand in the Volta Basin, Ghana*.
- Oviasuyi, P. O., Idada, W., & Isiraojie, L. (2010). Constraints of local government administration in Nigeria. *Journal of Social Sciences*, 24(2), 81-86. Rotberg, R. I. (2004). Strengthening African leadership; *Foreign Affairs*, 83(4), 14-18. Retrieved from <http://search.proquest.com/docview/214292792?accountid=14872> Toor, S.R. & Ofori, G. (2009). Ethical leadership: Examining the relationships with full range leadership model, employee outcomes, and organizational culture. *Journal of Business Ethics*, 90(4), 533-547.
- Owuor, S. O., & Foeken, W. J. (2009). *Water reforms and interventions in urban Kenya: Institutional set-up, emerging impact and challenges*. ASC Working Paper 83/2009: Leiden: African Studies Centre.
- Oyj, T. (2009). Examining Management Control Systems Packages and Organisational Ambidexterity-Case.
- Parker, A. N. (1995). Decentralization: The Way Forward for Rural Development. . *Policy Research Working Paper 1475*. Washington, D.C:World Bank.
- Pearce, J., Welle, K., & Dickinson, N. (2013). Information and Communication Technologies (ICTs) for monitoring sustainable service delivery. Hague, The Netherlands: IRC.
- Peprah, C., Oduro-Ofori, E., & Asante-Wusu, I. (2015). Analysis of accessibility to water supply and sanitation services in the Awutu-Senya East Municipality, Ghana. *Journal of Sustainable Development*, 8(8), 310-325
- Perret, S. Farroli S. & Hassan R. (2009). *Water Governance for sustainable Development Part III* Pg 169, London.
- Peter, G. (2004). Poverty Reduction Strategy Paper, Bomet District Consultative Forum Report.

- Phillips, R. & Noland, J. (2010). Stakeholder engagement, discourse ethics and strategic management. *International Journal of Management Reviews*, 12(1), 33-45.
- Pierce, J. L., & Newstrom, J. W. (2008). *Leaders & the Leadership Process: Readings, Self-Assessment & Applications* (5th ed.). New York, NY: McGraw-Hill/Irwin.
- Pieter Van der Zaag and D. Kammer (2003). Assessment of catchment water demand use (DFID- Department for International Development) U.K.
- Plunkett, W. R., Allen, G., & Attner, R. (2012). *Management*. Cengage Learning.
- Population Institute (2010) population and water. New York
- Prokopy, S. (2015). The Relationship between Participation and Project Outcomes Projects in India: Evidence from Rural Water Supply, *World Development*, 33(11), 1801– 1819.
- Puni, A., Ofei, S. B., & Okoe, A. (2014). The effect of transformational leadership on firm performance in Ghana. *International Journal of Marketing Studies*, 6(1), 177- 185
- Purcell, J., Kinnie, N., Hutchinson, S., Rayton, B. & Swart, J. (2004). *Understanding the People & Performance Link: Unlocking the Black Box*. Research Report Chartered Institute of Personnel and Development.
- Radhika de S., David S., and Upali A. (1998). World Water Supply and Demand, 1990 to 2025: Scenario and Issues. Research Report 19, Colombo Sri Lanka: International Water Management Institute.
- Ramakrishnaiah, C. R., Sadashivaiah, C., & Ranganna, G. (2009). Assessment of water quality index for the groundwater in Tumkur Taluk, Karnataka State, India. *E-Journal of Chemistry*. 6(2):523-530
- Rana, G., Garg, P., & Rastogi, R. (2011). Effect of Justice Perception on Managerial Effectiveness. *IUP Journal of Organizational Behavior*, 10(2).
- Renate, V. B. (2007). An analysis of current water distribution and rights system of an irrigation system, Bolivia.

- Republic of Kenya (1994). Range management Handbook of Kenya Volume 1. Introduction to Rangeland Development in Kenya. Ministry of Agriculture, Livestock, Development and Marketing, Nairobi.
- Republic of Kenya (2013) *Development Plan 2013/2017*, Nairobi, Government Printer
- Republic of Kenya, (1999). National Policy on Water Resources and Management. *Sessional Paper No. 1 of 1999*. Nairobi: Government Printers
- Republic of Kenya, (2010). *Constitution of Kenya*. Nairobi: The National Council for Law Reporting
- Ridenour, C. S., & Newman, I. (2008). *Mixed Methods Research: Exploring the Interactive Continuum*. Carbondale, IL: Southern Illinois University Press.
- Riedl, R. B. & Dickovick, T. J. (2010). *Comparative Assessment Of Decentralization In Africa: Final Report And Summary Of Findings*. Washington, D.C.: United States Agency for International Development.
- Robbins, S. P., DeCenzo, D. A., & Coulter, M. K. (2008). *Fundamentals of management: essential concepts and applications*. Upper Saddle River, NJ: Pearson Prentice Hall.
- Robert, P. & Shirley C. (2007). Water demand module 4a, University of Alabama.
- Robertson, W. (2002). Overview of decentralization worldwide: A stepping stone to improved governance and human development. *Proceedings of the 2nd International Conference on Decentralization – Federalism: The Future of Decentralizing States*. Manila, Phillipines.
- Romig, R. (2001). The Slums of Aspen: Immigrants vs. the Environment in America's Eden
- Rose, A. D. (2009). Domestic water supply an evaluation of the impacts challenges and prospect on women in rural house hold, Uganda. LUMES, Lund University.
- Rowe, W. G. (2001). Creating wealth in organisations: The role of strategic leadership. *Academy of Management Executive*, 15, 81-94

- Saifuddin, A. (2009). *Methods in Sample Surveys: Cluster Sampling*. John Hopkins Bloomberg School of Public Health.
- Saito, F. (2001). *Decentralization Theories Revisited: Lessons from Uganda*. Faculty of Intercultural Communication, Ryukoku University, Japan.
- Saks, A. M. (2006). Antecedents and consequences of employee engagement. *Journal of Managerial Psychology*, 21, 600-619. doi: 10.1108/02683940610690169
- Saleth, M. & Dinar, A. (2013). *The Institutional Economics of Water: A Cross Country Analysis of Institutions and Performance*. Washington, DC, and Northampton, MA, USA: World Bank and Edward Elgar
- Samaitan, L. C. (2014). *Transformational leadership and performance of commercial banks in Kenya* (Doctoral dissertation, University of Nairobi).
- Samantha, M. (2011). The water crisis in Kenya: Causes, effects and solutions. *Global Majority E-Journal*, 2(1), 31-45.
- Samra, S. C. & Fawzi, S. C. (2011). *The right to water in rural Punjab: Assessing equitable access to water through the Punjab rural water supply and sanitation project*. Health and Human Rights. 2011;13(2):36-49
- Sandiford, P, Gorter, A. C., Orozco, J. G., Pauw, J. P. (1990). Determinants of domestic water use in rural Nicaragua. *J Trop Med Hyg* 93(6):383-389.
- Saowalux, P. & Peng, C. (2007). *Impact of Transformational leadership on Performance: A Study of Six Sigma Professionals in Thailand*. International DSI/Asia and Pacific DSI, July, 2007.
- Sapru, R. K. (2008). *Administrative Theories and Management Practices*. New Delhi: PHI Learning Private Limited.
- Sarker S. I., Rafiul, M. & Khan, A. (2013). Classical and neoclassical approaches of management: An overview. *IOSR Journal of Business and Management (IOSR-JBM)*, 14(6), 1-5.

- Sarros, J. C. Santora & J. C. (2001). The transformational-transactional leadership model in practice, *Leadership & Organization Development Journal*, Vol. 22 Issue: 8, pp.383-394, <https://doi.org/10.1108/01437730110410107>
- Saunders, M., Lewis, P., & Thornhill, A. (2007). *Research Methods for Business Students* (4th ed.). Harlow, England: Pearson Education Limited.
- Schaubroeck, J., Lam, S. K., & Peng, A. (2011). Cognition-based and affect-based trust as mediators of leader behavior influences on team performance. *Journal of Applied Psychology*, 96, 863-871. doi: 10.1037/a0022625
- Schaufeli, W. B., & Salanova, M. (2007). Work engagement: An emerging Psychological concept and its implications for organizations in Gilliland, S. W. Steiner, D. D., & Skarlicki, D. P. (Eds). *Research in social issues management* (pp. 1355 – 1377). Information Age Publishers C.T.
- Schraeder, M., Self, D. R., Jordan, M. H., & Portis, R. (2015). The Functions of Management as Mechanisms for Fostering Interpersonal Trust. *Advances in Business Research*, 5(1), 50-62.
- SCMP (Sub-catchment management plan, 2011). Nyangores River basin sub-plan, Bomet.
- Seckler, D., Amarasinghe, U., Molden, D., de Silva, R. & Barker, R. (1998). *World water demand and supply, 1990 to 2025: Scenarios and issues. Research Report 19. Colombo, Sri Lanka: International Water Management Institute (IWMI).*
- Serfonten, J. (2010). *The Impact of Strategic Leadership on Operational Strategy and Performance of Business Organizations in South Africa*. PHD thesis, University of Stellenbosch, Stellenbosch, South Africa.
- Shah, S., Ahmad, J., Devarajan, S., & Khemani, S. (2005). Decentralization and Service Delivery. *Policy Research Working Paper 3603*. Washington, D.C.:The World Bank.
- Sharma, N. P., Damhaug, T., Gilgan-Hunt, E. *et al* (1996) African water resources: challenges and opportunity for sustainable development. World Bank Technical paper 331. The World Bank, Washington, DC.

- Sheehan, S. (2014). *Is there no place on earth for me*. Vintage.
- Shen, C., & Zou, H.F. (2015). Fiscal decentralization and public services provision in China. *Annals of Economics and Finance*, 16(1), 53-78.
- Sieber, J, Yates, D., Huber- Lee, A, & Purkey, D. (2005). WEAP, A Demand Priority and Preference Driven Water Planning Model Part 1, Model Characteristics, *Water International*, 30 (4) pp 489-500.
- Sifuna, D. N. (2012). Leadership in Kenyan public universities and the challenges of autonomy and academic freedom: An overview of trends since independence. *JHEA/RESA*, 10(1), 121-137.
- Simola, S. K., Barling, J., & Turner, N. (2010). *Transformational leadership and leader moral orientation: Contrasting an ethic of justice and an ethic of care*. *The Leadership Quarterly*, 21,179–188.
- Slack, N., Chambers, S., & Johnston, R. (2010). *Operations management*. Pearson education.
- Smith, A. (1990). Good leaders. *Business & Economic Review*, 37, 10-12.
- Smyth, R. (2004). Exploring the usefulness of a conceptual framework as a research tool: A researcher's reflection. *Issues in Education Research*, 14(2), 167-180
- Sofi, S. A. (2013). The changing concept of management. *National Monthly Refereed Journal of Research in Commerce & Management*, 2(4), 157-164.
- Sorel, O., & Pennequin, V. (2008). Aging of the planning process: The role of executive functioning. *Brain and cognition*, 66(2), 196-201.
- Sosiawani, I., Ramli, A. B., Mustafa, M. B., & Yusoff, R. Z. B. (2015). Strategic Planning and Firm Performance: A Proposed Framework.
- Sosik, J. J., Potosky, D., & Jung, D. I. (2002). Adaptive self-regulation: Meeting others' expectations of leadership and performance. *The Journal of Social Psychology*, 142(2), 211-232.

- Spendlove, M. (2007). Competences for effective leadership in higher education. *International Journal of Education Management*, 21(5), 407-417
- Stephenson, D. (1998). Theory of water demand management, water systems research Group, University of Witwatersrand South Africa.
- Strand & Walker, (2005). Estimation of Water Demand in Developing Countries:
- Streiner, D. (2003). Starting at the beginning: An introduction to coefficient alpha and internal consistency. *Journal of Personality Assessment*, 80(1), 99-103.
- Sungai, L. (2005). *Integrated River Basin Management Study, Final Report, Vol.3, Technical Studies Part 1 of 4.*
- Swaminathan, M. S. (2001). Ecology and Equity: Key Determinants of Sustainable Water Security, *Water Science and Technology*, 43 (4), pp. 35-44. Water Security for the 21st Century-Innovative Approaches, the 10th Stockholm Water Symposium, August 14-17, 2000.
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using Multivariate Statistics* (5th ed.). New York: Allyn and Bacon.
- Tarricone, P., & Luca, J. (2002). Successful teamwork: A case study.
- Taylor, F. W. (1911). *The Principles of Scientific Management*. New York: Harper & Brothers.
- The Water Resource Group (2009). Arid and Semi-Arid Report
- Thill, T. & Bovée, L. (2015). *Business Communication Today*. 11th Edition
- Tiwari, T. N., & Mishra, M. A. (1985). Preliminary assignment of water quality index of major Indian rivers. *Indian Journal of Environmental Protection*. 1985;5(4):276-279
- Trivedi, G. (1963). Measurement and analysis of socio-economic status of rural families. New Delhi.

- Tsai, W. C., Chen, H. W., & Cheng, J. W. (2009), „Employee positive moods as a mediator linking transformational leadership and employee work outcomes“, *The International Journal of Human Resources Management*, vol. 20, no. 1, pp. 206- 219.
- Tucker, B. A., & Russell, R. F. (2004). The influence of the transformational leader. *Journal of Leadership &Organizational Studies*, 10(4), 103-111.
- Tue, K. N. (2004). *Water Demand Management Report*, Nigeria.
- Tulvinschi, M. (2010). Relevant costs for decision in an effective controlling system. *Theoretical and Applied Economics*, 5(5), 49.
- UN-CSD, (United Nations Commission on Sustainable Development 1994). *Human Settlements and Freshwater Resources, Report of the Secretary General of the UN*.
- UNDP, (2007b). *Effective Water governance, the key to sustainable water management and poverty eradication*, New York.
- UNDP, (United Nations Development Program (2006). *The human development report for 2006*. New York.
- UNEP (2011). *United Nations Permanent Forum on Indigenous Issues (UNPFII)*, United Nations, New York
- UNEP, (1999). *Freshwater use by sector at the beginning of 2000, vital water graphics, Water use and management*.
- UNEP, (2000). *Executive Director Calls on Cities to Adopt Integrated Water Management Strategy*. Press Release UNEP/65. <http://srch.1.un.org:80>
- UNEP, (2000). *Global Environmental Outlook 2000, UNEP Earth Scan 1997*, UK.
- UN-ESCAP, (United Nations Economic and Social Commission for Asia and Pacific, 2000). *Principles and Practices of Water Allocation among water use sectors*, Bangkok, Thailand.
- UNESCO (2010). *Institute for water Education: Water footprint network*.
- UNFPA (2003). *Global Population and Water- Access and Sustainability New York*

- UNFPA (2007). Measuring Water use in a Green Economy. International Resource Panel working group on water efficiency.
- United Nations Scientific and Cultural Organization (2015). *Water for a Sustainable World. The United Nations World Water Development Report*. Paris, France
- Unpublished records at the district water office, Isiolo.
- UN-WATER, (2006). Water for wealth creation and health environment.
- UN-WATER/ Africa (2003). Improving the Quantity, Quality and Use of Africa's water.
- UNWWAP (United Nations World Water Assessment Programme 2009). UN world water development report: Water for life. UNESCO and Berghahn Books, Paris and New York.
- USAID (2006). A Rapid Assessment of Kenya's Water, Sanitation and Sewerage framework, Nairobi.
- USAID (2011). Land Use and Climate Change Impacts on the Hydrology of the Upper Mara River basin, Nyangores sub-basin, Kenya. use in East Africa. Chicago: University of Chicago Press.
- van Eeden, R., Cilliers, F., & van Deventer, V. (2008). Leadership styles and associated personality traits: Support for the conceptualisation of transactional and transformational leadership. *South African Journal of Psychology*, 38(2), 253–267.
- van Knippenberg, D., & Hogg, M. A. (2003). Leadership and power: Identity processes in groups and organizations. London: Sage
- Varma, S. & Charles C. (2010). Out of water: From abundance to scarcity and how to solve the worlds water problems, USA.
- Veetil, N. M. K. (2008). *Strategy formulation and implementation in manufacturing organisations: the impact on performance* (Doctoral dissertation, Middlesex University).
- Veronica G. Minaya M. (2010) . Land use influence on the benthic macro vertebrate communities of streams in Nyangores and Amalo tributaries of Mara River, Kenya.

