

THE UNIVERSITY OF NAIROBI

INSTITUTE OF AFRICAN STUDIES (IAS)

**DEPARTMENT OF GENDER AND
DEVELOPMENT**

**GENDER DIMENSIONS IN MANAGEMENT OF WATER RESOURCE: A CASE
STUDY AMONG THE POKOT OF NORTHERN WESTERN KENYA**

A PROJECT DISSERTATION SUBMITTED TO THE INSTITUTE OF AFRICAN
STUDIES IN PARTIAL FULFILLMENT FOR A PGD IN GENDER AND
DEVELOPMENT

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DECLARATION

This is my original work and has not been presented for a degree by any other university.

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This research project has been submitted for examination with my approval as the University Supervisor, Institute of African studies- University of Nairobi.

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Khamati Shilabukha

DEDICATION

I dedicate this project to my parents Mr. Romanous Chizupo and Hellen Chizupo, my brother Poghisyo Chizupo and sister Cheyech Chizupo.

This project is also dedicated to the Pokot community, those dedicated to empowering the members not to give up since “Every journey begins with the first step”.

ACKNOWLEDGEMENT

I am greatly indebted to a number of people who helped me in accomplishing this project.

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I am highly indebted to Mr. John Chesit for taking me along during my interview sessions in Ortum and visiting the water sources too.

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TERMS AND ABBREVIATIONS

ASAL-Arid and Semi Arid Lands

CIDA-Canadian International Development Authority

CETRAD-Co-ordination Action on Education and Training in Radiation

FGD– Focus Group Discussion

NRM-National Resources Management

NGO-Non-Government Organizations

OXFAM-Oxford Committee for Famine Relief

UNICEF-United Nations Children Education Foundation

WUAs-Water Users Associations

WID-Women In Development

CHAPTER ONE

INTRODUCTION AND PROBLEM STATEMENT

1.1 INTRODUCTION

Integrated and sustainable community management of natural resources and production systems is a very important constituent element in the future management and development of water resources. There is awareness towards appropriate and sustainable management of water systems. This has been coupled with the nascent, yet sustainable positive attitude towards sustainable management of the environment in general, and the water resources in particular (Awori et al., 1996; Shilabukha, 2000).

To this end, it becomes imperative to appreciate the role that has been played by both public and media opinions in championing sustainable utilization of water as part of the ecosystem (Shilabukha, 2000). In specific terms, the importance of the resources in arid areas comes under the spotlight owing to the diverse resources and the growing pressure from human settlement. There are also physical development activities to consider in this increasing pressure. Economic activities, which are dependent on good environmental quality, range from tourism and trading, to food production and building and construction (Republic of Kenya, 1997). Presently, the management of water resources including production systems is at the crossroads. However, it must be noted that as long as a people have lived next to the rivers and other water systems, this is an indication that there has been some form of, albeit apparently latent and inadvertent, water resource management (Hale et al., 1998; Manu, 1996).

Traditional societies that relied on water often had elaborate systems of governance, including social rules of organization, which sustained a symbiotic co-existence between people and the resource (Zavrin, 1991; Hale et al., 1998). Along the way, however, subsequent population growth, together with technological advancement, has changed the scenario to a great extent. Yet this is only part of the story. Governments have also extended their reach over the resources. In the process, they have taken over the user rights (Awori *et al.*; 1996; Hale *et al.* 1998; Shilabukha, 2000).

This shift in the management mandate typically translated into a number of repercussions on the environment. The change resulted in a *de facto* open access regime with wanton destruction of resources by poachers, who often dodged government machinery through well-perfected entry and escape routes. At times, government officers have been accused of complicity in this state of affairs (Shilabukha, 2000). At the same time this shift also translated into sectional management of the resources. Thus, activities such as development of infrastructure often collided with efforts to conserve the resources, leading to degradation, lost chances and growing user conflicts (Hale et al., 1998; Shilabukha, 2000). From the foregoing, it is becoming abundantly clear that for sustainable water resources management to be objectively realized, we must espouse a holistic approach, including deliberate and sustained involvement of the local communities (Shilabukha, 2000).

This shift from resource – centered approach to a people – driven perspective has been the outcome of the realization that water resources management should be largely a governance process, rather than a technical endeavor. It is the responsibility of water resources resource managers to lay emphasis on defining, balancing and applying societal values to the use and management of the resources rather than exclusively trying to identify technical problems and applying technical solutions to them. This appears to be the case in the present methodology.

