

**INFLUENCE OF WATER RESOURCES USERS' ASSOCIATIONS (WRUAs) IN
WATER CONFLICT RESOLUTION AMONG THE COMMUNITIES OF SUB-
CATCHMENT 5BE IN MERU-LAIKIPIA COUNTIES, KENYA**

BY

SIMON WACHIRA WANGOMBE

**A RESEARCH PROJECT REPORT SUBMITTED IN PARTIAL FULFILLMENT
FOR THE REQUIREMENTS OF THE AWARD OF MASTER OF ARTS DEGREE
IN PROJECT PLANNING AND MANAGEMENT OF THE UNIVERSITY OF
NAIROBI**

2013

DECLARATION

I declare that this research project is my original work and has not been presented in any other university for examination for any degree or award.

Signature.....

Date.....

Simon Wachira Wangombe

Reg No. L50/74542/2012

This research project is submitted for examination with my approval as the University Supervisor.

Signature

Date.....

Dr. Harriet Kidombo

School of Continuing and Distance Education

College of Education and External Studies

University of Nairobi

DEDICATION

This research project is dedicated to my loving wife Margaret and my daughters Elsie and Maryanne for their tireless support and encouragement throughout the project.

ACKNOWLEDGEMENT

I wish to take this opportunity to first and foremost acknowledge the entire University of Nairobi for giving me an opportunity to undertake my studies and research in the institution. I also wish to acknowledge my lecturers all through my course work and in particular my project supervisor Dr Harriet Kidombo for her continued understanding, quick response to my enquiries, guidance, well thought out and articulated advice all through this research project and shaping it to this level.

I also wish to acknowledge the academic and administrative staff of the Nyeri Extra Mural Center of the University of Nairobi for their unfailing cooperation throughout my studies by ensuring that learning is well facilitated with all the necessary information made available for the completion of this research project.

Further, I acknowledge my colleagues in the Master of Arts Project Planning and Management class with whom I have been privileged to work and discuss with during this programme. They have been of great support all through the course, demonstrating great dedication to teamwork, ever ready to share with me their deepest academic thoughts and never tiring to encourage me to press on with hard work.

I would also like to express my heartfelt gratitude to the Water Resources Users Associations and stakeholders in the water sector for their support and response in data collection to make the research project a success.

Last but not least, I wish to recognize the contributions, assistance and encouragement of my colleagues in the Water Resources Management Authority all through the course and in particular our Chief Executive Officer, Eng Philip Olum for occasionally giving me time off duty to pursue various course assignments.

TABLE OF CONTENTS

DECLARATION	ii
DEDICATION.....	iii
ACKNOWLEDGEMENT.....	iv
TABLE OF CONTENTS.....	v
LIST OF TABLES	viii
LIST OF FIGURES.....	ix
ABBREVIATIONS AND ACRONYMS.....	x
ABSTRACT.....	xi
CHAPTER ONE: INTRODUCTION.....	1
1.1 Background of the Study.....	1
1.2 Problem Statement.....	4
1.3 Purpose of the Study.....	5
1.4 Objectives of the Study.....	5
1.5 Research Questions.....	5
1.6 Significance of the Study.....	5
1.7 Delimitations of the Study.....	6
1.8 Limitations of the Study.....	6
1.9 Assumptions of the Study.....	7
1.10 Definition of Significant Terms.....	7
1.11 Organization of the Study.....	7
CHAPTER TWO: LITERATURE REVIEW.....	9
2.1 Introduction.....	9
2.2 Water and Conflict.....	9
2.2.1 Interstate River conflicts and Compacts.....	12
2.2.2 The Performance of Interstate River Compacts.....	13
2.3 The legal structure of WRUAs.....	15
2.3.1 Setting up WRUAs.....	17
2.3.2 Funding of WRUAs.....	21
2.3.3 Membership and Management of WRUAs.....	23
2.3.4 The Objectives and Mandate of WRUAs.....	24

2.3.5 Interaction of WRUAs with WRMA.....	26
2.3.6 WRUAs and Water permitting.....	27
2.4 WRUAs and Resolution of conflicts.....	28
2.5 Conflict Resolution Strategies.....	30
2.5.1 Mediation.....	30
2.5.2 Arbitration.....	31
2.5.3 Conciliation and Consultation.....	31
2.6 Culture and Social- Economic Aspects.....	32
2.7 Leadership and Management in Conflict Management.....	35
2.7.1 Emotional Intelligence and the Leadership in Conflict Resolution.....	36
2.7.2 Communications.....	36
2.7.3 Managers’ Conflict Management.....	37
2.8 Conceptual Framework.....	40
2.9 Summary.....	41
CHAPTER THREE: RESEARCH METHODOLOGY.....	42
3.1 Introduction.....	42
3.2 Research Design.....	42
3.3 The Target Population.....	42
3.4 Sample Size and Sampling Procedure.....	43
3.4.1 Sample Size.....	44
3.4.2 Sampling Procedure.....	45
3.5 Data Collection Instruments and Techniques.....	46
3.6 Pilot Study.....	46
3.7 Instrument Validity.....	46
3.8 Instrument Reliability.....	47
3.9 Data Analysis.....	47
3.10 Ethical Issues.....	47
3.11 Operationalization of Variables.....	49
3.12 Summary.....	50
CHAPTER FOUR:DATA ANALYSIS, PRESENTATION AND INTERPRETATION.....	51
4.1 Introduction.....	51
4.2 Response Rate.....	51

4.3 Demographic Information of the WRUA Members.....	52
4.3.1 Gender of the WRUA Members.....	52
4.3.2 Age of WRUA Members.....	53
4.3.3 Education of the WRUA Members.....	53
4.5 WRUA’s Leadership and Management Style.....	55
4.5.1 WRUA’s Leadership and Management Style and representation in each zone.....	55
4.5.2 WRUA’s Leadership and Management Style.....	62
4.6 Conflict Management Strategies.....	66
4.6.1 Analysis of Conflict Management Strategies According to the WRUA Members.....	66
4.6.2 Analysis of Conflict Management Strategies According to WRUA Stakeholders.....	68
4.6.3 Relationship Between Conflict Management Strategies and Conflict Prevalence.....	70
4.7 Training and Capacity Building.....	71
4.7.1 Analysis of Training and Capacity Building According to WRUA Members.....	71
4.7.2 Analysis of Training/Capacity Building According to WRUA Stakeholders.....	74
4.8 Culture of the Community and Religion.....	76
4.8.1 Analysis of Culture of Community and Religion According to WRUA Members.....	76
4.8.2 Analysis of Community's and Religion According to WRUA Stakeholders.....	78
CHAPTER FIVE:SUMMARY OF FINDINGS, DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS.....	80
5.1 Introduction.....	80
5.2 Summary of Findings.....	80
5.3 Discussions.....	84
5.4 Conclutions.....	86
5.5 Recommendations.....	87
5.6 Areas of Further Research.....	88
REFERENCES.....	89
APPENDICES.....	97
APPENDIX I: LETTER OF INTRODUCTION.....	97
APPENDIX II: QUESTIONNAIRE FOR WATER RESOURCES USERS ASSOCIATIONS (WRUAS).....	98
APPENDIX III: INTERVIEW GUIDE FOR STAKEHOLDERS.....	104

LIST OF TABLES

Table 2.1: Population Trend and Water Availability.....	11
Table 3.1: WRUAs Membership in Sub Catchment 5BE, Meru – Laikipia Counties.....	43
Table 3.2: WRUA’s Name, Membership and Sample Size.....	45
Table 3.3: Operationalization of Variables.....	49
Table 4.1: Response Rate.....	51
Table 4.2: Gender of the WRUA Members.....	52
Table 4.3: Age of the WRUA Members.....	53
Table 4.4: Education Level of the WRUA Members.....	53
Table 4.5: Presence of Water Conflict.....	54
Table 4.6: Prevalence of Water Conflict.....	55
Table 4.7: WRUAs Management’s Ability to Solve Water Conflicts.....	56
Table 4.8: WRUA Members Influence on Communities.....	57
Table 4.9: WRUA Representation in Every Zone.....	58
Table 4.10: Community Feeling on Representation in the WRUA.....	58
Table 4.11: WRUA communication Mode to the People.....	60
Table 4.12: WRUA Leadership Influence on Water Conflict Management.....	61
Table 4.13 Relationship between Leadership and Conflict Prevalence.....	65
Table 4.14: Pearson Product Moment correlation.....	65
Table 4.15: Effectiveness of the Conflict Resolution Methods.....	67
Table 4.16: Influences of Strategies by WRUA on Water Conflict management.....	68
Table 4.17: Relationship Between Conflict Management and Conflict Prevalence.....	69
Table 4.18: Pearson Product Moment correlation.....	70
Table 4.19: Training By WRUA.....	71
Table 4.20: Relevance of Training.....	72
Table 4.21: WRUAs Training and Water Conflict Resolution.....	73
Table 4.22: Respondent Training Needs.....	74
Table 4.23: Relationship between Training and Conflict Prevalence	75
Table 4.24: Pearson Product Moment correlation.....	76
Table 4.25: Culture Results in Water Conflicts.....	76
Table 4.26: Religion and Water Conflicts.....	77
Table 4.27: WRUA’s ability to Resolve Conflicts Related to Culture and Religion.....	78

LIST OF FIGURES

Figure 1: Conceptual Framework.....	40
-------------------------------------	----

ABBREVIATIONS AND ACRONYMS

ASALs	Arid and Semi Arid Lands
CBO	Community Based Organisation
CDF	Constituency Development Fund
CETRAD	Centre for Training and Integrated Research in ASAL Development
CMS	Catchment Management Strategy
DC	District Commissioner
EI	Emotional Intelligence
ENNCA	Ewaso Ngiro North Catchment Area
GoK	Government of Kenya
IWRM	Integrated Water Resources Management
LWF	Laikipia Wildlife Forum
MoU	Memorandum of Understanding
NGO	Non-Governmental Organisation
SCMP	Sub Catchment Management Plan
SHG	Self Help Group
US	United States
WAP	Water Allocation Plan
WDC	WRUA Development Cycle
WRMA	Water Resources Management Authority
WRUA	Water Resources Users Association
WSTF	Water Services Trust Fund

ABSTRACT

In almost every region of the world, Kenya included, supply of water is becoming more difficult because of increasing demands associated with industrialization, increasing urbanization, irrigation and growing population. This has led to the challenge of achieving equitable universal allocation and distribution of river water resources. Based on this, water conflicts are common in Kenya's Ewaso Ngiro North Catchment area (ENNCA) since people started settling and carrying out farming activities in the upper part of the catchment, leading to the management of the water resources through community based organisations referred to as Water Resources Users Associations (WRUAs) whose intention is to act to resolve conflicts over water. This study sought to investigate the influence of WRUAs in water conflict resolution among communities in Sub Catchment 5BE which traverses parts of Meru and Laikipia counties in ENNCA Catchment. Descriptive research was used to look at the variables that were studied, where both quantitative and qualitative approaches were adopted. Data was collected by use of questionnaires, which were administered to the target population of 559 members of the 7 WRUAs in Sub catchment 5BE. A sample size of 140 members out of 317 members from 4 randomly sampled WRUAs was drawn where a total of 116 WRUA members and 8 WRUA stakeholders responded. The data analysis was done using descriptive and inferential statistics, according to the research questions and objectives of the study. Statistical Package for Social Scientists and Microsoft Excel were used for interpretation and data presented using frequency data analysis. The results showed that 83.6% of the WRUA members indicated that indeed WRUA's management was able to resolve water conflicts, while 86.2% of the WRUA members indicated that WRUA leaders were influential in their respective communities. The computed Pearson Product Moment Correlation coefficient depicts a strong negative correlation between WRUA's conflict resolution strategies to solve conflict and conflict prevalence, strong negative correlation between WRUA's training to community in solving conflicts and conflict prevalence. This means that the strategies and approaches used in conflict management by WRUAs, are helpful in reducing water conflicts while more training on reducing water conflicts are required. 67.2% of the WRUA members indicated that culture resulted into water conflicts while 27.6% of the WRUA members indicated that culture did not result into water conflict. The study therefore concludes that the WRUA's leadership and management style, strategies and approaches used by the WRUAs trainings, culture and religion of the communities influence water conflict management. In light of the above findings, the study recommends that WRUA leaders should be trained and empowered, on conflict resolution management through negotiation, mediation, reconciliation and arbitration, without compromising their quality of leadership and on how to respect other people's culture and religion and on co-existence. This study can be of importance to policy makers in the Government in matters of planning and policy formulation regarding water conflict resolution and management.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Water is essential to sustain life in both human systems and ecosystems. In almost every region of the world, supply of water is becoming more difficult because of increasing demands associated with industrialization, increasing urbanization and growing population. According to the World Water Vision report (Cosgrove and Rijsberman , 2000) the world population has tripled in the past century and water use for human purposes has increased six-fold. In addition, climatic conditions, such as global warming, have worsened the situation.

Water is very unevenly distributed both temporally and spatially. Frequent and regular rain fall in some regions contrasts sharply with prolonged droughts in others. Some regions are blessed with an abundance of freshwater while others face scarcity (Gleick ,1993). Moreover, the freshwater resources of the world are not partitioned to match the political borders. Thus the distribution and use of limited water resource can create conflicts at local, regional, and even international level. History shows and future may confirm that water has a strategic role in conflicts among different stakeholders (Gleick , 1993).

Improved water management, conflict resolution and cooperation could ameliorate such conflicts. Water conflict resolution process has been approached by many disciplines such as law, economics, engineering, political economy, geography, anthropology, and systems theory. An excellent source of selected disciplinary approaches is presented by Wolf (2002). Traditional conflict resolution approaches such as the judicial systems, state legislatures, commissions and similar governmental instruments mostly provide resolutions in which one party gains at the expense of the other. When the river basin traverses across multiple legal, political and international boundaries, the number of potential stakeholders and their specific interests increases, making the conflict resolution process rather complicated (Wolf , 1998).

In Kenya, changes in land use and land ownership have brought about a dramatic transformation in social composition, from a simple pastoral society to a complex multi-stakeholder society, ranging from the footzones down to the Laikipia Plateau and the Samburu Plains (Kiteme and Gikonyo, 2002). This society consists of an urban population in the regional towns and trading centers, large-scale horticultural irrigators, small-scale

horticultural outgrowers (ie, small-scale farmers contracted by large-scale farmers to produce exclusively for them), agro-pastoral smallholders, large-scale ranchers, pastoralists, and international tourists. For all practical purposes, wildlife and flora also are considered stakeholders in this system (Kiteme and Gikonyo, 2002).

In view of this complex social structure and the rapidly growing population, with ensuing social, cultural, racial, economic, and political disparities, a key challenge is to achieve equitable universal allocation and distribution of river water resources. Further complications of the issue are that people perceive water as a God-given resource—with the implication that unlimited individual rights of use and ownership are an unalienable divine gift and that institutions have failed to address the problem of equitable allocation of water (Kiteme and Gikonyo, 2002).

In 2002, the Kenya's Water Act, 2002 was enacted "to provide for the management, conservation, use and control of water resources and for the acquisition and regulation of the rights to use water". In September 2007, Water Resources Management Rules were promulgated, helping to fill some of the gaps in the Act. The Act is notable in general terms for devolving the management (not supply) of Kenya's water resources to the Water Resources Management Authority (WRMA).

In pursuant to Section 14 of the Water Act 2002, the Water Resources Management Authority has delineated the country into six catchment areas, namely; Lake Victoria North Catchment Area, Lake Victoria South Catchment Area, Rift Valley Catchment Area, Athi River Catchment Area, Tana River Catchment Area, Ewaso Ng'iro North Catchment Area (ENNCA).

The drainage of ENNCA is controlled by four major independent systems one of them being the Ewaso Ngiro North river. This drains the southern part of the catchment (5AA, 5AB, 5AC, 5AD, 5BA, 5BB, 5BC, 5BD, 5D and 5BE,) in an easterly direction, from the highlands around the Mt. Kenya, Aberdare ranges and Nyambene hills. The Ewaso Ngiro North is the main river in this system and has the following tributaries: Ewaso Narok; Likiundu; Liliaba; Ngare Ndare; Ngusishi; Timau; Sirimon; Teleswani; Ontulili; Likii; Nanyuki; Rongai; Burguret; Naro Moru; Isiolo; Moyok; Ngobit; Suguroi; Pesi; Mutara (WRMA, 2008).

Water conflicts are common in the Ewaso Ngiro North Catchment area (ENNCA) since people started settling and carrying out farming activities in the upper part of the catchment.

The catchments main surface water sources (water towers) are the Mount Kenya, the Aberdare ranges and the Nyambene hills. Growth in population, increased economic activity and improved standards of living has led to increased demand for freshwater resources in semi arid regions of Kenya. Consequently, regional and local water scarcity occurs in the dry seasons. It is induced mainly by low rainfall. Low river flows, high demand for irrigation water and water pollution, and failure of water storage, delivery and distribution systems. With limited freshwater water resources, competition for, and conflicts over, the resource use are increasing with increased demand for water. The conflicts are further aggravated by high social inequity, economic marginalization and limited non- land, non-water-dependent sources of livelihood (Gichuki, 2003) This has resulted in the management of the water resources through community based organisations referred to as Water Resources Users Associations (WRUAs) in the Ewaso Ngiro North Catchment Area . The Rules define a WRUA as “an association of water users, riparian land owners, or other stakeholders who have formally and voluntarily associated for the purposes of cooperatively sharing, managing and conserving a common water resource”.

The intention of WRUAs to act to resolve conflict over water is apparent in the Water Act 2002 section 15 subsection (5) which provides specifically that “the catchment management strategy shall encourage and facilitate the establishment and operation of water resources users associations as fora for conflict resolution and co-operative management of water resources in catchment areas”. In addition, a WRUA constitution often envisages that the Association will “provide a forum to discuss, prevent and resolve water use conflicts”, as does that of Ngusishi WRUA. Without the forum there is nowhere for grievances to be aired, anger vented and feelings made known. There is then a very real risk of problems escalating into disputes and this is where the existence of a WRUA is so crucial. The most obvious conflicts it helps prevent are those, often much publicised ones, between pastoral users lower down a water course, and agricultural or horticultural extractors in the upper reaches. Being able to bring all users together, and make them more aware of each other’s problems and perspectives is one of the most vital roles of any WRUA. The very existence of a forum where problems can be discussed before escalating into disputes usually stops this from happening, and in the last resort the threat of conflict is often enough to prevent it. Although not usually concerned with internal machinations of project management, a WRUA may still help to resolve conflicts between project members, as well as between projects. It may also facilitate the entry of new members to existing projects, notwithstanding this may diminish the supply to present users.

This case applied to the WRUAs among the communities of sub catchment 5BE traversing Meru and Laikipia counties in the ENNCA catchment.

1.2 Problem Statement

Water, unlike other scarce, consumable resources, is used to fuel all facets of society, from biologies to economies to aesthetics and spiritual practice. Moreover, it fluctuates wildly in space and time, its management is usually fragmented, and it is often subject to vague, arcane, and/or contradictory legal principles (Postel 1999). There is no such thing as managing water for a single purpose—all water management is multi-objective and based on navigating competing interests. Within a nation these interests include domestic users, agriculturalists, hydropower generators, recreators, and environmentalists—any two of which are regularly at odds—and the chances of finding mutually acceptable solutions drop exponentially as more stakeholders are involved.

In view of this complex social structure and the rapidly growing population, with ensuing social, cultural, racial, economic, and political disparities, a key challenge is to achieve equitable universal allocation and distribution of river water resources. In 2002, the Kenya's Water Act, 2002 was enacted "to provide for the management, conservation, use and control of water resources and for the acquisition and regulation of the rights to use water". In September 2007, Water Resources Management Rules were promulgated, helping to fill some of the gaps in the Act. The Act is notable in general terms for devolving the management (not supply) of Kenya's water resources to the Water Resources Management Authority (WRMA). The Rules define a WRUA as "an association of water users, riparian land owners, or other stakeholders who have formally and voluntarily associated for the purposes of cooperatively sharing, managing and conserving a common water resource". The intention of WRUAs is to act to resolve conflicts over water. However, some WRUAs have been perceived as performing well in conflict prevention and resolutions as compared to others in the sub catchment 5BE of the Ewaso Ngiro North Catchment. This study therefore sought to investigate influence of WRUAs in water conflict resolution among communities in Sub Catchment 5BE which traverses parts of Meru and Laikipia counties in ENNCA Catchment.

1.3 Purpose of the Study

The purpose of the study was to determine the influence of WRUAs in conflict resolution among the communities of sub catchment 5BE of Meru and Laikipia counties in ENNCA Catchment.

1.4 Objectives of the Study

The study aimed at achieving the following objectives:-

1. To determine how WRUAs leadership and management style influences water conflict management among the communities of sub catchment 5BE.
2. To establish the extent to which WRUAs conflict management strategies influence water conflict management among the communities of sub catchment 5BE.
3. To determine the extent to which WRUA trainings influence water conflict management among the communities of sub catchment 5BE.
4. To assess the extent to which culture and religion among the communities of sub catchment 5BE influence water conflict management.

1.5 Research Questions

The study was guided by the following research questions:-

1. To what extent does WRUAs' leadership and management style influence conflict management among the communities of sub catchment 5BE?
2. How do WRUAs' conflict management strategies influence conflict management among the communities of sub catchment 5BE?
3. How do WRUAs' trainings influence conflict management among the communities of sub catchment 5BE?
4. To what extent does culture and religion of the communities influence conflict management in sub catchment 5BE?

1.6 Significance of the Study

The study empirically investigated the influence of WRUAs on conflict management whose findings provided knowledge on WRUAs' influence in conflict management. This has not been extensively investigated, the concept of WRUAs being a new phenomenon. The study can be of importance to policy makers in the Ministry of Environment, Water and Natural Resources, Water Resources Management Authority and the Government as a whole in matters of planning and policy formulation regarding water conflict resolution and

management. Once such policies are in place, they can be implemented to help and guide the communities improve in their ways and approaches of solving water conflicts for an improved and equitable sharing of the water resource. This will enhance a peaceful co-existence of the communities and foster development.

1.7 Delimitations of the Study

The study only covered the Water Resources Users Associations (WRUAs) based in sub catchment 5BE which traverses parts of Meru and Laikipia counties in Ewaso Ngiro North Catchment. It is important to note here that WRUAs do not follow the administrative boundaries and might cut across two or more districts or counties. The population was sampled to get a representative sample. The study was also delimited to specific areas of study. These are Leadership and Management Style, Conflict Management Strategies, Training/Capacity Building, Culture and Religion of the WRUAs and communities of sub catchment 5BE.

1.8 Limitations of the Study

The study involved first hand information collection from the field and this required time and resources which were limited. Experience of enumerators and cooperation of respondents was also limiting. An effort was made to set aside a fair amount of finances and permission sought in good time from the employer to overcome these challenges. Efforts were also made to recruit experienced enumerators to assist in the study. Other challenges were the unwillingness of the respondents to give information and therefore the researcher tried all ways to convince the respondents on the intended use of the findings and the likely benefits to them once the study was concluded. Similarly the study was scheduled to coincide with the days that were convenient to both the enumerators and farmers.