- Wachira, N. S. (2014). Challenges and prospects for effective water conservation in Mwingi North District, Kitui County, Kenya
- Wagah, G. G., Onyango, G. M., & Kibwage, J. K. (2010). Accessibility of water services in Kisumu municipality, Kenya. *Journal of Geography and Regional Planning*, 3(4), 114-125
- Wagaki, S. L. (2013). Strategic Management Practices and Challenges of Kenyan Projects Assisted by Compassion International in Limuru Region.
- Wagana, D. M., Iravo, M., & Nzulwa, J. D. (2015). Analysis of the relationship between devolved governance, political decentralization, and service delivery: A critical review of literature. *European Scientific Journal*, 11(31), 457-472
- Wairua M. (2011). Water requirement for beef cattle reflects the amount needed for Growth, (Extension Publication).
- Walker I. (2005). Pricing Subsidies and the Poor: Demand for Improved Water Services.
- Wallingford, H.R. (2003). Assessment of Catchment Water Demand and Use, DFID, U.K.
- Walumbwa, F. O., Avolio, B. & Zhu, W. (2008). "How Transformational Leadership Weaves Its Influence on Individual Job Performance: The Role of Identification and Efficacy Beliefs". Management Department Faculty Publications. 6. <http://digitalcommons.unl.edu/managementfacpub/6>
- Wambua, K. J. (2011). Factors influencing household accessibility to water supply in a semi-arid area: a study of Mtito Division, Kitui Ditrict Kenya. Accessed from <http://ir-library.ku.ac.ke/handle/123456789/1715>
- Wang, E.A (2007). Basin wide cooperative resources allocation, *European journal of operation research* vol.2 (1).
- Warren, V., Mark J. & Addison W. (1998). Trend in water withdrawals per water use category.
- Warwick, J. J. (1997). *Oriental model for efficient allocation in river basin Journal* vol.2 issue 5, Australia.

- Water Act (2002). Water Resources Management Authority (WRMA): Management, Conservation, use and control of water resources, Kenya.
- Water and River Commission (2000a). State wide policy no.3- Policy on water sharing, Perth.
- Water Resources Group, (2009). *Charting Our Water Future, Economic Frameworks to Inform Decision-making: Executive Summary*.
http://www.mckinsey.com/clientservice/water/charting_our_water_future.aspx
- Weber, M. (1947). *The Theory of Social and Economic Organisation*. London: Oxford University Press.
- Website [http://www.epnrm.sa.gov.au/water all. Plan saps](http://www.epnrm.sa.gov.au/water_all.Plan_saps).
- Wesley, A. A. (2006). *U.S. Patent No. 7,039,701*. Washington, DC: U.S. Patent and Trademark Office.
- White, G.F., Bradley, D.J., and White, A.U. (1972) Drawers of water: domestic water
- Whittington D. (2007). Estimation of water Demand in Developing Countries. USA.
- WHO, (2008). *Weekly Emergency Situation Update*. Compendium 2008 Vol 1, No 1. Brazzaville, Congo: WHO
- WHO, (2009). *The Resilience of Water Supply and Sanitation in the Face of Climate Change. Summary and Policy Implications Vision 2030*. Geneva: WHO: DFID
- WHO, (World Health Organization, (2004). *The global burden of diseases, 2004 update*.
- WHO, (World Health Organization, (2003). *The right to water*. New York.
- WHO, (World Health Organization, 2000). *Global Water Supply and Assessment Report*.
- WHO/UNICEF (2013). *Progress on Drinking Water and Sanitation: 2013 Update*. New York: Joint Monitoring Programme for Water Supply and Sanitation
- WHO-UNICEF. (2014). *Joint Monitoring Programme for Water and Sanitation*.
http://www.wssinfo.org/en/238_wat_latino.html.

- Wijewardena, H., De Zoysa, A., Fonseka, T., & Perera, B. (2004). The impact of planning and control sophistication on performance of small and medium-sized enterprises: evidence from Sri Lanka. *Journal of Small Business Management*, 42(2), 209.
- Wille, K., Williams, J., & Pearce, J. (2016). ICTs Help Citizens Concerns over Water – Or Do They? *IDS Bulletin*, 47(1), 41-50.
- Winpenny, J.T. (1994). *Managing Water as an economic resource*, Routledge, London, UK.
- Woodhouse, M. (2004). Realizing the right to water. *Practical Action Publishing*, 23(1), 22-23.
- World Bank Group (2015). *Water Services Devolution in Kenya: Briefing note to support effective and sustainable devolution of water and sanitation services in Kenya*. Water and Sanitation Programme (P132025).
- World Bank (2012). *Devolution without Disruption – Pathways to a Successful New Kenya*. Nairobi: World Bank
- World Bank, (2010). Kenya Briefing: IWRM & Transboundary Water Resources Management in Kenya.
- WRI (World Resource Institute, 2007). Department of Resource Survey and Remote Sensing, Ministry of Environment and Natural Resources, Kenya.
- WWAP, (World Water Assessment Programme, 2009) .*World Water Development Report 3: Water in changing world, Paris/ London, UNESCO/ Earth scan P.S.*
- Xenikou, A., & Simosi, M. (2006). Organizational culture and transformative leadership as predictors of business unit performance. *Journal of Managerial Psychology*, 21(6), 566-579.
- Yang, C. X., Liu, H. M., & Wang, X. X. (2013). Organization theories: From classical to modern. *Journal of Applied Sciences*, 13(21), 4470.
- Yee, S. (2010). *Stakeholder Engagement and Public Participation in Environmental Flows and River Health Assessment*. Project Code P0018. Australia-China Environment Development Partnership. Available at:

<http://watercentre.org/portfolio/rhef/attachments/technical-reports/stakeholder-engagementand-public-participation-in-eflows-and-river-health-assessments>

Yukl, G. (2013). Managerial Leadership a review theory and research*, *Journal of Management*, vol. 15, no. 2, pp. 251-289.

Zeraebuk, K. N., Mayabi, A. O., Gathenya, J. M., & Tsige, Z. (2014). Assessment of water supply services and operational performance of Asmara Water Supply Department (AWS D) for development of decision support tools. *Environment and Natural Resources Research*, 4(4), 208- 222

Zhu, W., Chew, I., & Spangler, W. (2005). CEO transformative leadership and organizational outcomes: The mediating role of human-capital-enhancing human resource management. *The Leadership Quarterly*, 16(1), 39-52

APPENDICES

APPENDIX I: INTRODUCTION LETTER

The
Management
University
of Africa



Sponsored by the Kenya Institute of Management

Date: 26th January 2018

TO WHOM IT MAY CONCERN

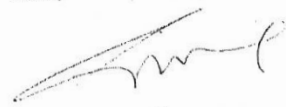
Dear Sir/Madam,

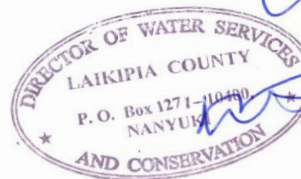
This is to confirm that Mr. Mohamud Mohamed Gedi is a student of the Management University of Africa (MUA) currently pursuing a Doctor of Philosophy (PhD) degree in Management and Leadership. As part of the requirement for the degree programme, the candidate is expected to carry out a study and write a thesis on a topic of choice.

Gedi's topic is "DEVOLUTION OF WATER SERVICES, LEADERSHIP STYLE, MANAGEMENT FUNCTION AND WATER PROVISION IN ARID AND SEMI - ARID LANDS IN KENYA" on which he has developed and successfully defended a proposal which has been approved by the University. He is now expected to collect data before finally writing his thesis.

The University wishes to request for assistance and cooperation from all the concerned parties the student will be engaging with in the course of his study.

Yours faithfully,
Management University of Africa


Dr. Washington Okeyo, PhD
Deputy Vice-Chancellor and PhD Coordinator



Disclaimer: Data collection and thesis writing is the sole responsibility of the student and MUA takes no responsibility on the student's activities and shall not be held liable for his/her actions

The Management University of Africa | Popo Road, Off Mombasa Road Bellevue, South C | P.O. Box 29677, 00100 Nairobi, Kenya
Tel: (020) 2361160, 2361161, 3569117 | Cell: 0222224153, 0706035244, 0706035299 | Email: vc@mua.ac.ke | www.mua.ac.ke

APPENDIX II: RESEARCH QUESTIONNAIRE

This questionnaire seeks to collect data to assist in conducting a study on ‘**The Effect of Administration of devolved water services on Water provision in ASAL.**’ The data that you provide herein will remain confidential and will be strictly for academic use. Please give honest responses in every question.

Instructions

Do Not write your name anywhere on this questionnaire.

Where choices are given, kindly tick (✓) inside the relevant box to indicate the correct answer.

Otherwise, write your answer in the spaces provided where there are no options given.

SUB-COUNTY BIO-DATA

- i) Name of your County (Optional) _____
- ii) Name of your Sub-County (Optional) _____
- iii) How many wards are in this Sub-County? _____
- iv) What is/are the main economic activity/activities in this Sub-County? (Tick all the applicable options)

Crop Farming [] Zero grazing []
Nomadic Pastoralism [] Fish Farming [] Any other (Specify) _____

SECTION A: BACKGROUND

- 1) Please indicate your gender by ticking the appropriate option

Male () Female ()

- 2) Kindly indicate your age bracket by ticking the appropriate option

25 years and below () 26 to 35 years ()
36 to 45 years () 46 to 55 years () Over 55 years ()

- 3) What is your highest education level? (please tick the appropriate option)

University level () College level () A-Level ()
Ordinary level () Primary level () Any other (Specify).....

- 4) When did you start working for the county leadership? (please tick the appropriate option)

SECTION B: ADMINISTRATION OF DEVOLVED WATER SERVICES

5) From your experience while working in this county, kindly indicate the extent to which you agree with the following statements on a scale of 1 to 5. **Please rate by writing a number from 1 to 5 where Not at all=1, Low extent=2, Moderate extent=3, Great extent=4 and Very great extent=5.**

Statement	Very great extent	Great extent	Moderate extent	Low extent	Not at all
The residents from all sub-counties are engaged by the County Governments in making administration of water services decisions.					
My county leadership takes into account the opinions raised by the residents while implementing administration of water services decisions					
My county leadership has put in place adequate platforms for all stakeholders to give their opinions concerning administration of water services.					
My county leadership ensures both men and women have adequate opportunities to give their opinions on issues affecting administration of water services.					
Issues concerning administration of water services are effectively communicated to all stakeholders.					

6) In your opinion, what suggestions would you give concerning stakeholder’s engagement?

.....

7) From your experience while working in this county and in comparison, before and after water service was devolved to be managed at county level by Kenya Government in 2013, kindly indicate the extent to which you agree with the statements listed in the table below on a scale of 1 to 5. Please rate each statement by ticking (√) appropriate option against each statement provided, **where 1=Not at all, 2=Low extent, 3=Moderate extent, 4 =Great extent and 5=Very great extent.**

Statement	Very great extent	Great extent	Moderate extent	Low extent	Not at all
Human resource development					
There is recruitment of adequate employees to manage water services in the County					
There is enhanced principle of meritocracy such that the staff recruited possess the requisite skills, knowledge and					

experiences to competently manage water services in county					
There is enhanced level of staff commitment in their work related to water services					
There is enhanced the level of professionalism among water service personnel					
There is enhanced transparency and accountability in procurement processes for water service providers					
There is enhanced the level of integrity and prudence in management of water service resources among county and sub-county administrators					

8) What recommendations would you give concerning human resource development in the county?

.....
.....
.....

From your experience while working in this county and in comparison, before and after water service was devolved to be managed at county level by Kenya Government in 2013, kindly indicate the extent to which you agree with the statements listed in the table below on a scale of 1 to 5. Please rate each statement by writing a number from 1 to 5 where **1=Not at all, 2=Low extent, 3=Moderate extent, 4=Great extent and 5=Very great extent.**

Statement	Very great extent	Great extent	Moderate extent	Low extent	Not at all
Application of Modern Technology					
There is enhancement of technologies in facilities such as water tanks, storage dams/pans, drilled wells/boreholes across the county					
There is enhanced efforts on adopting various water technologies which are well suited to the conditions of administration of water services in the county					
The technologies applied by county leadership in the various areas of water service have worked better with devolved government as opposed to earlier under the National Government					
As a result of devolution, water technologies applied by county leadership have been widely supported by residents in county					
There is adoption of more superior water technologies in the county					
Administration of devolved water services in the county has led to the development of modern technology adoption framework under active participation of all stakeholders					

9) In your opinion, what improvements are needed in application of modern technology on administration of water services in the county?

.....

SECTION C: TRANSFORMATIONAL LEADERSHIP

10) From your experience while working in this county and in comparison, before and after water service was devolved to be managed at county level by Kenya Government in 2013, kindly indicate the extent to which you agree with the statements listed in the table below on a scale of 1 to 5. Please rate each statement by ticking (√) appropriate option against each statement provided, where **1=Not at all, 2=Low extent, 3=Moderate extent, 4 =Great extent and 5=Very great extent.**

Statement	Very great extent	Great extent	Moderate extent	Low extent	Not at all
a) County always leaders inspire and motivate their staff in order to optimise productivity especially on Water services					
b) County leaders always challenge their staff to be creative and generate lasting solutions when faced with challenges on water provision					
c) County leaders always intellectually stimulate their staff in order to optimise productivity especially on Water services					
d) County leaders always ensure subordinates get recognition and/or rewards when they achieve difficult or complex goals					

11) Suggest at least two improvements needed regarding transformative leadership qualities of the County Executives especially on water provision?

.....

SECTION D: PLANNING

12) From your experience while working in this county and in comparison, before and after water service was devolved to be managed at county level by Kenya Government in 2013, kindly indicate the extent to which you agree with the statements listed in the table below on a scale of 1 to 5. Please rate each statement by ticking (√) appropriate option against each statement provided, where **1=Not at all, 2=Low extent, 3=Moderate extent, 4 =Great extent and 5=Very great extent.**

Statement	Very great extent	Great extent	Mode rate extent	Low extent	Not at all
a) The county uses strategic plans and County Integrated Development Plan (CIDP) to guide water provision in county					
b) Devolution has led to appropriate structures being created to efficiently and effectively offer water services					
c) Devolution has enhanced appropriate allocation of resources in the county budget towards water projects					
d) Devolution has enabled optimal and on-time deliveries on water projects					

13) What improvements would you suggest concerning planning in the county especially on water provision after devolution?

.....

SECTION E: WATER PROVISION

14) Please indicate appropriate value against each aspect stated relating to water provision in the county before and after devolution respectively.

Aspect	Current Water Provision Statistics
Average distance in Kilometers covered by a resident to access the nearest water point	
Average cost in Kenya Shillings incurred by a resident to access a 20 litter jerrican of water	
Quality of water accessed by residents expressed as a percentage	
Reliability of water access by residents expressed as a percentage	

Salinity of water accessible by the residents expressed as a percentage	
Frequency in water treatment expressed as a percentage	
Clarity of water used by the residents expressed as a percentage	

15) In your opinion, what suggestions/recommendations would you give to enhance water provision in the County?

.....

.....

.....

APPENDIX III: LIST OF DEVOLVED UNITS IN ASAL

Arid Counties	Number of Arid Sub-county	Name of Arid Sub-County
Garissa	6	Dujis, Balambala, Lagdera, Dadaad, Fafi, Ijara
Isiolo	2	Isiolo North, Isiolo South
Mandera	6	Mandera West, Banisa, Mandera North, Mandera East, Mandera South, Lafey
Marsabit	4	Moyale, North Horr, Saku, Laisamis
Samburu	3	Samburu West, Samburu North, Samburu East
Tana River	3	Bura, Galole, and Tana Delta
Turkana	6	Turkana North, Turkana West, Turkana Central, Loima, Turkana South, Turkana East
Wajir	6	Wajir North, Wajir East, Tarbaj, Wajir West, Eldas, Wajir Sout
SUB-TOTAL	36	
Semi-Arid Counties	Number of Semi-Arid Sub-county	Name of Semi-Arid Sub-County
Baringo	6	Baringo East, Baringo West, Baringo Central, Mochongoi, Mogotio, Eldama Ravine.
Embu	4	Manyatta, Runyejes, Gachoka, Siakago
Kilifi	7	Kilifi North, Kilifi South, Kaloleni, Rabai, Ganze, Malindi, Magarini
Kwale	4	Msambweni, Lunga Lunga, Matuga, Kinango
Laikipia	3	Laikipia West, Laikipia East, Laikipia North
Lamu	2	Lamu East, Lamu West

Makueni	6	Mbooni, Kilome, Kaiti, Makueni, Kibwezi West, Kibwezi East
Meru	9	Igembe South, Igembe Central, Igembe North, Tigania West, Tigania East, North Imenti, Mbuuri, Cenral Imenti, South Imenti
Narok	6	Kilgoris, Emurua Dikirr, Narok North, Kajiado East, Kajiado West
Nyeri	6	Tetu, Kieni, Mathira, Othaya, Mukuwe-ini, Nyeri Town
Taita Taveta	4	Taveta, Wundanyi, Mwatate, Voi
Tharaka Nithi	3	Nithi, Maara, Tharaka
Kitui	8	Mwingi North, Mwingi Central, Mwingi South, Kitui West, Kitui Rural, Kitui Town, Mutitu, Kitui South
Kajiado	5	Kajiado Central, Kajiado North, Kajiado South
West Pokot	4	Kapenguri, Sigor, Kacheliba, Poko South
SUB-TOTAL	77	
TOTAL POPULATION	113	

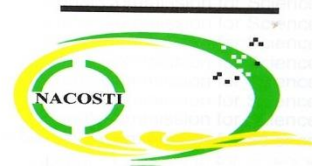
APPENDIX IV: RESEARCH AUTHORIZATION LETTER

CONDITIONS

1. The License is valid for the proposed research, research site specified period.
2. Both the Licence and any rights thereunder are non-transferable.
3. Upon request of the Commission, the Licensee shall submit a progress report.
4. The Licensee shall report to the County Director of Education and County Governor in the area of research before commencement of the research.
5. Excavation, filming and collection of specimens are subject to further permissions from relevant Government agencies.
6. This Licence does not give authority to transfer research materials.
7. The Licensee shall submit two (2) hard copies and upload a soft copy of their final report.
8. The Commission reserves the right to modify the conditions of this Licence including its cancellation without prior notice.