On the other hand, the envisaged approach will facilitate the expansion of the tools being utilized for sustainable management of water resources. It is therefore, note worthy to point out that one of the short comings of early natural resources management strategies was that they depended heavily on regulation, zoning and impact assessment Programmes for purposes of decision making (Hale et al., 1998). Consequently, and due to a growing backlash on regulation, there is need to set up a broader regulatory and non- regulatory regimes that will facilitate a greater range of activities in the management of corals, fisheries and water resources. Furthermore, the absence of the requisite conditions for effective regulation in developing countries like Kenya makes such an approach more appropriate.

The ultimate aim of in this scenario is to permit latitude for a wider spectrum of possible framework of actions so as to promote appropriate stewardship of these resources. Furthermore, this approach aims at enhancing voluntary, rather than coerced, compliance with management strategies and objectives. Such a regime will ensure that regulation and enforcement actions only become tools of last recourse. Emphasis should therefore ultimately be laid on a dynamic nature of integrated water resources management. And this is where the community comes in. A recent United Nations report (GESAMP, 1996) underscores the goal of integrated community water resources management. The approach, according to the report, is geared towards the improvement of the life of human communities that depend on the resources while maintaining the biological diversity and productivity of the ecosystems.

1.2 PROBLEM STATEMENT

Apparently the management of the environment, including water resources is receiving special media and public opinion attention. This act recognizes that the sectoral approach to water resources management was not working and that misuse and overuse of water resources and estuaries required a fresh approach to planning and implementation of management actions (Hale et al. 1998). The act also provided water resources states with incentives to prepare and implement integrated plans focused on selected issues of national and local significance. Since then, the concept has evolved and has been applied to an expanding diversity of situations in many countries (Hale et al. 1998).

Water resources management has also been recognized over the last decade in many international environment treaties as well as regional agreements (Cicin-Sain and Knetch, 1998; Hale et al., 1998). Although we may conceive environmental management in general and the water resources in particular as being worthwhile, and therefore obvious, this notion may not be practical (Shilabukha, 2000). In appreciating the truism of the statement, we may be blinded by optimism and in the process fail to acknowledge that the transformation of the water resources region is of critical significance to the human species (Pollnac, 1998; Olsen. 1999). More than 20% of the human population worldwide lives in the water resources. And this percentage is expected to rise in the coming decades owing to continued migration to water resources regions (World Bank 1996). Yet these water resources regions encompass less than 20% of inhabitable space.

At the same time, it is important to systematically evaluate and draw lessons from evolving water resources management initiatives from other places. This is because, in Kenya, their successes are comparatively minimal (Shilabukha, 2000). For instance, as one of the places with rapid water resources change, water resources management is still conceived of and implemented as a

scattering of pilot projects (Shilabukha, 2000). At the same, time rapid economic growth on Kenya's coast has not come without cost. Once pristine and virgin, the local environment is undergoing unprecedented degradation. New economic activities have created urbanization that has in turn modified the way people perceive and utilize natural resources (Shilabukha, 2000). This change has been construed into even more complex economic activities from which have accrued increased incomes. Nevertheless, resources user conflicts and pressure on the declining resources base have also intensified in the ensuring economic labyrinth. These decisions about how to resolve the conflicts and deflate the pressure must be made. And owing to their complexity, both in terms of genesis and manifestation, this requires thorough and elaborate information, which can be procured through scientific research.

A number of significant water resources and environmental and resources use issues that manifest the negative impact of population pressure and social change have emerged. These have also grown and intensified in tandem with population and economic pressure. Broadly stated, the primary natural resources issues include declining water quality, its scarcity and population increase.

There is also lack of institutional mechanisms to adequately address the complex, often multi-sectoral problems of the water resources. Then there is the receding importance of the traditional natural resources- based sectors such as fisheries, coral reef, and mangrove forests (Hale *et al.* 1998). To address the problem of coastal resources management in Kenya, we must be prepared to face that fact that owing to the dearth of adequate information, successes or failure of management initiatives are often un-documented. It is, therefore, an uphill task drawing lessons from such experiences. Lastly, experience has shown that this has been a slow and difficult process (Olsen and Tobey, 1997). It is also apparent that the number of water resources management initiatives that have succeeded in making transition from planning to implementation and evaluation

remains small. This makes the task of sustainable resources management even more monumental.

In specific terms, this study is designed to find answers to the following questions.

1. What is the role of the gender in the management of water resources in Pokot?
2. To what extent are women involved in the management of water resources in the area covered by the research site?
3. What special knowledge do the women bring to the management of the resource?
4. How can existing efforts be harmonized for the benefits of all those involved in the management of the water resources.

1.3 OBJECTIVES OF THE STUDY

1.3.1 General objective

The general objective of the proposed study is to analyse and discuss the role of the natives, its local knowledge and aspirations in the management of the water resources in the Pokot.