Geographical distances between the WRUAs and the sparse distribution of the pastoralist also posed challenges especially when the rains fell. Efforts were made to have reliable means of transport including motorbikes for the data collection exercise where and when such challenges arose. Literacy levels of the sample population are not uniform in the area of study and some respondents had challenges in filling the questionnaires. This was overcome by use of the local language, through the research assistants, who interpreted every question when the need arose.

1.9 Assumptions of the Study

The study assumed that the communities carried equal importance of water use in different parts of sub-catchment 5BE and trainings and capacity building of the WRUAs were equally spread out. The researcher also made the assumption that the respondents would be available and answer the questions to the best of their knowledge.

1.10 Definition of Significant Terms

Conflict Management	This refers to prevention of water conflicts and settlement of water conflicts between the water users communities.
Conflict Resolution Strategies	This refers to the approaches being used in prevention and settlement of water conflict among different users of surface water.
Culture	This refers to the way of life of different communities using surface water for either farming or pastoralist.
Leadership and Management	This refers to the qualifications exposure and experience of WRUA management.
Training	This refers to capacity building workshops conducted by WRUAs and the Water Resources Management Authority.
WRUAs	Refers to an association of water users, riparian land owners or other stakeholders who have formally and voluntarily associated for the purpose of cooperatively sharing, managing and conserving a common water resource.

1.11 Organization of the Study

The study is organized in five chapters, with chapter one containing the introduction of the study. It gives background of the study, statement of the problem, objectives of the study with both the purpose and specific objectives of the study, research questions, significance of the study, limitations of the study, delimitations of the study, basic assumption of the study and definition of key terms. Chapter two reviews the literature based on the objectives of the study and further looks at the conceptual framework and describes the research gaps. Chapter three covers the research methodology, describes the research design, target population, sampling procedure, tools and techniques of data collection, pre-testing, operational definition of variables, methods of data analysis and ethical considerations. Chapter Four

describes data analysis, presentation and interpretation. The chapter reports on the main results obtained from analysis of data, interpretation and presentation of results. The presentation was done using tables, percentages, frequencies and a brief explanation. Chapter Five presents a summary of findings, discussions, conclusions and recommendations based on the stipulated objectives in a bid to answer the research questions.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents literature that was reviewed relating to the study. Research articles and studies related to general conflict resolution and in particular water conflict resolution are discussed from a global, continental and local perspective. Particular emphasis has been laid on water and conflict, interstate river conflicts and compacts, the setting up and legal structure of WRUAs plus their funding. The WRUAs membership, management and the activities of WRUAs is also addressed and also how they interact with other organisations especially WRMA and their roles in water permitting. The role of WRUAs in conflict resolution and the strategies used, either from a cultural or economic aspect. Leadership and management in conflict resolution is also reviewed as documented by some scholars.

2.2 Water and Conflict

Postel (1999) describes the roots of the problem: Water, unlike other scarce, consumable resources, is used to fuel all facets of society, from biologies to economies to aesthetics and spiritual practice. Moreover, it fluctuates wildly in space and time, its management is usually fragmented, and it is often subject to vague, arcane, and/or contradictory legal principles. There is no such thing as managing water for a single purpose—all water management is multi-objective and based on navigating competing interests. Within a nation these interests include domestic users, agriculturalists, hydropower generators, recreators, and environmentalists—any two of which are regularly at odds—and the chances of finding mutually acceptable solutions drop exponentially as more stakeholders are involved. Add international boundaries, and the chances decrease exponentially yet again. Surface and groundwater that cross international boundaries present increased challenges to regional stability because hydrologic needs can often be overwhelmed by political considerations. While the potential for paralyzing disputes is especially high in these basins, history shows that water can catalyze dialogue and cooperation, even between especially contentious riparian. There are 263 rivers around the world that cross the boundaries of two or more nations, and untold number of international groundwater aquifers. The catchment areas that contribute to these rivers comprise approximately 47% of the land surface of the earth, include 40% of the world's population, and contribute almost 80% of freshwater flow (Wolf et al. 1999).

Forty of these international river basins are in Asia and the Middle East, and their basins comprise 65% of the regions' land surface. Most of these rivers are shared by two to four countries, although some are shared by many more: Nile (10 countries), Ganges-Brahmaputra, Mekong and Tarim. Within each international basin, demands from environmental, domestic, and economic users increase annually, while the amount of freshwater in the world remains roughly the same as it has been throughout history. Given the scope of the problems and the resources available to address them, avoiding water conflict is vital. Conflict is expensive, disruptive, and interferes with efforts to relieve human suffering, reduce environmental degradation, and achieve economic growth. Developing the capacity to monitor, predict, and pre-empt trans-boundary water conflicts, particularly in developing countries, is key to promoting human and environmental security in international river basins, regardless of the scale at which they occur.

Conflicts are the visible registers of underlying differences as noted by McCall (2001). They can be defined also as disagreements on the course of action to be taken (Mostert, 1998). Globally, while the underlying water related conflicts can be based on several reasons such as power struggles and competing development interests, all water disputes can be attributed to quantity, quality and timing (Aaron et al, 2005) Competing claims for a limited quantity of water can cause tensions when allocations increases when the resource is scarce. However, even where pressure on the resource is limited, its allocation to different uses and users can be highly contested. On the quality scenario, where low quality is the issue whether caused by pollution from pesticides, or excessive levels of salt, nutrients, or suspended solids, makes water inappropriate for drinking, industry, and agriculture hence becoming a source of dispute between those who cause it and those affected by it. The timing, of water flow is important to avoid downstream and upstream conflicts. Upstream users for example, might release water from reservoirs in the winter for hydropower production while, downstream users might need it for irrigation in the summer. In addition, water flow patterns are crucial to maintaining freshwater ecosystems that depend on seasonal flooding.

Rainfall patterns in Kenya are extremely variable not only spatially and temporally but also in rainfall intensities. Rainfall may vary between +35% to – 70% from the mean while rainfall intensities may be as high as 200 mm per hour over short time periods (15 minutes). This makes the natural flow of water in the watercourses highly variable in space and in time. The growing population increases the demand for water for domestic use, food security and

hydropower to the point where the needs are outstripping supply. This makes orderly economic and socio economic development, which depend on reliable water resources more difficult to achieve. Kenya, with a current population of 38 million and a projected population of 43 million by 2015 faces enormous challenges in the management of its complex, but limited water resources (Ministry of Water & Irrigation, 2010). Kenya is classified as a chronically water scarce country with an annual renewable fresh water supply of only 647 cubic metres per capita (Ministry of Water & Irrigation, 2002).

Table 2.1: Population Trend and Water Availability

The table below shows the population trends and water availability per capita in Kenya.

YEAR	POPULATION	PER CAPITA WATER AVAILABILITY M3/ YR
1969	10,942,705*	1853
1979	15,327,061*	1320
1989	21,448,774*	942
1999	28,686,607*	705
2010	40,311,794**	503
2020	56,481,427**	359

Department of Water Development (2002)

*GOK census

**1992 Master Plan Projections

Due to the scarcity, variation in space and time, cross boundary sharing and various competing interests in water use and, water conflicts are bound to occur among the various users.

2.2.1 Interstate River conflicts and Compacts

In the early 1900s in the US, conflict among water users spilled across the borders of western States. States and water users turned to courts to settle the interstate conflicts, but often came away dissatisfied with the outcomes, prompting water users and state water officials to search for regional solutions apart from courts. Additional pressure to settle interstate water conflicts came from the federal government after the passage of the Reclamation Act of 1902. The Bureau of Reclamation conditioned the construction of large scale surface water projects on states settling their cross boundary water conflicts. Eventually state water officials, with the support of water users, turned to compacts. Interstate compacts are constitutionally authorized agreements used by states to reduce conflict and promote cooperation over a wide range of issues, including taxation, pollution, and the allocation of resources (Bowman, 2004; Zimmerman, 2002). Compacts operate as self-governing institutional arrangements, akin to treaties.

Interstate river compacts, which are most frequently used in the western United States, specify water allocation rules and in many cases establish a governing structure through which state representatives administer compact requirements. Early-twentieth-century advocates of interstate river compacts, such as Delph Carpenter, a principal designer of several compacts, such as the 1922 Colorado River Compact, viewed these arrangements as a superior method of resolving water conflicts among states compared to federal courts. Rather than engaging in lengthy court proceedings that often excluded relevant water users, Mr. Carpenter argued that states, on behalf of their citizens, should negotiate equitable water allocations to provide greater certainty and security for all water rights holders in a basin (Carpenter, 1925). In addition, a governing structure would provide states regular opportunities to meet and discuss mutual water problems, develop regulations to administer compact terms and conditions, monitor water use, and settle conflicts. These expectations are reflected in the governing structures and terms established under the compacts. Most compacts provide for a governing body which is to meet annually and which has the authority to administer the terms of the compact, investigate various water issues as they arise, and monitor water allocations and diversions. Thus, states' officials expected that compacts would allow them to jointly provide for the efficient use and equitable apportionment of the water from shared rivers while promoting "interstate comity."

2.2.2 The Performance of Interstate River Compacts

Florestano (1994), in reviewing the literature on interstate compacts, noted that after 1970 public policy and political science scholars largely ignored compacts. The sparse contemporary literature that does exist primarily focuses on the conditions and factors that affect whether and what type of compact states are likely to join (Bowman, 2004; Bowman & Woods, 2008); why some efforts at compacting have failed, such as low-level radioactive waste compacts (Weissert & Hill, 1994); and the place of compacts in a federal system (Zimmerman, 2002). But for an economic analysis of how compact water allocation rules allocate the risk of water shortages and a handful of dissertations devoted to single compacts, there are no empirical evaluations of the performance of interstate river compacts (Bennett & Howe, 1998; Featherstone, 1999; Hill, 1992; Knox, 2004). A small body of legal scholarship, critically examined the capacity of compacts to manage interstate river basins. These scholars argue that interstate river compacts are inflexible and rigid, unable to respond to new challenges, such as endangered species, intensive groundwater pumping, or water quality issues (Giardot, 1989; Grant, 2003; Hasday, 1997; Muys, 2004; Sherk, 2005). Such claims rest on a single case or two, none are based on a comparative analysis of multiple compacts. The literature on interstate compacts has not attended to whether compact governments are capable of addressing and resolving conflicts.

Many scholars in the environmental problem-solving literature view partnerships and collaboratives as effective, in part because the use of unanimity rules slows down the decision-making process, requiring extensive deliberation and consideration of all viewpoints. Over time as people interact and learn of one another's values and preferences, they devise solutions that better match the situation. Thus, unanimity is valued not just because it produces high-quality decisions, but also because of the process it engenders. As has been widely noted in evaluations of partnerships and collaboratives, participants tend to be very satisfied with decisions, they view the decision process as fair, they build trust in one another, and they are more willing to work together with their fellow participants in future endeavors (Gaenslen, 1996; Leach, Pelkey, & Sabatier, 2002; Leach & Sabatier, 2006). Other scholars, however, point out that unanimity rules make decisions more difficult to reach (Gaenslen, 1996; Miller, 1985). The institutional rational choice literature has long acknowledged this challenge. A unanimity rule provides each participant in a collective choice process with a veto over decisions, allowing each actor to protect its interests and avoid exploitation by a majority, but at the price of very high decision-making costs

(Buchanan & Tullock, 1962). Game theorists, therefore, treat compacts as “joint decision traps” because of the use of unanimity decision rules that allow a single member to veto any action (Scharpf, 1997). As more decision makers in an institutional setting have veto power, the more difficult it is to change the status quo (Tsebelis, 1992). In other words, members of an interstate compact are unlikely to resolve a crisis because a mutually agreed upon solution will not be devised. As Scharpf (1997, p. 145) explains in relation to unanimity rules, in multilateral negotiations, rational self-interested actors would begin by proposing solutions favoring their own interests, and any communication among them would also be suspected of being self-serving and disingenuous. To work out a mutually acceptable solution under these conditions would be extremely difficult indeed.

According to some scholars, the challenges imposed by unanimity decision rules will ultimately result in inferior policy choices compared to other decision rules (Gregory, McDaniels, & Fields, 2001). Since each participant has an effective veto the only alternative that may gain unanimous consent is the one that represents the lowest common denominator (Coglianese, 1997, 1999). Gregory et al. (2001) extend the critique beyond “shallow outcomes” to include process. They argue that consensus based processes may be designed to ease the burden of achieving unanimity by selecting issues more amenable to resolution, ignoring more intractable issues, selecting participants based on their ability to work cooperatively, limiting the range of interests, and suppressing views held by a minority of participants rather than fully vetting them (Gregory et al., 2001, pp. 416–19).

In sum, while recent literatures on collaborative, or inter-jurisdictional institutions suggests that such institutions are well-suited to highly conflictual settings (Lubell et al., 2006), the literatures on institutional choice, compacts, and regional governments indicates that the capacity of these institutions to resolve conflicts is more limited. These limitations, at least in theory, result from unanimity decision rules, which compacts and other inter-jurisdictional agreements commonly use, as well as the incompatibility between the interstate or collaborative institutional agreement and the rules or policies of the members of those agreements. These overarching institutional design features, as well as the way these features play out in a water management context, highlight the types of conditions under which compacts would be expected to address conflicts. Specifically, those conditions where compacts are likely to address conflicts, according to the literature, include those that do not involve distributional issues, pit upstream interests against downstream interests, involve

multiple underlying issues, or invoke differences between states laws and compact commitments. This study investigated the influence of WRUAs, which are set up along similar principles as compacts, in conflict resolution in a sub catchment 5 BE in Meru-Laikipia counties in Kenya. Water compacts strategies in conflict resolution are some of the aspects that were considered and how the WRUAs are borrowing or can imitate such similar strategies to solve and mitigate water conflicts in their sub catchments.

2.3 The legal structure of WRUAs

The Act is silent as to how WRUAs should be structured. This leaves them to be set up outside it, probably deliberately, thereby enabling WRUAs to act as checks on the performance of WRMA (Watson 2007). It effectively encourages ownership of the association by its members, who are united in their interest of conserving a natural resource; and it also renders WRUA management free from official interference and control, at least by the water authorities. The Rules define a WRUA as “an association of water users, riparian land owners, or other stakeholders who have formally and voluntarily associated for the purposes of cooperatively sharing, managing and conserving a common water resource” (Watson, 2007). Rule 10 covers the registration of WRUAs with WRMA and certainly clarifies some of the uncertainties existing as a result of the scanty reference to them in the Act. However it says little more about the preferred entity of a WRUA other than to prescribe that “for a WRUA to be considered for registration by the Authority, it should be legally registered, have a constitution ...”. “Legally registered entity” is itself defined in the Rules as “an organisation, corporate body or person that has legal status”.

The role of WRUAs has been further developed in the Water Resource Management Rules. Notable among the WRM Rules are that a WRUA must be a legally registered entity in order to be recognized as a WRUA by WRMA which implies that the WRUA must seek legal registration from the Registrar of Societies or as a Trust; a WRMA recognized WRUA will be listed in an official WRUA Register which implies that there will be a formal element to the selection of a WRUA for a specific water body or part of a water body; WRUAs can enter into an MOU with WRMA to further elaborate roles, responsibilities and working arrangements for collaborative management which provides a wide range of possibilities in which the WRUA can be involved in activities such as monitoring water resources and abstraction, collection of water use charges, etc. If a WRUA fails to honour an MOU, then it may be struck off from the WRMA register. The WRUA will still be registered by the

Register of Societies but it will no longer be able to interact with the WRMA (WRMA, WSTF, 2008).

In making provision for community participation in forest management, section 46(1) of the Forests Act of 2005 is quite specific in that this should be achieved first by the registration of “a community forest association under the Societies Act” (Kenya. 2010). The assumption may be that, given the use of the word “association” in both Act and Rules, this is the preferred entity for a WRUA as well, and whether or not for this reason, this is in practice probably the case (Watson, 2007). Unfortunately Associations are not easy to set up. A combination of the need for a lengthy constitution, bureaucratic paranoia in the Registry of Societies and a formation time often measured in years rather than months makes their establishment expensive in terms of time, energy and money (Watson 2007). Sometimes a lawyer’s services are enlisted, although now that a good model constitution has been developed some WRUAs have managed the formation process on their own. Once established, there are still annual returns to submit to the Registrar of Societies, as well as accounts to present to members at statutory meetings.

WRUAs often start life as Self-Help Groups or Community Based Organisations (CBO) registered with the Department of Social Services (Watson, 2007). CBOs are easily established and very little documentation needs submitting before a registration certificate is issued, which itself is enough to facilitate opening a bank account. WRMA in Nanyuki accepts CBOs as WRUAs and indeed some WRUAs seem reluctant to tackle the next step of association formation. However, Associations have stronger legal standing, backed up by the detailed provisions of the Societies Act; they also have a better structured system of governance and membership and so prove more acceptable receptacles for donor funds (Watson 2007). There is therefore much to be said for making the considerable effort required to “upgrade” from CBO to Association. Being private entities, Trusts are far easier to establish than Associations, and may be appropriate entities for those WRUAs with few defined users. However, there are some caveats to using them as WRUAs. They are less suitable as membership organisations, representation usually coming through the right to elect a trustee to the board; and whether or not they are acceptable as WRUAs to WRMA has yet to be tested. Being privately established, it might be argued that they were not “legally registered”, even after registration of the actual trust deed at the Lands Registry under the Registration of Documents Act. Trusts are, to some extent, victims of their own simplicity in

that being privately established, they lack the gravitas of an entity like a company or society that has obtained formal government approval to its establishment through the appropriate registry. A Trust might be more suitable if, for example, a group of WRUAs required an umbrella organisation to help them speak in various fora with a louder voice (Watson, 2007). This study explored the influence of WRUAs in water conflict resolution given the existing legal framework.

2.3.1 Setting up WRUAs

The upper reaches of many of the rivers round the northern slopes of Mt Kenya are tapped by large commercial flower farms. With relative wealth, an office infrastructure, transport and some worldliness, one of these often drives both the formation of a WRUA, and its continuing administration. This is generally a benefit, although cultural differences may mean the pre-formation sensitisation process is unduly hastened, and the association is born with insufficient consultation of those who will ultimately be expected to join, manage and contribute to it (Watson, 2007). Similarly, cultural differences may manifest themselves in the conduct of meetings and other association activities. These differences might certainly be less apparent if WRUA management was in the hands of indigenous Kenyans, but generally they are far outweighed by the advantages of different cultural groups each bringing contrasting strengths to the table (Watson, 2007).

The Sub-Regions are the main areas for coordinating implementation of water resources management on the ground. Currently there are 26 sub-regions countrywide established by WRMA to ensure effectiveness in implementation of activities on the ground. At this level, actions are executed through the participation of the stakeholders and the beneficiaries who are institutionalised through Water Resources Users Associations (WRUAs) in accordance with the Water Act 2002 (WRMA, 2008). The decision to base the stakeholder participation in the WRUA derives from : - WRUAs established in the late 1990's in the Mt. Kenya region have demonstrated that certain water resource problems and conflicts can be mitigated through collective pro-active engagement by WRUAs in the water resource issues; Kenya has a strong socio-cultural background in which collective management of the natural resources and social norms were defined within a community setting; Weak statutory controls create a "governance gap" in which the common interests may not be served, requiring local governance structures to fill the "governance gap"; Common and collective action by stakeholders can provide a strong lobby which can be used to leverage government services,

support and to influence the allocation and use of water resources for the common interests; Local patterns of settlement, use of communal land (e.g. forests, rangelands, etc) and water use behaviour require a “bottom-up” community based approach if sustainable improvements to water resources are to be realized (WRMA, WSTF, 2008).

The Catchment Management Strategy (CMS) is a document that sets out the approach and priorities as agreed between stakeholders to improve water resource availability within the catchment area. Local level activities must be consistent with approaches set out in the CMS. The CMS provides a framework through which all stakeholders can collaborate for the better management of the water resources (WRMA, 2008). For the case of a river water resource, it is recommended that WRUA be formed at the sub-catchment level. Due to the complexity of the drainage system it is recognised that this is an area where guidance and consultation is required. An activity should be carried out where the sub-catchments are analysed with a view of defining boundaries on which the WRUA are based.

In those situations where the geographical extent of the WRUA is very large it is recommended that it be zoned to improve the efficiency and effectiveness of the association rather than splitting it up. Each sub-catchment is different and may face different problems and local level stakeholders may have different priorities. The SCMP is therefore an agreed plan of activities aimed at solving the problems. The SCMP may evolve as new information becomes available and as new problems emerge. Like the CMS, the SCMP provides a framework through which various stakeholders can collaborate towards improving the water resources in a particular catchment. The WRUA provides a suitable vehicle around which to mobilize and coordinate the participation of water users in water resource management. Although there is not a long history of WRUAs in Kenya, the experience to date indicates that WRUAs, if properly encouraged, can provide a significant contribution where other institutions might struggle to achieve the same impacts. The participation of WRUAs is not just about consultation, but is about stakeholder participation in WRM (WRMA, WSTF 2008).

In Kenya, the community based institution, known as the Water Resource Users Association (WRUAs) is a relatively new arrangement. The earliest formal WRUAs developed in the north and western parts of Mt. Kenya area in 1996/97 in response to competition and conflicts over scarce water resources. Experience from this area indicates that WRUAs can

work and make a positive impact on water resource management. A WRUA is an association of water resource users intended to enhance management of water resources and resolve related conflicts. The WRUAs are established progressively on demand and depending on the severity of water resources issues on the ground. Currently the WRUAs have been recognised in the water sector as the main avenue for addressing water resources issues and challenges on the ground (WRMA, 2012). The functions executed by WRUAs are guided by the Sub-Catchment Management Plans (SCMPs) which are developed participatorily with the involvement of stakeholders from the public and private sectors as well as civil society organizations. The process involves identifying the real water resources issues on the ground through field visits. From the issues so identified, actions are proposed complete with budgets thus making the plan readily implementable and owned by the stakeholders as well as the beneficiaries. To ensure consistency with the National policy, the SCMPs are developed in line with the CMS of the particular region which is also based on the NWRMS. The actions proposed in the SCMPs are used to develop proposals which are used to solicit for funds competitively for their implementation. The mainstream funding institution for SCMPs is the WSTF through the WRUA Development Cycle (WDC) window. Others are NGOs, development partners as well public and private sector institutions (WRMA, 2012).

The key features of this definition are:- membership to the WRUA is voluntary; The WRUA is a membership organization, not a service organization, and therefore is empowered through the participation of its membership; eligibility for membership derives from one's relationship to a common water resource, either as a water user or as a riparian land owner; The water resource user association as recognized in the Water Act 2002 represent community-based organizations that come together around specified water resources for cooperative management and conflict resolution. This could be formed around a lake water resource, a defined ground water aquifer, a spring or a river. Water users include farmers, domestic users, water projects, water service providers, commercial water users, industrialist and the like. The membership of the WRUA is based on voluntary agreement between members (WRMA, WSTF 2008).