REPUBLIC OF KENYA



National Commission for Science,
Technology and Innovation

RESEARCH CLEARANCE
PERMIT

Serial No.A **17369**

CONDITIONS: see back page

**THIS IS TO CERTIFY THAT:
MR. MOHAMUD MOHAMED GEDI
of MANAGEMENT UNIVERSITY OF
AFRICA, 103757-101 NAIROBI, has been
permitted to conduct research in
Baringo , Embu , Garissa , Isiolo ,
Kajiado , Kilifi , Kitui , Kwale , Laikipia
, Lamu , Makueni , Mandera , Marsabit
, Meru , Narok , Nyeri , Samburu ,
Taita-Taveta , Tanariver ,
Tharaka-Nithi , Turkana , Wajir ,
Westpokot Counties**

**on the topic: DEVOLUTION OF WATER
SERVICES, LEADERSHIP
STYLE, MANAGEMENT FUNCTION AND
WATER PROVISION IN ARID AND SEMI
ARID LANDS IN KENYA**

**for the period ending:
6th February, 2019**


.....
**Applicant's
Signature**

**Permit No : NACOSTI/P/18/16313/21127
Date Of Issue : 6th February, 2018
Fee Received : Ksh 2000**




.....
**Director General
National Commission for Science,
Technology & Innovation**

APPENDIX V: RESEARCH AUTHORIZATION LETTER



**NATIONAL COMMISSION FOR SCIENCE,
TECHNOLOGY AND INNOVATION**

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Off Waiyaki Way
P.O. Box 30623-00100
NAIROBI-KENYA

Ref. No. **NACOSTI/P/18/16313/21127**

Date: **6th February, 2018**

Mohamud Mohamed Gedi
Management University of Africa
P.O. Box 29677-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on *“Devolution of water services, leadership style, management function and water provision in Arid and Semi Arid Lands in Kenya,”* I am pleased to inform you that you have been authorized to undertake research in **selected Counties** for the period ending **6th February, 2019.**

You are advised to report to **the County Commissioners and the County Directors of Education of the selected Counties** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit a **copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

G.P. Kalerwa

**GODFREY P. KALERWA MSc., MBA, MKIM
FOR: DIRECTOR-GENERAL/CEO**

Copy to:

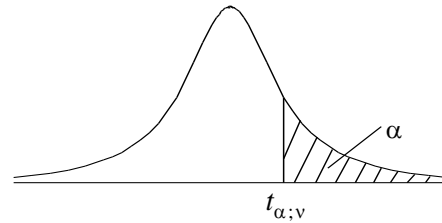
The County Commissioners
Selected Counties.

The County Directors of Education
Selected Counties.

APPENDIX VI: TABLE OF THE STUDENT'S T-DISTRIBUTION

The table gives the values of $t_{\alpha;v}$ where

$\Pr(T_v > t_{\alpha;v}) = \alpha$, with v degrees of freedom



$\alpha \backslash v$	0.1	0.05	0.025	0.01	0.005	0.001	0.0005
1	3.078	6.314	12.076	31.821	63.657	318.310	636.620
2	1.886	2.920	4.303	6.965	9.925	22.326	31.598
3	1.638	2.353	3.182	4.541	5.841	10.213	12.924
4	1.533	2.132	2.776	3.747	4.604	7.173	8.610
5	1.476	2.015	2.571	3.365	4.032	5.893	6.869
6	1.440	1.943	2.447	3.143	3.707	5.208	5.959
7	1.415	1.895	2.365	2.998	3.499	4.785	5.408
8	1.397	1.860	2.306	2.896	3.355	4.501	5.041
9	1.383	1.833	2.262	2.821	3.250	4.297	4.781
10	1.372	1.812	2.228	2.764	3.169	4.144	4.587
11	1.363	1.796	2.201	2.718	3.106	4.025	4.437
12	1.356	1.782	2.179	2.681	3.055	3.930	4.318
13	1.350	1.771	2.160	2.650	3.012	3.852	4.221
14	1.345	1.761	2.145	2.624	2.977	3.787	4.140
15	1.341	1.753	2.131	2.602	2.947	3.733	4.073
16	1.337	1.746	2.120	2.583	2.921	3.686	4.015
17	1.333	1.740	2.110	2.567	2.898	3.646	3.965
18	1.330	1.734	2.101	2.552	2.878	3.610	3.922
19	1.328	1.729	2.093	2.539	2.861	3.579	3.883
20	1.325	1.725	2.086	2.528	2.845	3.552	3.850

21	1.323	1.721	2.080	2.518	2.831	3.527	3.819
22	1.321	1.717	2.074	2.508	2.819	3.505	3.792
23	1.319	1.714	2.069	2.500	2.807	3.485	3.767
24	1.318	1.711	2.064	2.492	2.797	3.467	3.745
25	1.316	1.708	2.060	2.485	2.787	3.450	3.725
26	1.315	1.706	2.056	2.479	2.779	3.435	3.707
27	1.314	1.703	2.052	2.473	2.771	3.421	3.690
28	1.313	1.701	2.048	2.467	2.763	3.408	3.674
29	1.311	1.699	2.045	2.462	2.756	3.396	3.659
30	1.310	1.697	2.042	2.457	2.750	3.385	3.646
40	1.303	1.684	2.021	2.423	2.704	3.307	3.551
60	1.296	1.671	2.000	2.390	2.660	3.232	3.460
120	1.289	1.658	1.980	2.358	2.617	3.160	3.373
∞	1.282	1.645	1.960	2.326	2.576	3.090	3.291

APPENDIX VII: F-DISTRIBUTION TABLE

df2\df1	1	2	3	4	5	6	7	8	10
1	161.448	199.500	215.707	224.583	230.162	233.986	236.768	238.883	241.882
2	18.513	19.000	19.164	19.247	19.296	19.330	19.353	19.371	19.396
3	10.128	9.552	9.277	9.117	9.013	8.941	8.887	8.845	8.786
4	7.709	6.944	6.591	6.388	6.256	6.163	6.094	6.041	5.964
5	6.608	5.786	5.409	5.192	5.050	4.950	4.876	4.818	4.735
6	5.987	5.143	4.757	4.534	4.387	4.284	4.207	4.147	4.060
7	5.591	4.737	4.347	4.120	3.972	3.866	3.787	3.726	3.637
8	5.318	4.459	4.066	3.838	3.687	3.581	3.500	3.438	3.347
9	5.117	4.256	3.863	3.633	3.482	3.374	3.293	3.230	3.137
10	4.965	4.103	3.708	3.478	3.326	3.217	3.135	3.072	2.978
11	4.844	3.982	3.587	3.357	3.204	3.095	3.012	2.948	2.854
12	4.747	3.885	3.490	3.259	3.106	2.996	2.913	2.849	2.753
13	4.667	3.806	3.411	3.179	3.025	2.915	2.832	2.767	2.671
14	4.600	3.739	3.344	3.112	2.958	2.848	2.764	2.699	2.602
15	4.543	3.682	3.287	3.056	2.901	2.790	2.707	2.641	2.544
16	4.494	3.634	3.239	3.007	2.852	2.741	2.657	2.591	2.494
17	4.451	3.592	3.197	2.965	2.810	2.699	2.614	2.548	2.450
18	4.414	3.555	3.160	2.928	2.773	2.661	2.577	2.510	2.412
19	4.381	3.522	3.127	2.895	2.740	2.628	2.544	2.477	2.378
20	4.351	3.493	3.098	2.866	2.711	2.599	2.514	2.447	2.348
21	4.325	3.467	3.072	2.840	2.685	2.573	2.488	2.420	2.321
22	4.301	3.443	3.049	2.817	2.661	2.549	2.464	2.397	2.297
23	4.279	3.422	3.028	2.796	2.640	2.528	2.442	2.375	2.275
24	4.260	3.403	3.009	2.776	2.621	2.508	2.423	2.355	2.255
25	4.242	3.385	2.991	2.759	2.603	2.490	2.405	2.337	2.236
26	4.225	3.369	2.975	2.743	2.587	2.474	2.388	2.321	2.220
27	4.210	3.354	2.960	2.728	2.572	2.459	2.373	2.305	2.204
28	4.196	3.340	2.947	2.714	2.558	2.445	2.359	2.291	2.190
29	4.183	3.328	2.934	2.701	2.545	2.432	2.346	2.278	2.177
30	4.171	3.316	2.922	2.690	2.534	2.421	2.334	2.266	2.165
35	4.121	3.267	2.874	2.641	2.485	2.372	2.285	2.217	2.114
40	4.085	3.232	2.839	2.606	2.449	2.336	2.249	2.180	2.077
45	4.057	3.204	2.812	2.579	2.422	2.308	2.221	2.152	2.049
50	4.034	3.183	2.790	2.557	2.400	2.286	2.199	2.130	2.026
55	4.016	3.165	2.773	2.540	2.383	2.269	2.181	2.112	2.008
60	4.001	3.150	2.758	2.525	2.368	2.254	2.167	2.097	1.993
70	3.978	3.128	2.736	2.503	2.346	2.231	2.143	2.074	1.969
80	3.960	3.111	2.719	2.486	2.329	2.214	2.126	2.056	1.951
90	3.947	3.098	2.706	2.473	2.316	2.201	2.113	2.043	1.938
100	3.936	3.087	2.696	2.463	2.305	2.191	2.103	2.032	1.927
110	3.927	3.079	2.687	2.454	2.297	2.182	2.094	2.024	1.918
120	3.920	3.072	2.680	2.447	2.290	2.175	2.087	2.016	1.910
130	3.914	3.066	2.674	2.441	2.284	2.169	2.081	2.010	1.904
140	3.909	3.061	2.669	2.436	2.279	2.164	2.076	2.005	1.899
150	3.904	3.056	2.665	2.432	2.274	2.160	2.071	2.001	1.894
160	3.900	3.053	2.661	2.428	2.271	2.156	2.067	1.997	1.890
180	3.894	3.046	2.655	2.422	2.264	2.149	2.061	1.990	1.884
200	3.888	3.041	2.650	2.417	2.259	2.144	2.056	1.985	1.878
220	3.884	3.037	2.646	2.413	2.255	2.140	2.051	1.981	1.874
240	3.880	3.033	2.642	2.409	2.252	2.136	2.048	1.977	1.870
260	3.877	3.031	2.639	2.406	2.249	2.134	2.045	1.974	1.867
280	3.875	3.028	2.637	2.404	2.246	2.131	2.042	1.972	1.865
300	3.873	3.026	2.635	2.402	2.244	2.129	2.040	1.969	1.862
400	3.865	3.018	2.627	2.394	2.237	2.121	2.032	1.962	1.854
500	3.860	3.014	2.623	2.390	2.232	2.117	2.028	1.957	1.850
600	3.857	3.011	2.620	2.387	2.229	2.114	2.025	1.954	1.846
700	3.855	3.009	2.618	2.385	2.227	2.112	2.023	1.952	1.844
800	3.853	3.007	2.616	2.383	2.225	2.110	2.021	1.950	1.843
900	3.852	3.006	2.615	2.382	2.224	2.109	2.020	1.949	1.841
1000	3.851	3.005	2.614	2.381	2.223	2.108	2.019	1.948	1.840
∞	3.841	2.996	2.605	2.372	2.214	2.099	2.010	1.938	1.831

APPENDIX VIII: CERTIFICATE OF JOURNAL PUBLICATION



**The Editorial Board of International Journal of Business and Management
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October 26, 2019

School of Management and leadership
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Kenya

Dear Mohamud Mohamed Gedi,

Thanks for your submission to *International Journal of Business and Management*.

We are pleased to inform you that your manuscript has been accepted for publication. It has been published on the Vol. 14, No. 10, in October 2019.

Title: Moderating Effect of Planning on the Relationship between Administration of Devolved Water Services and Water Provision in Arid and Semi-Arid Lands in Kenya

Authors: Mohamud Mohamed Gedi, Michael Ngala & Leonard Wambua

If you have any questions, please do not hesitate to contact with us.

Yours sincerely,

Stephen Lee



On behalf of,
The Editorial Board of *International Journal of Business and Management*
Canadian Center of Science and Education



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October 27, 2019

School of Management and leadership
Management University of Africa
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Kenya

Dear Mohamud Mohamed Gedi,

Thanks for your submission to *International Journal of Business and Management*.

We are pleased to inform you that your manuscript has been accepted for publication. It has been published on the Vol. 14, No. 3, in March 2019.

Title: Stakeholders Engagement and Water Provision in Arid and Semi-Arid Lands in Kenya

Authors: Mohamud Mohamed Gedi, Michael Ngala & Leonard Wambua

If you have any questions, please do not hesitate to contact with us.

Yours sincerely,

Stephen Lee



On behalf of,
The Editorial Board of *International Journal of Business and Management*
Canadian Center of Science and Education

APPENDIX IX: RAW DATA

CASE	BIOI	BIOII	BIOIII	BIOIVA	BIOIVB	BIOIVC	BIOIVD	AI	AII	AIII	AIV	AV
Case 1	Taita Taveta	Wundanyi	Four	Dairy Farming	Horticulture Not applicable	Small Scale Business	Not applicable	Male	A-Level	Water engineering	Water Officer	2015
Case 2	Taita Taveta	Taveta	Five	Agriculture	applicable	Not applicable	applicable	Male	Ordinary level	Water engineering	Water Officer	2013
Case 3	Taveta Taita	Mwatate	Five	Agriculture	Mining Not applicable	Not applicable	applicable	Male	Diploma	Water engineering	Water Officer	2015
Case 4	Taveta	Voi Transmara east	Six	Agriculture Mixed farming	Not applicable	Not applicable	applicable	Male	Bachelors	Water engineering	Water Officer	2013
Case 5	Narok	Transmara	Four	Livestock rearing	Agriculture	Not applicable	applicable	Male	Bachelors	Water engineering	Water Officer	2013
Case 6	Narok	West Narok South	Six	Livestock rearing	Agriculture	Not applicable	applicable	Male	Others	Water engineering	Water Officer	2013
Case 7	Narok	Narok North and East	Ten	Livestock rearing	Agriculture	Horticulture	Tourism	Male	Bachelors	Water engineering	Water Officer	2013
Case 8	Narok	Kajiado	Ten	Livestock rearing	Not applicable	Not applicable	applicable	Male	Diploma	Water engineering	Water Officer	2013
Case 9	Kajiado	Central Kajiado	Five	Livestock rearing	applicable	Not applicable	applicable	Male	Masters	Water engineering	County Water Director	2014
Case 10	Kajiado	East Kajiado	Five	Livestock rearing	Horticulture	Agriculture	applicable	Male	Diploma	Water engineering	Water Officer	2013
Case 11	Kajiado	West Kajiado	Five	Livestock rearing	Not applicable	Not applicable	applicable	Male	Bachelors	Water engineering	Water Officer	2013
Case 12	Kajiado	North Kajiado	Five	Dairy Farming	Mining	Horticulture	farming	Male	Bachelors	Water engineering	Water Officer	2013
Case 13	Kilifi	Kilifi	Seven	Agriculture	Fishing	Small Scale	Not applicable	Male	Bachelors	Water engineering	Director	2013
Case 14	Kilifi	Kilifi North	Seven	Fishing	Business	Livestock	Charcoal	Male	Bachelors	Water engineering	Water Officer	2013
Case 15	Kilifi	Magarini	Six	rearing	burning	Livestock	Charcoal	Male	A-Level	Water engineering	Water Officer	2013
Case 16	Kilifi	Ganze	Four	burning	rearing	Not applicable	Not applicable	Male	Diploma	Water engineering	Water Officer	2013
Case 17	Kwale Tana	Matuga	Five	Agriculture Livestock	applicable Mixed	Not applicable	applicable	Male	Diploma	Water engineering	Water Officer	2013
Case 18	River	Tana River	Four	rearing	farming	Not applicable	applicable	Male	Diploma	Water engineering	Water Officer	2013
Case 19	Kwale	Tana River	Four	Mixed farming	Not applicable	Not applicable	applicable	Male	Diploma	Water engineering	Water Officer	2013
Case 20	Samburu	Samburu	Eight	Agriculture	Tourism	Mining	Not applicable	Male	Diploma	Water	Water Officer	2013