1.3.2 Specific Objectives:

1. Analyze and discuss the role of the local community in evolving a conservation ethic adaptive to the management of the water resources.
2. Describe and analyze the role played by development projects in harnessing natural resources.
3. Find out how the existing efforts can be improved for the sustainable management of the resources in the research area.

1.4 RATIONALE FOR THE STUDY

From the early 1980s efforts have been made to provide solutions to the growing problems of water resources management. In spite of these endeavors, degradation of mangrove areas, declining water quality, erosion of the shoreline, beach pollution and declining fisheries have remained permanent features of water resources issues. Furthermore, the management of water resources has maintained a resource oriented perspective. The role of research and by extension that of the community has been relegated to the periphery of driving the policy process rather than informing it (Hale et al.; 1999).

The inability of this initiative is to look for information about the social and cultural phenomena influencing water resources use, partly explain why they do not achieve their stated objectives. Therefore, fundamentally lacking in these Programmes are the traditions and nomenclature as well as the incorporation of environmental concerns in development projects. However, it is imperative to point that information on local cultures as well as development projects *vis-à-vis* environmental conservation concerns, is not readily available thus the need for this kind of study. Furthermore, some of these aspects, especially those pertaining to local knowledge are rapidly fading due to urbanization, the pervading money economy and migration of local cultures. It is the importance of these factors the study is designed to highlight.

This is because since this knowledge is hosted in the past it is both dynamic and cumulative. It is also responsive to the dynamics of the experiences of successive generations (Johnson, 1992; Shilabukha, 2000). The knowledge is also adaptive and flexible enough to accommodate the social-economic conditions of changing times. In this regard, indigenous knowledge may form the hitherto untapped basis of local reef fisheries and mangrove nomenclature

(Pollnac,1998). These will include the beliefs local names of the resources, as well as the general terms used to label their future.

The above scenario means that there is a component of belief and practice in the way people carry out fishing for instance. Furthermore, there is an ingredient of belief in people's perception of their role within ecosystems and how they interact with the natural resources. Understanding these components forms the basis for integrated water resources management (Zavrin, 1991; Berkes, 1999). Although some conceptual and empirical hurdles have been cited in the application of indigenous knowledge in the past (Johnson, 1992; Alexander and van Dijk, 1996), it is possible and appropriate to demonstrate its importance and relevance in the management of natural resources (Johnson, 1992; Awori et al., 1996; Oyama, 1996). Indigenous knowledge can also provide water resources managers with new ecological and biological insights. Perceptive enquiries and interactions with local users of resources can provide rich information on the names, uses governance, preferences and sources of degradation. (Pollnac, 1998).

At the same time, the use of traditional ecological knowledge can be useful to the development agencies for purposes of evaluating production systems, environmental impact assessment and conservation efforts. The time tested and deep knowledge of people about coral reefs, fisheries and mangrove resources is a valuable parameter in the assessment of the social and physical environmental impact of development activities on water resources (Pollnac, 1998; Shilabukha, 2000).

Drawing lessons from experience has been slow and difficult due to lack of adequate documentation (Olsen et al., 1997). Furthermore anecdotal descriptions of experience point to insufficient capacity of the local institutions and the design of steps of governance (Hale et al. 1999; Olsen et al., 1999). An integrated water resources management strategy should, therefore consider an

expanded water resources geographical locus or ecosystem and work with the local community to create a vision for its future (Moffat and Kyewalyanga, 1998). This should be followed by motivation and catalyzed action among those concerned in order to achieve that future. In this process, the local areas' renewable and non-renewable resources could be managed in a proactive way. Maximum benefits will accrue, thus reducing impacts of one sector on another and, therefore, making progress towards sustainable development more realistic.

Involving the local community together with its indigenous knowledge and belief system, as earlier noted can greatly enhanced this process. This study acknowledges that such a process will enrich our standing and appreciation of the local management. This study is also formulated on the basis of the need for an accepted natural resources evaluation methodology. It is envisaged that when this evaluation framework is in place, it will be utilized to identify and document trends, identify their likely causes and objectively estimate the relative contributions of such a program to observed social and environmental changes.

Apart from facilitating better documentation of progress towards an improved governance process and assessment of impacts of development on ecosystems and societies the study will also facilitate enhancement of the local and national ownership of resources management programs. This study further aims at taking cognizance of the various perspectives in coastal resources management. From this point of view, indigenous knowledge will be acknowledged, as an alternative way of contributing to the management of resources on Kenya's water resources at both epistemological and methodological levels. Indigenous knowledge will, therefore together with scientific methods commonly used, be treated as social fields of epistemological interaction, thus contributing significantly to the growing corpus of knowledge of natural resource management (Awori et al., 1996)

1.5 SCOPE AND LIMITATIONS

The proposed study will be limited to analyzing and discussing the role of the local community in the development of conservation and resource management suitable for water resources. It will also address the issues of environmental impact assessment for purposes of co-coordinating the responsiveness of local development projects to environmental and cultural concerns.