The Water Resource User Association is a model for community-based participation in water resource management. The model is based on the following premise that the water resource users, being the principle beneficiary or direct stakeholder of the water resources, should be integrally involved in the management of the water resources; since their livelihood is at

stake, the water resource users can be mobilized to undertake water resource management activities that serve their best interests (e.g. surveillance on illegal or harmful activities, adoption of best land use practices, catchments management activities, verification of local information, etc); it is more efficient (with respect to the WRMA) for the WRUA to mobilize the water users to solve problems at the grassroots level. Generally, the formation of WRUAs is an important component in development of the WAP, as it will provide a framework through which the WAP can be effectively implemented and provide an avenue for community participation, which is important for sustainability of the WAP. However, it has to be noted that the effectiveness of a WRUA in water resource management is directly proportional to the effort put into the WRUA and this is dependent on the inherent problems in that particular water resource (WRMA,WSTF 2008).

At the outset, a prospective WRUA may comprise no more than a few interested individuals determined to band together for the better management of their resource. Even if the group gets no further than this, failing to achieve formal recognition or registration, many of its objectives may still have been achieved. Arguably, the process of establishing a WRUA is just as important as the end result, and going through this will give users the opportunity to meet and respect the views of each other, and hopefully unite them in a common goal (Watson, 2007). The enthusiasm with which users embrace the idea of a WRUA varies enormously (Watson 2007). Some river systems, like the Likii, have experienced no real water shortages and so far no dispute over the resource's allocation. The river is generally a high altitude one, which passes through no pastoral country, and selling the idea of a WRUA as an entity to better manage the resource, and to prevent possible future conflicts, has not been easy. In contrast, the Burguret, like the Ngare Nything, services flower farmers, domestic consumers, livestock and wildlife interests. The formation of its WRUA was driven by a very real danger of conflict as users in the lower reaches towards Ol Pejeta began edging upstream in response to a disappearing river.

Generally, upstream users are harder to convince of the benefits of an association, as they enjoy the privileged position of never experiencing water shortages. Once members of a WRUA, they may still be difficult to persuade to share the burden of rationing when this is necessary. There is also no doubt that attendance at WRUA meetings is far higher when water is scarce. However some WRUAs do not help in solving and preventing conflict. This

study, therefore, assessed the influence of WRUAs in water conflict resolution through bringing together the various water users.

2.3.2 Funding of WRUAs

Two basic issues dominate the funding of any WRUA; how much does it need – which depends generally on its ambitions - and how is going to raise this. All WRUAs levy a joining fee, and then an annual membership fee, which varies according to membership category. Several WRUAs would like to charge for water where meters can monitor consumption, especially when it is extracted by big gravity fed off-takes rather than by smaller consumers with portable pumps. In practice, many large farms already make additional contributions in cash or kind (e.g. provision of office infrastructure or transport to meetings), in order to help the WRUA function effectively, and community consumers may contribute time and labour. If the majority of the funds to run a WRUA are provided by one or two rich farmers, there is inevitably a risk of these starting to wield a disproportionate degree of power and influence in the WRUA's affairs. More democratic contributions are therefore preferable, but this may not always be practical (Watson 2007). Most organisations need finances to operate and undertake activities and WRUAs are no exception. In addition, WRUAs, like other organisations, need to develop proper financial systems which include bank accounts, asset registers, budgets and expenditure statements, audits, procurement systems and financial reporting to the membership.

With respect to raising funds, various options are open to WRUAs, which include: - Internal which include membership registration fee and annual subscriptions, voluntary contributions, payment for services rendered by the WRUA; Water Resource Management Authority which might support WRUAs directly or indirectly depending on need, priority of the intended activity, and confidence in the WRUA to implement the activity. These activities may include capacity building activities, planning workshops, riparian demarcation, catchment protection, designs and proposal development for larger water resource infrastructure (dams, flood protection, etc); Water Services Trust Fund (WSTF) in which the option for WRUAs to be able to submit proposals, vetted by WRMA, to WSTF for support has been developed; Constituency Development Fund through CDF committee; Community Development Trust Fund in which two programmes, namely, community development programme and community environment facility both of which have a water and sanitation component are present. WRUAs can apply through CDTF application forms available through the respective

district development officers. Another source of funding is through proposal writing to NGOs with interest in water and sanitation.

Although there are options for fund raising, the value of internal resource mobilisation is frequently overlooked. The experience from the Mt. Kenya WRUAs indicates that WRUAs may be able to operate up to a point based on voluntary contributions by members. (WRMA, WSTF, 2008). Extra cash contributions are particularly required for WRUAs employing full-time project officers, as, for example do the Likii, Burguret and Ngusishi. Otherwise the function of a project officer may be fulfilled, in part at least, by a farm or NGO community liaison officer, as it is on Ngare Nything by Kisima and Lewa Wildlife Conservancy. Additional donor funding may be obtained for one-off projects such as weir construction or the installation of reticulation systems, and Laikipia Wildlife Forum has a substantial grant from EU, part of which is designated for the support of WRUAs. However, core office support is dependent on subscriptions and such other income as the WRUA can raise. Several WRUAs are contemplating stocking their waters with trout to attract sport fishermen, who may even stay in WRUA facilities or use its appointed guides. Others are hoping additional revenue will come from commercial tree nurseries or bee-keeping projects (Watson, 2007).

Being mandated through the catchment management strategy to “encourage and facilitate the establishment and operation of WRUAs”, WRMA could easily divert some of any money it ultimately raises from water charges back to help the formation of new WRUAs or to fund existing ones. It would certainly be good for consumers who pay for water to see some of their money being recycled back into the system. The Water Services Trust Fund is established under Section 83 of the Water Act. Initially confined to funding water supply, WSTF is now permitted to fund water resource management and WRUAs could also apply to it for finance. While having an assured income is clearly a comfort, there is a danger of it creating expectations among the WRUA committee members of sitting, transport and other allowances, to such an extent that some WRUAs report prospective committee members refusing to take their seats if these are not provided – potential problems for any locally based organisation, not just WRUAs (Watson, 2007). From the foregoing enumerations, funding of WRUAs was an essential component in this study as it has a bearing on how the WRUAs operate, carry out their activities, functions and mandates and finally mitigate in water conflicts resolution.

2.3.3 Membership and Management of WRUAs

Membership and management of WRUAs is detailed in their constitution, the contents of which are largely governed by their legal status. The constitution of an Association, registered under the Societies Act, is often based upon the specimen provided by the Registrar, as modified to suit individual requirements. More detailed management provisions may be contained in bye-laws made subsidiary to the constitution (Watson, 2007). The potentially complex issue of WRUA membership seems efficiently managed by the creation of different categories of membership, this ensuring that all water users are represented, either directly or indirectly, on the Association. Riparian landowners are all usually entitled to membership, while community water projects with their own off-take either elect one or more representatives to membership of the Association or automatically nominate one or two of their office-bearers. The responsibilities of membership of the WRUA often take time to absorb, and project representatives may be lax in reporting back decisions made at meetings, as well as the rationale behind them, to their project members (Watson, 2007).

Large-scale users like flower farms or Nanyuki Water & Sewage Co Ltd are represented on their Association as individual or commercial members, and pay a higher membership fee; abstractors with portable pumps may also qualify for such membership. To ease administration some associations also divide their river into geophysical sections, perhaps three, upper, middle and lower, or in the case of the Burguret into five; and each of these sections may have the right to elect an Area Member. Finally, to help distinguish between primary and secondary stakeholders, there may be an Observer Member category for those who are not water users but have an interest in the activities of the WRUA and the conservation of the resource it manages. Drawing from the experiences of the functional WRUAs in the region west of Mount Kenya it is proposed that membership of a WRUA should comprise of four categories, which are riparian member, where a riparian land owner (i.e. the land adjoins the river course) is entitled to membership of the Association as a riparian member, even if the member does not abstract water directly from the water body. A riparian owner is entitled to one membership only, regardless of the size or number of riparian plots that he/she owns. Riparian membership in no way entitles the member to river water abstraction; abstractor member who is a person, scheme, project who abstracts water from the water body and who should normally have a permit to support his/her/its abstraction. This type of member may be further sub-divided to reflect the different types of abstractors to include:-water projects or schemes – primarily for domestic water but serving

many households; individuals – primarily for domestic water; irrigation abstractors; industrial abstractors – primarily for industrial purposes; livestock production abstractors and other commercial type abstractors. Other categories are non-consumptive member who is a person, enterprise or other legally registered entity, who uses the water body as part of his/her/its business or livelihood, but who does not abstract from the water body. A fishing cooperative serves as an example; observer member who is in a non-voting category. This membership is open to any individual, organisation, or government department who wish to participate in the activities of the Association. Technical advisers and/or government officials who are requested by the Association to serve in the interests of the Association shall be categorised as Observer Members. (WRMA, WSTF, 2008)

Management of the WRUA devolves upon an executive committee, usually made up of the Association's office bearers, and also perhaps of others either from different sections of the river, or varying interest groups. The frequency of both committee and general members' meetings varies, but members seem to meet on average about once a quarter, with the committee meetings being called in response to specific problems. One of the members' meetings will be the Annual General Meeting. Meetings of the Ngare Nything WRUA are hosted by different members in rotation, enabling members to experience a different part of the river, and the problems associated with it, each time; there is also a social dimension to these meetings, with food provided afterwards. Any WRUA would be far better run if it could afford to employ an executive officer responsible to the executive committee. However on top of the salary are transport costs, office space and general infrastructural back-up, and this ratchets up the WRUA's financial requirements dramatically (Watson, 2007). This study also took into consideration the membership of WRUAs as this was expected to influence water conflicts resolution, in that an all inclusive WRUA membership of all the water users will help arrive at a fairly acceptable and binding decision to all.

2.3.4 The Objectives and Mandate of WRUAs

The objectives of a WRUA are set out in its constitution; those of the Ngusishi Water Users Association are typical as outlined by Watson (2007) as:- promote legal water abstraction from the Ngusishi river; to promote efficient and proper water use of water abstracted from the Ngusishi river; to promote sustainable water use, water management and water development in the Ngusishi river; to promote soil and water conservation practices within Ngusishi catchment area, to promote conservation of water quality of Ngusishi river; to

promote a situation in which the available river flow is reasonably shared between the environment, wildlife and all the communities relying on Ngusishi river, in a manner that recognizes the following priority ranking of water use:- domestic, livestock, environment, wildlife, fisheries, irrigation, recreation, manufacturing industry. The Ngusishi WRUA also provides a forum to discuss, prevent and resolve water use conflicts, promote dialogue between water users and GoK in regard to water policy and enforcement of the Water Act in respect of activities relating to Ngusishi river and to promote a situation in which all modifications to existing river abstractions and all new river abstractions must be approved by the Association before being considered by the relevant water boards. The partitioning of water between users is achieved in a number of ways, including metering, diverting flow through reticulation systems and rationing. The piped off-take from a river is often divided into projects, each of which manages the further sub distribution of its own off-take. Universally, since the inception of any WRUA there has been far less need for rationing, rather the water being turned off for the odd days at a time after due consultation with affected users. The mandate of any particular WRUA ends when its river joins another of a different name below the confluence, so that of the Likii WRUA stops when the river enters the Nanyuki just below the town, and the Nanyuki's stops where it joins the Ewaso Nyiro (Watson, 2007).

It may be expected practice that at the end of any WRUA's area of influence a 30% minimum flow remains in the river but the definition of "reserve" in the Act and in the Rules is much more flexible. According to Watson (2007), other than managing their water resource, WRUAs fulfill their mandate to act "as fora for conflict resolution and co-operative management of water resources" in many other, often very innovative, ways, including by:- acting as bridging organization between users and WRMA; undertaking water abstraction surveys; creating awareness among users of their differing circumstances; creating upstream water storage facilities to help augment flow in droughts; excavating 90 day storage water pans; advising and training on rain water harvesting and water conservation; holding open / field days for members who may visit other WRUAs, other users on the same river or demonstration projects in the area; creating demonstration small farm projects showing best use of water through drip irrigation and other water-saving projects (Ngusishi); drip irrigation training projects (Burguret); diverting water from the main stream to allow clothes washing and animals to be watered away from the main river; building footbridges; rehabilitating old dams and boreholes, and making borehole water more widely available, not least by getting

borehole owners to share with others; running tree nurseries on both river and zonal levels (Burguret); dealing with pollution or effluent discharges (Nanyuki WRUA has particular difficulties with discharge from NAWASCO); solving problems generally (although users may expect too much of their WRUA, being fully prepared to bring problems to the table, but less willing to help resolve them; enforce rules relating to cultivation or tree cutting close to the banks (Nanyuki WRUA is bringing a court case with support of WRMA),rehabilitating banksides; stopping sand and stone collection (Nanyuki); monitoring water quality and quantity and broadening their remit into wider catchment rehabilitation and income generation within that area (e g honey projects). Many of these activities go well beyond the minimum expected of any WRUA and will play a very important role in generating goodwill among water users, and so hopefully encouraging them to join their local association. The Rules now cover a wide range of matters ancillary to water management, including conservation of riparian and catchment areas, permitted activities on riparian land, effluent discharge and fishery management. WRUAs could go a long way towards familiarising communities and water users with these provisions which are all geared towards proper management and equitable sharing of the water resources and in resolving conflicts.

2.3.5 Interaction of WRUAs with WRMA

While the fact of WRUAs being set up outside the Water Act makes them fully autonomous, operating beyond any influence of WRMA can make for an awkward relationship between the two. While WRMA suggests that its duty is to provide an enabling environment for the establishment of WRUAs, it may use the eventual autonomy of a WRUA as an excuse to deny it assistance. On watercourses where there is no WRUA, WRMA may convene meetings of local users, both legal and illegal, using the Provincial Administration as the entry point to the relevant community (Watson, 2007). The implementation of actions on the ground is crucial for success of IWRM which is measured by benefits and impacts on the target groups. To implement IWRM on the ground, one needs a functional WRUA and adequate resources in order to execute the prescribed activities effectively (WRMA, 2008). Once established, a WRUA can be registered with WRMA. Rule 10(6) provides the procedure for registration by completion and submission of Form 18, and Rule 10(5) requires WRMA to maintain a register of WRUAs. There are also provisions enabling WRMA to cancel registration, although not of course to disband the WRUA.

The expectations of a WRUA from WRMA's perspective may be set out in the Memorandum of Understanding which both are empowered to enter into by Rule 10(7); which include:- awareness creation, acting as a bridge between WRMA and water projects; installing measuring devices; ensuring a given water reserve at all times; starting tree nurseries and with assistance from WRMA, disseminate rainwater harvesting techniques, collect revenue, manage projects and water resources. The WRUA also supplies WRMA with details of its river, catchment area, legal registration, bank account and other relevant information. In furtherance of a two-way relationship WRMA agrees in the Memorandum to send representatives to WRUA meetings, conduct abstraction surveys, monitor water quality and generally assist the WRUA in revenue collection, proposal writing, project management and water resource management. However, the potential for WRUAs to help educate water users and introduce them to the new regime cannot be over-emphasised. The way the WRUAs interact and work with WRMA, which is the body mandated by the government as the lead agency in water resources management, have a bearing in the way the WRUAs influence water conflict resolution, which this study assessed in details.

2.3.6 WRUAs and Water permitting

One of the consequences of devolution is that water permits are now issued by Catchment Area offices, rather than in Nairobi head office (Watson, 2007). Prior to the promulgation of the Rules, an efficient system of issuing extraction permits seemed to be taking time to emerge, matched at the consumer's end by the failure of some of those with permits to stick to their provisions. Other users were operating without permits at all, some who had them under the old centralised regime having had no response to their fresh application to WRMA; others having made application for the first time were encountering similar difficulties (Watson, 2007). Before the new rules arrived, WRUAs and WRMA were probably most in contact over the issue of extraction permits, and WRUAs' experiences varied considerably. Well established WRUAs expected to have permit applications submitted to them for approval by the user first, failing which, at least that the WRMA would refer direct applications back to the WRUA for confirmation before approving them (Watson, 2007). Yet even long standing WRUAs found permits being approved by WRMA without reference, or even being issued in the face of refusal of the relevant WRUA to endorse them.

Rules 16-48 now set out detailed procedures for the application for and issuance of Water Use Permits. The Rules are also quite specific about the involvement of WRUAs in the

permit application process, 28(1) requiring that WRMA submits copies of every water use application to the “relevant registered WRUA, if one exists, for comment” and 28(2) that the WRUA’s comments be referred back to the WRMA within 30 days. There are also provisions for involving WRUAs in objections to permit applications. Statutory recognition of the role of the WRUA is to be welcomed but it still remains an advisory one and there is nothing to compel a WRMA to follow the WRUA’s recommendations (Watson, 2007). In fact, a WRUA wishing to object to a permit application might be able to exercise more influence in the WRMA’s decision-making process by actually instigating an objection to a permit application under Rule 30, rather than simply commenting on the application under Rule 28. By Rule 30, “Any person may raise an objection ... to any permit application” and the definition of “person” in the Rules includes an association. WRMA is presently trying to persuade users to install meters, at their own expense, to monitor consumption of water for which they will eventually be asked to pay (Watson, 2007). This idea of charging both for a permit and water consumption is probably ultimately acceptable to users, provided there is transparency of the amounts raised and how they are spent.

Users are divided into categories of Livestock, Hydropower Generation, Irrigation, Fish Farming, Commercial/Industrial and Effluent Discharge with varying charge rates and conditions for each. The money the permit raises go to WRMA (Watson, 2007). Once a water user is issued with a permit, such a member is captured as a legal user in the database. The amount that they use is monitored and regulated to ensure an equitable sharing of the water resource and thus assisting in water conflict resolution. This study therefore delved into whether the setting up, structure, interaction with WRMA, permitting, membership, mandate and the funding aspect of WRUAs had an influence on the leadership and management styles of the WRUA in water conflict resolution.

2.4 WRUAs and Resolution of conflicts

The intention of WRUAs to act to resolve conflict over water is apparent in the Water Act which provides specifically under subsection (3) (e) that the catchment management strategy shall encourage and facilitate the establishment and operation of water resources users associations as fora for conflict resolution and co-operative management of water resources in catchment areas. (Water Act, 2002). In addition, a constitution often envisages that the Association will “provide a forum to discuss, prevent and resolve water use conflicts”, as does those of WRUAs in communities of sub catchment 5BE. Without the forum there was

nowhere for grievances to be aired, anger vented and feelings made known. There was then a very real risk of problems escalating into disputes and this was where the existence of a WRUA is so crucial. The most obvious conflicts it helps prevent are those, often much publicised ones, between pastoral users lower down a water course, and agricultural or horticultural extractors in the upper reaches (Watson, 2007). Being able to bring all users together, and make them more aware of each other's problems and perspectives is one of the most vital roles of any WRUA. The very existence of a forum where problems can be discussed before escalating into disputes usually stops this from happening, and in the last resort the threat of conflict is often enough to prevent it. There are many other conflicts, potential or real, which WRUAs can help manage or prevent.

Although not usually concerned with internal machinations of project management, a WRUA may still help to resolve conflicts between project members, as well as between projects. It may also facilitate the entry of new members to existing projects, notwithstanding this may diminish the supply to present users (Watson, 2007). If anyone is to be displaced in the construction of a community water project, the WRUA can help determine the terms of compensation. Human-animal conflicts also often stem from lack of water, and maintaining the flow can go a long way towards preventing these. Baboons can be very aggressive when vying with humans for a single water source, and of course if a river starts to dry up, hippos must move upstream in search of new pools. Other less sedentary animals may move far upstream destroying crops as they go. Bridging the divide between WRMA and the consumer is an under-appreciated role of any WRUA. WRMA personnel have frequently been threatened by irate water users, who remain convinced that water is a gift from God and should never be charged for. The local WRUA could play a crucial role in educating communities into realizing that with water becoming increasingly scarce, means of sharing, rationing and even charging for it have to be considered. Sensitization and education are very important in creating the understanding from the lack of which conflicts so often arise. This study will assess the water conflict resolution mechanisms put in place by the WRUA which include an all inclusive approach focusing on the management and leadership, sensitization and training with due consideration to the law. The study determined the extent to which WRUAs trainings and sensitization influence water conflict management among the communities of sub catchment 5 BE of Meru- Laikipia counties, Kenya.

2.5 Conflict Resolution Strategies

2.5.1 Mediation

Mediators use about 100 conflict-management techniques (Wall & Lynn, 1993). Some of these are applied to the party-other relationship; others are targeted at the parties themselves; and still others are focused on the parties' relationship with outsiders. For decades, researchers have recognized these techniques and more recently they've noted that mediators employ sets of techniques (strategies) to solve the party-other disputes. For example, mediators use certain coercive tactics (substantive pressing) to move a disputant off a position, and they also employ more gentle ones (substantive suggesting) to nudge the disputant into a new position (McLaughlin, Carnevale & Lim, 1991). Do these tactics and strategies work? According to Kressel and Pruitt (1989) the answer must be somewhat equivocal. They judge the median settlement rate to be about 60% with a range between 20% and 80% (Bercovitch, 1989; Wagner, 1990). While this average is lower than one would like, we should bear in mind Schwebel, Schwebel, and Schwebel's (1985) observation that mediation frequently attacks conflict causes; consequently, it is as much a preventative measure as it is one of resolution.

Even when it does not lead to a conflict settlement, mediation frequently improves the interaction between the disputants. Specifically, it improves their communication (Kelly & Gigy, 1989;), reduces stress (Zarski, Knight & Zarski, 1985) and on occasion, provides the disputants with problem solving skills that they can rely upon in the future. Looking at another indicator of success, we find the parties' satisfaction with the mediation process to be quite high. Kressel and Pruitt (1989) report it is typically about 75%, even for disputants who fail to reach agreement (Kelly & Gigy, 1989). Disputants tend to be satisfied with mediation because they retain control of the situation; mediation is inexpensive; usually it takes into consideration all aspects of the dispute; it allows for catharsis, with confidentiality; and in general, it is viewed as fair. Because of the mediators' efforts and disputants' satisfaction with the process, compliance with mediated agreements is typically very high, about 77% (Roehl & Cook, 1989). The study assessed the methods and strategies used by WRUAs in water conflict resolution, including mediation, in sub catchment 5BE of Meru-Laikipia counties.

2.5.2 Arbitration

In general, an arbitrator can employ any of the techniques or strategies used by a mediator (Feuille, 1975). Additionally, he or she has the option of dictating the solution (outcomes) to the conflict. There are roughly four types of arbitration: conventional, final offer (DeNisi & Dworkin, 1981), med-arb, and nonbinding. Under conventional arbitration, the arbitrator can employ any techniques he chooses and make any ruling. For final offer arbitration, however, the arbitrator must choose one negotiator's last offer. The arbitrator, in med-arb, first mediates and then arbitrates. And for nonbinding arbitration, the arbitrator suggests an agreement point, but the parties do not have to accept it (DeNisi & Dworkin, 1981). Does arbitration work? According to Feuille (1975), by definition, except in the nonbinding case, arbitration gives a solution or agreement. Yet conventional arbitration seems to have a "chilling effect." Some parties conclude they can receive higher outcomes from the arbitration than from a negotiated agreement with other. Therefore, they hold to their position or even raise their demands so as to tilt the arbitration in their direction (Feuille, 1975).