CASE	BIOI	BIOII	BIOIII	BIOIVA	BIOIVB	BIOIVC	BIOIVD	AI	AII	AIII	AIV	AV
		East					applicable			engineering		
Case 21	Nyeri	Nyeri Central	Six	Agriculture	Small Scale Business	Not applicable	Not applicable	Male	Bachelors	Water engineering	Water Officer	2013
Case 22	Nyeri	Tetu	Three	Agriculture	Not applicable	Not applicable	Not applicable	Male	Bachelors	Water engineering	Water Officer	2013
Case 23	Nyeri	Kieni	Eight	Agriculture	applicable	applicable	applicable	Male	Bachelors	Water engineering	Water Officer	2013
Case 24	Nyeri	Kieni Samburu	Eight	Agriculture Livestock	Small Scale Business	Not applicable	Not applicable	Male	Masters	Water engineering	Water Officer	2017
Case 25	Samburu	Central	Six	rearing	Agriculture	Tourism	Mining	Male	Bachelors	Water engineering	Water Officer	2013
Case 26	Laikipia	Nanyuki	Three	Agriculture	Not applicable	Not applicable	Not applicable	Male	Bachelors	Water engineering	Water Officer	2013
Case 27	Laikipia	Nyahururu Laikipia	Five	Agriculture	Small Scale Business	Not applicable	Not applicable	Male	Bachelors	Water engineering	Water Officer	2013
Case 28	Laikipia	East	Five	Agriculture	Not applicable	Not applicable	Not applicable	Male	Bachelors	Water engineering	Water Officer	2013
Case 29	Nyeri	Nyeri South	Four	Agriculture Livestock	Small Scale	Not applicable	Not applicable	Male	Bachelors	Water engineering	Water Officer	2013
Case 30	Turkana West	Loima	Four	rearing	Mixed Business	Not applicable	Not applicable	Male	Diploma	Water engineering	Water Officer	2013
Case 31	Pokot	Kapenguria Turkana	Four	farming Livestock	Small Scale Business	Not applicable	Not applicable	Male	Bachelors	Water engineering	Water Officer	2013
Case 32	Turkana West	West	Seven	rearing Dairy	Business	Not applicable	Not applicable	Male	Bachelors	Water engineering	Water Officer	2013
Case 33	Pokot West	Pokot South	Four	Farming	Agriculture Dairy	Not applicable	Not applicable	Male	Bachelors	Water engineering	Water Officer	2013
Case 34	Pokot West	West Pokot Pokot	Six	Agriculture	Farming	Not applicable	Not applicable	Male	Diploma	Water engineering	Water Officer	2013
Case 35	Pokot West	Central	Four	Agriculture Livestock	Mining	Not applicable	Not applicable	Male	Odinary level	Water engineering	Water Officer	2013
Case 36	Pokot	North Pokot	Six	rearing	Not applicable	Not applicable	Not applicable	Male	Odinary level	Water engineering	Water Officer	2013
Case 37	Kitui	Kitui West	Four	Agriculture	applicable	Not applicable	Not applicable	Male	Diploma Post	Water engineering	Water Officer	2014
Case 38	Baringo	Baringo Central	Five	Mixed farming	Not applicable	Not applicable	Not applicable	Male	Graduate Diploma	Water engineering	Water Officer	2013
Case 39	Baringo	Baringo North	Five	Mixed farming	Not applicable	Not applicable	Not applicable	Male	Diploma	Water engineering	Water Officer	2013
Case 40	Makueni	Kibwezi East	Four	Mixed farming	Small Scale Business	Not applicable	Not applicable	Male	A-Level	Water engineering	Water Officer	2013

CASE	BIOI	BIOII	BIOIII	BIOIVA	BIOIVB	BIOIVC	BIOIVD	AI	AII	AIII	AIV	AV
Case 41	Makueni	mbooni	Six	Mixed farming	Not applicable	Not applicable	Not applicable	Male	Diploma	Water engineering	Water Officer	2014
Case 42	Makueni	Makueni Mwingi	Five	Agriculture Mixed farming	Not applicable	Not applicable	Not applicable	Male	Bachelors Odinary level	Water engineering	Water Officer	2014
Case 43	Kitui Tana	North	Five	farming Mixed	Not applicable	Not applicable	Not applicable	Male		Water engineering	Water Officer County Water	2014
Case 44	River	Tana River	Four	farming	Not applicable	Not applicable	Not applicable	Male	Diploma	Water engineering	Director	2013
Case 45	Makueni	kathonzweni	Seven	Agriculture Livestock	Not applicable	Not applicable	Not applicable	Male	Diploma	Water engineering	Water Officer County Water	2013
Case 46	Wajir	Wajir north	Seven	rearing Livestock	Not applicable	Not applicable	Not applicable	Male	Diploma	Water engineering	Director	2014
Case 47	Wajir	Wajir east	Four	rearing Livestock	Business Not applicable	Not applicable	Not applicable	Male	Bachelors	Water engineering	Water Officer County Water	2013
Case 48	Wajir	Buna	Three	rearing	Not applicable	Not applicable	Not applicable	Male	Diploma	Water engineering	Director	2017
Case 49	Wajir	Wajir South	Seven	Livestock rearing Livestock	Small Scale Business Not applicable	Small Scale Business Not applicable	Small Scale Business Not applicable	Male	Diploma	Water engineering	Water Officer	2014
Case 50	Wajir West	Wajir North	Seven	rearing Livestock	Not applicable	Not applicable	Not applicable	Male	Bachelors	Accounting Water	Others County Water	2015
Case 51	Pokot	Tarbaj	Four	rearing	Not applicable	Not applicable	Not applicable	Male	Bachelors	Water engineering	Director County Water	2013
Case 52	Embu	Embu	Five	Agriculture Livestock	Not applicable	Not applicable	Not applicable	Male	PHD	Water engineering	Director	2014
Case 53	Isiolo	Isiolo North	Ten	rearing	Business Livestock	Not applicable	Not applicable	Male	Masters	Technician Water	Water Officer	2013
Case 54	Embu	Embu West	Five	Agriculture	rearing	Not applicable	Not applicable	Male	Bachelors Post Graduate	Water engineering	Water Officer	2013
Case 55	Tharaka Nithi	Maara	Five	Agriculture	Not applicable	Not applicable	Not applicable	Female	Diploma	Water engineering	Water Officer	2013
Case 56	Meru	Meru South Mbeere	Five	Agriculture	Business Livestock	Not applicable	Not applicable	Male	Bachelors	Water engineering	Water Officer	2013
Case 57	Embu	South	Five	Agriculture	rearing	Not applicable	Not applicable	Male	Diploma	Water engineering	Water Officer County	2013
Case 58	Isiolo	Isiolo	Five	Livestock rearing	Not applicable	Not applicable	Not applicable	Male	Bachelors Post Graduate	Water engineering	Executive Committee	2013
Case 59	Meru	North Imenti	Five	Agriculture	Agribusiness	Not applicable	Not applicable	Male	Diploma	Water engineering	Water Officer	2015

CASE	BIOI	BIOII	BIOIII	BIOIVA	BIOIVB	BIOIVC	BIOIVD	AI	AII	AIII	AIV	AV
Case 60	Meru	Igembe North	Five	Agriculture	Small Scale Business	Livestock rearing	Miraa trade	Male	Post Graduate Diploma	Water engineering	Water Officer	2013
Case 61	Meru	Buuri	Five	Horticulture	Mixed farming	Not applicable	Not applicable	Male	Bachelors Post Graduate Diploma	Water engineering	Water Officer	2015
Case 62	Meru	Igembe South	Five	Miraa trade	Small Scale Business	Livestock rearing	Agriculture Livestock rearing	Male	Post Graduate Diploma	Water engineering	Water Officer	2013
Case 63	Meru	Imenti Central	Four	Agriculture	Small Scale Business	Mining		Male	Bachelors Post Graduate Diploma	Water engineering	Water Officer	2013
Case 64	Meru	Tigania East	Five	Agriculture	Small Scale Business	Not applicable	Not applicable	Male	Post Graduate Diploma	Water engineering	Water Officer	2013
Case 65	Meru	Iment North	Five	Agriculture	Small Scale Business	Not applicable	Not applicable	Male	Diploma	Water engineering	Water Officer	2013
Case 66	Wajir	Wajir	Five	Livestock rearing	Small Scale Business	Not applicable	Not applicable	Male	Masters	Finance	County Executive Committee	2013
Case 67	Garisa	Mbalambala	Five	Livestock rearing	Pastrolism	Not applicable	Not applicable	Male	Bachelors	Water engineering	Others	2013
Case 68	Garisa	Lagdera	Five	Livestock rearing	Pastrolism	Not applicable	Not applicable	Male	Bachelors	Water engineering	Water Officer	2013
Case 69	Garisa	Fafi	Five	Livestock rearing	Pastrolism	Not applicable	Not applicable	Male	Diploma	Water engineering	Water Officer	2013
Case 70	Garisa	Dadaab	Six	Livestock rearing	Pastrolism	Not applicable	Not applicable	Male	Diploma	Water engineering	Water Officer	2016
Case 71	Garisa	Township Kibwezi	Six	Business	Irrigation	Not applicable	Not applicable	Male	Diploma	Water engineering	Water Officer	2013
Case 72	Makueni Tana	West	Five	Business	Agriculture Livestock rearing	Not applicable	Not applicable	Male	Diploma	Water engineering	Water Officer	2013
Case 73	River Tana	Tana Delta	Six	Agriculture	Livestock rearing	Not applicable	Not applicable	Male	Diploma	Water engineering	Water Officer	2013
Case 74	River	Tana North	Five	Mining	Agriculture	Livestock rearing	Charcoal burning	Male	Diploma	Water engineering	Water Officer	2013

CASE	B6I	B6II	B6III	B6IV	B6V	B6VI	Stakeholders engagement	B8I	B8II	B8III
Case 1	Great Extent Very great extent	Low extent	Great Extent Very great extent Moderate extent	Moderate extent	Great Extent	Moderate extent	10.12	Moderate extent	Moderate extent Moderate extent	Great Extent
Case 2		Low extent		Low extent	Low extent	Moderate extent	9.44	Low extent		Low extent Moderate extent Very great extent Moderate extent
Case 3	Great Extent	Not at all		Not at all	Great Extent Very great extent	Moderate extent	6.8	Great Extent	Great Extent	
Case 4	Great Extent Moderate extent	Not at all Moderate extent	Great Extent Moderate extent	Great Extent		Moderate extent	11.04	Great Extent	Great Extent	
Case 5	Moderate extent	Moderate extent	Moderate extent	Moderate extent		Moderate extent	8.29	Low extent	Low extent	
Case 6				Moderate extent	Great Extent	Low extent	8.26	Low extent	Low extent	Low extent
Case 7	Low extent	Low extent	Low extent	Moderate extent	Low extent	Not at all	3.5	Low extent	Not at all	Not at all
Case 8	Low extent Very great extent	Low extent Very great extent	Low extent	Moderate extent	Low extent	Not at all	3.5	Low extent Moderate extent	Not at all Moderate extent	Not at all Moderate extent
Case 9	Very great extent		Great Extent Very great extent	Great Extent	Great Extent Very great extent	Moderate extent Very great extent	13.99			
Case 10		Great Extent		Very great extent			17.82	Great Extent	Great Extent	Great Extent
Case 11	Great Extent	Not at all	Low extent Very great extent	Not at all	Low extent Very great extent	Moderate extent	4.24	Not at all	Not at all Moderate extent	Not at all Moderate extent
Case 12	Great Extent	Not at all Moderate extent		Moderate extent		Not at all	9.57	Not at all Moderate extent		
Case 13	Great Extent	Moderate extent	Great Extent	Moderate extent	Great Extent	Great Extent	11.74	Moderate extent	Great Extent	Great Extent
Case 14	Great Extent Moderate extent	Moderate extent	Great Extent Moderate extent	Moderate extent	Great Extent Moderate extent	Great Extent	11.74	Moderate extent	Great Extent	Great Extent
Case 15				Moderate extent		Moderate extent	8.29	Low extent	Low extent	Low extent
Case 16	Moderate extent	Moderate extent	Moderate extent Very great extent	Moderate extent		Moderate extent	8.29	Low extent	Low extent	Low extent Very great extent
Case 17	Great Extent	Great Extent		Very great extent	Very great extent Very great extent	Great Extent	15.85	Great Extent Very great extent	Great Extent Moderate extent	
Case 18	Great Extent	Not at all	Great Extent	Very great extent		Great Extent	12.77			Low extent
Case 19	Great Extent Very great extent	Not at all Moderate extent	Low extent	Low extent		Moderate extent	6.09	Low extent	Not at all Moderate extent	Not at all
Case 20			Great Extent Very great extent	Moderate extent		Great Extent	11.94	Low extent	Moderate extent	Great Extent Moderate extent
Case 21	Great Extent	Moderate extent		Moderate extent	Great Extent	Moderate extent	11.7	Low extent	Low extent	Moderate extent
Case 22	Moderate	Not at all	Great Extent	Great Extent	Moderate	Moderate extent	8.39	Not at all	Moderate	Moderate

CASE	B6I	B6II	B6III	B6IV	B6V	B6VI	Stakeholders engagement	B8I	B8II	B8III
	extent								extent	extent
Case 23	Very great extent	Not at all	Very great extent	Moderate extent	Great Extent	Moderate extent	11.32	Not at all	Not at all	Moderate extent
Case 24	Great Extent	Low extent	Great Extent	Moderate extent	Great Extent	Great Extent	11.1	Moderate extent	Low extent	Moderate extent
Case 25	Very great extent	Very great extent	Great Extent	Great Extent	Great Extent	Great Extent	15.92	Low extent	Moderate extent	Very great extent
Case 26	Great Extent	Great Extent	Great Extent	Great Extent	Great Extent	Great Extent	13.22	Not at all	Great Extent	Great Extent
Case 27	Moderate extent	Moderate extent	Great Extent	Great Extent	Moderate extent	Moderate extent	9.82	Not at all	Not at all	Moderate extent
Case 28	Great Extent	Great Extent	Great Extent	Moderate extent	Moderate extent	Moderate extent	10.62	Not at all	Not at all	Moderate extent
Case 29	Great Extent	Not at all	Moderate extent	Great Extent	Great Extent	Great Extent	10.31	Moderate extent	Moderate extent	Low extent
Case 30	Very great extent	Great Extent	Very great extent	Very great extent	Great Extent	Great Extent	15.96	Great Extent	Great Extent	Very great extent
Case 31	Moderate extent	Moderate extent	Great Extent	Great Extent	Great Extent	Great Extent	12.5	Moderate extent	Low extent	Moderate extent
Case 32	Moderate extent	Moderate extent	Great Extent	Moderate extent	Moderate extent	Moderate extent	8.29	Great Extent	Low extent	Low extent
Case 33	Moderate extent	Not at all	Low extent	Low extent	Moderate extent	Moderate extent	5.24	Great Extent	Low extent	Moderate extent
Case 34	Great Extent	Not at all	Low extent	Low extent	Moderate extent	Moderate extent	6.09	Moderate extent	Low extent	Moderate extent
Case 35	Great Extent	Not at all	Great Extent	Very great extent	Very great extent	Very great extent	15.12	Great Extent	Low extent	Great Extent
Case 36	Moderate extent	Not at all	Low extent	Low extent	Moderate extent	Low extent	4.35	Great Extent	Low extent	Moderate extent
Case 37	Great Extent	Great Extent	Great Extent	Low extent	Moderate extent	Low extent	8.02	Low extent	Low extent	Great Extent
Case 38	Very great extent	Great Extent	Very great extent	Very great extent	Very great extent	Moderate extent	15.93	Moderate extent	Moderate extent	Moderate extent
Case 39	Moderate extent	Low extent	Moderate extent	Low extent	Moderate extent	Moderate extent	6.79	Low extent	Low extent	Moderate extent
Case 40	Very great extent	Very great extent	Very great extent	Very great extent	Very great extent	Not at all	14.98	Not at all	Great Extent	Great Extent
Case 41	Very great extent	Low extent	Very great extent	Moderate extent	Great Extent	Not at all	10.47	Not at all	Not at all	Great Extent
Case 42	Great Extent	Not at all	Great Extent	Moderate extent	Great Extent	Moderate extent	9.33	Low extent	Moderate extent	Moderate extent
Case 43	Great Extent	Not at all	Very great extent	Very great extent	Great Extent	Very great extent	13.67	Moderate extent	Very great extent	Very great extent