Geographically, the study will be confined to the area within Ortum center in Batei zone, Chepareria Division of West Pokot District.

Much as the study will be interested in the conflicts of resource use and development, quantification of the resources concerned in this regard will be beyond the scope of the study.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 INTRODUCTION

The concept of gender came around into common situation in the early 70s. Its predecessor was women in development [WID] that took the long shot of being articulated on the empowerment of women in fields of economic involvement. Women's initiative was to access their rights, equity and equality in opportunities like education, jobs, inheritance of property etc. According to Plitcher and Whelehan (2004:57) The concept gender...was used as an analytical category to draw a line of demarcation between biological sex differences and the way these are used to inform behaviours and competencies, which are then assigned as 'masculine' or 'feminine'.

In this chapter we look at existing literature on gender dimensions on the management of water resource. It would be based according to the objectives stated earlier. Local people have always been involved in community based water management but it has been totally ignored.

The objectives were as follows;

4. Analyze and discuss the role of the local community in evolving a conservation ethic adaptive to the management of the water resources.
5. Describe and analyze the role played by development projects in harnessing natural resources.

3. Find out how the existing efforts can be improved for the sustainable management of the resources in the research area.

2.2 ROLE OF LOCAL COMMUNITY IN CONSERVATION OF WATER RESOURCE

According to Ludwik Teclaff in *Harmonizing Water Use and Developmental Protection*, The relationship of water law to the environment has gone through phases. In the longest period, any protection of the environment that could be attributed to water law was an incidental by-product of legal restraints of development of water resources. This was exemplified in Europe but later in the 19th century spread to parts of the United States, Latin America, Africa, and parts of Asia.(1978:72-73) Even in arid and semi arid regions, where water was intensively utilized, customary law by its nature acted as a brake on sudden changes and harsh impacts. The low level of technical efficiency and the conservatism of the law together helped to preserve a balance which had been brought out over a long period of time through the interaction of diverse elements of the environment.

Some forms of simple technology have been adopted to conserving water. Rooftop water harvesting. According to David Brooks (2002:12-13) rooftop water harvesting has been practiced for centuries. It is commonest in arid and semi-arid zones, but familiar too in monsoon climates of seasonal downpours and on islands where fresh water is never plentiful. Depending on local custom and materials, roofs may be sloped or flat, solid or thatched. But the real variations-

and the research challenges- emerge when it comes to moving the collected water and storing it.

2.2.1 The upper Ewaso ngiro basin

The Ewaso ngiro is a river that has three catchments and is utilized by both pastoralists on the plains and agriculturalists on the mountain regions.

According to Samuel Makali and Boniface Kiteme (2005), The Upper Ewaso Ng'iro Basin covers an area of 15,200 km². It stretches from Mt Kenya (5199m above sea level (a.s.l)) in the south to the plains of northern Kenya. It has three catchments: 1) The Ewaso Ng'iro-Mt Kenya, which provides the highest contribution of flow during average rainfall and dry years in all months, 2) The Ewaso-Narok which sustains moderate flow during the June-September continental rains and 3) The lowland sub-basin with major contribution during high rains due to high runoff.

The basin has experienced a highly dynamic socio-economic development over the past 100 years. Traditional pastoralists were superseded by the white colonist at the beginning of the 20th Century. After independence (1963), the "white highlands" became an open frontier for African immigration and settlement. The result was population rise, intensive small scale irrigation and adoption of exotic cultivation methods and crops. This has led to increasing pressure on natural resources in general and water resources in particular. The

1990s saw the remaining large scale farms in the foothills of Mt Kenya transformed into highly technical, export oriented horticultural enterprises.

2.2.1.1 The emerging Water Users Associations (WUAs) as a means of conflict resolution

Various water users within the upper Ewaso Ng'iro basin adopted a strategic approach towards sustainable resource use conflict resolution through the formation of an all inclusive (multi level and multi-stakeholder) inter-catchment forum to oversee allocation and utilisation of water resources in the basin. This strategy is the Water Users Associations (WUAs) Approach. It was realized that conflict resolution based on institutions and organisations rooted in the concerned communities and involving all major stakeholders are important components in a strategy for more sustainable water use and management in the region.