Final offer arbitration tends to remedy this effect. Because the arbitrator here will select one final offer, both parties are motivated to negotiate reasonably (or to at least make a reasonable final offer) in hopes the arbitrator will choose their final offer. There is strong evidence that final offer arbitration does overcome the "chill." Specifically, it produces more negotiated agreements than does conventional arbitration (Feuille, 1975). It lowers the parties' aspirations and brings them closer to agreement in the negotiation. Likewise, it resolves more issues and tends to bring greater final concessions. As for the effectiveness of med-arb, the data currently provide tentative conclusions: it seems that med-arb is more effective than mediation in generating agreements and is somewhat more effective than conventional arbitration in producing cooperative bargaining (e.g., Pruitt, McGillicuddy, Welton & Fry, 1989). Turning to nonbinding arbitration, we find it difficult to distinguish from mediation; therefore, its effects are assumed to parallel those of mediation. This study investigated the methods and strategies used by WRUAs in water conflict resolution, including arbitration, in sub catchment 5BE of Meru-Laikipia counties.

2.5.3 Conciliation and Consultation

Rather than mediating or arbitrating, the third party can provide conciliation (James, 1987; Webb, 1986) or consultation (Fisher, 1990). As for the distinction between the latter two processes, there appear to be more similarities than differences. Both are less formal than

mediation (or arbitration) and are more voluntary; likewise, both give less control to the third party and more to the disputants. Also in both, the third party provides an informal communication link between the disputants and has a primary goal of improved relations, rather than settlement of the issues. As for the differences between conciliation and consultation, we can find a subtle one. Fisher (1990) holds that the third party, when consulting, does not, and should not, proffer specific solutions or proposals, because the resolution must come from the disputants or their constituencies. James' (1987) observation is that conciliators are even more arms-length: they not only let the disputants define and settle the issues; they also refrain from seeking information or making judgments prior to the conciliation. Presently, there is evidence that consultation (Fisher, 1990) and conciliation (Tripp, 1985) do help to manage conflict. Yet because of their nonassertive nature, both seem less effective than mediation. This study assessed the WRUAs approach to water conflict resolution and which approach may be effective for WRUAs to engage in, including conciliation and consultation.

2.6 Culture and Social- Economic Aspects

The war for water normally takes an ethnic dimension and mostly between the farmers and pastoralists. The war for water between the Maasai, Kikuyu and other populations in the internal regions of Kenya is, according to some experts, a recurrence of the historical wars that periodically flare up and for which it is difficult to find a solution. "It's a question that has been going on for at least a century", claims Lotte Hughes, a researcher of Maasai history at the University of Oxford. Peace Reporter, (04/2/2005) noted that "A long time before independence, the Maasai lived in a vast region in central Kenya. British colonialism and the power struggle that took place during the years when Jomo Kenyatta was in command (the first President of Kenya and also with Kikuyu origins) cut them out, confining them to areas that were only a fraction of the size of the land they had previously owned". Parselelo Kantai, a Kenyan writer and journalist with Maasai origins, confirms Hughes' theory. "It is not surprising that warriors from various tribes clash amongst themselves over water. This is a rare commodity, used for different reasons by different cultures. What's more, the Maasai claim territorial rights that precede the colonial and independence governments. The state has not intervened and doesn't do anything to resolve these conflicts". Nevertheless, there is more. For some time now, the Maasai have been in conflict with the Government. In August 2004, a number of tribal leaders turned up at the government building in Nairobi asking for either the restitution of a million hectares of land leased to the English in 1905 for a period of

99 years, or the payment of a considerable sum of money in compensation. The government settled the matter by claiming that the contract was valid for 999 years and that the warriors had made a mistake with the date, since they should really ask for the land to be restored in August 3004.

As noted by Savenije and van der Zaag (2000), when implementing an integrated water resources management strategy or framework, it is important to note the spatial and temporal variabilities, and so each area needs to have a specific strategy. The point made by Stikker (1998) that social, cultural, political, technological and environmental aspects need to be considered in all water management prospects and plans further quantifies this fact. At this point, it then becomes clear that information sharing will also be beneficial to the promotion of the level of understanding of the resident members. This factor will become possible if information sharing is specifically designed to enhance and integrate indigenous knowledge of the public involved, and in their specific localities. The need to have access to watercourses and forage for livestock has resulted in the many conflicts that have been recorded between pastoralists and sedentary farmers and among neighbouring pastoral communities themselves. These conflicts in the ASALs are partly to blame for the increasing vulnerability of pastoralists to drought. Due to insecurity, herds concentrate in small areas thought to be secure while leaving large tracts of land unused as seen in parts of Eastern and North Eastern Provinces of Kenya (Eriksen et al., 2006; UNEP/GoK, 2000). Conflicts are particularly common during drought when competition over grazing and water resources gets stiff and has in certain cases involved cross-border fighting as in the case of Turkana of northwestern Kenya who have long running conflicts with neighbouring communities, some coming from across the national boundary. In 2000 for example, Turkana herdsmen explained that pastures had reduced due to drought and insecurity, as they were unable to access some of their dry season grazing areas due to increased cattle raids among them and the neighbouring Pokot community with whom they have conflicts over land (UNEP/GoK, 2000). The fact that these areas are not adequately policed encourages communities feeling insecure to arm themselves for self-protection partly contributing to the proliferation of arms and sometimes creating a conducive environment for criminals intent on making quick money through raiding and selling animals.

Pastoralists are mainly faced with two processes during drought that adversely affect their capacity to support themselves and effectively raise the minimum herd numbers required to

maintain their households (McPeak, 2001). First, they face a fall in levels of productivity from their herds following losses in their livestock capital from higher mortality rates, low or zero calving rates, reduced production of milk and weight loss in animals that reduces their market value. Second, in addition to reduced levels of productivity within the livestock sector, pastoralists are usually faced with a double trade tragedy during droughts. On one hand, they are forced to sell off their cattle rather than face losing them to starvation while on the other, they are faced with changes in the terms of trade that adversely affect the purchasing power represented by their herds. The study by McPeak (2001) also showed that during the drought of 2000, the overall livestock sales rates for households were relatively high by pastoral standards with an annualized sales rate in Kenya of 12%. However, these sales do not necessarily imply higher incomes as they are driven by distress sales. The frequent resource-induced conflicts that occur in the region also contribute to the reduction in herd size.

For a long time, Kenya did not have a comprehensive policy on environment and dry lands in particular. Initial government policies and strategies for the development of the ASALs and hence the pastoralists were influenced by assumptions, myths, and misconceptions which portrayed pastoralists as lacking in national loyalty, politically unreliable and difficult to control because of their cross border movement, hence a threat to national unity (Omosa, 2005). Recently, government's strategies have aimed at managing rather than minimizing the impacts of drought and this has not achieved any meaningful results towards strengthening the adaptive capacity of the pastoralists. It is not yet widely understood that pastoralists compared to crop farmers take much longer to recover after drought since their economy is dependent on reproductive capital, which once eliminated often takes a long period of time to recover. An assessment carried out by UNEP and the Kenyan government in 2000 after the 1998-2000 drought found that it takes four and eleven years to recover from a third and two thirds drop in cattle herd size respectively (UNEP/GOK, 2000). The short drought cycles being experienced of late mean that affected pastoral groups do not have time to adequately recover before another drought incident occurs.

Policies on dry land resource management have not been supportive of the pastoral groups either. For example, government support for land sub-division and titling as seen in many semi-arid districts such as Kajiado and Narok in the southern part of the country has done more harm than good to pastoral groups whose livelihood strategies necessitate access to

large tracts of land at different times of the year (Kameri-Mbote, 2002). Individualization and alienation of pastoral lands in Kenya have taken place through the creation of livestock ranches, grazing blocks, national parks and game reserves and wheat farms. In the process, they have not only reduced the area available for grazing but have also blocked migration routes used during the dry seasons. Land sub-division and titling has also promoted the sedenterization of pastoralists – contrary to the fact that sedenterization is not sustainable in the fragile lands. Attempts to introduce land subdivision and individual tenure have been disruptive resulting in violent conflicts in some areas, which is against their culture e.g. in Samburu and Marsabit (Barton et al, 2001). The study investigated the influence of culture and religion among the conflicting communities and how WRUAs bring the farmers and pastoralists together in sharing of water.

2.7 Leadership and Management in Conflict Management

There is some evidence that personality characteristics can generate conflict; for example, Baron (1989) found that individuals with a Type-A personality report a higher frequency of conflict with subordinates than do Type-B's. However, reviews of the negotiation literature by Thompson (1990) and Wall and Blum (1991) both revealed that personality and other individual differences, such as attitudes, had a very minor impact on negotiations which is normally lead by leaders. An extrapolation from these findings leads us to the conclusion that they would have a relatively minor impact on conflict. Wrightman's (1966) finding that only one out of his 12 scales measuring personality and attitude variables showed any effect on competitive game behavior supports this conclusion.

Turning to personal values, we find stronger effects. As Augsburger (1992), Hahm (1986), and others note, individuals in various societies value conflict very differently. Some, especially those in western cultures, view it as a part, perhaps even a beneficial part, of life. Others, particularly those from Korean or Japanese (Lebra, 1976) cultures feel that conflict is, by definition, bad and should be avoided. Consequently, these latter parties are less apt to initiate conflict. In addition, if one party or the other has a high goal and is highly committed to achieving it, then conflict is quite likely. On the other hand, if commitment to the goal is low, so are the chances of conflict. Taking a more emotional tack, we can point out that stress and anger are sources of conflict. Stress, Derr (1978) notes, produces a tenseness in the individual; a tenseness that can boil over into conflict with another. Anger runs a similar route. An individual's, group's, firm's, or nation's anger and frustration too often have a

tendency to deplete the relationship with others. Therefore if the leader of the community is short tempered and lacks emotional tact, then there is high likelihood of escalation of conflicts.

2.7.1 Emotional Intelligence and the Leadership in Conflict Resolution

Leadership is a process of social interaction where the leader's ability to influence the behavior of their followers can strongly influence performance outcomes (Humphrey, 2002; Pirola-Merlo et al., 2002). Leadership is intrinsically an emotional process, whereby leaders recognise followers' emotional states, attempt to evoke emotions in followers, and then seek to manage followers' emotional states accordingly (Humphrey, 2002). Pescosolido (2002) argues that leaders increase group solidarity and morale by creating shared emotional experiences. The ability of leaders to influence the emotional climate can strongly influence performance (Humphrey, 2002). Emotional Intelligence is a key factor in an individual's ability to be socially effective (George, 2000; Mayer et al., 2000b) and is viewed in leadership literature as a key determinant of effective leadership (Ashkanasy and Tse, 2000; Boal and Hooijberg, 2000; George, 2000). George (2000) argues that emotionally intelligent leaders can promote effectiveness at all levels in organisations. The EI of the leader plays an important role in the quality and effectiveness of social interactions with other individuals (House and Aditya, 1996). Mayer et al. (2000a) hypothesized that employees who have high levels of EI may have smoother interactions with members of their work teams.

Salovey et al. (1999), found that individuals who rated highly in the ability to perceive accurately, understand, and appraise others' emotions were better able to respond flexibly to changes in their social environments and build supportive networks. Mayer et al. (2000b) proposed that a high level of EI might enable a leader to be better able to monitor how work group members are feeling, and take the appropriate action. This therefore would mean leadership of WRUA is an important aspect in conflict resolution. The study assessed the influence of leadership and the emotional intelligence of WRUAs in conflict resolution.

2.7.2 Communications

The effects of communications are double-edged in conflict resolution. Low communication, on the one hand, results in low knowledge of others and may underpin coordination difficulties. These, in turn, lead to conflict (Pondy, 1967). On the other hand extensive communication between party and other is generally agreed to be a ripe source for

misunderstanding and resultant conflict (see Putnam & Poole, 1987 for a detailed review). Too often one's words, facial expressions, body language, and speech lead to attributions of intent, that in turn spawn conflict (Thomas & Pondy 1977). This phenomenon can take place within any culture, and it runs rampant in cross-cultural communication (Augsburger, 1992). Communication-based misunderstanding becomes especially prevalent if the other is angry, dislikes, or distrusts the party. Or a history of interpersonal difficulties can too readily set the stage for miscommunication. Accurate, lucid communication can just as readily generate conflict when it conveys criticism, especially the inconsiderate, destructive variety (Baron, 1989), high individual goals, threats, intended distributive behavior, insults, etc. However, as the mediation literature reveals (Kressel & Pruitt, 1989) once conflict is ignited, low levels of communication (i.e., separation of the parties) might be preferable to moderate or high levels. The reasoning here is that a low level allows time to pass without accretion of emotions, name calling, hostile demands, etc. Likewise it provides some slack for clear thinking, and it allows each side to back down sans face-loss.

Shifting to another cause, we find power struggles to be rather prevalent sources of conflict (Blalock, 1989). The reduction of one's power by the other can engender conflict (Horwitz, 1956). Or the primary woof and warp in the process can be attempts of one party to control the other and the other's resistance to the control (Renwick, 1975). Therefore communication of the leaders of WRUA is a factor in conflict resolution that this study will look into.

2.7.3 Managers' Conflict Management

Usually managers have conflict management as a major priority; consequently, they may adopt leadership styles that serve this goal. And they structure organizations so as to avoid or minimize conflict. Once conflict does develop, the managers attempt to manage it. To do so, they often address the causes. For doing so, Rahim and Bonoma (1979) indicate managers should diagnose the conflict be it of an intraperson, intragroup or intergroup nature-then find its source, and address it via behavioral or structural interventions. Consider for example an intergroup conflict (purchasing versus production) that is spawned by ambiguity as to which group has jurisdiction over the quality of purchased materials. Here the manager could spot the conflict, identify its source (the ambiguity) and manage the conflict by ruling who is in control or by bringing the groups together to hammer out who is in charge. Quite often the managerial approach involves this participative tack. Those who have suggested that managers rely on group discussions (Vroom & Jago, 1988), seem to favor group participation

even though Crouch and Yetton (1987) find that managers who doubt their ability to solve conflicts don't follow this advice. Blake, Shepherd and Mouton (1964) support this orientation in proposing their inventory of problem-solving methods. More formalized versions of the participative approach are to be found in Doob's (1970) suggested T-groups and in workshops, directed by reputable third parties.

The participation approach has drawn some support from academicians (eg., Karambayya & Brett, 1992) as well as from managers. One of the latter (Tjosvold, 1989) notes that leader-directed participation helps to resolve conflict because it concomitantly solves a problem and strengthens interpersonal relationships. In her approach the conflict is not simply handed over to the group. Rather the leader identifies the conflict, determines her role in it, seeks to improve communication, curtails the use of negative strategies, encourages joint responsibility for the conflict management, and maintains a momentum for changes and an eventual solution. Researchers have found that managers use autocratic as well as participative approaches to conflict. For example, managers encourage negotiation, arbitrate, mediate, enforce a truce, offer incentives, and even overlook conflicts (Karambayya & Brett, 1992). With a more structural approach, Aldrich (1971) and Kahn (1965) note that leaders can respond to intergroup conflict by expanding the boundaries of one group so that the opposing group members are incorporated within the group. Burton (1969) points out an opposite tack, reducing the interaction and communication between disputants.

Robbins (1974) mixes the authoritarian and participative options, leaning somewhat in the authoritarian direction. The manager, he believes, can attack the conflict structurally by transferring a disputant, creating buffer positions, setting up formalized appeal systems, or on occasion, forcing contact between the disputing parties. From a similar, but more diagnostic approach, Brown (1983) advocates interventions for redirecting disputants' behaviors, reallocating resources, reframing perspectives and realigning the underlying forces. Some specifics here: interventions aimed at disputant behavior include fractionating issues, creating new alternatives and altering communications. When reallocating resources the manager can expand resources or call upon third parties who might be of assistance. And to reframe perspectives the manager can clarify super ordinate goals, revise unrealistic stereotypes or clarify which forces are promoting the conflict. To realign forces, a manager might revise formal rules, negotiate standards for appropriate behavior, or reduce the amount of specialization (Katz, 1964).

Looking back on these suggestions we're left with a question akin to that generated by the prescriptions for the disputants' conflict management: do these techniques work? The answer is a qualified, yes. Rubin (1994) notes any third party, such as a manager, can handle conflict; however, outside intervention does have some difficulties. First, it can disrupt a conflict resolution that is moving ahead on its own. Second, the third party (manager) is apt to press his own interests in the conflict resolution. There's a strong tendency for the manager to rely upon power to reduce the conflict. And finally, just as the disputants, the manager can blunder as he attempts to manage the conflict. For example, he could bring the parties together when they should be separate, cooling off. Deutsch's (1990) suggestions avoid some of these pitfalls and provide a nice bridge between managerial conflict management and mediation. Without designating who the third party is, Deutsch suggests he or she attain substantive knowledge of the conflict issues, establish a working relationship with the disputants; instill a cooperative, problem-solving attitude between the disputants, and facilitate creative group processes. These suggestions, as those of Robbins (1994), Phillips (1988), Hacker and Wilmot (1991), Moore (1986) and others indicate that the manager has the option of using his power to manage conflict, or he can be more restrained and mediate. This study assessed how the leadership and management of WRUAs influence water conflict resolution, through addressing the cause, in sub catchment 5BE in Meru- Laikipia counties.

2.8 Conceptual Framework

The conceptual framework depicts the relationship between the independent, dependent and intervening variables.

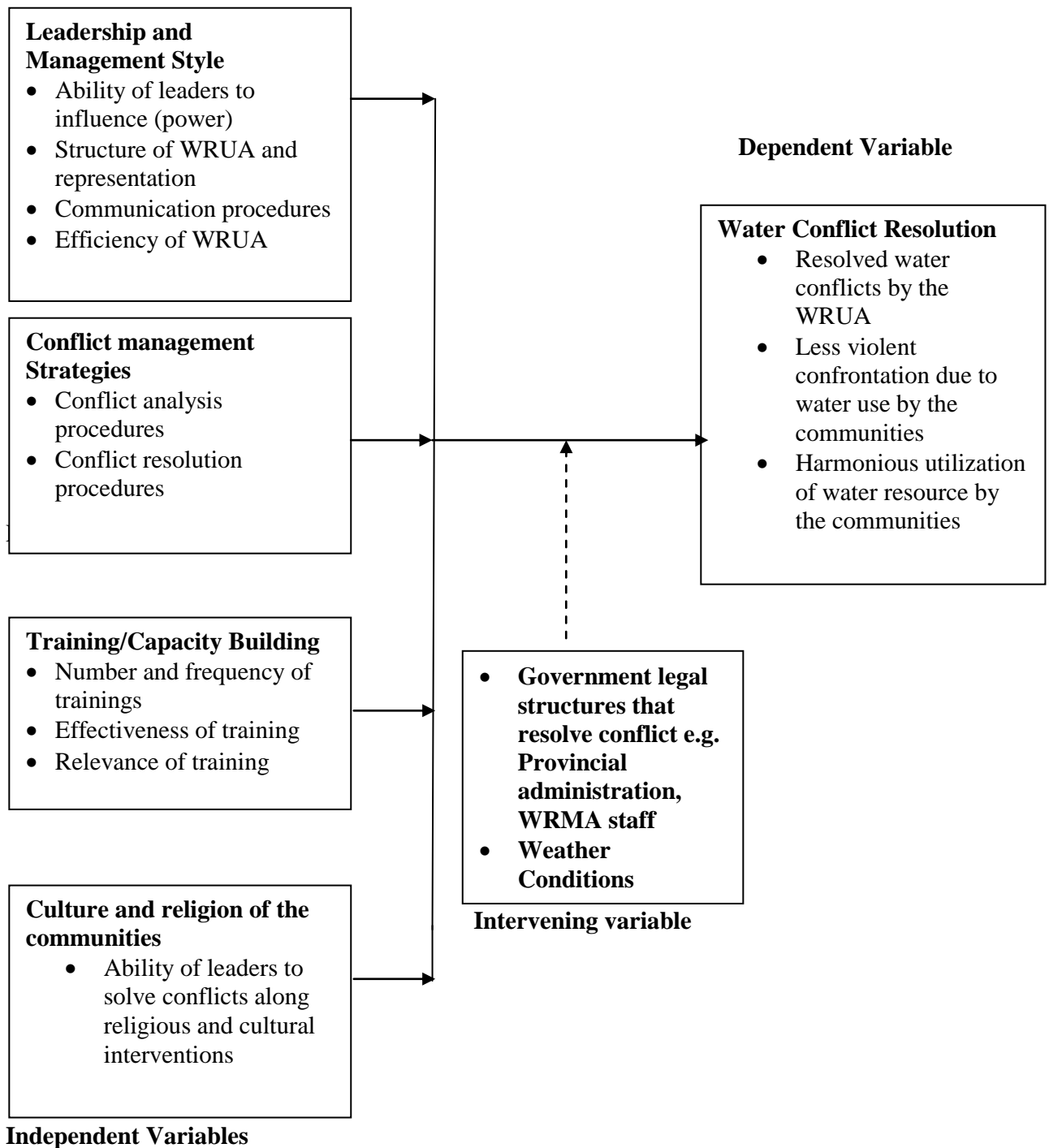


Figure 1: Conceptual Framework

The study proposed that water conflict resolution by WRUAs is influenced by the four independent variables which are; leadership and management style, conflict management strategies, training and capacity building and the culture plus religion of the communities. Using the four variables, the study assessed the influence of water resources users associations in conflict resolution in sub catchment 5 BE of Meru – Laikipia counties which was through the number and frequency of trainings that had been carried out on the WRUA, their relevance and effectiveness in assisting the WRUA to resolve water conflicts. Assessment was also made to help understand the ability of leaders to resolve conflicts along religious and cultural interventions. The study analysed the number of violent confrontations due to water resource conflicts and whether there is a harmonious utilization of water resource. However, there were some intervening variables which may have influenced the WRUAs in water conflict resolution which include; government policies, legal structures, WRMA staff and NGOs working in the sub catchment 5BE.

2.9 Summary

Studies have been conducted globally, regionally, and locally on water conflict resolution. Many scholars are in agreement that water conflict resolution through partnerships and collaboration is effective, because, over time people interact and learn of one another's values and preferences and devise solutions that better match the situation. Thus, unanimity is valued not just because it produces high-quality decisions, but also because of the process it engenders. Participants tend to be satisfied with the decisions, where they view the process as fair, building trust in one another, and are more willing to work together with their fellow participants. At the international level, compacts have been studied and how they resolve conflicts while at the local level, WRUAs have been studied. This literature recognizes the important role played by WRUAs as associations responsible for resolving water conflicts. However none of these studies have gone into details of assessing how the WRUAs have influenced conflict resolution among the communities in sub catchment 5BE or anywhere else in Kenya. This study, therefore, filled part of this gap by investigating the influence of WRUAs in water conflict resolution focusing in sub catchment 5 BE in Meru- Laikipia counties.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the type of research methodology that was applied. It covers the type of research design, sample and sampling procedure method, target population, accessible population and sample size. Further, data collection procedure and analysis, research instruments that the study adopted are also outlined. It has also focused on validity and reliability of instruments and ethical issues plus the operationalization of variables.