CASE	B6I	B6II	B6III	B6IV	B6V	B6VI	Stakeholders engagement	B8I	B8II	B8III
Case 44	Low extent	Not at all	Not at all	Low extent	Low extent	Low extent	1.65	Low extent	Moderate extent	Low extent
Case 45	Very great extent	Very great extent	Very great extent	Very great extent	Very great extent	Very great extent	18.52	Very great extent	Moderate extent	Great Extent
Case 46	Low extent	Moderate extent	Low extent	Not at all	Low extent	Not at all	2.38	Low extent	Low extent	Not at all
Case 47	Great Extent	Not at all	Low extent	Moderate extent	Low extent	Low extent	6.82	Low extent	Low extent	Moderate extent
Case 48	Low extent	Low extent	Low extent	Great Extent	Great Extent	Low extent	6.82	Great Extent	Great Extent	Great Extent
Case 49	Moderate extent	Low extent	Moderate extent	Low extent	Great Extent	Moderate extent	7.64	Moderate extent	Great Extent	Moderate extent
Case 50	Great Extent	Moderate extent	Moderate extent	Great Extent	Great Extent	Moderate extent	9.9	Moderate extent	Great Extent	Great Extent
Case 51	Low extent	Low extent	Low extent	Low extent	Low extent	Not at all	3.44	Low extent	Low extent	Low extent
Case 52	Moderate extent	Not at all	Moderate extent	Moderate extent	Low extent	Moderate extent	6.86	Low extent	Moderate extent	Moderate extent
Case 53	Great Extent	Not at all	Moderate extent	Low extent	Moderate extent	Low extent	5.95	Not at all	Not at all	Low extent
Case 54	Low extent	Not at all	Not at all	Low extent	Low extent	Low extent	1.65	Not at all	Not at all	Low extent
Case 55	Great Extent	Low extent	Great Extent	Moderate extent	Great Extent	Low extent	9.23	Low extent	Moderate extent	Moderate extent
Case 56	Low extent	Low extent	Low extent	Not at all	Low extent	Low extent	2.49	Low extent	Not at all	Not at all
Case 57	Low extent	Not at all	Not at all	Low extent	Low extent	Low extent	1.65	Not at all	Not at all	Low extent
Case 58	Very great extent	Great Extent	Great Extent	Great Extent	Very great extent	Great Extent	15.23	Moderate extent	Great Extent	Great Extent
Case 59	Great Extent	Low extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	8.5	Great Extent	Moderate extent	Moderate extent
Case 60	Great Extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	9.14	Moderate extent	Great Extent	Moderate extent
Case 61	Great Extent	Moderate extent	Great Extent	Low extent	Low extent	Moderate extent	8.09	Moderate extent	Moderate extent	Low extent
Case 62	Great Extent	Low extent	Great Extent	Moderate extent	Low extent	Moderate extent	9.9	Moderate extent	Moderate extent	Low extent
Case 63	Moderate extent	Very great extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	10.68	Great Extent	Low extent	Moderate extent
Case 64	Great Extent	Moderate extent	Moderate extent	Moderate extent	Great Extent	Moderate extent	10	Great Extent	Very great extent	Very great extent
Case 65	Low extent	Low extent	Low extent	Not at all	Low extent	Low extent	2.49	Low extent	Not at all	Not at all
Case 66	Great Extent	Great Extent	Moderate extent	Moderate extent	Great Extent	Moderate extent	10.71	Great Extent	Moderate extent	Moderate extent

CASE	B6I	B6II	B6III	B6IV	B6V	B6VI	Stakeholders engagement	B8I	B8II	B8III
Case 67	Moderate extent	Moderate extent	Great Extent	Great Extent	Great Extent	Great Extent	11.66	Moderate extent	Low extent	Moderate extent
Case 68	Moderate extent	Low extent	Low extent	Moderate extent	Moderate extent	Moderate extent	6.89	Moderate extent	Moderate extent	Moderate extent
Case 69	Low extent	Not at all	Low extent	Low extent	Low extent	Moderate extent	3.48	Moderate extent	Moderate extent	Moderate extent
Case 70	Great Extent	Not at all	Moderate extent	Great Extent	Great Extent	Great Extent	10.31	Moderate extent	Moderate extent	Moderate extent
Case 71	Low extent	Not at all	Great Extent	Low extent	Low extent	Moderate extent	6.44	Low extent	Not at all	Low extent
Case 72	Very great extent	Moderate extent	Very great extent	Very great extent	Moderate extent	Low extent	12.52	Not at all	Not at all	Low extent
Case 73	Very great extent	Moderate extent	Moderate extent	Very great extent	Great Extent	Moderate extent	12.56	Low extent	Low extent	Moderate extent
Case 74	Low extent	Not at all	Great Extent	Great Extent	Moderate extent	Not at all	5.94	Low extent	Low extent	Moderate extent

CASE	B8IV	B8V	B8VI	Human Capital	B10I	B10II	B10III	B10IV	B10V	B10VI	Application of Modern Technology	ADMINISTRATION OF DEVOLVED WATER SERVICES
Case 1	Moderate extent	Moderate extent	Great Extent	12.03	Great Extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	10.11	32.255
Case 2	Moderate extent	Moderate extent	Great Extent	9.48	Very great extent	Low extent	Not at all	Low extent	Low extent	Low extent	6.61	25.536
Case 3	Low extent	Moderate extent	Great Extent	12.03	Moderate extent	Moderate extent	Moderate extent	Great Extent	Not at all	Moderate extent	8.49	27.321
Case 4	Great Extent	Great Extent	Very great extent	17.14	Very great extent	Great Extent	Great Extent	Great Extent	Great Extent	Great Extent	15.07	43.255
Case 5	Moderate extent	Moderate extent	Moderate extent	8.77	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Extent	Extent	10.84	27.909
Case 6	Low extent	Not at all	Not at all	3.42	Low extent	Not at all	Not at all	Not at all	Not at all	Not at all	0.64	12.324
Case 7	Not at all	Low extent	Low extent	2.98	Not at all	Low extent	Not at all	Not at all	Not at all	Not at all	0.81	7.289
Case 8	Not at all	Low extent	Low extent	2.98	Not at all	Low extent	Not at all	Not at all	Not at all	Not at all	0.81	7.289
Case 9	Great Extent	Moderate extent	Great Extent	12	Very great extent	Very great extent	Very great extent	Very great extent	Very great extent	Very great extent	19.37	45.355

CASE	B8IV	B8V	B8VI	Human Capital	B10I	B10II	B10III	B10IV	B10V	B10VI	Application of Modern Technology	ADMINISTRATION OF DEVOLVED WATER SERVICES
							extent	extent	extent	extent		
Case 10	Very great extent	Very great extent	Very great extent	18.3	Great Extent	Very great extent	Great Extent	Moderate extent	Moderate extent	Moderate extent	12.93	49.058
Case 11	Not at all	Not at all	Not at all	0	Not at all	Low extent	Not at all	Low extent	Not at all	Low extent	2.63	6.87
Case 12	Low extent	Moderate extent	Great Extent	8.67	Great Extent	Moderate extent	Moderate extent	Low extent	Moderate extent	Not at all	9.74	27.976
Case 13	Great Extent	Moderate extent	Moderate extent	12.87	Moderate extent	Low extent	Not at all	Low extent	Not at all	Low extent	3.97	28.582
Case 14	Great Extent	Moderate extent	Moderate extent	12.87	Moderate extent	Low extent	Not at all	Low extent	Not at all	Low extent	3.97	28.582
Case 15	Low extent	Low extent	Moderate extent	6.35	Moderate extent	Moderate extent	Low extent	Moderate extent	Low extent	Moderate extent	7.85	22.487
Case 16	Low extent	Low extent	Low extent	5.45	Moderate extent	Moderate extent	Low extent	Moderate extent	Low extent	Moderate extent	7.85	21.594
Case 17	Great Extent	Great Extent	Great Extent	16.14	Very great extent	Great Extent	Moderate extent	Great Extent	Great Extent	Great Extent	14.31	46.311
Case 18	Very great extent	Great Extent	Great Extent	14.75	Very great extent	Great Extent	Great Extent	Great extent	Very great extent	Great Extent	16.61	44.135
Case 19	Not at all	Not at all	Low extent	2.07	Moderate extent	Moderate extent	Low extent	Moderate extent	Low extent	Low extent	6.96	15.116
Case 20	Moderate extent	Moderate extent	Great Extent	11.25	Moderate extent	Moderate extent	Moderate extent	Great Extent	Moderate extent	Moderate extent	9.93	33.119
Case 21	Great Extent	Great Extent	Low extent	9.56	Great Extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	10.11	31.359
Case 22	Moderate extent	Moderate extent	Moderate extent	8.57	Moderate extent	Great Extent	Moderate extent	Low extent	Great Extent	Moderate extent	10.13	27.08
Case 23	Great Extent	Very great extent	Low extent	8.74	Great Extent	Moderate extent	Low extent	Moderate extent	Moderate extent	Moderate extent	9.42	29.485
Case 24	Moderate extent	Great Extent	Moderate extent	10.39	Moderate extent	Moderate extent	Moderate extent	Great Extent	Moderate extent	Moderate extent	9.93	31.417
Case 25	Very great extent	Very great extent	Very great extent	16.71	Very great extent	Great Extent	Very great extent	Very great extent	Great Extent	Moderate extent	15.83	48.46
Case 26	Very great extent	Very great extent	Great Extent	14.79	Great Extent	Moderate extent	Great Extent	Great Extent	Great Extent	Very great extent	14.7	42.703

CASE	B8IV	B8V	B8VI	Human Capital	B10I	B10II	B10III	B10IV	B10V	B10VI	Application of Modern Technology	ADMINISTRATION OF DEVOLVED WATER SERVICES
Case 27	Moderate extent	Moderate extent	Moderate extent	6.96	Great Extent	Moderate extent	Moderate extent	Great Extent	Moderate extent	Great Extent	11.64	28.421
Case 28	Moderate extent	Moderate extent	Moderate extent	6.96	Great Extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	10.11	27.688
Case 29	Low extent	Moderate extent	Low extent	7.78	Great extent	Low extent	Not at all	Great extent	Low extent	Low extent	4.72	22.803
Case 30	Great Extent	Moderate extent	Moderate extent	14.47	Great Extent	Great Extent	Great Extent	Great Extent	Great Extent	Great Extent	14.05	44.481
Case 31	Moderate extent	Great Extent	Moderate extent	10.39	Great Extent	Great Extent	Great Extent	Great Extent	Moderate extent	Moderate extent	12.44	35.33
Case 32	Low extent	Great extent	Low extent	7.02	Great Extent	Great extent	Great extent	Moderate extent	Moderate extent	Moderate extent	8.67	23.976
Case 33	Great Extent	Great Extent	Low extent	11.12	Great Extent	Great Extent	Great Extent	Moderate extent	Moderate extent	Moderate extent	11.74	28.103
Case 34	Great Extent	Moderate extent	Moderate extent	10.4	Great Extent	Great Extent	Moderate extent	Great Extent	Moderate extent	Moderate extent	11.68	28.168
Case 35	Great Extent	Great Extent	Low extent	12.01	Great Extent	Great Extent	Very great extent	Great extent	Great extent	Great extent	17.16	44.28
Case 36	Great Extent	Great Extent	Low extent	11.12	Very great extent	Great Extent	Moderate extent	Low extent	Low extent	Low extent	9.65	25.123
Case 37	Great Extent	Low extent	Moderate extent	10.45	Moderate extent	Great Extent	Great Extent	Moderate extent	Moderate extent	Great Extent	12.48	30.946
Case 38	Moderate extent	Great Extent	Very great extent	12.97	Moderate extent	Great Extent	Moderate extent	Great Extent	Moderate extent	Moderate extent	10.8	39.709
Case 39	Great Extent	Low extent	Great Extent	9.67	Great Extent	Moderate Extent	Moderate Extent	Great Extent	Moderate Extent	Moderate Extent	10.81	27.263
Case 40	Great Extent	Low extent	Moderate Extent	10.34	Moderate Extent	Great Extent	Great Extent	Great Extent	Great Extent	Great Extent	13.18	38.499
Case 41	Not at all	Moderate extent	Moderate Extent	6.32	Great Extent	Great Extent	Low extent	Moderate Extent	Moderate Extent	Moderate Extent	10.3	27.09
Case 42	Moderate extent	Great Extent	Great Extent	11.2	Great Extent	Great Extent	Great Extent	Great Extent	Great Extent	Great Extent	14.05	34.58
Case 43	Very great extent	Moderate extent	Great Extent	16.56	Very great extent	Very great extent	Great extent	Great extent	Moderate extent	Great extent	17.83	48.054
Case 44	Moderate extent	Low extent	Moderate Extent	7.84	Great Extent	Moderate Extent	Great Extent	Moderate Extent	Low extent	Low extent	8.53	18.019
Case 45	Great Extent	Moderate extent	Great Extent	14.71	Very great extent	Great Extent	Very great extent	Very great extent	Very great extent	Very great extent	18.18	51.401

CASE	B8IV	B8V	B8VI	Human Capital	B10I	B10II	B10III	B10IV	B10V	B10VI	Application of Modern Technology	ADMINISTRATION OF DEVOLVED WATER SERVICES
							extent	extent	extent	extent		
Case 46	Low extent	Not at all	Low extent	3.7	Low extent	Not at all	Not at all	Not at all	Not at all	Not at all	0.64	6.722
Case 47	Moderate extent	Great Extent	Moderate extent	9.6	Great Extent	Low extent	Great Extent	Moderate extent	Low extent	Low extent	8.55	24.975
Case 48	Great Extent	Great Extent	Great Extent	15.33	Very great extent	Low extent	Low extent	Very great extent	Very great extent	Low extent	11.84	33.993
Case 49	Great Extent	Great Low extent	Great Low extent	10.3	Very great Extent	Low extent	Moderate extent	Low extent	Low extent	Low extent	7.03	24.975
Case 50	Moderate extent	Great Extent	Moderate extent	12.85	Great Extent	Low extent	Low extent	Low extent	Low extent	Low extent	3.97	26.722
Case 51	Low extent	Not at all	Low extent	4.54	Low extent	Not at all	Not at all	Not at all	Not at all	Not at all	0.64	8.624
Case 52	Great Extent	Moderate extent	Great Extent	11.21	Moderate extent	Moderate extent	Moderate extent	Low extent	Moderate extent	Moderate extent	7.03	25.103
Case 53	Not at all	Not at all	Low extent	1.96	Moderate extent	Low extent	Not at all	Moderate extent	Low extent	Low extent	5.47	13.384
Case 54	Low extent	Low extent	Low extent	3.64	Moderate extent	Not at all	Low extent	Low extent	Not at all	Low extent	3.93	9.216
Case 55	Moderate extent	Great Extent	Great Extent	11.2	Moderate extent	Not at all	Low extent	Low extent	Low extent	Moderate extent	4.82	25.246
Case 56	Not at all	Not at all	Not at all	0.95	Not at all	Not at all	Not at all	Not at all	Not at all	Low extent	0.95	4.395
Case 57	Low extent	Low extent	Low extent	3.64	Moderate extent	Not at all	Low extent	Low extent	Not at all	Low extent	3.93	9.216
Case 58	Great Extent	Moderate extent	Moderate extent	12.87	Great Extent	Great Extent	Great Extent	Moderate extent	Great Extent	Great Extent	13.35	41.449
Case 59	Moderate extent	Great Extent	Moderate extent	11.92	Great Extent	Moderate extent	Moderate extent	Moderate extent	Great Extent	Moderate extent	10.89	31.302
Case 60	Moderate extent	Low extent	Moderate extent	10.34	Great Extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	10.11	29.588
Case 61	Moderate extent	Low extent	Moderate extent	8.62	Great Extent	Moderate extent	Great Extent	Moderate extent	Moderate extent	Great Extent	11.7	28.41
Case 62	Great Extent	Great Extent	Moderate extent	11.1	Great Extent	Great Extent	Moderate extent	Great Extent	Great Extent	Moderate extent	12.46	33.459
Case 63	Moderate extent	Low extent	Moderate extent	9.54	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	9.23	29.454
Case 64	Very great extent	Great Extent	Great Extent	18.17	Very great Extent	Great Extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	10.98	39.145
Case 65	Not at all	Not at all	Not at all	0.95	Not at all	Not at all	Not at all	Not at all	Not at all	Low	0.95	4.395