WUAs are formed at the sub-basin level covering catchments of tributaries of the Ewaso Ng'iro River. The WUAs are a relatively new strategy for water resource management in Kenya. They were established as a follow up to recommendations developed during an intensive water awareness creation campaign conducted by CETRAD, NRM and six government ministries in the first half of 1990s. The first WUA was founded shortly after concluding the campaigns in the early 1997 and was based on a former self help group.

2.2.2 WOMEN AS WATER MANAGERS

Women have been on the forefront in management, maintenance, and conservation of water resource for collective and community consumption and hence their detailed knowledge of the environment they live in. They are the main collectors and users of water in a diversity of communities, it is used in the household and as farmers for irrigation purposes. Because of these roles women have a considerable knowledge of water resources including quality and reliability, restrictions and acceptable storage methods. However despite this majority of women have no access to safe drinking water and they have to walk for miles in search of it. They have formed self help groups to educate them on methods of conserving the commodity.

According to A World Bank Policy Paper (July 1994:50)...failure to identify and acknowledge the role of women in environmental processes can result in inappropriate interventions and jeopardize the success of environmental projects. Governments must ensure women especially the rural women participate in all levels of decision-making in the management of natural resources and that women's concerns and perspectives are properly reflected in all policies and approaches adopted. Women must be empowered at all levels to play a significant role in management of the resource. They need greater bargaining power therefore the government must guarantee women's access to water.

2.3 ROLE PLAYED BY DEVELOPMENT PROJECTS IN HARNESSING THE RESOURCE

2.3.1 Mbeere water project

In Mbeere, there is The Mbeere Project: an arid area scheme. River Ena in Evoruru is the only permanent stream in the region. Rainfall is insufficient through the area thus dry spells and most of the streams dry up. There are two main water schemes in Mbeere: the Ena project and The Tuchi scheme. Other two small schemes present are the repair of an existing small water supply at Kerie and an extension of the supply at Iriatune. According to Agaral, Kimondo, Moreno and Tinker(1981:121) In citing these schemes, population density, scarcity of water, the potential for economic development and the likely ability to pay for the water were considered....The provision of water is vital for development in the area. It has been found that for each family in Mbeere at least 100 man-days (in fact, woman days) a year are spent collecting water.

They go further to inform us that land cultivation and planting are done during dry season. In particular the women who are responsible for fetching water are also the primary source of agricultural labour, so that scarcity of water creates a serious farm labour bottleneck.

2.4 EFFORTS TO BE IMPROVED FOR THE SUSTAINABLE MANAGEMENT OF THE RESOURCE

According to A World Bank Policy Paper on Water Resources Management (1993: 26-27)), There are conditions and challenges in managing water resources which includes problems of management. Since water is critical for human survival, public authorities in most countries have assumed central responsibility for its overall management. This recognizes that reliance on market forces alone will not yield satisfactory outcomes, and some form of remedial government action is often required. Yet although governments may be involved for good reasons, their actions, when not properly formulated or implemented, often cause serious misallocations and waste of water resources. Three problems related to government activities are of particular concern:(a) fragmented public sector management that has neglected interdependencies and jurisdictions; (b) reliance on overextended government agencies that have neglected financial accountability, user participation, and pricing while not delivering services effectively to users and to the poor in particular; and (c) public investments and regulations that have neglected water quality, health, and environmental consequences.

2.4.1 LESSONS FROM EWASO NGIRO BASIS

1. Conflicts will always occur as long as resources are used and remain scarce. It is an expression of change within a society and an opportunity to contribute to a more just and equitable distribution of control and access over natural resources.
2. Sensitisation of the communities on user rights and establishing an information platform facilitates conflict resolution-Water awareness creation campaigns.
3. The promotion and incorporation of local people's participation in natural resource conflict management with innovative tools offers a democratic solution to the impasse
4. WUAs are effective institutions in addressing water conflicts at local and regional levels.
5. Conflicts will always occur as long as resources are used and remain scarce. It is an expression of change within a society and an opportunity to contribute to a more just and equitable distribution of control and access over natural resources.
6. Sensitisation of the communities on user rights and establishing an information platform facilitates conflict resolution-Water awareness creation campaigns.
7. The promotion and incorporation of local people's participation in natural resource conflict management with innovative tools offers a democratic solution to the impasse
8. WUAs are effective institutions in addressing water conflicts at local and regional levels.

2.4.2 PARTNERSHIP FORMATION

When partnerships are formed each party feels equally responsible in the maintenance of the resource. This should be highly encouraged between the community members and the aiding partners. This would improve the quality of commitment by the members to the water projects.