3.2 Research Design

The research adopted a descriptive survey design. According to Kothari, (1985), descriptive design allows the researcher to describe record, analyze and report conditions that exist or existed. The research study used both quantitative and qualitative approaches. The data was collected to study the influence of WRUAs in conflict resolution in water utilization. The qualitative approach was used in this study because it provides in depth understanding of information while the quantitative approach provides summary information on many characteristics: Hair, Money, Samuel and Page (2007).

The study aimed at clarifying relationships, and as such correlational research was used. The tools included the use of structured questionnaires which were self administered to ensure a high return rate. Further, a quantitative method of data analysis was used to establish and describe the degree of relationship between the independent variables and dependent variables. Interviews were also conducted to give in-depth information which might have been omitted by the questionnaire.

3.3 The Target Population

The study targeted all the 7 WRUAs in sub catchment 5 BE that traverses Meru and Laikipia counties, with a total of 559 members covering a total area of 1238 square kilometres.. The main reason for targeting the 7 WRUAs is that each has it's own method of coping with the water conflicts as they arise. The number of members per WRUA range from 17 to 200 (WRMA sub region office, Nanyuki, 2013) which is informed by the fact that some of the projects, which have many members, register with the WRUA as one umbrella member e.g. Ngusishi while others, e.g. Timau have most of their members as individuals. Four WRUAs

with a total of 317 members were purposively selected from the sub catchment. The target population is as presented in Table 3.1. The study interviewed the WRUA management committee members. The main reason for interviewing the WRUA management committee members is that they are more knowledgeable as they are the ones involved in the running of the WRUAs.

Table 3.1: WRUAs Membership in Sub Catchment 5BE, Meru – Laikipia Counties

WRUA NAME	TOTAL MEMBERSHIP	MANAGEMENT COMMITTEE MEMBERSHIP	MEMBERSHIP OF ORDINARY MEMBERS
Nanyuki	80	13	67
Likii	17	14	3
Ontulili	160	25	135
Sirimon	22	18	4
Teleswani	60	15	45
Timau	200	21	179
Ngusishi	20	16	4
TOTAL	559	122	437

The provincial administration, employees of WRMA and stakeholders working in Sub catchment 5BE which traverses Meru and Laikipia counties, were also interviewed.

3.4 Sample Size and Sampling Procedure

A sample size is the number of items to be selected from the population to constitute a sample which should not be excessively large, nor too small, for the purpose of investigations (Kothari 1985). A sampling procedure is the process of selecting the subjects or cases to be included in the sample. The study adopted a method, whose goal is to achieve a desired representation from various subgroups in the population (Mugenda and Mugenda, 2003).

3.4.1 Sample Size

The study applied both probabilistic and non-probabilistic procedures of sampling. Sub catchment 5BE has a total of 7 WRUAs, traverses Meru and Laikipia counties, with a total of 559 members. The 7 WRUAs are Nanyuki, Likii, Ontulili, Sirimon, Teleswan, Timau and Ngusishi covering a total area of 1238 square kilometres. For descriptive studies, ten percent of the accessible population is considered adequate for the sample size. If there is no estimate available of the proportion in the target population assumed to have the characteristics of interest, 50% should be used as recommended by Fisher et al (Mugenda and Mugenda, 2003). Out of the 7 WRUAs, four i.e. 50% of seven WRUAs which is 3.5 rounded to 4, were purposively selected from the sample size, based on their history, capability of resolving water conflicts and stage of development i.e. whether they are successful or struggling. Hence, the study was conducted in the four WRUAs in sub catchment 5BE, namely Nanyuki, Likii, Timau and Ngusishi. The total number of the committee members in each WRUA were determined and each member targeted for administering the questionnaires. This is because the management committee is the team involved in the running of the WRUAs. The committee membership is normally distributed evenly as per the three zones of each sub-catchments i.e. Upper, Middle and Lower.

Probability sampling procedure was used to select 30 % of the ordinary members to assist in validating the information given by the committee members. The 30% is well in between the 10 and 50% based on the recommendations by Mugenda and Mugenda (2003). The probability random sampling was easy to use since the sample size had already been identified. In Nanyuki WRUA, 30% of the 67 ordinary members were sampled constituting 20 members; Likii 30% of 3 one i.e. member, Timau 30% of 179, that is 54 members and Ngusishi, 30% of four being one member. The sample size is as presented in table 3.2

Table 3.2: WRUA 's Name, Membership and Sample Size

WRUA NAME	TOTAL MEMBERSHIP	MANAGEMENT COMMITTEE MEMBERSHIP	ORDINARY MEMBERS	SAMPLE OF ORDINARY MEMBERS (30%)	SAMPLE SIZE
Nanyuki	80	13	67	20	33
Likii	17	14	3	1	15
Timau	200	21	179	54	75
Ngusishi	20	16	4	1	17
TOTAL	317	64	253	76	140

3.4.2 Sampling Procedure

Sampling has been described by Cooper et al., (2003) as the procedure by which some elements of a given population are selected as representative of the entire population. The primary purpose of sampling is that by selecting some elements of a population conclusion on the entire population can be drawn. The study used probability sampling, which according to Mugenda and Mugenda (2003) is to select a reasonable number of subjects, objects or cases that represent the target population. A stratified random sampling, whose goal is to achieve desired representation from various sub groups, was then be used to select the 4 WRUAs. In stratified sampling, subjects are selected in such a way that the existing subgroups in the population are more or less reproduced in the sample.

Purposive sampling, which is a non-probability technique, was used in the study to deliberately select two WRMA staff who work closely with the WRUAs one at the Regional and another at the Sub regional offices, provincial administration, that included one DC and three chiefs covering Sub catchment 5BE. One officer each responsible for WRUA activities from CETRAD. Rural Focus and LWF, who are NGOs working in this area, were also interviewed.

3.5 Data Collection Instruments and Techniques

A self-administered questionnaire and an interview schedule were used as data collection instruments. It comprised of both open ended and closed ended questions. The use of questionnaires was to enable the respondents to remain anonymous and be honest in their responses (Cooper and Schindler, 2003). The choice of the questionnaire was based on the fact that it is easy to analyze the collected data statistically. Further it is not biased and the responses are gathered in a standardized manner so they are more objective in their results.

Focused group interviews was also used to explore and understand people's beliefs, experiences, attitudes, behaviour and interactions. This generated non- numerical data, e.g. a beneficiary's description, rather than a measure of their feeling and thereafter interpreted accordingly for the purpose of assessing WRUAs influence in conflict resolution. The discussions were unstructured and free flowing, thus yielding in-depth information. The approach brought out target groups' with valuable insights being gained regarding people's subjective perceptions; their deep rooted beliefs and feelings. This targeted all other stakeholders, other than WRUAs, where intensive one on one individual interviews to explore their perspective on specific topics were carried out.

3.6 Pilot Study

Before administering the instruments to the sample representing the target population, a pilot study was conducted on Teleswani WRUA and then the necessary adjustments made in order to improve validity. This was done on 10% of the Teleswani's WRUA population which gave 16 members. The pilot study ensured that the questions got the intended responses.

3.7 Instrument Validity

Validity is the degree to which an instrument measures what is supposed to measure (Kothari, 2004). It is the degree to which results obtained from the analysis of the data actually represent the phenomenon under study. The validity was enhanced through appraisal of the tools and verification by the supervisor who is an expert. Furthermore, the questionnaires were subjected to pre-test to detect any deficiencies in it. Comments and suggestions made by the pre-test respondents were incorporated in order to address some deficiencies or vagueness in the questionnaire and hence help in improving it. The necessary improvements were then be made to the questionnaires.

3.8 Instrument Reliability

Mugenda and Mugenda, (2003) define reliability as a measure to which a research instrument yields consistent results or data after repeated trials. According to Joppe, (2000) reliability is the extent to which results are consistent overtime. To test reliability a test re-test method was employed to the same categories of respondents after a period of two weeks to examine the consistency of response between the two tests in a pilot study. The test re-test sample was done on Teleswani WRUA where 5% of the sample size was taken, giving 7 respondents. This is in conformity with Mugenda & Mugenda (2003) recommendation of a sample of between 1% and 10% depending on the size of the study sample. Consistency from the re-test was noted and as such the instruments were adopted as reliable.

3.9 Data Analysis

Data analysis consists of examining categorizing; tabulating or otherwise recombining the evidence to address the initial prepositions of the study (Yin, 1994). The data collected was cleaned and coded. This was to enhance basic statistical analysis. The data analysis involved quantitative and qualitative methods (numerical and descriptive). Qualitative data was analyzed based on content analysis while quantitative data was analyzed using descriptive and inferential statistics. Data was analyzed with the help of electronic spreadsheet SPSS Program which has analysis tools. The collected data was presented using statistical techniques which included percentages and frequency distribution tables.

3.10 Ethical Issues

Ethical considerations in research can be defined as ensuring that the researcher conforms to the standards of conduct of the authorities in the area of research. The researcher sought authority from all the relevant authorities for conformity and in ensuring the study was not discontinued in the process. Authority was also sought from the University of Nairobi to be allowed to carry out the research. The authority given by the University assisted in seeking consequent permissions. Permit for the study was also sought from the National Council of Science and Technology through an application form designed by the Council. The researcher also sought authority from the District Commissioners in Buuri and Laikipia east districts plus the divisional officers, chiefs and elders in the area of study by visiting their offices and presenting relevant documents required by each one of them. This was through talking and explaining to them the purpose of the study and highlighting the possible benefits of community through lessons learnt in water conflict resolution by the community based

organizations, WRUAs. Confidentiality was honoured by the researcher through ensuring that participants were engaged on their own will without deception or promises for rewards. Due to the sensitivity of some information collected, and the possible reluctance of disclosure of some information by the respondents, the researcher held moral obligations, and informed and reassured the respondents that the information was only to be used for research purposes and that there would be confidentiality in identification of the informants.

3.11 Operationalization of Variables

Table 3.4 shows the operationalization of variables.

Table 3.3: Operationalization of Variables

Research Objectives	Variable	Type of Variable	Indicators	Measurement	Measurement scale	Methods and tools of data analysis
To determine the extent to which leadership and management style influence conflict management	-Leadership and Management Style -Water Conflict Resolution	Independent Dependent	-Ability of leaders to influence (power) -Structure of WRUA and representation -Communication procedures in place -Efficiency of WRUA -Resolved water conflicts -Less violent confrontation due to water use	-Number of communication procedures in place -Number of resolved water conflicts -No of violent confrontations	Ordinal Nominal Ratio	Descriptive-frequencies, mean Inferential-correlation analysis, rank ,percentage
To determine the extent to which conflict management strategies influence water conflict management	Conflict Management Strategies	Independent	-Conflict analysis procedures in place -Conflict resolution procedures in place	-Number of conflict analysis procedures in place -Number of Conflict resolution procedures in place	Ordinal Nominal	Descriptive-Correlation analysis, frequencies Inferential -correlation analysis
To determine the extent to which trainings and capacity buildings influence water conflict management	Training/ Capacity Building	Independent	-Training done -Effectiveness of training	-Number of trainings done -Effectiveness of training by number of resolved water conflicts	Ordinal Nominal Ratio	Descriptive-frequencies, percentage Inferential-correlation analysis
To assess the extent to which culture and religion influence water conflict management	Culture and Religion of the Community	Independent	-No. of conflicts solved along religious and cultural lines	-Number. of conflicts solved along religious and cultural lines	Ordinal	Descriptive-frequencies, percentage

3.12 Summary

This chapter presents a detailed account of the research methodology. A descriptive research design was adopted which allowed the researcher to describe, record, analyze and report the conditions that exist or existed. Both quantitative and qualitative, approaches were used, qualitative to provide an in depth understanding of information and quantitative to give a summary of the various characteristics. The target population comprised members and officials of the seven WRUAs, provincial administration, WRMA officials and stakeholders working in sub catchment 5BE which were sampled using stratified random sampling method.

The researcher administered questionnaires to collect data through a questionnaire survey in the target community. An interview schedule was also used as a data collection instrument. The validity and reliability of the instruments has also been discussed plus the ethical issues to be taken into consideration. The chapter has also shown how the variables were measured with a tabular presentation of operationalization of variables.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter focuses on data analysis, interpretation and presentation. To effectively address issues that are concerned with the study both quantitative analysis and content analysis was used. The purpose of this study was to investigate the influence of water resources users associations (WRUAs) in water conflict resolution among the communities of sub-catchment 5BE in Meru-Laikipia Counties. The objectives of the study were to determine how WRUAs leadership and management style, establish the extent to which WRUAs conflict management strategies, determine the extent to which WRUA trainings and assess the extent to which culture and religion among the communities of sub catchment 5BE influence water conflict management.

4.2 Response Rate

The response rate of the WRUA members and stakeholders are as presented in Table 4.1.

Table 4.1: Response Rate

Category	Sample Size	Response	Percentage
WRUA members	140	116	82.9
WRUA stakeholders	8	8	100

Table 4.1 illustrates the response rate of the respondents who were sampled and interviewed in the study. The study targeted 140 WRUA members, and 8 WRUA stakeholders. The response was 82.9% for WRUA members and 100% WRUA stakeholders meaning only 116 WRUA members and all WRUA stakeholders sampled completely filled in and returned the questionnaires. The high response rate is attributed to the fact that the researcher employed 4 research assistants to personally administer the questionnaires and ensure they were filled in by the respondents. Further, the researcher personally interviewed the WRUA stakeholders using the interview guide questionnaires.

4.3 Demographic Information of the WRUA Members

The researcher sought to establish the demographic data of the WRUA members and looked at their gender, age and education level. Their responses are highlighted in sub sections 4.3.1 for gender, 4.3.2 for age and 4.3.3 for education.

4.3.1 Gender of the WRUA Members

WRUA members were asked to indicate their gender. Their responses are shown in Table 4.2.

Table 4.2: Gender of the WRUA Members

Category	Frequency	Percentage
Male	80	69.0
Female	36	31.0
Total	116	100

From Table 4.2, 69.0% of the WRUA members were males while 31.0% of the WRUA members were females. This implies there were more males respondents than females which might be because more males are interested in WRUA activities and by extension water for farming activities. This conforms to the observation that most decisions in operation and maintenance of water projects have been shown to be made by men as observed in studies by Motsi & Madyiwa (undated) and the assertion by Dick & Zwerteveen (2001) for greater involvement of women for effectiveness of irrigation organizations. This is taking into account that most of the respondents are farmers and use WRUAs as a stepping stone to get water for irrigation. However, this was not expected to affect the responses from the respondents or in any way creating any form of biasness.

4.3.2 Age of the WRUA Members

The age distribution of respondents is shown in Table 4.3.

Table 4.3: Age of the WRUA Members

Category	Frequency	Percentage
18 years to 29 years	19	16.4
30 years to 39 years	38	32.8
40 years to 49 years	39	33.6
50 years to 59 years	12	10.3
60 years and above	8	6.9
Total	116	100

From Table 4.3, above, 33.6% of the WRUA members were aged between 40 years to 49 years, 32.8% of the WRUA members were aged between 30 years to 39 years, 16.4% of the WRUA members were aged between 18 years to 29 years and 6.9% of the WRUA members were aged 60 years and above. This shows that the largest population of the respondents were old enough, even beyond the youthful age, taking into account that the National Youth Policy sets the upper limit of youth at 35 years (GOK, 2008) and had been members of the WRUA long enough to understand the issues facing them which are concentrated on by the study.

4.3.3 Education of the WRUA Members

The education levels of respondents are shown in Table 4.4.

Table 4.4: Education Level of the WRUA Members

Category	Frequency	Percentage
Adult education	5	4.3
Primary	19	16.4
Secondary	51	44.0
Certificate	15	12.9
Diploma	19	16.4
Total	116	100

From Table 4.4, 44.0% of the WRUA members had attained secondary education, 16.4% of the WRUA members had a diploma, 16.4% of the WRUA members had primary education, 12.9% of the WRUA members had a certificate education, 6.0% of the WRUA members had a degree and above and 4.3% of the WRUA members had attained adult education. Despite the fact that the respondents' education level is relatively low in some areas, this did not compromise their ability to comprehend the questions asked in the questionnaire as they were assisted by well guided research assistants.

4.4 Water Conflict Prevalence

The presence of water conflicts are as shown in table 4.5.

Table 4.5 Presence of Water Conflicts

Presence of Conflict	Frequency	Percentage
Yes	105	91
No	6	5
I don't know	5	4
Total	116	100

From Table 4.5, 91% of the respondents observed that there is water conflict in the area under study. Only a paltry 6% and 5% percent observed that there was no water conflict at all and did not know respectively. This therefore indicated that there was a problem of water conflict in the sub catchment 5BE.

The presence of water conflicts are as shown in Table 4.6

Table 4.6 Prevalence of Water Conflicts

Prevalence of Conflict	Frequency	Percentage
Very High	65	56
High	30	25
I don't know	10	9
Low	9	8
Very Low	2	2
Total	116	100

Table 4.6, indicate that 56% of Sub Catchment 5BE felt that water conflict was very high, 25% felt it was high while less than 10% felt the conflict was low. This show that majority of the respondents felt that prevalence of water conflict is high.

4.5 WRUA’s Leadership and Management Style

The researcher sought to find out how WRUA’s leadership and management style influences water conflict management among the communities of sub catchment 5BE. The respondents were asked questions related to WRUA’s management style to resolve conflicts, WRUA’s leaders influence on the communities, community representation, WRUA’s communication and approaches used by WRUAs to manage water related conflicts.

4.5.1 WRUA’s Leadership and Management Style and representation in each zone

The study sought to find out whether, according to the WRUA members, if WRUA leaders’ management has influence on water conflict resolution and if the WRUA and the community at large feel that there is representation in each zone and how it communicates to its members.

4.5.1.1 WRUA’s Management’s Ability to Solve Water Conflicts

The respondents were asked to indicate if they thought WRUA management is able to deal with water conflicts. Their responses are as shown in Table 4.7.

Table 4.7: WRUAs Management’s Ability to Solve Water Conflicts

WRUAs Ability to solve conflict	Percentage	Frequency
Yes	97	83.6
No	15	12.9
Don’t know	4	3.4
Total	116	100

From Table 4.7, 83.6% of the WRUA members indicted that indeed WRUAs management was able to solve water conflicts, 12.9% of the WRUA members said they were not able to resolve the water conflicts while 3.4% of the WRUA members indicated they did not know if the management was able to solve water conflicts. For those who said yes, they indicated that the WRUA management was able to solve water conflicts by educating the communities that

benefit from the natural resource called water, advising communities to form groups, which would be used by the WRUA in disseminating information and advice the existing water projects to use one common intake for easier distribution of water especially during the dry periods of the year. The WRUA is in a better position to advice local inhabitants to have individual water pans as well as storage tanks to avoid problems of water during rationing periods and the use of drip irrigation by farmers to avoid requiring large volumes of water. The WRUA is also in a position to source for donor funding which would be used to upgrade the water project systems used by water projects. The WRUA also has its own way and knowhow of the catchment and any type of conflict and how to solve it and also offer legal policy guidance and directs on the right and efficient way to use water. To minimize conflict, WRUAs have done water allocation plans and every member has his or her own allocation which is monitored by the WRUA manager, by introducing different methods of reducing pollution where most communities are able to get water without difficulties and also through the involvement and active participation of all communities in the management.

For those who said that the WRUA's management was not able to solve water conflict, was due to the fact that the frameworks have been laid down and proper plans and strategies setup to solve any conflicts arising and since water resources users are the ones in control of the project, the members sit and dialogue to find a solution to the evolving problem. WRUAs have limited resources to use in conflict resolution and they also lack a sustainable/rational allocation of water thereby failing to supply adequate amount to meet standards/demands. Further, the management of WRUAs need to put their house in order before they start solving water problems and again the management lacks people of integrity. The respondents who said they did not know cited the reasons that they did not know because they are yet to be trained and enlightened.

4.5.1.2 WRUA Leaders Influence on Communities

The researcher asked the WRUA members to indicate whether the WRUA leaders were influential in their respective communities. Their responses are shown in Table 4.8.

Table 4.8: WRUA Members Influence on Communities

WRUAs Influence on Communities	Percentage	Frequency
Yes	100	86.2
No	6	5.2
Don't know	10	8.6
Total	116	100

As per Table 4.8, 86.2% of the WRUA members indicated that WRUA leaders were influential in their respective communities, 8.6% of the WRUA members indicated that they did not know if WRUA leaders were influential in their respective communities and 5.2% of the WRUA members indicated that WRUA leaders were not influential in their respective communities.

The WRUA members who felt that the leaders were influential in the community cited reasons such as the WRUA leaders are appointed/elected by the said community to represent them and as such their influence on these communities is largely accepted and upheld, they are also able to handle and solve water conflict and equalize all communities, they have the WRUAs interest at heart and also members look up to the WRUA for directions and guidance. They have also been able to convince the people to join the WRUA in protecting and sustaining the water catchment area. The WRUAs have also managed to convince local inhabitants to come together and form water projects groups where they act as the opinion leaders in their communities.

On the other hand, some WRUA members felt that WRUA leaders were not influential given the fact that, the WRUA doesn't cooperate with the project's association which is a forum of all the projects, since the WRUA destroys pipes and demolish intakes instead of negotiating with them. The WRUA leaders lack capacity to work with the projects' management. The WRUAs also lack enough leaders who can reach out to more people.

In both cases their influence is felt depending on the circumstances in which the communities understand the rules guiding the management of the water resources users' association.

4.5.1.3 WRUA Representation in Zones

The WRUA members were asked by the researcher if the WRUA had representation in every zone. Their response is shown in Table 4.9.

Table 4.9: WRUA Representation in Zones

Category	Frequency	Percentage
Yes	103	88.8
No	3	2.6
Don't know	10	8.6
Total	116	100

From Table 4.9, 88.8% of the WRUA members indicated that WRUA had been represented in every zone, 8.6% of the WRUA members indicated that they did not know if WRUA had been represented in every zone and 2.6% of the WRUA members indicated that WRUA had not been represented in every zone.

4.5.1.4 Community's Feeling of Representation in the WRUA

In this section the researcher asked the WRUA members if the whole community felt represented in the WRUA. Their responses are shown in Table 4.10.

Table 4.10: Community's Feeling on Representation in the WRUA

Category	Frequency	Percentage
Yes	87	75.0
No	18	15.5
Don't know	11	9.5
Total	116	100

From the Table 4.10, 75.0% of the WRUA members indicated that the whole community felt represented in WRUA, 15.5% of the WRUA members indicated that the whole community

did not feel represented in WRUA and 9.5% of the WRUA members indicated that they did not know if the whole community felt represented in WRUA.

Every community is represented in the WRUA because the WRUA has zones and every zone has representatives. Community through their water projects send their representative to the WRUA after every three years to form WRUA management committee. Thus none of the zones feels neglected since there is full representation of the members and furthermore, they critically observe gender equality in the representation of the executive. Each community had all the matters and problem solved. They also felt represented because if they ever had any complain of the WRUA projects, the project members were represented and they felt satisfied with the outcomes.