CASE	B8IV	B8V	B8VI	Human Capital	B10I	B10II	B10III	B10IV	B10V	B10VI	Application of Modern Technology	ADMINISTRATION OF DEVOLVED WATER SERVICES
Case 66	Moderate extent	Moderate extent	Low extent	10.19	Moderate extent	Great Extent	Moderate extent	Low extent	Moderate extent	Low extent	8.45	29.36
Case 67	Low extent	Moderate extent	Great Extent	9.66	Moderate extent	Great Extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	10.1	31.415
Case 68	Moderate extent	Low extent	Low extent	8.61	Low extent	Low extent	Moderate extent	Moderate extent	Low extent	Low extent	6.21	21.719
Case 69	Moderate extent	Low extent	Low extent	8.61	Low extent	Low extent	Low extent	Low extent	Low extent	Low extent	4.77	16.868
Case 70	Moderate extent	Low extent	Low extent	8.61	Low extent	Low extent	Low extent	Low extent	Moderate extent	Low extent	5.47	24.392
Case 71	Low extent	Low extent	Low extent	4.6	Not at all	Low extent	Low extent	Not at all	Not at all	Not at all	1.57	12.602
Case 72	Low extent	Low extent	Low extent	3.64	Moderate extent	Moderate extent	Not at all	great extent	Low extent	Low extent	7.67	23.834
Case 73	Moderate extent	Moderate extent	Moderate extent	8.77	Low extent	Low extent	Low extent	Low extent	Low extent	Not at all	3.82	25.16
Case 74	Moderate extent	Moderate extent	Moderate extent	8.77	Great Extent	Great Extent	great extent	great extent	Moderate extent	Moderate extent	14.03	28.744

CASE	C12I	C12II	C12III	C12IV	c12V	C12VI	C12VII	C12VIII	C12IX	C12X
Case 1	Moderate extent	Great Extent	Moderate extent	Low extent	Great Extent	Moderate extent	Low extent	Great Extent	Moderate extent	Low extent
Case 2	Great Extent	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all
Case 3	Low extent	Moderate extent	Not at all	Moderate extent	Moderate extent	Not at all	Moderate extent	Moderate extent	Not at all	Moderate extent
Case 4	Moderate extent	Low extent	Low extent	Moderate extent	Low extent	Low extent	Moderate extent	Low extent	Low extent	Moderate extent
Case 5	Moderate extent	Moderate extent	Moderate extent	Low extent	Low extent	Moderate extent	Low extent	Moderate extent	Moderate extent	Low extent
Case 6	Not at all	Not at all	Low extent	Not at all	Not at all	Low extent	Not at all	Not at all	Low extent	Not at all
Case 7	Low extent	Low extent	Low extent	Not at all	Low extent	Low extent	Not at all	Low extent	Low extent	Not at all
Case 8	Low extent	Low extent	Moderate extent	Low extent	Low extent	Moderate extent	Low extent	Low extent	Moderate extent	Low extent
Case 9	Great Extent	Great Extent	Great Extent	Very great	Great Extent	Great Extent	Very great	Great Extent	Great Extent	Very great

CASE	C12I	C12II	C12III	C12IV	c12V	C12VI	C12VII	C12VIII	C12IX	C12X
				extent			extent			extent
Case 10	Very great extent	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all
Case 11	Moderate extent	Great Extent	Great Extent	Not at all	Great Extent	Great Extent	Not at all	Great Extent	Great Extent	Not at all
Case 12	Very great extent	Not at all	Moderate extent	Moderate extent	Not at all	Moderate extent	Moderate extent	Not at all	Moderate extent	Moderate extent
Case 13	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all
Case 14	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all
Case 15	Moderate extent	Moderate extent	Low extent	Moderate extent	Moderate extent	Low extent	Moderate extent	Moderate extent	Low extent	Moderate extent
Case 16	Moderate extent	Moderate extent	Low extent	Moderate extent	Moderate extent	Low extent	Moderate extent	Moderate extent	Low extent	Moderate extent
Case 17	Moderate extent	Great Extent	Low extent	Moderate extent	Great Extent	Low extent	Moderate extent	Great Extent	Low extent	Moderate extent
Case 18	Moderate extent	Moderate extent	Great Extent	Low extent	Moderate extent	Great Extent	Low extent	Moderate extent	Great Extent	Low extent
Case 19	Great Extent	Not at all	Moderate extent	Low extent	Not at all	Moderate extent	Low extent	Not at all	Moderate extent	Low extent
Case 20	Low extent	Great Extent	Moderate extent	Moderate extent	Great Extent	Moderate extent	Moderate extent	Great Extent	Moderate extent	Moderate extent
Case 21	Great Extent	Low extent	Moderate extent	Low extent	Low extent	Moderate extent	Low extent	Low extent	Moderate extent	Low extent
Case 22	Great Extent	Moderate extent	Great Extent	Moderate extent	Moderate extent	Great Extent	Moderate extent	Moderate extent	Great Extent	Moderate extent
Case 23	Great Extent	Low extent	Moderate extent	Moderate extent	Low extent	Moderate extent	Moderate extent	Low extent	Moderate extent	Moderate extent
Case 24	Moderate extent	Moderate extent	Not at all	Low extent	Moderate extent	Not at all	Low extent	Moderate extent	Not at all	Low extent
Case 25	Low extent	Great Extent	Great Extent	Great Extent	Great Extent	Great Extent	Extent Great	Great Extent	Great Extent	Great Extent
Case 26	Not at all	Very great extent	Great Extent	Great Extent	Very great extent	Great Extent	Extent Great	Great Extent	Great Extent	Great Extent
Case 27	Great Extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent
Case 28	Great Extent	Moderate extent	Moderate extent	Great Extent	Moderate extent	Moderate extent	Great Extent	Moderate extent	Moderate extent	Great Extent
Case 29	Low extent	Not at all	Moderate extent	Moderate extent	Not at all	Moderate extent	Moderate extent	Not at all	Moderate extent	Moderate extent
Case 30	Low extent	Great Extent	Great Extent	Great Extent	Great Extent	Great Extent	Extent Great	Great Extent	Great Extent	Great Extent
Case 31	Low extent	Great Extent	Very great	Very great	Great Extent	Very great	Very great	Great Extent	Very great	Very great

CASE	C12I	C12II	C12III	C12IV	c12V	C12VI	C12VII	C12VIII	C12IX	C12X
			extent	extent		extent	extent		extent	extent
Case 32	Moderate extent	Moderate extent	Not at all	Low extent	Moderate extent	Not at all	Low extent	Moderate extent	Not at all	Low extent
Case 33	Great Extent	Moderate extent	Moderate extent	Great Extent	Moderate extent	Moderate extent	Great Extent	Moderate extent	Moderate extent	Great Extent
Case 34	Great Extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent
Case 35	Moderate extent	Low extent	Low extent	Moderate extent	Low extent	Low extent	Moderate extent	Low extent	Low extent	Moderate extent
Case 36	Moderate extent	Low extent	Low extent	Moderate extent	Low extent	Low extent	Moderate extent	Low extent	Low extent	Moderate extent
Case 37	Moderate extent	Great Extent	Very great extent	Very great extent	Great Extent	Very great extent	Very great extent	Great Extent	Very great extent	Very great extent
Case 38	Moderate extent	Great Extent	Low extent	Very great extent	Great Extent	Low extent	Very great extent	Great Extent	Low extent	Very great extent
Case 39	Low extent	Great Extent	Great Extent	Low extent	Great Extent	Great Extent	Low extent	Great Extent	Great Extent	Low extent
Case 40	Moderate extent	Moderate extent	Moderate extent	Low extent	Moderate extent	Moderate extent	Low extent	Moderate extent	Moderate extent	Low extent
Case 41	Low extent	Not at all	Moderate extent	Not at all	Not at all	Moderate extent	Not at all	Not at all	Moderate extent	Not at all
Case 42	Low extent	Very great extent	Low extent	Moderate extent	Moderate extent	Low extent	Moderate extent	Moderate extent	Low extent	Moderate extent
Case 43	Not at all	Moderate extent	Moderate extent	Very great extent	Very great extent	Moderate extent	Very great extent	Very great extent	Moderate extent	Very great extent
Case 44	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent
Case 45	Very great extent	Very great extent	Very great extent	Very great extent	Very great extent	Very great extent	Very great extent	Very great extent	Very great extent	Very great extent
Case 46	Not at all	Not at all	Low extent	Not at all	Not at all	Low extent	Not at all	Not at all	Low extent	Not at all
Case 47	Moderate extent	Low extent	Low extent	Not at all	Low extent	Low extent	Not at all	Low extent	Low extent	Not at all
Case 48	Low extent	Very great extent	Low extent	Very great extent	Very great extent	Low extent	Very great extent	Very great extent	Low extent	Very great extent
Case 49	Moderate extent	Moderate extent	Low extent	Moderate extent	Moderate extent	Low extent	Moderate extent	Moderate extent	Low extent	Low extent
Case 50	Moderate extent	Moderate extent	Low extent	Moderate extent	Moderate extent	Low extent	Moderate extent	Moderate extent	Low extent	Low extent
Case 51	Not at all	Not at all	Low extent	Low extent	Not at all	Moderate extent	Low extent	Not at all	Moderate extent	Low extent
Case 52	Great Extent	Low extent	Low extent	Low extent	Low extent	Low extent	Low extent	Low extent	Low extent	Moderate extent
Case 53	Not at all	Not at all	Very great	Low extent	Not at all	Very great	Low extent	Not at all	Very great	Low extent

CASE	C12I	C12II	C12III	C12IV	c12V	C12VI	C12VII	C12VIII	C12IX	C12X
			extent			extent			extent	
Case 54	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent
Case 55	Moderate extent	Moderate extent	Moderate extent	Not at all	Moderate extent	Moderate extent	Not at all	Moderate extent	Moderate extent	Not at all
Case 56	Low extent	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all
Case 57	Moderate extent	Moderate extent	Moderate extent	Not at all Very great extent	Moderate extent	Moderate extent	Not at all Very great extent	Moderate extent	Moderate extent	Not at all Very great extent
Case 58	Not at all Moderate extent	Not at all	Low extent Moderate extent	Not at all	Not at all	Low extent Moderate extent	Not at all Great extent	Not at all	Low extent Moderate extent	Not at all Very great extent
Case 59	Moderate extent	Great Extent	Moderate extent	Great Extent	Great Extent	Moderate extent	Extent	Great Extent	Moderate extent	Great Extent
Case 60	Moderate extent	Moderate extent	Low extent	Low extent	Low extent	Low extent	Low extent	Low extent	Low extent	Low extent
Case 61	Very great extent	Low extent	Low extent Moderate extent	Not at all Moderate extent	Low extent	Low extent Moderate extent	Not at all Moderate extent	Low extent	Low extent Moderate extent	Not at all Moderate extent
Case 62	Great Extent Very great extent	Great Extent Moderate extent	Low extent	Not at all	Great Extent Moderate extent	Low extent	Not at all	Great Extent Moderate extent	Low extent	Not at all
Case 63	Great Extent Very great extent	Great Extent Moderate extent	Not at all	Not at all	Great Extent Moderate extent	Not at all	Not at all	Great Extent Moderate extent	Not at all	Not at all
Case 64	Low extent	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all
Case 65	Low extent	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all
Case 66	Low extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent
Case 67	Great Extent	Great Extent	Great Extent	Great Extent	Great Extent	Great Extent	Great Extent	Great Extent	Great Extent	Great Extent
Case 68	Low extent Moderate extent	Low extent	Low extent	Low extent Moderate extent	Low extent	Low extent	Low extent Moderate extent	Low extent	Low extent	Low extent Moderate extent
Case 69	Low extent Moderate extent	Low extent	Low extent	Low extent	Low extent	Low extent	Low extent	Low extent	Low extent	Low extent
Case 70	Moderate extent	Moderate extent	Moderate extent	Great Extent	Moderate extent	Moderate extent	Great Extent	Moderate extent	Moderate extent	Great Extent
Case 71	Moderate extent	Moderate extent	Moderate extent	Low extent Moderate extent	Moderate extent	Moderate extent	Low extent Moderate extent	Moderate extent	Moderate extent	Low extent Moderate extent
Case 72	Not at all	Low extent	Low extent	Low extent	Low extent	Low extent	Low extent	Low extent	Low extent	Low extent
Case 73	Not at all Very great extent	Not at all	Not at all Very great extent	Not at all	Not at all	Not at all Very great extent	Not at all Great extent	Not at all	Not at all Very great extent	Not at all
Case 74	Very great extent	Great Extent	Very great extent	Great Extent	Great Extent	Very great extent	Great Extent	Great Extent	Very great extent	Great Extent

CASE	C12XI	C12XII	C12XIII	C12XIV	C12XV	C12XVI	TRANSFORM	D14I	D14II	D14III
							ATIONAL LEADERSHIP			
Case 1	Moderate extent	Moderate extent	Low extent	Great Extent	Moderate extent	Low extent	5.593	Very great extent	Great Extent	Great Extent
Case 2	Great Extent	Great Extent	Not at all	Not at all	Not at all	Not at all	0	Great Extent	Great Extent	Great Extent
Case 3	Low extent	Low extent	Moderate extent	Moderate extent	Not at all	Moderate extent	4.395	Moderate extent	Great Extent	Moderate extent
Case 4	Moderate extent	Moderate extent	Moderate extent	Low extent	Low extent	Moderate extent	4.62	Great Extent	Great Extent	Great Extent
Case 5	Moderate extent	Moderate extent	Low extent	Moderate extent	Moderate extent	Low extent	4.756	Moderate extent	Moderate extent	Moderate extent
Case 6	Not at all	Not at all	Not at all	Not at all	Low extent	Not at all	0.904	Low extent	Low extent	Not at all
Case 7	Low extent	Low extent	Not at all	Low extent	Low extent	Not at all	1.631	Moderate extent	Low extent	Low extent
Case 8	Low extent	Low extent	Low extent	Low extent	Moderate extent	Low extent	4.077	Moderate extent	Low extent	Low extent
Case 9	Great Extent	Great Extent	Very great extent	Great Extent	Great Extent	Very great extent	10.323	Very great extent	Not at all	Very great extent
Case 10	Very great extent	Very great extent	Not at all	Not at all	Not at all	Not at all	0	Great Extent	Great Extent	Not at all
Case 11	Moderate extent	Moderate extent	Not at all	Great Extent	Great Extent	Not at all	4.775	Moderate extent	Moderate extent	Low extent
Case 12	Very great extent	Very great extent	Moderate extent	Not at all	Moderate extent	Moderate extent	4.732	Great Extent	Very great extent	Moderate extent
Case 13	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all	0	Low extent	Great Extent	Low extent
Case 14	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all	0	Low extent	Great Extent	Low extent
Case 15	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Low extent	Moderate extent	5.299	Moderate extent	Moderate extent	Moderate extent
Case 16	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Low extent	Moderate extent	5.299	Moderate extent	Moderate extent	Moderate extent
Case 17	Moderate extent	Moderate extent	Moderate extent	Great Extent	Low extent	Moderate extent	6.137	Moderate extent	Very great extent	Great Extent
Case 18	Moderate extent	Moderate extent	Low extent	Moderate extent	Moderate extent	Low extent	5.544	Moderate extent	Great Extent	Moderate extent
Case 19	Great Extent	Great Extent	Low extent	Not at all	Great Extent	Low extent	3.35	Moderate extent	Great Extent	Not at all
Case 20	Low extent	Low extent	Moderate extent	Great Extent	Moderate extent	Moderate extent	6.976	Great Extent	Great Extent	Great Extent
Case 21	Great Extent	Great Extent	Low extent	Low extent	Moderate extent	Low extent	4.077	Moderate extent	Moderate extent	Moderate extent
Case 22	Great Extent	Great Extent	Moderate extent	Moderate extent	Great Extent	Moderate extent	6.927	Moderate extent	Moderate extent	Moderate extent
Case 23	Great Extent	Great Extent	Moderate	Low extent	Moderate	Moderate extent	5.459	Moderate extent	Moderate	Moderate

CASE	C12XI	C12XII	TRANSFORMATIONAL LEADERSHIP				D14I	D14II	D14III	
			C12XIII	C12XIV	C12XV	C12XVI				
			extent		extent			extent	extent	
Case 24	Moderate extent	Moderate extent	Low extent	Moderate extent	Not at all	Low extent	3.013	Moderate extent	Great Extent	Great Extent
Case 25	Low extent	Low extent	Great Extent	Great Extent	Great Extent	Great Extent	9.08	Great Extent	Great Extent	Great Extent
Case 26	Not at all	Not at all	Great Extent	Great Extent	Great Extent	Great Extent	9.964	Great Extent	Moderate extent	Great Extent
Case 27	Great Extent	Great Extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	6.138	Great Extent	Moderate extent	Moderate extent
Case 28	Great Extent	Great Extent	Great Extent	Moderate extent	Moderate extent	Great Extent	7.454	Great Extent	Moderate extent	Moderate extent
Case 29	Low extent	Low extent	Moderate extent	Not at all	Moderate extent	Moderate extent	4.732	Low extent	Moderate extent	Moderate extent
Case 30	Low extent	Low extent	Great Extent	Great Extent	Great Extent	Great Extent	9.08	Very great extent	Very great extent	Moderate extent
Case 31	Low extent	Low extent	Very great extent	Great Extent	Very great extent	Very great extent	11.016	Great Extent	Very great extent	Low extent
Case 32	Moderate extent	Moderate extent	Low extent	Moderate extent	Not at all	Low extent	3.013	Moderate extent	Great Extent	Low extent
Case 33	Great Extent	Great Extent	Great Extent	Moderate extent	Moderate extent	Great Extent	7.454	Low extent	Low extent	Moderate extent
Case 34	Great Extent	Great Extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	6.138	Low extent	Low extent	Moderate extent
Case 35	Moderate extent	Moderate extent	Moderate extent	Low extent	Low extent	Moderate extent	4.62	Great Extent	Great Extent	Moderate extent
Case 36	Moderate extent	Moderate extent	Moderate extent	Low extent	Low extent	Moderate extent	4.62	Great Extent	Great Extent	Moderate extent
Case 37	Moderate extent	Moderate extent	Very great extent	Great Extent	Very great extent	Very great extent	11.016	Low extent	Moderate extent	Moderate extent
Case 38	Moderate extent	Moderate extent	Very great extent	Great Extent	Very great extent	Very great extent	8.695	Moderate extent	Great Extent	Great Extent
Case 39	Low extent	Low extent	Low extent	Great Extent	Great Extent	Low extent	6.382	Moderate extent	Great Extent	Moderate extent
Case 40	Moderate extent	Moderate extent	Low extent	Great Extent	Moderate extent	Low extent	4.756	Moderate extent	Great Extent	Great Extent
Case 41	Low extent	Low extent	Not at all	Not at all	Moderate extent	Not at all	1.743	Moderate extent	Great Extent	Not at all
Case 42	Low extent	Low extent	Moderate extent	Moderate extent	Low extent	Moderate extent	5.299	Moderate extent	Great Extent	Great Extent
Case 43	Not at all	Not at all	Very great extent	Very great extent	Moderate extent	Very great extent	10.418	Very great extent	Very great extent	Moderate extent