According to Eng. Wandai Ndirangu (2005)

Keys to successful partnerships

1. *Identify and involve the "right" people* – All people with a stake in the watershed should (those affected or affecting the watershed) be brought together around a common purpose.
2. *Establish attainable goals* – Focus on the future in setting clear and attainable goals. Partners should assume specific responsibilities to accomplish these goals within a definite time frame.
3. *Make best use of talents* – Build the partnership around members' interests and strengths. Each member needs to contribute their unique talents. For example, some may be responsible for public contact while others will gather resource information. Individuals can provide new ideas and approaches. Yet, the group shares responsibility for decisions and actions, as well as for successes.
4. *Separate people from problems* –When building partnerships, we are dealing with people with feelings, needs and perceptions. Some conflicts arise from differences in perception. These conflicts may only exist in peoples' mind. It helps for each party to put themselves in other peoples'

shoes. Partnership negotiation should try to identify the problems and avoid apportioning blame.

5. *Interest not positions* – There is danger of confusing interest with positions. For example, interests rather than position make it possible for understanding and agreement. Groups with differing position may actually realise that they share some common interest that can be addressed.
6. *Encourage communication and participation* – Balanced participation will also promote a spirit of trust and cooperation. Most effective decisions are made by consensus. This doesn't mean that everyone will be completely happy, but that everyone can live with the decision and feel decisions are fair.
7. *Flexible organization* – There is no single partnership structure that will work in every watershed. Instead, your group should determine how formal the partnership needs to be. Some division of labour and delegation of responsibility should be set up to take advantage of resources and expertise. Build on existing community organizations, such as informal groups of land managers, formal organizations and other community organisations.

2.5 SUMMARY

Women's effort in management of water resource is hidden in the communities' strife to acquire the resource. Partnerships are to be made within community members and other organisations, both government and non governmental to achieve goals in management of water resource.

Water use and conservation should be planned together since community members are at the center of development. Maintaining motivation and enthusiasm should be focused into as well.

According to Kenya's National report to United Nations (1965:25) There is the urgent need to conserve our natural resources through national land-use planning and to create the physical environment in which people can enjoy the fruits of their labour. We must also use more intensively and effectively not only natural resources but our human resources as well.

CHAPTER THREE

3.0 SITE DESCRIPTION AND METHODOLOGY

3.1 INTRODUCTION

This chapter enumerates the techniques that will be used in data collection.

This survey was embraced in order to learn about the involvement of both men and women in the management of the vital commodity water.

3.1.2 SITE OF STUDY DESCRIPTION

Ortum Division of West Pokot District is part of the Arid and Semi-Arid Lands (ASAL). The area has a main river Muruny, Sosian spring project sponsored by CIDA, Monjorwa water project by the Kenya government, Surface dam by the community, Bore hole by Unicef and a seasonal river blocked and sand dug out to get water in dry seasons (sub surface dam) sponsored by Oxfam.. Its populace consists of the nomadic group of the Pokot community and other ethnic communities who are working as civil servants or businessmen. The township has a mission Hospital, Primary and Secondary schools, Polytechnic and School of Nursing and Limestone quarry.

The Ortum area is flanked by Sondany ridge and the hills of Soko and Samor to form a large valley. The Muruny is a permanent river, fed more or less steadily by

streams coming off the sondany to the south east. The Sondany ridge is a high spur off the south mass, which as at Ortum, is water eroded and consists of large alternative valleys and ridges such as are represented by Kamol and Kapera. The outstanding feature of this area south east of the Muruny beside its mountainous nature is a high water table due to the large amount of rain received over the top of Sonany.

Across the Muruny to the North west is another somewhat mountainous area, containing such small mountains as Samor and Soko; but it is composed mainly of large hills which circle around to form a bowl of which the main river is Chepsikor, so that it can be described as the Chepsikor basin. The only outlet to the bowl is the break through which the Chepsikor empties into the Muruny river. This area does not receive as much rain as that on the other side of the Muruny. The Chepsikor basin is dry and its water course including the main stream, are empty except during and shortly after rainstorms. Thus whereas the southeast area is wet, steep and grassy, the North West area is dry, not so hilly as is comparable to the plains because of its rocky and open grounds covered with stubby acacia thorn trees and other semi-desert plants. The whole Ortum area extends from Keweta to Chepagh and from Kerelwa to Cherorkogh, and covers approximately thirty quarter miles.

3.2 STUDY DESIGN

3.2.1 DATA ANALYSIS

Data collected from the field was coded, tabulated and geographically represented in terms of tables. Simple descriptive statistics were used to analyse the data too. This assisted the researcher to have a vivid picture of the situation at hand and to interpret thus giving recommendations.