On those who felt that the communities were not represented, they indicated that the WRUA leaders were marred with self-interest such that when demolition occurred they carry pipes away without notice and to large measure they do it with exception in cases where a cynic has an influence in a section of that community. Riparian communities tend to participate more actively in the WRUA as opposed to others due to their inherent need to use the water for irrigation or fish farming. There is also a feeling that in some communities, members have not been inducted into the WRUA and its activities especially those who do not engage in irrigation.

4.5.1.5 WRUA's Communication Mode

In this section the WRUA members were asked how WRUA communicates to its people. Their responses are shown in the Table 4.11.

Table 4.11: WRUA Communication Mode to the People

Category	Frequency	Percentage
Sending messages	64	26.8
Public barazas	74	31.0
Phone	44	18.4
Radio/TV	5	2.1
AGMs/meetings	12	5.0
Workshops/seminars/field shows/training	9	3.8
Newspapers/billboards/brochures	6	2.5
Letters/emails	14	5.9
Projects	4	1.7
Schools/churches	7	2.9
Total	116	100

From the table 4.11, 31.0% of the WRUA members indicated that the WRUA communicated to them through public barazas, 26.8% of the WRUA members indicated that WRUA communicated to them through sending messages, 18.4% of the WRUA members indicated that WRUA communicated to them through phones. 5.9% of the WRUA members indicated that WRUA communicated to them through letters/emails, 5.0% of the WRUA members indicated that WRUA communicated to them through AGMs/meetings, 3.8% of the WRUA members indicated that WRUA communicated to them through workshops/seminars/field shows/training, 2.9% of the WRUA members indicated that WRUA communicated to them through schools/churches, 2.5% of the WRUA members indicated that WRUA communicated to them through newspapers/billboards/brochures and 1.7% of the WRUA members indicated that WRUA communicated to them through projects.

The researcher asked WRUA members to indicate what they thought WRUA leadership should do to improve its communication to the people. A number of responses were floated by the WRUA members and the researcher sampled a number of the responses which were relevant to the question. They proposed that the WRUA can improve its communication by calling public barazas using posters and also calling members using phone, by using radios, phones and pamphlets. They should also have a schedule of meeting with specific dates and times every month rather than calling for a meeting on immediate, urgent and emergency issues. The WRUA should also open several offices that will offer the grass root capacity at the field levels and also employ scouts and managers to patrol the river course at all times. The WRUA should also be holding seminars to educate people on water policies and management and further use motorbikes to deliver letters and also recruit and train junior officers on the ground to maintain sustainable networking with the people.

4.5.1.6 WRUA Leadership Influence on Water Conflict Management

The WRUA members were asked by the researcher to indicate whether in their opinion WRUA leadership influences water conflict management. Their responses are shown in the Table 4.12.

Table 4.12: WRUA Leadership Influence on Water Conflict Management

Category	Frequency	Percentage
Strongly agree	50	43.1
Agree	47	40.5
Neutral	12	10.3
Disagree	3	2.6
Strongly disagree	4	3.4
Total	116	100

From the table 4.12, 83.6% of the WRUA members agreed with the statement that WRUA leadership influences water conflict management with 43.1% of the WRUA members strongly agreeing, 10.3% of the WRUA members were neutral with the statement that WRUA leadership influences water conflict management and 6.0% of the WRUA members disagreed with the statement that WRUA leadership influences water conflict management with 3.4% of the WRUA members strongly agreeing.

As the administrative unit on the ground, the WRUA's impact does influence people in either way. They do so by following rules and regulations, by reading water meters when there is a necessity and listening to the members' opinions. The WRUA's management is also in a better position to influence change of behaviour, attitude and belief. The people tend to look up on their leaders if they are motivated in either positive or negative ways and tend to submit to the authority of the management and therefore leaders will have to carefully check on the way they influence. They also influence water conflict management positively through dialogue and consultation. Elected leaders also have a big role to play in resolving water use conflicts since their communities believe in them.

Some of the respondents disagreed because it is the users governing themselves and also because if there is always a meeting and good leadership, the activities in WRUA can run smoothly. Social/political forces at work always determine the impact of these influences both ways. At times, bad and selfish leaders can influence negatively. Where they influence positively they are hampered by lack of proper structure to support this cause and where they influence negatively, the community loyalty is at play.

4.5.2 WRUA's Leadership and Management Style

The researcher asked the WRUA stakeholders their specific roles and challenges with WRUAs in water resources management and conflict resolution, if the WRUA management styles are able to solve water conflicts, communities representation in the WRUA's leadership and management and WRUAs communication in water conflict resolution.

4.5.2.1 Roles WRUA Stakeholders play with the WRUAs

In this section the WRUA stakeholders were asked to indicate the roles their organisations played in the management and conflict resolution in water resources in collaboration with WRUAs. In their responses the respondents indicated they played various roles and mainly provided leadership and conciliation/consultation. Other roles were mediation and arbitration which was played by only one person. None of the stakeholders did take up the supervisory roles.

4.5.2.2 Challenges Encountered in Their Roles.

The WRUA stakeholders were asked to indicate the challenges they encountered in their various roles. The stakeholders indicated diverse challenges that included dealing with some self-centred persons with personal interests, inadequate facilitation, lack of WRUA capacity to handle community's issues, scarcity of resources in terms of finances and logistics leading to conflicts, biasness in resolving conflicts due to diverse interest of the members, convincing the involved parties partly due to their low education levels and failure by management to meet specific targets thus causing conflicts.

4.5.2.3 Roles of WRUA Stakeholders on Water Conflict Resolution

In this section the researcher asked the WRUA stakeholders to specify the role and support that their organization is expected to play in water conflict resolution through the involvement of the WRUA. In their responses they indicated that their organization is expected to arbitrate, do community mobilization, ensure equitable distribution of water resources, do capacity building, offer good leadership and training to the entire community, empower and enable the WRUA members implement their constitution and by-laws.

4.5.2.4 WRUA's Management and Leadership Style Ability to Solve Water Conflicts

In this section the researcher asked WRUA stakeholders to indicate whether WRUAs management and leadership style is able to solve water conflicts. 87.5% of the WRUA stakeholders indicated that indeed WRUAs management and leadership style was able to solve water conflicts and this is because they are closest to the community, they are in a better position to understand the occurrence of water conflicts, they have been able to do so in the past thus reducing the number of water use related conflicts in the basin and WRUA has management units in the three zones – upper, middle and lower and as such the structure is able to adequately manage potential conflicts. On the other hand 12.5% of the WRUA stakeholders indicated that WRUAs management and leadership style was not able to solve water conflicts and this is because the leadership of WRUA is not transparent and the leaderships does not and is not willing to change.

4.5.2.5 WRUAs Management Ability to Solve Water Conflicts

In this section the researcher asked the WRUA stakeholders to indicate if WRUAs management was able to solve water conflict. 87.7% WRUA stakeholders indicated that indeed WRUAs management was able to solve water conflicts and this is because they offer

local solutions through water allocation schedules, WRUAs are institutions that have been accepted in the community and where conflicts arise they are listened to, command respect, receive complaints from individuals and organizations concerning water use and in turn move quickly to solve such issues through arbitration and lastly since they know the people in conflict, they are able to convince them on the way forward without much antagonism. Nevertheless, 12.5% of WRUA stakeholders indicated that WRUAs management was not able to solve water conflicts and this is because the management is not to the intended members as it is biased and resources are distributed to the few known members and again the concept of WRUA has not been accepted by the common mwananchi.

4.5.2.6 Community's Representation in WRUA's Management and Leadership

In this section, the WRUA stakeholders were asked to indicate if the WRUA has a good representation of communities/regions in the management and leadership. 62.5% of the WRUA stakeholders said that indeed WRUA had a good representation of communities/regions in the management/leadership because WRUA members comprises of various stakeholders who have notably given support to WRUAs such as WRMA. All the same 37.5% of the of the WRUA stakeholders said that the WRUAs had no good representation of communities/regions in the management/leadership because self-interests of certain people and population plays a big role and some communities are left out due to their small numbers and the management is the same since inception up to today.

4.5.2.7 WRUAs Communication on Water conflict Issues

In this section, the researcher asked the WRUA stakeholders to indicate how WRUA communicates with their organization on water conflict issues and at what point does their organization get involved. Their responses were very rarely do they communicate and if they do it is by word of mouth and sometimes conflicts pass without their notice. Others indicated that it is through written complaint or a phone call where necessary, and they respond immediately. The point at which the organization gets involved is when the WRUA has tried to solve some conflicts that they deem manageable but if not able to resolve they refer them to the stakeholders for intervention. The mandate of the stakeholders is mainly conflict resolution and equitable distribution of water and to ensure that communities live in harmony.

4.5.3 Relationship Between Leadership and Conflict Prevalence

The relationship between leadership and conflict prevalence is as per Table 4.13.

Table 4.13 Relationship Between Leadership and Conflict Prevalence

Leadership of WRUA Ability on Conflict Resolution	Percentage	Conflict Prevalence	Percentage
Very High Ability	43.1	Very Low	2
High	40.5	Low	8
I Don't Know	10.3	Neutral	9
Low	2.6	High	25
Very Low	3.4	Very High	56
Total	100		100

The results are shown in Table 4.14

Table 4.14: Pearson Product Moment correlation

Statistic	Leadership Variable(X)	Conflict Variable (Y)
Mean	20	20
Standard Deviation	20.91	19.54
Correlation (r)	-0.703	
Degree of Freedom	3	

The computed Pearson Product Moment Correlation coefficient is -0.703 as shown in Table 4.14 This depicts a strong negative correlation between WRUA's leadership ability to solve conflict and conflict prevalence. This means strong leadership ability is required in reducing conflicts.

4.6 Conflict Management Strategies

In this section the researcher was to find out the extent to which WRUAs conflict management strategies influence water conflict management among the communities of sub catchment 5BE. The respondents were asked question related to how WRUA knows there is a conflict on water related issues, how they solve it, if the methods work and which are the approaches to deal with water conflict according to WRUA members.

4.6.1 Analysis of Conflict Management Strategies According to the WRUA Members

In this section the researcher sought to know how the WRUA gets knowledge when there is a conflict related to water use, how the WRUA resolves water related conflicts and if the methods work, if members thought there could be better methods and if the strategy used by the WRUA influence water conflict management.

4.6.1.1 WRUA's Systems of Detecting Water Conflict

The respondents were asked to indicate how WRUA knows when there is a conflict related to water use. The members indicated that the scouts are with members every day seeking the members' problems and then relay the problem to the WRUA. It also has foremen and village managers in each village and community who communicate in case of conflict. WRUAs also have office lines which are opened dairy so when the water use has conflicts they send their leaders to the office and the WRUA visit the project. WRUA also get to know if there is a conflict related to water use by visiting members. Also, non-payment of annual fee, projects lack of maintenance, members complaining act as an indication of conflict. Conflicts are also reported to the WRUA office by the aggrieved parties and through community protests especially when the water flow is below normal.

4.6.1.2 WRUA Methods of Water Conflicts Resolution

In this section, the researcher asked the respondents to indicate how WRUA resolves water related conflicts. Their responses were WRUA resolve water related conflicts through water rationing. The WRUA also listens to the members and then call for meetings with the leaders and as such are able to solve the problems. By visiting people with conflict, they know the problem and come up with a solution by holding reconciliation meetings. Negotiation is most used since members believe that issues affecting them could be solved through dialogue by sitting with the affected members, hear their problems, advice and give direction. Again,

conflicts are solved by constructing many water sources that would bridge the gap and by applying the adopted principles of equitable access of water use and benefits from use – hard as it sometimes can be, they have come up with common intakes to share the available water and by reducing the powers given to water projects in management of the water resource.

4.6.1.3 Effectiveness of the Conflict Resolution Methods

In this section the researcher asked the WRUA members if the above methods they had listed work and their responses are highlighted in the Table 4.15.

Table 4.15: Effectiveness of the Conflict Resolution Methods

Category	Frequency	Percentage
Yes	108	93.1
No	5	4.3
Don't know	3	2.6
Total	116	100

From the Table 4.15, 93.1% of the WRUA members believed that the methods they had listed above would work, 2.6% of the respondents believed they would not work while 2.6% of the respondents did not know if they would work.

4.6.1.4 Methods that WRUA Members Thought Would Resolve Water Conflict

The researcher asked WRUA members to suggest ways they thought would resolve the water conflict. Their responses were they can solve water conflicts by putting more tanks and teaching members how to use water when there is drought, do more training and reaching out to people through educational seminars, use of legal measures to prosecute those using water illegally, construction of dams for irrigation, building common intakes, removing illegal pipes and empowering communities with the relevant knowledge, skills, attitude and beliefs. Also negotiations, frequent meetings and education on water act plus constructing many water sources like building of check dams, buying plastic tanks and drilling of borehole that would bridge the gap of inadequate water sources. Again, by having a monitoring committee, educating the communities on sustainable water use, creating more awareness within communities especially as water being an indivisible national asset for optimum social/economic benefit would resolve water conflicts. Finally the regional WRMA office

should come to the ground to survey water resources before accepting issue permits to new projects.

4.6.1.5 Influences of Strategies and Approaches Used by WRUA on Water Conflict Management

In this section the researcher asked WRUA members if they thought the strategy and approach used by WRUA influenced water conflict management. Their responses are highlighted in the Table 4.16.

Table 4.16: Influences of Strategies and Approaches Used by WRUA on Water Conflict Management

Category	Frequency	Percentage
Strongly agree	39	33.6
Agree	55	47.4
Neutral	10	8.6
Disagree	5	4.3
Strongly disagree	7	6.0
Total	116	100

From the Table 4.16, 81.0% of the WRUA members agreed that the strategies and approaches used by WRUA influence water conflict management with 33.6% of the WRUA members strongly agreeing, 10.3% of the WRUA members disagreed that the strategies and approaches used by WRUA influence water conflict management with 33.6% of the WRUA members strongly disagreeing while 8.6% of the WRUA members were neutral.

4.6.2 Analysis of Conflict Management Strategies According to WRUA Stakeholders

The researcher sought to know from the stakeholders how the WRUA knows there is a conflict in water use, the effective methods of resolving conflicts and if such strategies and approaches used by the WRUA influence water conflict management.

4.6.2.1 WRUA systems of detecting Conflict in Water Use

In this section, the researcher asked the WRUA stakeholders how the WRUA knows there is a conflict in water use and what strategies it takes to resolve such conflicts. All WRUA

stakeholders indicated they were aware of how WRUA knows there is a conflict in water use and what strategies the WRUA takes to resolve such conflicts. They indicated they did know their representatives and their conflict committee calls for a conflict resolution meeting immediately, they also use water rationing programmes and master meters as a control measure. There is also a monitoring committee while others have scouts and these two teams can detect where there are conflicts, the strategy used by some was mediation and dialogue. Communities have also been sensitized and have formed their own committees who are informed of any conflicts and in turn inform the WRUA chairman.

4.6.2.2 Effective Method of Resolving Conflicts

The researcher asked the WRUA stakeholders if the methods/strategies adopted were effective for resolving conflict. All of the WRUA stakeholders said indeed the methods/strategies adopted were effective for resolving conflict.

When asked if they thought there could be a better method to resolve the conflict, the WRUA stakeholders indicated that proper leadership in the WRUAs could provide conflict solving strategies, through enforcement of strict WRUA's by-laws and the implementation of the constitution and through the involvement of local provincial administration to offer scrutiny. Some of the WRUA stakeholders indicated there was no other better method to resolve the conflict because at the local level water resource conflicts are easily identifiable by the WRUA.

4.6.2.3 Influence of strategy and Approach used by WRUAs on Water Conflict Management

The respondents were asked by the researcher to indicate if the strategies and approaches used by the WRUAs influences water conflict management. All the respondents indicated that indeed the strategies and approaches used by the WRUAs influences water conflict management. The reasons given were that they ensure equity in water resources allocation and utilization by making parties understand each other's predicaments and hence the need to come to a consensus and it also acts as a tool of empowering the people. The early identification of potential water conflicts by the WRUAs contributes to better management of water conflicts and the WRUA having its representatives as the water users and having the representation from all over the sub catchments are therefore more vast in resolution than any other institution.

4.6.3 Relationship Between Conflict Management Strategies and Conflict Prevalence

The relationship is as shown in Table 4.17

Table 4.17: Relationship Between Conflict Management Strategies and Conflict Prevalence

Conflict Management Strategies Ability on Conflict Resolution	Percentage	Conflict Prevalence	Percentage
Very High Ability	33.6	Very Low	2
High	47.4	Low	8
I Don't Know	8.6	Neutral	9
Low	4.3	High	25
Very Low	6.1	Very High	56
Total	100		100

The results are shown in Table 4.18.

Table 4.18 Pearson Product Moment correlation

Statistic	Conflict Resolution Strategies Variable(X)	Conflict Variable (Y)
Mean	20	20
Standard Deviation	17.35	19.54
Correlation (r)	-0.606	
Degree of Freedom	3	

The computed Pearson Product Moment Correlation coefficient is -0.606 as shown in Table 4.18 This depicts a strong negative correlation between WRUA's conflict resolution strategies to solve conflict and conflict prevalence. This means that the strategies and approaches used in conflict management are helpful in reducing water conflicts.

4.7 Training and Capacity Building

To determine the extent to which WRUA’s trainings and capacity building influence water conflict management among the communities of sub catchment 5BE, the researcher asked the respondents questions on if they had been trained and if so whether the training was relevant, if the training helped, if they required any training and on what topics they would like covered.

4.7.1 Analysis of Training and Capacity Building According to WRUA Members

In this section the researcher sought to know if the WRUA members have ever been trained, if the training was relevant and helped in water conflict resolution and if they require any training.

4.7.1.1 Training by WRUA

The researcher asked the WRUA members to indicate if they had ever been trained by the WRUA. Their responses are highlighted in Table 4.19.

Table 4.19: Training by WRUA

Training by WRUA	Percentage	Frequency
Yes	75	64.7
No	41	35.3
Don’t know	0	.0
Total	116	100

From the Table 4.19, 64.7% of the WRUA members had received training from WRUA while 35.3% of the WRUA members had not. The respondents indicated the number of times they had been trained in the last two years and for some it was four times, three times, two times, one time, and others above five times.

4.7.1.2 Relevance of Training

The researcher asked the WRUA members to indicate if the training was relevant. Their responses are highlighted in Table 4.20

Table 4.20: Relevance of Training

Category	Frequency	Percentage
Yes	74	63.8
No	6	5.2
Don't know	36	31.0
Total	116	100

From the Table 4.19, 63.8% of the WRUA members indicated that the training was relevant, 31.0% of the WRUA members indicated that did not know if the training was relevant and 5.2% of the WRUA members indicated that the training was not relevant.

The training had been important because they got to know how to store water for ninety days, how to use and save water, dig a water pan where one can store water to use in farming during the dry season, gained skills in water conservation, modern skills of irrigation and using water, how to harvest rain water which can be used during dry season e.g. for domestic purposes. They have also learned that water is everyone's right and now ensure that there is enough flow for downstream users and they are also able to manage projects especially on human resource management, on purchasing and supply of equipment. They have also come to understand the water policy framework in place, understanding water as a social and economic good for all and in general the environment while others have learnt how to use the water wisely to avoid conflicts.

4.7.1.3 Relevance of Training in Water Conflict Resolution

The WRUA members were asked by the researcher if training had helped in water conflict resolution. Their responses are highlighted in Table 4.21.

Table 4.21: WRUA's Training and Water Conflict Resolution

Category	Frequency	Percentage
Strongly agree	64	52.6
Agree	48	41.4
Neutral	7	6.0
Disagree	0	.0
Strongly disagree	0	.0
Total	116	100

From table 4.21, 94.0% of the WRUA members agreed that indeed training had helped in water conflict resolution while 6.0% of the respondents were neutral.

The training had helped the members in water conflict resolution in the following ways; WRUA members understand the Water Act 2002 and started using it, when the community discovers the harvest of water there is plenty in the community for both domestic use and irrigation and conflict are easily solved, when there is training there is creation of awareness and this help to solve water conflicts. The training helped them to understand the importance and the functions of WRUA, better water management, environment conservation, tree planting, rules about riparian and catchment areas and also helped people know their rights. They also learnt that, if a sustainable training is maintained and all negative forces in the communities are overcome, then this will be the only choice to achieve success. They also learnt more on conflict management, water resource management and group dynamics. The bottom line is when one understands the regulations and water control systems and adopts the same as this is a recipe for conflict resolutions.

4.7.1.4 Respondents Training Needs

The researcher asked WRUA members if they required training. Their responses are highlighted in Table 4.22.

Table 4.22: Respondent Training Needs

Training Required	Percentage	Frequency
Yes	112	96.5
No	3	2.6
Don't know	1	0.9
Total	116	100

Table 4.22, 96.5% of the WRUA members indicated that they required the training, 2.6% of the WRUA members did not require training and 0.9% of the WRUA members did not know if they required training.

The areas or topic that the respondents indicated they would want covered in their training was on the riparian land and benefits of catchment protection, water usage and management, how to solve water conflict, use of drip irrigation, how to harvest water, the water policy implementation and modern economical water usage. They also indicated that they need training in project planning and management, Water Act 2002 and Water Rules 2007, WRUA constitution and by-laws on project management, water rationing and on policy framework.

4.7.2 Analysis of Training/Capacity Building According to WRUA Stakeholders

Here, the researcher sought to know if the stakeholders were involved in WRUA training/capacity building, if the training helps/influences the WRUAs in water conflict resolution and if such trainings should be enhanced.

4.7.2.1 Involvement in Training WRUAs in Water Conflict Management and Resolution

In this section, the researcher asked the WRUA's stakeholders whether they were involved in training WRUAs in water conflict management and resolution. 87.5% of the WRUAs stakeholders were involved in training WRUAs in water conflict management and resolution. The training was mainly conducted by the technical department and was also held during public barazas, the WRUAs being made up of locals and with no conflict resolution skills and tools, require to be trained and strengthened. It was also part of the WRUA's stakeholders

business to train WRUAs on conflict management and governance, there were also some newly formed WRUAs which involved almost the entire community and proper awareness and training was needed and lastly through water services trust fund they were able to organize training for the WRUAs mainly on leadership, governance and conflict management. 12.5% of the WRUAs stakeholders were not involved in training WRUAs in water conflict management and resolution as this opportunity was not availed to them.

4.7.2.2 Influence of WRUAs Training on Water Conflict Resolution

In this section the researcher asked the WRUA stakeholders if they thought the training helps/influences the WRUAs capacity in water conflict resolution. All the respondents indeed agreed that training helps/influences the WRUAs capacity in water conflict resolution. This is because after the training the WRUAs were able to critically settle disputes. It also enhanced their understanding, they were able to offer solutions and was an eye opener to the community thus reducing the water conflict, WRUAs became aware of the source of conflict and were able to come up with strategies to solve the conflicts and were able to make informed decisions and give guidelines.