CASE	C12XI	C12XII	C12XIII	C12XIV	C12XV	C12XVI	TRANSFORM	D14I	D14II	D14III
							ATIONAL LEADERSHIP			
Case 44	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	6.138	Moderate extent	Very great extent	Moderate extent
Case 45	Very great extent	Very great extent	Very great extent	Very great extent	Very great extent	Very great extent	11.901	Very great extent	Very great extent	Moderate extent
Case 46	Not at all	Not at all	Not at all	Not at all	Low extent	Not at all	0.904	Low extent	Moderate extent	Not at all
Case 47	Moderate extent	Moderate extent	Not at all	Low extent	Low extent	Not at all	1.631	Great Extent	Very great extent	Moderate extent
Case 48	Low extent	Low extent	Very great extent	Very great extent	Low extent	Very great extent	9.579	Great Extent	Moderate extent	Great Extent
Case 49	Moderate extent	Moderate extent	Low extent	Moderate extent	Low extent	Low extent	3.917	Moderate extent	Moderate extent	Low extent
Case 50	Moderate extent	Moderate extent	Low extent	Moderate extent	Low extent	Low extent	3.917	Great Extent	Great Extent	Low extent
Case 51	Not at all	Not at all	Low extent	Not at all	Moderate extent	Low extent	3.35	Moderate extent	Moderate extent	Not at all
Case 52	Great Extent	Great Extent	Moderate extent	Low extent	Low extent	Moderate extent	4.62	Moderate extent	Moderate extent	Moderate extent
Case 53	Not at all	Not at all	Low extent	Not at all	Very great extent	Low extent	4.833	Low extent	Very great extent	Low extent
Case 54	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	6.138	Not at all	Great Extent	Not at all
Case 55	Moderate extent	Moderate extent	Not at all	Moderate extent	Moderate extent	Not at all	3.149	Not at all	Great Extent	Not at all
Case 56	Low extent	Low extent	Not at all	Not at all	Not at all	Not at all	0	Low extent	Moderate extent	Moderate extent
Case 57	Moderate extent	Moderate extent	Not at all	Moderate extent	Moderate extent	Not at all	3.149	Not at all	Great Extent	Not at all
Case 58	Not at all	Not at all	Very great extent	Not at all	Low extent	Very great extent	6.452	Moderate extent	Great Extent	Great Extent
Case 59	Moderate extent	Moderate extent	Great Extent	Great Extent	Moderate extent	Great Extent	8.292	Great Extent	Moderate extent	Moderate extent
Case 60	Moderate extent	Moderate extent	Low extent	Moderate extent	Low extent	Low extent	3.917	Moderate extent	Great Extent	Low extent
Case 61	Very great extent	Very great extent	Not at all	Low extent	Low extent	Not at all	1.631	Moderate extent	Moderate extent	Low extent
Case 62	Great Extent	Great Extent	Moderate extent	Great Extent	Moderate extent	Moderate extent	6.976	Great Extent	Low extent	Low extent
Case 63	Very great extent	Very great extent	Not at all	Moderate extent	Not at all	Not at all	1.406	Moderate extent	Great Extent	Low extent
Case 64	Low extent	Low extent	Not at all	Not at all	Not at all	Not at all	0	Moderate extent	Great Extent	Great Extent

CASE	C12XI	C12XII	C12XIII	C12XIV	C12XV	C12XVI	TRANSFORMATIONAL LEADERSHIP					
							D14I	D14II	D14III			
Case 65	Low extent	Low extent	Not at all	Not at all	Not at all	Not at all	0	Low extent	Moderate extent	Moderate extent	Moderate extent	
Case 66	Low extent	Low extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	6.138	Great Extent	Great Extent	Great Extent	Moderate extent	
Case 67	Great Extent	Great Extent	Moderate extent	Moderate extent	Great Extent	Moderate extent	6.927	Great Extent	Great Extent	Great Extent	Moderate extent	
Case 68	Low extent	Low extent	Low extent	Low extent	Low extent	Low extent	3.238	Low extent	Low extent	Low extent	Low extent	
Case 69	Moderate extent	Moderate extent	Moderate extent	Low extent	Low extent	Moderate extent	4.62	Moderate extent	Great Extent	Low extent	Moderate extent	
Case 70	Moderate extent	Moderate extent	Great Extent	Moderate extent	Moderate extent	Great Extent	7.454	Moderate extent	Low extent	Low extent	Moderate extent	
Case 71	Moderate extent	Moderate extent	Low extent	Moderate extent	Moderate extent	Low extent	4.756	Not at all	Great Extent	Very great extent	Low extent	
Case 72	Not at all	Not at all	Low extent	Low extent	Low extent	Moderate extent	4.62	Moderate extent	Great Extent	Very great extent	Moderate extent	
Case 73	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all	0	Low extent	Low extent	Moderate extent	Not at all	
Case 74	Very great extent	Very great extent	Great Extent	Great Extent	Great Extent	Great Extent	9.774	Great Extent	Great Extent	Great Extent	Moderate extent	

CASE	D14IV	D14V	D14VI	D14VII	D14VIII	D14IX	D14X	D14XI	D14XII	D14XIII	D14XIV	D14XV	D14XVI
Case 1	Great Extent	Moderate extent	Very great extent	Great Extent	Great Extent	Great Extent	Moderate extent	Great Extent	Great Extent	Moderate extent	Very great extent	Great Extent	Great Extent
Case 2	Very great extent	Great Extent	Great Extent	Great Extent	Great Extent	Very great extent	Great Extent	Great Extent	Very great extent	Great Extent	Great Extent	Great Extent	Very great extent
Case 3	Great Extent	Great Extent	Moderate extent	Great Extent	Moderate extent	Great Extent	Great Extent	Moderate extent	Great Extent	Great Extent	Moderate extent	Great Extent	Great Extent
Case 4	Very great extent	Very great extent	Great Extent	Great Extent	Great Extent	Very great extent	Very great extent	Great Extent	Very great extent	Very great extent	Great Extent	Great Extent	Very great extent
Case 5	Great Extent	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Great Extent	Moderate extent	Moderate extent	Great Extent	Moderate extent	Moderate extent	Moderate extent	Great Extent
Case 6	Not at all	Low extent	Low extent	Low extent	Not at all	Not at all	Low extent	Not at all	Not at all	Low extent	Low extent	Low extent	Not at all
Case 7	Great Extent	Not at all	Moderate extent	Low extent	Low extent	Great Extent	Not at all	Low extent	Great Extent	Not at all	Moderate extent	Low extent	Great Extent
Case 8	Great Extent	Low extent	Moderate extent	Low extent	Low extent	Great Extent	Low extent	Low extent	Great Extent	Low extent	Moderate extent	Low extent	Great Extent
Case 9	Very great extent	Low extent	Very great extent	Not at all	Very great extent	Very great extent	Low extent	Very great extent	Very great extent	Low extent	Very great extent	Not at all	Very great extent

CASE	D14IV	D14V	D14VI	D14VII	D14VIII	D14IX	D14X	D14XI	D14XII	D14XIII	D14XIV	D14XV	D14XVI
	extent	extent	extent		extent	extent	extent	extent	extent	extent	extent	extent	extent
Case 10	Moderate	Very great	Great	Great		Moderate	Very great		Moderate	Very great	Great	Great	Moderate
	extent	extent	Extent	Extent	Not at all	extent	extent	Not at all	extent	extent	Extent	Extent	extent
Case 11	Moderate	Low	Moderate	Moderate	Low	Moderate	Low	Low	Moderate	Low	Moderate	Moderate	Moderate
	extent	extent	extent	extent	extent	extent	extent	extent	extent	extent	extent	extent	extent
Case 12	Moderate	Low	Great	Very great	Moderate	Moderate	Low	Moderate	Moderate	Low	Great	Very great	Moderate
	extent	extent	Extent	extent	extent	extent	extent	extent	extent	extent	Extent	extent	extent
Case 13	Great	Great	Low	Great	Low	Great	Great	Low	Great	Great	Low	Great	Great
	Extent	Extent	extent	Extent	extent	Extent	Extent	extent	Extent	Extent	extent	Extent	Extent
Case 14	Great	Great	Low	Great	Low	Great	Great	Low	Great	Great	Low	Great	Great
	Extent	Extent	extent	Extent	extent	Extent	Extent	extent	Extent	Extent	extent	Extent	Extent
Case 15	Moderate	Low	Moderate	Moderate	Moderate	Moderate	Low	Moderate	Moderate	Low	Moderate	Moderate	Moderate
	extent	extent	extent	extent	extent	extent	extent	extent	extent	extent	extent	extent	extent
Case 16	Moderate	Low	Moderate	Moderate	Moderate	Moderate	Low	Moderate	Moderate	Low	Moderate	Moderate	Moderate
	extent	extent	extent	extent	extent	extent	extent	extent	extent	extent	extent	extent	extent
Case 17	Very great	Very great	Moderate	Very great	Great	Very great	Very great	Great	Very great	Very great	Moderate	Very great	Very great
	extent	extent	extent	extent	Extent	extent	extent	Extent	extent	extent	extent	extent	extent
Case 18	Great	Great	Great	Great	Moderate	Great	Great	Moderate	Great	Great	Great	Great	Great
	Extent	Extent	Extent	Extent	extent	Extent	Extent	extent	Extent	Extent	Extent	Extent	Extent
Case 19	Great	Low	Moderate	Great		Great	Low		Great	Low	Moderate	Great	Great
	Extent	extent	extent	Extent	Not at all	Extent	extent	Not at all	Extent	extent	extent	Extent	Extent
Case 20	Great	Great	Great	Great	Great	Great	Great	Great	Great	Great	Great	Great	Great
	Extent	Extent	Extent	Extent	Extent	Extent	Extent	Extent	Extent	Extent	Extent	Extent	Extent
Case 21	Great	Low	Moderate	Moderate	Moderate	Great	Low	Moderate	Great	Low	Moderate	Moderate	Great
	Extent	extent	extent	extent	extent	Extent	extent	extent	Extent	extent	extent	extent	Extent
Case 22	Great	Moderate	Moderate	Moderate	Moderate	Great	Moderate	Moderate	Great	Moderate	Moderate	Moderate	Great
	Extent	extent	extent	extent	extent	Extent	extent	extent	Extent	extent	extent	extent	Extent
Case 23	Great	Low	Moderate	Moderate	Moderate	Great	Low	Moderate	Great	Low	Moderate	Moderate	Great
	Extent	extent	extent	extent	extent	Extent	extent	extent	Extent	extent	extent	extent	Extent
Case 24	Great	Moderate	Moderate	Great	Great	Great	Moderate	Great	Great	Moderate	Moderate	Great	Great
	Extent	extent	extent	Extent	Extent	Extent	extent	Extent	Extent	extent	extent	Extent	Extent
Case 25	Very great	Great	Great	Great	Great	Very great	Great	Great	Very great	Great	Great	Great	Very great
	extent	Extent	Extent	Extent	Extent	extent	Extent	Extent	extent	Extent	Extent	Extent	extent
Case 26	Great	Great	Great	Moderate	Great	Great	Great	Great	Great	Great	Great	Moderate	Great
	Extent	Extent	Extent	extent	Extent	Extent	Extent	Extent	Extent	Extent	Extent	extent	Extent
Case 27	Great	Moderate	Great	Moderate	Moderate	Great	Moderate	Moderate	Great	Moderate	Great	Moderate	Great
	Extent	extent	Extent	extent	extent	Extent	extent	extent	Extent	extent	Extent	extent	Extent
Case 28	Moderate	Moderate	Great	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Great	Moderate	Moderate
	extent	extent	Extent	extent	extent	extent	extent	extent	extent	extent	Extent	extent	extent
Case 29	Great	Great	Low	Moderate	Moderate	Great	Great	Moderate	Great	Great	Low	Moderate	Great
	Extent	Extent	extent	extent	extent	Extent	Extent	extent	Extent	Extent	extent	extent	Extent
Case 30	Very great	Very great	Very great	Very great	Moderate	Very great	Very great	Moderate	Very great	Very great	Very great	Very great	Very great

CASE	D14IV	D14V	D14VI	D14VII	D14VIII	D14IX	D14X	D14XI	D14XII	D14XIII	D14XIV	D14XV	D14XVI
	extent	extent	extent	extent	extent	extent	extent	extent	extent	extent	extent	extent	extent
Case 31	Great	Moderate	Great	Very great	Low	Great	Moderate	Low	Great	Moderate	Great	Very great	Great
	Extent	extent	Extent	extent	extent	Extent	extent	extent	Extent	extent	Extent	extent	Extent
Case 32	Great	Low	Moderate	Great	Low	Great	Low	Low	Great	Low	Moderate	Great	Great
	Extent	extent	extent	Extent	extent	Extent	extent	extent	Extent	extent	extent	Extent	Extent
Case 33	Great	Low	Low	Low	Moderate	Great	Low	Moderate	Great	Low	Low	Low	Great
	Extent	extent	extent	extent	extent	Extent	extent	extent	Extent	extent	extent	extent	Extent
Case 34	Great	Moderate	Low	Low	Moderate	Great	Moderate	Moderate	Great	Moderate	Low	Low	Great
	Extent	extent	extent	extent	extent	Extent	extent	extent	Extent	extent	extent	extent	Extent
Case 35	Great	Great	Great	Great	Moderate	Great	Great	Moderate	Great	Great	Great	Great	Great
	Extent	Extent	Extent	Extent	extent	Extent	Extent	extent	Extent	Extent	Extent	Extent	Extent
Case 36	Very great	Great	Great	Great	Moderate	Very great	Great	Moderate	Very great	Great	Great	Great	Very great
	extent	Extent	Extent	Extent	extent	extent	Extent	extent	extent	Extent	Extent	Extent	extent
Case 37	Moderate	Low	Low	Moderate	Moderate	Moderate	Low	Moderate	Moderate	Low	Low	Moderate	Moderate
	extent	extent	extent	extent	extent	extent	extent	extent	extent	extent	extent	extent	extent
Case 38	Great	Moderate	Moderate	Great	Great	Great	Moderate	Great	Great	Moderate	Moderate	Great	Great
	Extent	extent	extent	Extent	Extent	Extent	extent	Extent	Extent	extent	extent	Extent	Extent
Case 39	Great	Moderate	Moderate	Great	Moderate	Great	Moderate	Moderate	Great	Moderate	Moderate	Great	Great
	Extent	extent	extent	Extent	extent	Extent	extent	extent	Extent	extent	extent	Extent	Extent
Case 40	Great	Very great	Moderate	Great	Great	Great	Very great	Great	Great	Very great	Moderate	Great	Great
	Extent	extent	extent	Extent	Extent	Extent	extent	Extent	Extent	extent	extent	Extent	Extent
Case 41	Not at all	Not at all	extent	Extent	Not at all	Not at all	Not at all	Not at all	Not at all	Not at all	extent	Extent	Not at all
	Great	Moderate	Moderate	Great	Great	Great	Moderate	Great	Great	Moderate	Moderate	Great	Great
Case 42	Extent	extent	extent	Extent	Extent	Extent	extent	Extent	Extent	extent	extent	Extent	Extent
	Great	Great	Very great	Very great	Moderate	Great	Great	Moderate	Great	Great	Very great	Very great	Great
Case 43	Extent	Extent	extent	extent	extent	Extent	Extent	extent	Extent	Extent	extent	extent	Extent
	Moderate	Moderate	Moderate	Very great	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Very great	Moderate
Case 44	extent	extent	extent	extent	extent	extent	extent	extent	extent	extent	extent	extent	extent
	Very great	Great	Very great	Very great	Moderate	Very great	Great	Moderate	Very great	Great	Very great	Very great	Very great
Case 45	extent	Extent	extent	extent	extent	extent	Extent	extent	extent	Extent	extent	extent	extent
		Moderate	Low	Moderate			Moderate			Moderate	Low	Moderate	
Case 46	Not at all	extent	extent	extent	Not at all	Not at all	extent	Not at all	Not at all	extent	extent	extent	Not at all
	Very great	Moderate	Great	Very great	Moderate	Very great	Moderate	Moderate	Very great	Moderate	Great	Very great	Very great
Case 47	extent	extent	Extent	extent	extent	extent	extent	extent	extent	extent	Extent	extent	extent
	Low	Great	Great	Moderate	Great	Low	Great	Great	Low	Great	Great	Moderate	Low
Case 48	extent	Extent	Extent	extent	Extent	extent	Extent	Extent	extent	Extent	Extent	extent	extent
	Great	Moderate	Moderate	Moderate	Low	Great	Moderate	Low	Great	Moderate	Moderate	Moderate	Great
Case 49	Extent	extent	extent	extent	extent	Extent	extent	extent	Extent	extent	extent	extent	Extent
	Moderate	Moderate	Great	Great	Low	Moderate	Moderate	Low	Moderate	Moderate	Great	Great	Moderate
Case 50	extent	extent	Extent	Extent	extent	extent	extent	extent	extent	extent	Extent	Extent	extent
Case 51	Not at all	Moderate	Moderate	Moderate	Not at all	Not at all	Moderate	Not at all	Not at all	Moderate	Moderate	Moderate	Not at all