3.2.2 Sources of Data

Primary methods of data collection included interviews and direct observation. The interviews were designed with both closed and open-ended questions. Closed questions call for respondents to be limited in answering while open-ended questions gave respondents opportunity to answer basing on their views and opinions. Secondary sources of data included library research, projects, books and Internet sites. This provided researcher with a deeper insight into research problem and with more information that improved the study.

A good research project is based on foundations of keen observations. During the interview sessions the researcher observed the different reactions from the men and women when asked about water resource management. Participant observation was also used in the water sources by visiting the sources and giving

the interviews at the particular site. This helped to clarify the accuracy of information given by the respondents.

3.3 Sampling procedures

The researcher used the snow balling technique of sampling. This is where you use someone you know to encourage others to participate in the interview, this too facilitates attainment of respondents since they feel free. This is very reliable where one is not familiar with respondents.

The data was collected during the day when people were out to get water. This was to have a direct link with the action of water acquisition.

CHAPTER FOUR

4.0 DATA ANALYSIS AND PRESENTATION

4.1 INTRODUCTION

This study was carried out during the day. All the water sources were visited and the interview was carried out. This is where participant observation was engaged.

4.2 BACKGROUND INFORMATION

Out of the 30 interviewees 21 were women and 9 were men. The representation in percentage is 70% for women and 30%for men.

TABLE 4.2.1

RESPONDENTS	FREQUENCY	PERCENT
MALE	9	30%
FEMALE	21	70%
TOTAL	30	100%

The sources of water available within the region include Sosian Spring project funded by CIDA, Monjorwa water project by the government, Murpus borehole funded by UNICEF, Takar dam, Cheptungeny sub surface dam funded by Oxfam GB and the main Muruny river.

TABLE 4.2.2

WATER SOURCE	MALE	FEMALE	PERCENTAGE
SOSIAN SPRING	4	2	20%
MONJORWA PROJECT	3	1	13.3%
MURPUS BOREHOLE	0	4	13.3%
TAKAR DAM	2	3	16.7%
CHEPTUNGENY SUBSURFACE DAM	0	6	20%
MURUNY RIVER	0	5	16.7%
TOTAL	9	21	100%

This gives a representation of the available water sources and how much it is accessed.

Sosian water spring is 98.0% pure for human consumption. It is only accessible through piping and only 20% use it.

The sub-surface dam is accessed at 20% too. The water is not very pure for human consumption but it is the only available source.

Takar Dam is for animal consumption only, its usage is 16.7%

The main river in the region Muruny river flows throughout the year and is accessed at 16.7%.

Monjorwa water project is accessed at 13.3% by only those who have managed to pipe the water. This is mostly by the institutions within the region like schools and the mission hospital.

Murpus borehole used by the Murpus Primary School and the neighbouring community is accessed at 13.3%.

Table 4.2.3

ACCESSIBILITY OF WATER EASILY	NUMBER OF PEOPLE	PERCENTAGE
YES	11	36.7%
NO	19	63.3%
TOTAL	30	100%

Water is not easily accessible, those who said yes live next to the source or have tapped water. Those who said it is not easily accessible walk distances in search of it, including those who scoop out sand from the seasonal river because it dries up after a while.

The role of gender in management of water resource among the Pokot?

In order to verify the role of gender in management of water resource the members of the community were asked what role they took. They asserted that their culture clearly stated that household chores were for the woman. It was up to her to look for the water, fetch it and store it for domestic use. This takes a different dimension when it comes to water for livestock men and women are both involved since the community is a pastoralist one and live in the ASAL regions.

The animals are grazed and later driven to watering sites for water. Along the river there are specific sites where the animals are watered different from where they fetch for domestic use, and washing clothes. The divisions take to

positioning of bathing the men are placed on the higher phase of the stream and women lower part of the stream.

This shows that both have a role and is involved in management of water resource.

How women/men are involved in the management of the resource in the covered area.

The men and women are involved in management of the resource but the extent differs. Women tend to be more involved since this is part of their cultural duty to access water through. The women take care of both livestock and domestic needs while the men are partly involved only in livestock needs.

Men seemed more concerned with the water issues where technology was involved. The spring project and Monjorwa water project enabled the community to have piped water, this is where the men worked in construction of the projects. This would include laying of bricks, placing and connecting the pipes and when the pipes get damaged it is their responsibility to have it fixed.

The Monjorwa water project has a man employed to be checking on the processing and adding chlorine to the water for purification.

Special knowledge employed by men/women in the management of water resource

Special knowledge has been implemented since the community members are working hand in hand to maintain the resource naturally. The environment has its natural trees preserved. The indigenous vegetation maintains the natural environment especially around the springs and river.