4.7.2.3 Relationship between Training and Conflict Prevalence

The relationship between Training and Conflict prevalence are as shown in Table 4.23

Table 4.23: Relationship between Training and Conflict Prevalence

WRUA Training on Conflict Resolution	Percentage	Conflict Prevalence	Percentage
Strongly Agree	52.6	Very Low	2
Agree	41.4	Low	8
Neutral	6	Neutral	9
Disagree	0	High	25
Strongly Disagree	0	Very High	56
Total	100		100

The results are shown in Table 4.24

Table 4.24 Pearson Product Moment correlation

Statistic	Leadership Variable(X)	Conflict Variable (Y)
Mean	20	20
Standard Deviation	22.44	19.54
Correlation (r)	-0.688	
Degree of Freedom	3	

The computed Pearson Product Moment Correlation coefficient is -0.688 as shown in Table 4.23 This depicts a strong negative correlation between WRUA’s training to community in solving conflicts and conflict prevalence. This means more training is required in reducing conflicts.

4.8 Culture of the Community and Religion

The researcher sought to analyse how the culture and religion of the community influence water conflict resolution according to the WRUA members and the stakeholders.

4.8.1 Analysis of Culture of the Community and Religion According to WRUA Members

In this section the researcher sought to address issues of the extent to which culture and religion among the communities of sub catchment 5BE influences water conflict management. The researcher asked questions on if culture and religion resulted into water conflict and how to manage conflict emanating from cultural of religious conflicts.

4.8.1.1 Influence of Culture Results on Water Conflicts

The researcher asked the respondents to indicate if cultural differences brought about water conflicts. Their responses are highlighted in table 4.25 below.

Table 4.25: Culture Results in Water Conflicts

Category	Frequency	Percentage
Yes	78	67.2
No	32	27.6
Don’t know	6	5.2
Total	116	100

From Table 4.25, 67.2% of the WRUA members indicated that culture resulted into water conflicts, 27.6% of the WRUA members indicated that culture did not result into water conflict while 5.2% of the WRUA members did not know if culture resulted into water conflict.

For the respondents who indicated that culture resulted into conflict said that the upper communities think that it is their right to use water as they want, some communities were nomadic while others are farmers and use water differently and this is especially so as the farming communities cause the major problem because of irrigation denying normal flow to pastoral communities and tend to close water upstream making the pastoralist to complain and other times the elders incite other community members especially if different community feel like their culture is the one entitled to use water for irrigation.

4.8.1.2 Religion and Water Conflicts

The researcher asked the respondents to indicate if religion resulted into water conflicts. Their responses are shown in table 4.26.

Table 4.26: Religion and Water Conflicts

Religion/cultural Difference	Percentage	Frequency
Cause water conflict		
Yes	33	28.4
No	76	65.5
Don't know	7	6.1
Total	116	100

From Table 4.26, 65.5% of the WRUA members indicated that religion did not result into water conflicts, 28.4% of the WRUA members indicated that religion resulted into water conflict while 6.1% of the WRUA members indicated that religion did not result into water conflict. The respondents also indicated that religion resulted into water conflicts in that many people believe that water is a gift from God and they should not pay water charges and monopoly of water resources by many or one religious group denies others the access. This

was captured on the part of the questionnaire where the respondents were asked to explain their answers.

4.8.1.3 WRUAs Ability to Resolve Conflicts Related to Culture and Religion

In this section the researcher asked the respondents if WRUA had managed to resolve such water conflicts related to religion and culture. Their responses are shown in table 4.27.

Table 4.27: WRUAs ability to Resolve Conflicts Related to Culture and Religion

Ability of WRUA	Percentage	Frequency
Yes	73	62.9
No	26	22.4
Don't know	17	17.7
Total	116	100

From table 4.27, 62.9% of the WRUA Members indicated that they did resolve water issues related to religion and culture, 22.4% of the WRUA Members indicated that they did not resolve water issues related to religion and culture and 17.7% of the WRUA Members indicated that they did not know if water issues related to religion and culture had been resolved.

4.8.2 Analysis of Culture of the Community and Religion According to WRUA Stakeholders

The researcher sought to know from the WRUA stakeholders if different cultures and religion of the community has influence in water conflict resolution and whether the WRUA has a cultural and religious approach while resolving water conflicts.

4.8.2.1 Influence of Different Cultures and Religion on Water conflicts

In this section the researcher asked the WRUA stakeholders if they thought culture and religion of the communities had an influence in water related conflicts. All the WRUA stakeholders agreed that indeed culture and religion of the communities had an influence in water conflicts. This is because some communities regard water for livestock as a priority number one and disregard domestic users; on the other hand, the farming community sees water as being important to their plants contrary to the pastoral community.

4.8.2.2 WRUA Cultural and Religious Approach in Resolving Water Conflicts

In this section the researcher asked the WRUAs' stakeholders to indicate if they had a religious and cultural approach to resolving water conflict. 75.0% of the WRUA stakeholders indicated that indeed WRUAs had a cultural and religious approach while resolving water conflicts. This is because they have different needs of their members and as such they were trying their best to ensure all their needs on water are catered for and they considered the different cultural affiliations for the different users while solving conflicts. 25% of the WRUA stakeholders indicated that WRUAs did not have a cultural and religious approach while resolving conflicts. This is because emotions were sometimes used and some communities have opinion leaders who are not members of the WRUA who assisted in solving conflicts.

CHAPTER FIVE
SUMMARY OF FINDINGS, DISCUSSIONS, CONCLUSIONS AND
RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the findings, conclusions drawn from the findings and recommendations made in line with the research questions and objectives. The conclusions and recommendations drawn there-to were focused on addressing the purpose of the study which was to investigate on the influence of water resources users' associations (WRUAs) in water conflict resolution among the communities of sub-catchment 5BE in Meru-Laikipia Counties.

5.2 Summary of Findings

A summary of the findings are as presented in sub sections 5.2.1, 5.2.2, 5.2.3 and 5.5.4 as per the study's objectives.

5.2.1 Influence of WRUA's Leadership and Management in Water Conflict Resolution

The first objective sought to determine how WRUA's leadership and management style influences water conflict management among the communities of sub catchment 5BE and the results showed that 83.6% of the WRUA members indicated that indeed WRUA's management was able to resolve water conflicts while 12.9% of the WRUA members said they were not able to resolve the water conflict. It was noted that 86.2% of the WRUA members indicated that WRUA leaders were influential in their respective communities while 5.2% of the WRUA members indicated that WRUA leaders were not influential in their respective communities. On the other hand, 88.8% of the WRUA members indicated that the WRUA had been represented in every zone and 2.6% of the WRUA members indicated that the WRUA had not been represented in every zone with 75.0% of the WRUA members indicating that the whole community felt represented in the WRUA while 15.5% of the WRUA members indicated that the whole community did not feel represented in WRUA.

On communication, 31.0% of the WRUA members indicated that the WRUAs communicated to them through public barazas with 26.8% of the WRUA members indicating that WRUAs communicated to them through sending messages and 18.4% of the WRUA members indicating that WRUA communicated to them through phones. 5.9% of the WRUA members indicated that WRUA communicated to them through letters/emails, 5.0% of the WRUA

members indicated that WRUA communicated to them through AGMs/meetings, 3.8% of the WRUA members indicated that WRUA communicated to them through workshops/seminars/field shows/training, 2.9% of the WRUA members indicated that WRUA communicated to them through schools/churches, 2.5% of the WRUA members indicated that WRUA communicated to them through newspapers/billboards/brochures and 1.7% of the WRUA members indicated that WRUA communicated to them through projects, 83.6% of the WRUA members agreed with the statement that WRUA leadership influences water conflict management, 10.3% of the WRUA members were neutral with the statement that WRUA leadership influences water conflict management and 6.0% of the WRUA members disagreed with the statement that WRUA leadership influences water conflict management. The computed Pearson Product Moment Correlation coefficient was -0.703 which depicts a strong negative correlation between WRUA's leadership ability to solve conflict and conflict prevalence. This means strong leadership ability is required in reducing conflicts.

5.2.2 WRUA's Strategies' Influence in Water Conflict Management

The second objective sought to assess the extent to which WRUAs conflict management strategies influence water conflict management among the communities of sub catchment 5BE and the findings showed that the WRUA knows when there is a conflict related to water use by using scouts, foremen and village managers in each village and community who communicate in case of conflict, office lines which are opened dairy such that when the water use has conflicts they send their leaders to the office and the WRUA visits the project. WRUAs resolve water related conflicts through water rationing and by listening to the members, then calls for meetings with the leaders and by sitting with the affected members, hear their problems, advise and give direction and again by constructing many water sources they bridge the gap by applying the adopted principles of equitable access of water use and benefits from use – hard as it sometimes can be. 93.1% of the WRUA members believed that the methods they had listed above would work, 2.6% of the respondents believed they would not work while 2.6% of the respondents did not know if they would work. WRUA members suggested ways they would resolve the water conflict is by putting up more tanks and teaching members how to use water when there is drought, do more training and reaching out to people through educational seminars, educating the communities on sustainable water use, creating more awareness within communities especially as water being an indivisible national

asset for optimum social/economic benefit and the regional offices should come to the ground to survey water resources before accepting new project. 81.0% of the WRUA members agreed that the strategies and approaches used by WRUA influence water conflict management, 10.3% of the WRUA members disagreed that the strategies and approaches used by WRUA influence water conflict management while 8.6% of the WRUA members were neutral. The computed Pearson Product Moment Correlation coefficient is -0.606 which depicts a strong negative correlation between WRUA's conflict resolution strategies to solve conflict and conflict prevalence. This means that the strategies and approaches used in conflict management are helpful in reducing water conflicts.

5.2.3 Influence of Training and Capacity Building of WRUA's in Water Conflict Resolution

The third objective sought to establish the extent to which WRUA's trainings and capacity building influence water conflict management among the communities of sub catchment 5BE. The respondents indicated that the training had been important because they got to know how to use and safe water, dig a water pan where one can store water to use in farming during the dry season, gained skills in water conservation, modern skills of irrigation and using water, understand the policy framework in place, understanding water as a social/economic good for all and the environment generally and others have learnt how to use the water wisely to avoid conflict. 94.0% of the WRUA members agreed that indeed training had helped in water conflict resolution while 6.0% of the respondents were neutral. 95.5% of the WRUA members indicated that they required the training, 2.6% of the WRUA members did not require training and 0.9% of the WRUA members did not know if they required training. The areas or topic that the respondents indicated they would want covered in their training was on the riparian land and benefits of catchment protection, water usage and management, how to solve water conflict, use of drip, how to harvest water, water policy implementation and modern economical water usage, project planning management, Water Act 2002 and Water Rules 2007, WRUA constitution and by-laws project management, water rationing and on policy framework. The findings from the study showed that 64.7% of the WRUA members had received training from WRUA while 35.3% of the WRUA members had not and the number of times they had been trained in the last two year for some was four times, three times, one time, about five times and others two times. 63.8% of the WRUA members indicated that the training was relevant, 31.0% of the WRUA members indicated

that did not know if the training was relevant and 5.2% of the WRUA members indicated that the training was not relevant. The computed Pearson Product Moment Correlation coefficient between training and conflict prevalence was -0.688. This depicts a strong negative correlation between WRUA's training to community in solving water conflicts and conflict prevalence. This means more training is required in reducing conflicts.

5.2.4 Influence of Community's Culture and Religion in Water Conflict Resolution

The fourth objective looked at the extent to which culture and religion among the communities of sub catchment 5BE influence water conflict management and the findings showed that 67.2% of the WRUA members indicated that culture resulted into water conflicts, 27.6% of the WRUA members indicated that culture did not result into water conflict while 5.2% of the WRUA members did not know if culture resulted into water conflict. For the respondents who indicated that culture resulted into conflict said that the upper communities think that it is their rights to use water as they want, some communities were nomadic while others are farmers and use water differently and this is especially so as the farming communities cause the major problem because of irrigation denying normal flow to pastoral communities and tend to close water upstream making the pastoralist to complain other times the elders incite other community members especially if different community feel like their culture is the one entitled to use water for irrigation. 65.5% of the WRUA members indicated that religion did not result into water conflicts, 28.4% of the WRUA members indicated that religion resulted into water conflict while 6.1% of the WRUA members indicated that religion did not result into water conflict and that religion resulted into water conflicts in that many people believes that water is a gift from God and they should not pay water charges and monopoly of water resources by many or one religious group denying others the access. 62.9% of the WRUA members indicated that they did resolve water issues related to religion and culture, 22.4% of the WRUA members indicated that they did not resolve water issues related to religion and culture and 17.7% of the WRUA Members indicated that they did not know if water issues related to religion and culture had been resolved.

5.3 Discussions

The study sought to discuss the research findings based on the four objectives and subjecting these findings to literature and further concluded on each of them.

5.3.1 Extent to Which WRUA's Leadership and Management Style Influence Water Conflict Resolutions

The first research question looked at the extent to which WRUAs' leadership and management style influence water conflict management among the communities of sub catchment 5BE. It was noted that WRUAs management was indeed able to resolve water conflicts mainly due to their influence on the community which is in agreement with Humphrey (2002) who wrote that the ability of leaders to influence the emotional climate can strongly influence performance and again Humphrey, Pirola-Merlo et al, 2002 conclude that leadership is a process of social interaction where the leaders ability to influence the behaviour of their followers performance outcome, in this case conflict resolution. The community at large also felt represented and the WRUA was able to offer local solutions as they were listened to, commanded respect and they are able to convince people on the way forward without much antagonism. Nevertheless, WRUAs management in some areas was not able to solve water conflicts because at times self-interests of certain people and population played a big role. It was also noted that WRUAs have tried to solve some water conflicts that they deem manageable but if not able to resolve they refer them for intervention. They mainly use mediation which has about 100 conflict management techniques which is in agreement with Wall & Lynn, 1993 who also add that some of the techniques are applied to the party – other party relationship, others to parties themselves and still others to parties relationship with outsiders. Their mandate is mainly in water conflict resolution and equitable distribution of water and to ensure that communities live in harmony. The computed Pearson Product Moment Correlation coefficient depicted a strong negative correlation between WRUA's leadership ability to solve conflict and conflict prevalence. This means strong leadership ability is required in reducing conflicts.

5.3.2 Extent to Which WRUA's Strategies Influence Water Conflicts Resolution

The second research question looked at how WRUAs conflict management strategies influence water conflict management among the communities of sub catchment 5BE. It was noted that the strategies and approaches used by the WRUAs influences water conflict

management and the WRUAs got to know when there was a conflict related to water use by using scouts, foremen and village managers, who are located in each village and community, who communicate in case of conflict and resolve water related conflicts through water rationing, by sitting with the affected members, hear their problems, advise and give direction and by applying the adopted principles of equitable access of water use. This is in agreement with studies by James (1987) and Webb (1986) who assert that a third party can provide conciliation or consultations which are less formal than mediation. They have also come up with common intakes to help share the available water and have also reduced the powers given to water projects in management of the water resource which is a sign of compliance and in agreement with Rochi & Cook (1989) who wrote that mediation results into about 77% compliance and is further in agreement with Zarski (1985) who notes that mediation provides the disputants with problem solving skills, which can be relied on in future. Kelly and Gigy (1989) in their studies conclude that mediation improves communication which was also in agreement with this study. Most WRUA members believe that the methods they had come up with to resolve conflicts did work but felt that more training and reaching out to people through educational seminars, educating the communities on sustainable water use, creating more awareness within communities especially as water being an indivisible national asset for optimum social and economic benefit work even better to resolve conflicts. The computed Pearson Product Moment Correlation coefficient between training and conflict prevalence depicted a strong negative correlation between WRUA's training to community in solving conflicts and conflict prevalence. This means more training is required in reducing conflicts since.

5.3.3 WRUAs' Trainings Influence in Water Conflicts Resolution

The third research question looked at how WRUAs' trainings influence conflict management among the communities of sub catchment 5BE. The study found out that most of the WRUA members had received training a number of times. The training was indeed relevant since the members got to know about how to use and save water, gained skills in water conservation, modern skills of irrigation and using water, understood the water policy framework in place, understanding water as a social and economic good for all and the environment generally while others have learnt how to use the water wisely to avoid conflict. However some members felt that more training was needed on riparian land and benefits of catchment protection, water usage and management, how to solve water conflicts, water policy implementation and modern economical water usage and project planning and management.

The computed Pearson Product Moment Correlation between training and conflict prevalence coefficient is -0.688. This depicts a strong negative correlation between WRUA's training to community in solving conflicts and conflict prevalence. This means more training is required in reducing water conflicts. The WRUA should especially be trained on leadership which is a process of social interaction where the leaders ability to influence the behaviour of their followers can strongly influence the performance outcomes as observed by Humphrey (2002) and Pirola- Merlo et al (2002).

5.3.4 Influence of Culture and Religion of Communities in Water Conflicts Resolution

Finally the last research question looked at the extent to which culture and religion of the communities influence water conflict management in sub catchment 5BE and it was noted that culture resulted into water conflicts, as the upper communities think that it is their right to use water as they want. Some communities are nomadic while others are farmers and use water differently and this is especially so as the farming communities cause the major problems, because of irrigation, denying normal flow to pastoral communities by tending to close water upstream making the pastoralists complain. As noted by Savenije and van der Zaag (2002), when implementing an integrated water resources management strategy or framework, it is important to note the spatial and temporal variabilities and so each area needs to have a specific strategy which also applies in this case where we have pastoralists and farmers. Stikker (1998) in his studies noted that social, cultural, political, technological and environmental aspects need to be considered in water management prospects and plans which further qualifies this fact. At other times, the elders incite other community members especially if a community feel like their culture is the one entitled to use water for irrigation. On the other hand, WRUA members indicated that religion resulted into water conflicts. Water conflicts arose due to people believing that water is a gift from God and they should not pay water use charges and also the monopoly of water resources by many or one religious group denying others the access. The WRUA members indicated that they did resolve water issues related to religion and culture.

5.4 Conclusions

The study concludes that the WRUA's leadership and management style has an influence on water conflict management and to a greater extent are able to resolve water conflicts. The study also concludes that the strategies and approaches used by the WRUAs influence water conflict management by ensuring that there is equitable resource allocation and utilization.

Further, training helps and/or influences the WRUAs' capacity in water conflict resolution because they are able to critically settle disputes and come up with strategies to solve the water conflicts. The WRUAs are also able to make informed decisions and give guidelines after training. Most of the respondents were in agreement that culture and religion of the communities had an influence in water conflicts. This is because some communities regard water for livestock as a priority and disregard domestic users; on the other hand, the farming community sees water as being important to their plants contrary to the pastoral community. However, WRUAs indicated that they had a religious and cultural approach to resolving water conflict.

The above findings will assist the government policy makers to understand how leadership and management in WRUAs influence water conflict resolutions and as such help in educating the WRUAs on leadership and management skills for better management and resolution of water conflicts. Again the WRUAs will also understand and appreciate the leadership and management styles influence the way water conflicts are handled and as such will take keen interest on whom they elect as their leaders. While putting policies in place, the government will also understand that the culture and religion of the communities have an influence in the way water conflicts are resolved and as such take into account the various cultures and religion of communities. It is also imperative for those in authority and dealing with water conflict resolutions e.g. WRMA to understand that trainings also have a bearing on how WRUAs understand water conflicts, put strategies in place and come up with solutions to water related conflicts and there the need to put programmes in place to train WRUAs and communities on how to understand and resolve conflicts

5.5 Recommendations

In light of the above findings, the following are the recommendations of the study:

1. WRUA leaders should be trained and empowered on how to go about conflict management and resolution through negotiation, mediation, reconciliation and arbitration without compromising their quality of leadership. WRMA should take a key role in this with the support of the key stakeholders.
2. The WRUAs should also have representatives in every zone that should constitute a good number of local community members who can address issues on water conflicts in a timely, unbiased and sober manner. The WRUA leadership should ensure this.

3. WRUA members should be trained on how to avoid conflicts and on how to solve them, management of water resources and on water policy implementations. WRMA and major stakeholders should play leading role on this matter
4. The WRUAs should also be trained on environmental conservation which consequently leads to water conservation thereby having enough water for everyone and with minimal conflicts.
5. The community should be trained on how to respect other people's culture and religion and learn to co-exist. The pastoral community and the farming community should know that they both have a right to use water in a sustainable manner and there should be set rules and regulations that should be followed by individuals and projects. NGOs can play a leading role in this training.

5.6 Areas of Further Research

From the findings of this study, the following areas are recommended for further study:

1. Impact of WRUAs in water conflict resolution.
2. Influence of Water Use Conflicts on Management and Conservation of Water Resources.
3. Influence of Stakeholders In Water Conflict Resolution.

REFERENCES

- Aaron T. W. Annika, K. Alexander, C and Geoffrey D. D. 2005. State of the World. Managing water conflict and cooperation. Pg 81
- Aldrich, H. (1971). Organizational boundaries and interorganizational conflict. *Human Relations*, 24: 279-293.
- Augsburger, D.W. (1992). *Conflict mediation across cultures: Pathways and patterns*. Louisville, KY: Westminster/ John Knox.
- Baron, R.A. (1989). Personality and organizational conflict: Type A behavior pattern and self-monitoring. *Organization Behavior and Human Decision Processes*, 44: 281-297.
- Barton D, Morton J and Hendy C. 2001. Drought contingency planning for pastoral livelihoods. Natural Resources Institute, University of Greenwich. Policy Series 15.
- Bercovitch, J. (1989). International dispute mediation: A comparative empirical analysis. Pp. 53-67 in K. Kressel & D.G. Pruitt (Eds.), *Mediation research*. San Francisco: Jossey-Bass.
- Bennett, Lynne L., and Charles W. Howe. 1998. "The Interstate River Compact: Incentives for Non-Compliance." *Water Resources Research* 34 (3): 485-95.
- Blake, R.R., Shepherd, H. & Mouton, J.S. (1964). *Managing intergroup conflict in industry*. Houston: Gulf Publishing.
- Blalock, H.M. Jr. (1989). *Power and conflict: Toward a general theory*. Newbury Park, CA: Sage.
- Bowman, Ann. 2004. "Horizontal Federalism: Exploring Interstate Interactions." *Journal of Public Administration Research and Theory* 14: 535-46.
- Bowman, Ann, and Neal Woods. 2008. "Strength in Numbers: Why States Join Interstate Compacts." *State Politics and Policy Quarterly* 7 (4): 347-68.
- Brown, D.L. (1983). *Managing conflict at organizational interfaces*. Reading, MA: Addison-Wesley.
- Buchanan, James M., and Gordon Tullock. 1962. *The Calculus of Consent, Logical Foundations of Constitutional Democracy*. Ann Arbor: University of Michigan Press.
- Burton, J.W. (1969). *Conflict and communication*. New York: Free Press
- Carpenter, Delph. 1925. "South Platte River Compact Report of Delph E. Carpenter Commissioner of Colorado." Denver, Colorado, January 7.