CASE	D14IV	D14V	D14VI	D14VII	D14VIII	D14IX	D14X	D14XI	D14XII	D14XIII	D14XIV	D14XV	D14XVI
		extent	extent	extent			extent			extent	extent	extent	
Case 52	Great Extent Moderate	Moderate extent	Moderate extent	Moderate extent	Moderate extent	Great Extent	Moderate extent	Moderate extent	Great Extent	Moderate extent	Moderate extent	Moderate extent	Great Extent
Case 53	extent Moderate	Not at all Low	extent	Very great Great	Low extent	Moderate extent	extent	Not at all extent	Moderate extent	Not at all Low	extent	Very great Great	Moderate extent
Case 54	extent Moderate	Low Low	Not at all Low	Extent Great	Not at all Moderate	extent Moderate	Low Low	Not at all Low	extent Moderate	Low Low	Not at all Low	Extent Great	extent Moderate
Case 55	extent Low	extent	Not at all Low	Extent Moderate	Not at all Moderate	extent Low	extent Low	Not at all Moderate	extent Low	extent Low	Not at all Low	Extent Moderate	extent Low
Case 56	extent Moderate	Not at all Low	extent	extent Great	extent	extent Moderate	Not at all Low	extent	extent Moderate	Not at all Low	extent	extent Great	extent Moderate
Case 57	extent Great	extent Great	Not at all Moderate	Extent Great	Not at all Great	extent Great	extent Great	Not at all Great	extent Great	extent Great	Not at all Moderate	Extent Great	extent Great
Case 58	Extent Great	Extent Very great	extent Great	Extent Moderate	Extent Moderate	Extent Great	Extent Very great	Extent Moderate	Extent Great	Extent Very great	extent Great	Extent Moderate	Extent Great
Case 59	Extent Great	extent Moderate	Extent Moderate	extent Great	extent Low	Extent Great	extent Moderate	extent Low	Extent Great	extent Moderate	Extent Moderate	extent Great	Extent Great
Case 60	Extent Moderate	extent Low	extent Moderate	Extent Moderate	extent Low	Extent Moderate	extent Low	extent Low	Extent Moderate	extent Low	extent Moderate	Extent Moderate	Extent Moderate
Case 61	extent Great	extent Moderate	extent Great	extent Low	extent Low	extent Great	extent Moderate	extent Low	extent Great	extent Moderate	extent Great	extent Low	extent Great
Case 62	Extent Moderate	extent Moderate	Extent Moderate	extent Great	extent Low	Extent Moderate	extent Moderate	extent Low	Extent Moderate	extent Moderate	Extent Moderate	extent Great	Extent Moderate
Case 63	extent Great	extent Moderate	extent Moderate	Extent Great	extent Great	extent Great	extent Moderate	extent Great	extent Great	extent Moderate	extent Moderate	Extent Great	extent Great
Case 64	Extent Low	extent Low	extent Low	Extent Moderate	Extent Moderate	Extent Low	Extent Moderate	Extent Moderate	Extent Low	Extent Moderate	extent Low	Extent Moderate	Extent Low
Case 65	extent Great	Not at all Moderate	extent Great	extent Great	extent Moderate	extent Great	Not at all Moderate	extent Moderate	extent Great	Not at all Moderate	extent Great	extent Great	extent Great
Case 66	Extent Great	extent Moderate	Extent Great	Extent Great	extent Moderate	Extent Great	extent Moderate	extent Moderate	Extent Great	extent Moderate	Extent Great	Extent Great	Extent Great
Case 67	Extent Low	extent Moderate	Extent Low	Extent Low	extent Low	Extent Low	extent Moderate	extent Low	Extent Low	extent Moderate	Extent Low	Extent Low	Extent Low
Case 68	extent Low	extent Moderate	extent Moderate	extent Great	extent Low	extent Low	extent Moderate	extent Low	extent Low	extent Moderate	extent Moderate	extent Great	extent Low
Case 69	extent Great	extent Moderate	extent Moderate	Extent Low	extent Moderate	extent Great	extent Moderate	extent Moderate	extent Great	extent Moderate	extent Moderate	Extent Low	extent Great
Case 70	Extent Low	extent Low	extent Great	extent Low	extent Low	Extent Low	extent Low	extent Low	Extent Low	extent Low	extent Great	extent Low	Extent Low
Case 71	extent	extent	Not at all	Extent	extent	extent	extent	extent	extent	extent	Not at all	Extent	extent
Case 72	Very great	Moderate	Moderate	Very great	Moderate	Very great	Moderate	Moderate	Very great	Moderate	Moderate	Very great	Very great

CASE	D14IV	D14V	D14VI	D14VII	D14VIII	D14IX	D14X	D14XI	D14XII	D14XIII	D14XIV	D14XV	D14XVI
	extent	extent	extent	extent	extent	extent	extent	extent	extent	extent	extent	extent	extent
Case 73	Moderate extent	Moderate extent	Low extent	Low extent	Not at all	Moderate extent	Moderate extent	Not at all	Moderate extent	Moderate extent	Low extent	Low extent	Moderate extent
Case 74	Very great extent	Great Extent	Great Extent	Moderate extent	Moderate extent	Very great extent	Great Extent	Moderate extent	Very great extent	Great Extent	Great Extent	Moderate extent	Very great extent

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CASE	PLANNING															Water Provision	Administration of devolved water services *transformational leadership	Administration of devolved water services * Planning
		E16IBD	E16IAD	E16IIBD	E16IIAD	E16IIIBD	E16IIAD	E16IVBD	E16IVAD	E16VBD	E16VAD	E16VIBD	E16VIAD	E16VIIBD	E16VIAD			
Case 1	42.278	0.4	0.3	6	5	50	50	50	60	30	20	70	70	60	60	12.2	180.42	1363.67
Case 2	46.561	2	0.2	20	5	40	70	40	60	10	5	50	80	50	70	11.01	0	1188.96
Case 3	35.831	1	0.7	4	2.5	50	80	60	80	50	30	40	80	50	80	10.44	120.07	978.92
Case 4	49.151	1.2	1	10	5	95	97.5	82.5	85	30	30	82.5	90	90	90	14.99	199.83	2126.06
Case 5	30.379	2.5	1.5	6	5	30	40	40	45	30	50	10	15	25	30	9.55	132.73	847.85
Case 6	8.481	5	5	10	15	60	55	60	60	80	80	85	90	70	70	3.16	11.14	104.53
Case 7	19.589	5	4	17.5	17.5	10	15	40	30	30	30	100	100	45	45	4.29	11.89	142.78
Case 8	22.43	5	4	25	17.5	10	15	40	30	30	30	100	100	45	45	5.03	29.71	163.49
Case 9	39.479	6	5	2	2	80	80	35	40	80	80	10	10	90	90	14.25	468.18	1790.58
Case 10	32.398	5	2	10	20	1	3	50	70	80	80	0	0	80	80	12.6	0	1589.39
Case 11	21.237	3	2	20	15	25	25	30	40	20	15	30	30	15	15	4.71	32.8	145.89
Case 12	32.956	0.5	0.5	10	10	90	90	70	70	60	60	100	100	90	90	9.9	132.39	921.98
Case 13	30.437	5	4	5	5	90	90	55	55	50	50	100	100	100	100	9.14	0	869.95
Case 14	30.437	6	5	5	5	90	90	55	55	50	50	100	100	100	100	9.14	0	869.95
Case 15	23.874	10	5	10	5	75	75	50	50	40	40	70	70	85	90	7.71	119.16	536.86
Case 16	23.874	20	15	5	10	75	75	50	50	30	30	50	60	80	85	7.53	114.42	515.54
Case 17	49.605	10	5	10	5	20	30	25	35	20	15	35	40	20	30	15.52	284.19	2297.23
Case 18	38.715	10	5	10	10	50	55	40	50	30	25	60	60	30	40	13.5	244.7	1708.67
Case 19	25.449	7.5	5	7.5	2	50	50	50	60	10	10	60	60	70	80	6.44	50.64	384.68
Case 20	41.811	10	5	20	10	40	60	40	55	20	20	30	60	40	40	12.35	231.02	1384.72

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CASE	PLANNING															Water Provision	Administration of devolved water services *transformational leadership	Administration of devolved water services * Planning
		E16IBD	E16IAD	E16IIBD	E16IIAD	E16IIIBD	E16IIAD	E16IVBD	E16IVAD	E16VBD	E16VAD	E16VIBD	E16VIAD	E16VIIBD	E16VIIAD			
Case 21	27.685	0.5	0.2	15	10	90	90	80	90	5	4	98	98	80	80	9.51	127.84	868.2
Case 22	30.379	0.2	0.1	12.5	15	100	100	95	75	4	3	90	90	98	98	9.7	187.58	822.67
Case 23	27.685	3	2	25	15	90	70	4	60	5	5	60	65	40	60	9.38	160.96	816.32
Case 24	36.335	0.5	0.4	12.5	12.5	80	80	5	80	4	3	89	90	98	98	10.74	94.64	1141.53
Case 25	46.561	15	5	20	5	20	40	0.6	10	30	30	20	20	40	50	15.79	440.03	2256.3
Case 26	38.951	10	3	15	2	30	60	20	60	5	5	30	80	30	80	13.89	425.51	1663.3
Case 27	33.263	8	6	30	15	50	70	50	80	5	3	60	80	40	70	10.1	174.45	945.37
Case 28	29.452	8	7	30	20	50	70	50	80	0	0	60	80	60	80	9.57	206.39	815.48
Case 29	30.214	0.4	0.3	20	20	90	90	90	90	4	3	90	90	92	90	8.65	107.91	688.96
Case 30	52.451	15	5	5	5	20	35	50	70	60	55	70	60	90	90	15.96	403.9	2333.08
Case 31	36.823	7.5	4	40	20	40	30	50	30	20	20	30	50	40	60	12.4	389.21	1300.96
Case 32	27.908	20	15	5	5	40	45	45	55	25	30	15	15	15	15	8.28	72.23	669.13
Case 33	22.311	7	4	0	0	45	45	60	65	70	70	0	0	70	70	8.93	209.48	627
Case 34	25.004	4	2	15	15	30	35	50	50	20	20	10	15	65	65	9.11	172.9	704.33
Case 35	38.715	10	5	5	10	50	75	40	80	70	70	0	0	70	90	13.2	204.56	1714.29
Case 36	43.465	10	5	5	10	40	80	50	80	80	60	10	10	70	90	11.31	116.06	1091.96
Case 37	21.118	7	5	2	2	80	80	85	85	30	30	90	90	75	75	9.52	340.91	653.51
Case 38	36.335	15	9	3.5	2.5	40	60	35	52	20	30	30	40	25	55	12.71	345.27	1442.82
Case 39	33.239	10	5	5	5	98	98	50	60	50	50	98	98	95	98	10.18	173.99	906.18
Case 40	41.517	5	2	3	5	50	50	10	40	50	50	0	0	30	40	12.69	183.1	1598.39
Case 41	13.875	2	1.5	15	12	10	10	40	20	80	80	60	50	25	25	6.37	47.23	375.87
Case 42	36.335	17	7	25	5	3	30	50	80	70	50	30	50	40	70	11.61	183.24	1256.46
Case 43	45.111	12	6	30	10	48	52	42	58	50	50	50	50	40	60	15.75	500.63	2167.76
Case 44	32.765	6	1.5	20	10	50	55	50	60	30	30	90	90	20	50	8.76	110.6	590.39
Case 45	49.861	8	4	7	5	60	40	45	30	30	25	25	20	30	25	16.92	611.7	2562.91
Case 46	13.793	30	15	25	15	10	15	30	50	70	70	0	10	10	20	3.31	6.08	92.72
Case 47	44.21	30	15	5	2	20	40	40	60	100	100	9	18	45	60	10.87	40.73	1104.14
Case 48	32.671	15	15	10	20	50	100	40	60	20	80	10	90	30	50	11.81	325.62	1110.6
Case 49	27.741	35	17.5	13.5	15.2	30	50	60	60	10	20	40	30	50	45	8.7	97.82	692.85

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Case 50	29.674	65	17.5	60	20	30	50	30	50	50	50	10	10	50	50	9.31	104.66	792.96
Case 51	16.549	20	15	20	20	30	50	30	50	50	50	10	10	5	60	4.34	28.89	142.72
Case 52	30.379	5	3	30	10	60	75	60	75	10	8	75	80	80	85	9.28	115.97	762.61
Case 53	21.837	2	1	5	5	50	60	37	45	50	50	40	50	60	65	5.83	64.68	292.27
Case 54	16.318	10	5	15	10	80	50	30	50	70	40	80	80	70	80	4.76	56.57	150.38
Case 55	16.318	10	10	15	10	80	50	30	50	70	40	80	80	70	80	6.93	79.5	411.96
Case 56	15.809	0.1	0.1	5	5	30	30	85	85	0.1	0.1	10	10	90	90	3	0	69.49
Case 57	16.318	10	5	15	10	80	50	30	50	70	40	80	80	70	80	4.37	29.02	150.38
Case 58	38.927	2	1	5	5	50	60	37	45	50	50	40	50	60	65	13.08	267.41	1613.47
Case 59	38.445	2	1.5	10	5	60	90	65	85	0	0	25	40	40	65	11.88	259.55	1203.43
Case 60	30.601	4	2	50	20	40	65	20	30	40	20	20	25	50	50	9.78	115.89	905.43
Case 61	21.237	2	1.5	30	25	45	40	70	70	15	12	75	72	72	72	7.85	46.33	603.35
Case 62	28.007	5	2	50	20	50	70	20	40	0	0	20	30	50	60	10.38	233.4	937.1
Case 63	26.79	0.15	0.13	10	10	50	50	90	90	0	0	5	5	30	30	8.78	41.4	789.08
Case 64	36.335	3	1.5	10	5	50	75	45	60	50	50	50	50	50	50	11.93	0	1422.34
Case 65	15.809	0.1	0.1	5	5	30	30	85	85	0.1	0.1	10	10	90	90	3	0	69.49
Case 66	36.123	25	15	100	50	20	60	40	70	70	50	40	70	30	60	10.81	180.21	1060.58
Case 67	36.123	40	25	3	2	50	65	65	70	10	10	50	50	50	80	11.16	217.6	1134.79
Case 68	16.088	15	12.5	12.5	7.5	55	75	60	85	35	38	20	20	65	85	6.32	70.32	349.4
Case 69	24.322	12.5	7.5	7.5	2.5	50	85	65	85	20	20	20	20	75	90	7.11	77.93	410.26
Case 70	27.761	12.5	2.5	7.5	2.5	60	85	50	90	15	15	10	10	70	95	8.91	181.82	677.14
Case 71	16.309	12.5	7.5	7.5	2.5	50	85	65	85	20	38	20	20	65	85	4.99	59.93	205.52
Case 72	41.326	5	3	40	20	30	50	50	60	0	0	60	30	70	70	10.18	110.11	984.95
Case 73	16.097	4	4	20	20	30	40	30	35	10	10	50	55	50	60	6.25	0	405
Case 74	40.605	4	4	20	20	30	40	30	35	10	20	30	50	50	40	11.93	280.94	1167.12