There is a policy of no cultivation of land and grazing of animals 30 meters around the catchments area, this is to avoid contamination of the water by fertilizers and pesticides. It also preserves the soil to avoid erosion.

In the subsurface dam, a barrier is constructed across the seasonal river bed to trap the water. The water will seep into the sand and during the dry season, the sand is scooped and the water is fetched from the ground. This art has been perfected by the women and they know which part of the dry river bed is to be scooped.

The long distances covered by women to fetch water has been solved by involving donkeys to carry the jerry cans of water.

Women fetch drinking and cooking water early in the morning and for other chores in the course of the day. When washing clothes it is done a distance from the stream, thus no poring of dirty water into the river to avoid contamination. This too ensures the water is suitable for use down the stream by others.

How existing efforts can be harmonised for the benefit of all those involved in management of the resource.

The existing efforts can be harmonized by ensuring that water has been made easily accessible to the community members. The spring water has been piped but it flows by gravity, this allows the supply of water to be in accordance with topography. This can be enhanced by provision of powerhouse to pump the water so that it can be piped to all regions.

The community should be well informed on how to keep up the projects. The subsurface dam is wearing off but the community members still expect sponsors to repair. It should be their responsibility to take care and repair, if left to ware out they bare the consequence.

Construction of reservoir tanks that would store the water for a longer period of time. This has been adopted by the schools and the mission hospital present, so should the homesteads. The spring water is approved as 98%fit for human consumption thus its storage is easier.

Water from rivers should be treated at home by use of water guard before being consumed. It will be of benefit to have treated water for human consumption to avoid disease attacks unlike the situation currently where they consume the water directly.

Specialists on water resource management should be sent throughout the country to talk to community members, like farmers are helped by extension officers. It will enable community members to be alert on managing the water resource.

CHAPTER FIVE

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 CONCLUSION

The study aimed at finding out the gender dimensions in management of water resource. The kind of environment and activity carried out in the region was also considered. The men and women gave an insight of how they are involved in their daily work and how it linked to water resource.

Water is a very scarce resource in the region and this has called for several methods of sustaining and availing the resource.

Women have been entirely renowned to facilitate the management of the resource because it is part of their duty.

Community involvement during the construction of brick wall across the seasonal river was done by collaboration of both women and men. The women would carry the bricks and the men would construct the barrier wall. While laying the foundation at the Sosian springs the women collected materials and the men worked on the construction.

The local chief is a man and he holds meetings to advice the locals on how to preserve the catchment areas by not cutting trees and vegetation since it will be destroying the rivers or other water sources.

The men are mostly involved when performing duty accorded to them like an elder or through manual labour whereas the women are involved as part of their daily activities. This is because they are always in touch with the resource for domestic and livestock use.

To a higher percentage women are more involved in the management of the water resource than the men.

5.2 RECOMMENDATIONS

According to A World Bank Policy Paper (1994:48&49) Many projects of the Bank and other Agencies include 3 basic interventions to improve the delivery of extension services to rural women.

One is to improve the delivery of appropriate extension messages to women as a separate clientele.

Second is to increase the number of female agents and supervisors in the extension systems or to train male agents to work with female farmers.

Third is to provide separate facilities, transportation, and other resources for extension to women farmers.

The above interventions are advisable in accordance with the conclusion that women are more involved than the men.

- Men should be made aware than some cultural laws have been passed with time and they should help women in accessing the resource and this can be achieved through education.
- The NGO's that help in projects should empower the community members to be able to carry on with projects and not rely on aid all the time.
- The community should take upon itself the initiative to give duty to both genders to be on the look out and have vested interests in conserving their natural resources because it is a healthy environment.
- The government policies on natural resources use and planning should be well informed to the members to make it criminal offence for one who goes against it.
- Irresponsibility by any member of the community should be punishable.

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APPENDIX 1: Interview guide for Key Informants and FGDs

My name is Cheptoo Caroline Irene a student at the University of Nairobi undertaking post graduate diploma in Gender and Development. I am conducting a study on gender dimensions in management of water resource as a part of a requirement to graduating. I kindly request for your co-operation in answering the questions I will ask. Any information given will be treated with utmost confidentiality. It is my privilege to have you as my respondent.

INTERVIEW QUESTIONS

- 1, SEX (Male/Female)
- 2 Which is the source of water?
- 3 For what purpose is the water?
 - domestic use?
 - livestock consumption
- 4 Is water easily accessible?
- 5 How are women/ men involved in the management of the resource?
- 6 Any special knowledge involved by men and women?
- 7 What efforts have been involved to benefit the management of the resource despite the already existing methods?

Thank you for your assistance and time