- Coombs, C.H. & Avrunin, G.S. (1988). *Structure of conflict*. Hillsdale, NJ: Erlbaum.
- Cooper, D.R. and Schindler P.S., (2003). *Business Research Methods*. Mc-Graw Hill, Network
- Cosgrove, W. J., and F. R. Rijsberman, (2000). *World Water Vision: Making Water Everybody's Business*, Earthscan, London,.
- Crouch, A. & Yetton, P. (1987). Manager behavior, leadership style, and subordinate performance: An empirical extension of the Vroom-Yetton conflict rule. *Organizational Behavior and Human Decision Processes*, 39: 384-396.
- Department of Water Development, (2002). *Country Strategy on Integrated Water Resources Management*. Government Printers
- DeNisi, A.S. & Dworkin, J.B. (1981). Final-offer arbitration and the naive negotiator. *Industrial and Labor Relations Review*, 35: 78-87, 49.
- Derr, C.B. (1978). Managing organizational conflict: Collaboration, bargaining, power approaches. *California Management Review*, 21: 76-83.
- Deutsch, M. (1990). Sixty years of conflict. The *International Journal of Conflict Management*, 1: 237-263.
- Doob, L.W. (Ed.) (1970). *Resolving conflict in Africa: The Fermeda workshop*. New Haven, CT: Yale University Press.
- Eriksen, S., Ulsrud, K., Lind, J and Muok, B. (2006). *The urgent need to increase adaptive capacities: Evidence from Kenyan Drylands*. Conflicts and Adaptation Policy Brief 2:
- Eriksen, S and Lind J., (2005). *The impacts of conflict on household vulnerability to climate stress: evidence from Turkana and Kitui Districts in Kenya*. Human Security and Climate Change: An International Workshop; Holmen Fjord Hotel, Asker near Oslo, 21-23 June 2005.
- Evans, M.K. (1987). Department secretaries: Unsung heroines in the resolution of professional-organizational conflict. *Human Organization*, 46: 62-69.
- Featherstone, Jeffrey P. (1999). *An Evaluation of Federal-Interstate Compacts as an Institutional Model for Intergovernmental Coordination and Management: Water Resources for Interstate River Basins in the United States*. PhD diss., Temple University.
- Feuille, P. (1975). Final offer arbitration and the chilling effect. *Industrial Relations*, 14: 302-310.
- Fisher, R.J. (1990). *The social psychology of intergroup and international conflict resolution*. New York: Springer-Verlag.

- Florestano, Patricia S. (1994). "Past and Present Utilization of Interstate Compacts in the United States." *Publius* 24 (4): 13–25.
- Gaenslen, Fritz. (1996). "Motivational Orientation and the Nature of Consensual Decision Processes: A Triangulated Approach." *Political Research Quarterly* 49 (1): 27–49.
- Giardot, Joseph. W. (1989). "Toward a Rational Scheme of Interstate Water Compact Adjudication." *University of Michigan Journal of Law Reform* 22: 151–78.
- Gleick, P. H., (1993). *Water and conflict: Fresh water resources and international security*, Int. Security, 18(1), 79–112,.
- Grant, Douglas L. 2003. "Interstate Water Allocation Compacts: When the Virtue of Permanence Becomes the Vice of Inflexibility." *University of Colorado Law Review* 74: 105–80.
- Gregory, Robin, Tim McDaniels, and Daryl Fields. 2001. "Decision Aiding and Not Dispute Resolution: Creating Insights Through Structured Environmental Decisions." *Journal of Policy Analysis and Management* 20 (3): 415–32.
- Government of Kenya Government of Kenya, (2005). *Sessional Paper on Sustainable Development of Arid and Semi Arid Lands of Kenya*. Nairobi.
- Hahm, P-C. (1986). *Korean jurisprudence, politics and culture*. Seoul, Korea: Yonsei University Press.
- Hacker, J.L. & Wilmot, W.W. (1991). *Interpersonal conflict*. Dubuque, IA: Wm. C. Brown.
- Hasday, Jill E. (1997). "Interstate Compacts in a Democratic Society: The Problem of Permanency." *Florida Law Review* 49: 1–47.
- Hill, James Perry. (1992). *Managing the Nation's Waters Without Washington: The Interstate Compact Experience*. PhD diss., Michigan State University.
- Horwitz, M. (1956). Psychological needs as a function of social environment. Pp. 162-183 in L.D. White (Ed.), *The state of social sciences*. Chicago: University of Chicago Press.
- James, A.L. (1987). Conflicts, conciliation and social work. *British Journal of Social Work*, 17: 347-364.
- Kameri-Mbote, P. (2002). *Property rights and Biodiversity management in Kenya*. ACTS Press, Nairobi.
- Kahn, H. (1965). *On escalation: Metaphors and scenarios*. New York: Praeger.
- Kaplowitz, N. (1990). National self-images, perception of enemies, and conflict strategies: Psychopolitical dimensions of international relations. *Political Psychology, II*: 39-81.

- Karambayya, R., Brett, J.M. & Lytle, A. (1992). Effects of formal authority and experience on third-party roles, outcomes, and perceptions of fairness. *Academy of Management of Journal*, 35: 426438.
- Katz, D. (1964). Approaches to managing conflicts. Pp. 105-114 in R.L. Kahn & E. Boulding (Eds), *Power and conflict in organization*. New York: Bosie.
- Kelly, J. & Gigy, L. (1989). Divorce mediation: Characteristics of clients and outcomes. In K. Kressel & D.G. Pruitt (Eds.), *Mediation research*. San Francisco: Jossey-Bass.
- Kenya, (2010). *Kenya Water Act*. Government Printer; Nairobi
- Kiteme, B.P and Gikonyo, J (2002). Preventing and Resolving Water Use Conflicts in the Mount Kenya Highland-Low land System through Water Users Association. *Mountain Research and Development Vol 22 No 4 Nov 2002: 332–337*
- Knox, Kenneth. 2004. *The Allocation of Interstate Groundwater: Evaluation of the Republican River Compact as a Case Study*. PhD diss., Colorado State University.
- Kothari, C.R. (1985). *Research Methodology*. New Delhi: New Age International Publishers
- Kressel, K. & Pruitt, D.G. ((1989). Conclusion: A research perspective on the mediation of social conflict. Pp. 394435 in *Mediation research: The process and effectiveness of thirdparty intervention*. San Francisco: Jossey-Bass.
- Leach, William D., Neil Pelkey, and Paul Sabatier. 2002. "Stakeholder Partnerships as Collaborative Policy Making: Evaluation Criteria Applied to Watershed Management in California and Washington." *Journal of Policy Analysis and Management* 21 (4): 645–70).
- Leach, William D., and Paul Sabatier. 2006. "Are Trust and Social Capital the Keys to Success? Watershed Partnerships in California and Washington." In *Swimming Upstream: Collaborative Approaches to Watershed Management*, ed. Paul Sabatier, Will Focht, Mark Lubell, Zev Trachtenberg, Arnold Vedlitz, and Mary Matlock. Cambridge, MA: MIT Press, 233–58.
- Lebra, T.S. (1976). *Japanese patterns of behavior*. Honolulu: The University Press of Hawaii.
- McLaughlin, M.E., Carnevale, P. & Lim, R.G. (1991). Professional mediators' judgments of mediation tactics: Multidimensional scaling and cluster analysis. *Journal of Applied psychology*, 76: 465472.
- Miller, Charles. 1985. "Group Decision Making Under Majority and Unanimity Decision Rules." *Social Psychology Quarterly* 48 (1): 51–61.
- McPeak, J. 2001. "Confronting the risk of asset loss: Livestock exchange in northern Kenya." Cornell University mimeo.
- Ministry of Water & Irrigation, 2004. The National Water Resources Management Strategy

(2005-2007). Government Printers

Ministry of Water Resources, (1999). National Policy on Water Resources Management and development. Government Printers

Ministry of Water Resources, Management and Development, (2003). Ewaso Kedong River Report. (Pg 1-6)

Ministry of Youth, (2008). National Youth Policy. Sessional Paper No. 3

Moore, C.W. (1986). *The mediation process: Practical strategies for resolving conflict*. San Francisco: Jossey-Bass.

Motsi, K.E., Madyiwa, R. (undated). *Investigating the gender responsibilities for the operation and maintenance of smallholder sprinkler irrigation schemes- a case study of Ham Mavhaire, Nyaitenga and Chitora irrigation schemes*. Harare: University of Zimbabwe

Mugenda, O.M., & Mugenda, A. G. (2003). *Research Methods: Quantitative and Qualitative Approaches* Nairobi: Acts press.

Muys, Jerome. 2004. "The Western States' Experience With Interstate Water Issues" Paper prepared for the panel "Lessons From the West," sponsored by American Bar Association Section of Environment, Energy, and Resources, at the conference Eastern Water Resources: Law, Policy and Technology, Hollywood, Florida, May 6-7.

McCall, M.K. (2001): Conflict analysis & conflict management approaches in: Environmental & natural resource management & Land use planning. Lecture notes. Social Science Division, ITC.

Mostert, E. (1998): A framework for conflict resolution. *Water international*, 23, 206-215.

Ministry of Water & Irrigation, 2004. The National Water Resources Management Strategy (2005-2007). Government Printers

Ministry of Water Resources, (1999). National Policy on Water Resources Management and Development. Government Printers

Omosa, E K. 2005. The impacts of water conflicts on pastoral livelihoods. The case of

Wajir district. IISD, Winnipeg.\

Phillips, R.C. (1988). Manage differences before they destroy your business. *Training and Development Journal*, 42: 66-71.

Postel, Sandra (1999). *Pillar of Sand: Can the Irrigation Miracle Last?* New York, Norton,.

Pruitt, D.G. & Rubin, J.Z. (1986). *Social conflict: Escalation, stalemate, and settlement*. New York: McGraw-Hill. Revised and updated as Pruitt, D.G., Rubin, J.Z. & Kim, S.H.

- (1994). *Social conflict: Escalation, stalemate, and settlement*, 2nd ed. New York: McGraw-Hill.
- Putnam, L.L. & Poole, M.S. (1987). Conflict and negotiation. Pp. 549-599 in F.M. Jablin, L.L. Putnam, K.H. Roberts & L.W. Porter (Eds.), *Handbook of organizational communication: An interdisciplinary perspective*. Newbury Park, CA: Sage.
- Pruitt, D.G., McGillicuddy, N., Welton, G. & Fry, W. (1989). Process of mediation in dispute settlement centers. Pp. 368-393 in K. Kressel & D.G. Pruitt (Eds.), *Mediation research*. San Francisco, CA: Jossey-Bass.
- Rahim, M.A. & Bonoma, T.V. (1979). Managing organizational conflict: A model for diagnosis and intervention. *Psychological Reports*, 44: 1323-1344.
- Renwick, P.A. (1975a). Impact of topic and source of disagreement on conflict management. *Organizational Behavior and Human Performance*, 14: 416-425.
- Republic of Kenya, (2002). Kenya Gazette Supplement, ACTS, 2002. Government Printers
- Republic of Kenya, (2002). Kenya Gazette Supplement, ACTS, 2002. Government Printers
- Robbins, S.P. (1974). *Managing organizational conflict: A non-traditional approach*. Englewood Cliffs, NJ: Prentice Hall.
- Roehl, J. & Cook, R. (1989). Issues in mediation: Rhetoric and reality revisited. *Journal of Social Issues*, 41: 161-178.
- Savenije, Hubert H.G. and Pieter van der Zaag. 2000. "Conceptual framework for the management of shared river basins; with special reference to the SADC and EU." *Water Policy* 2. 9-45. Elsevier
- Scharpf, Fritz. 1997. *Games Real Actors Play*. Boulder, CO: Westview Press.
- Sherk, George W. 2005. "The Management of Interstate Water Conflicts in the 21st Century: Is it Time to Call Uncle?" *New York University Environmental Law Journal* 12 (3): 764-827.
- Shaw, M. (1985). Parent-child mediation: A challenge and a promise. *Mediation Quarterly*, 7: 23-33.
- Thomas, K.W. & Pondy, L.R. (1977). Toward an "intent" model of conflict management among principal parties. *Human Relations*, 30: 1089-1102.
- Thompson, L. (1990). Negotiation behavior and outcomes: Empirical evidence and theoretical issues. *Psychological Bulletin*, 3: 515-532.
- Tjosvold, D. & Chia, L.C. (1989). Conflict between managers and workers: The role of cooperation and competition. *Journal of Social Psychology*, 129: 235-247.

- Tripp, C. (1985). Intraorganizational conflict mediation: The effects of communication, complaints, compliance, and confidence. *Mediation Quarterly*, 7: 83-99.
- Tsebelis, George. 1992. *Nested Games: Rational Choice in Comparative Politics*. Berkeley: University of California Press.
- UNEP/GoK. United Nations Environment Programme (UNEP) and Government of Kenya (GoK). 2000. *Devastating Drought in Kenya. Environmental Impacts and Responses*. UNEP/GoK. Nairobi.
- Vroom, V.H. & Jago, A.G. (1988). *The new leadership; Managing participation in organizations*. Englewood Cliffs, NJ: Prentice-Hall.
- Wagner, R.V. (1990). Mediated divorces last-At least to the bench. *Negotiation Journal*, 6: 47-52.
- Wall, J.A. Jr. & Blum, M.W. (1991). Negotiations. *Journal of Management*, 17: 273-303.
- Wall, J.A. Jr. & Lynn, A. (1993). Mediation: A current review. *Journal of Conflict Resolution*. 37: 160-194
- Water Resources Management Authority, (2012). Performance Report 2.A Report to The Public from Water Resources Management Authority
- Water Resources Management Authority (2008). Ewaso Ngiro North Catchment. Catchment Management Strategy.
- Water Resources Management Authority and Water Services Trust Fund (2008). WRUA Development Cycle (WDC). Volume 1.
- Watson, R.,(2007). “*Water Resource Users Associations” Around Mount Kenya – Establishment, Operation And Potential For Conflict Prevention* Nairobi: Dispute Resolution Centre
- Weissert, Carol S., and Jeffery S. Hill. 1994. “Low-Level Radioactive Waste Compacts: Lessons Learned from Theory and Practice.” *Publius* 24 (4): 27–43.
- Wolf, Aaron T., Jeffrey Natharius, Jeffrey Danielson, Brian S. Ward, and Jan K. Pender (1999): International River Basins of the World. In: *International Journal of Water Resources Development*. 15(4), 387-427.
- Wolf, A. T., (1998). Conflict and corporation along international waterways, *Water Policy*, 1(2), 251– 265,.
- Wolf, A. T., (2002). *Conflict Prevention and Resolution in Water Systems*, Edward Elgar, Cheltenham, U. K.,.
- Wong, C.L., Tjosvold, D. & Lee, F. (1992). Managing conflict in a diverse work force. *Small Group Research*, 23: 302-321.

- Wrightman, L.S. (1966). Personality and attitudinal correlates of trusting and trustworthy behaviors' in a two-person game. *Journal of Personality and Social Psychology*, 4: 328-332.
- Zarski, L.P. Knight, R. & Zarski, J.J. (1985). Child custody disputes: A review of legal and clinical resolution methods. *International Journal of Family Therapy*, 7: 96-106.
- Zimmerman, Joseph F. 2002. *Interstate Cooperation: Compacts and Administrative Agreements*. Westport, CT: Praeger.

APPENDICES

APPENDIX I: LETTER OF INTRODUCTION



UNIVERSITY OF NAIROBI
COLLEGE OF EDUCATION AND EXTERNAL STUDIES
SCHOOL OF CONTINUING AND DISTANCE EDUCATION
DEPARTMENT OF EXTRA MURAL STUDIES
P O Box 598 - NYERI : Tel : 061-2030460

10 April 2013

TO WHOM IT MAY CONCERN

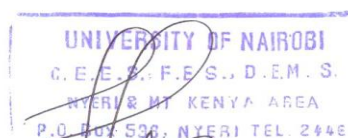
SUBJECT : INTRODUCTION LETTER
SIMON W. WANG'OMBE - REG. NO.L50/74542/2012

This is to confirm that the above named is a bona fide student of University of Nairobi pursuing a **Master of Arts Degree in Project Planning and Management** - in the **School of Continuing and Distance Education – Department of Extra Mural Studies**.

He has completed course work and is currently writing the **Research Project** which is a requirement for the award of the **Masters Degree**.

His topic is "*Influence of Water Resource in Conflict Resolution among Communities in Sub-Catchment 5BE, Meru – Laikipia Counties, Kenya*"

Any assistance accorded to him will be highly appreciated.



Dr. L. Otieno - Omutoko
RESIDENT LECTURER
NYERI & MT. KENYA REGION

**APPENDIX I1: QUESTIONNAIRE FOR WATER RESOURCES USERS
ASSOCIATIONS (WRUAS)**

Instructions

Kindly use tick (√) inside the box to indicate the correct answer where choices are given. Write your answer in the spaces provided where choices are not given.

SECTION A Demographic Data

1. Gender

Male	<input type="checkbox"/>
Female	<input type="checkbox"/>

2. What is your age in years

18 – 29	<input type="checkbox"/>
30 - 39	<input type="checkbox"/>
40 - 49	<input type="checkbox"/>
50 - 59	<input type="checkbox"/>
60 and above	<input type="checkbox"/>

3. Indicate the highest educational level attained

Adult Education	<input type="checkbox"/>
Primary	<input type="checkbox"/>
Secondary	<input type="checkbox"/>
Certificate	<input type="checkbox"/>
Diploma	<input type="checkbox"/>
Degree and above	<input type="checkbox"/>

4. Is there water conflict in your area?

YES	<input type="checkbox"/>
NO	<input type="checkbox"/>
I DON'T KNOW	<input type="checkbox"/>

5. What is the level of water conflict in your area?

Very High	<input type="checkbox"/>
High	<input type="checkbox"/>
I don't Know	<input type="checkbox"/>
Low	<input type="checkbox"/>
Very Low	<input type="checkbox"/>

Section B: WRUAs Leadership and Management Style

6. Do you think the WRUA management is able to solve water conflicts?

YES	<input type="text"/>
NO	<input type="text"/>
I DON'T KNOW	<input type="text"/>

7. Please explain your answer above.....
.....
.....
.....

8. In your opinion, are the WRUA leaders influential (positively or negatively) to their respective communities,?

YES	<input type="text"/>
NO	<input type="text"/>
I DON'T KNOW	<input type="text"/>

9. What is your reason for the above answer in number 6?

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

10. Does the WRUA have representation of every zone?

YES	<input type="text"/>
NO	<input type="text"/>
I DON'T KNOW	<input type="text"/>

11. Does the whole community feel represented in the WRUA?

YES	<input type="text"/>
NO	<input type="text"/>
I DON'T KNOW	<input type="text"/>

12. Please explain your answer in number 9 above?

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

13. How does the WRUA communicate to its people?

Sending Messages

Public Barazas

Phone

Radio

Others (specify).....
.....

14. How do you think the WRUA leadership can improve its communication to the people?

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

15. What is your opinion on this phrase, ‘WRUA leadership influences (either positively or negatively) water conflict management’

Strongly Agree

Agree

Neutral

Disagree

Strongly Disagree

16. Please explain your answer in number 13 above?

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

Section C: Conflict management Strategies

17. How does the WRUA know when there is a conflict related to water use?

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

18. How does the WRUA resolve water related conflicts?

.....
.....

19. In your opinion, does the above method in number 16 above work?

YES

NO

I DON'T KNOW

20. Which methods do you think can solve water conflict?

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

21. What is your opinion on this statement, ‘‘The strategy and approach used by WRUA influences water conflict management’’.

Strongly Agree	<input type="checkbox"/>
Agree	<input type="checkbox"/>
Neutral	<input type="checkbox"/>
Disagree	<input type="checkbox"/>
Strongly Disagree	<input type="checkbox"/>

Section D Training/Capacity Building

22. Have you as an individual ever been trained by the WRUA?

YES	<input type="checkbox"/>
NO	<input type="checkbox"/>
I DON'T KNOW	<input type="checkbox"/>

23. If yes in number 20 above, how many times have you been trained in the last two years?

.....
.....

24. Was the training relevant/useful to you?

YES	<input type="checkbox"/>
NO	<input type="checkbox"/>
I DON'T KNOW	<input type="checkbox"/>

25. Please explain your answer

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

26. In your opinion , does training help in water conflict resolution?

Strongly Agree	<input type="checkbox"/>
Agree	<input type="checkbox"/>
Neutral	<input type="checkbox"/>

Disagree

Strongly Disagree

27. Please explain your answer in number 24 above

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

28. Do you require training?

YES

NO

I DON'T KNOW

29. If yes in 26 above, which area or topic do you want covered in your training?

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

Section E Culture of the community and religion

30. Do you think different cultures results in water conflicts?

YES

NO

I DON'T KNOW

31. If yes in 28 above, how does it cause conflict?

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

32. Do you think different religions results in water conflicts?

YES

NO

I DON'T KNOW

33. If yes in 30 above, how does it cause conflict?

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

34. In your opinion has the WRUA managed to resolve such conflicts related to culture and religion?

YES

NO

I DON'T KNOW

35. If yes in 32 above, how have they managed this?

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

APPENDIX I11: INTERVIEW GUIDE FOR STAKEHOLDERS

Section A: WRUAs Leadership and Management Style

1. What role does your position/organisation play in management and conflict resolution in water resources in collaboration with WRUAs? –

Supervisory	<input type="text"/>
Mediation	<input type="text"/>
Arbitration	<input type="text"/>
Provide leadership	<input type="text"/>
Conciliation/Consultation	<input type="text"/>

2. What challenges do you encounter in this role?

.....

.....

.....

3. Specify the role and support that your organisation is expected to play in water conflict resolution through involvement of the WRUA?

.....

.....

.....

4. Do you think WRUAs management and leadership styles are able to solve water conflicts? Yes/No (Please Tick)

Please explain your answer.....

.....

.....

5. In your opinion, do you think the WRUAs’ management is able to solve water conflicts? Yes/No (Please Tick)

Please explain in what way.....

.....

.....

6. Do you think WRUAs have a good representation of communities/regions in the management/leadership? Yes/No (Please tick)

Explain.....

.....

7. How does the WRUA communicate with your organisation on water conflict issues and at what point does your organisation get involved?.....
.....

Section B.WRUAs Conflict Management Strategy

8. Are you aware how a WRUA knows that there is a conflict in water use and what strategies does it use to resolve the conflicts? Yes/No (Please tick)

Please Explain
.....

9 In your opinion, is this a satisfactory and effective method/strategy of resolving the conflicts? Yes/No (Please tick)

Do you think there could be a better method to resolve the conflicts? Please explain.....
.....
.....

11.In your opinion, does this strategy and approach used by the WRUA influence water conflict management? Yes/No (Please tick)

Please Explain
.....

Section C.WRUAs Training and Capacity Building

12. Are you as individual/organisation involved in training WRUAs in water conflict management and resolution? Yes/No (Please tick)

Please give some details.....
.....
.....

13. In your opinion, do you think this training helps/influences the WRUAs' capacity in water conflict resolution? Yes/No (Tick)

Explain your answer.....
.....

14. Do you think such trainings should be enhanced? Yes/no (Please tick).

Please elaborate your answer.....
.....

Section D.Culture of the Communities and Religion

15. In your opinion, do you think that different cultures and religion of the communities have an influence in water conflicts? Yes/No (Please tick)

Please explain you answer.....
.....

16. In your opinion, do you think the WRUAs have a cultural and religious approach while resolving water conflicts? Yes/No (Please tick).

Please explain your answer.....
.....