

Natural Resource Based Conflicts and Pastoral Livelihoods:

A Focus on the Impact of Water Resource Based Conflicts on
Pastoralism in Dadajabulla Location of Wajir District, Kenya

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DECLARATION

I declare that the contents of this project paper are my original work and have not been presented for the award of a degree in any other university.

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Date 6-06-2003

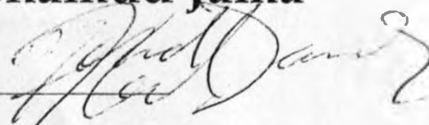
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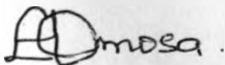
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To all of you, I say thank you and God bless you.



Eileen K Omosa

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DEDICATION

This work is dedicated to all of Mama's daughters.

Through your hard work, she has witnessed her dreams come true -
Gabriella, Abi, Darleen, Josephine, Eileen, Gloria, Florence, and Mary.

ABSTRACT

The study describes and analyzes relationships between natural resource based conflicts and pastoral livelihoods. The study is based on the obvious assumption that water is an important natural resource in the maintenance of pastoral livelihoods. A further assumption is that conflicts are bound to occur as a result of sharing the limited water resources by many users. The general research question guiding the study therefore is: "what is the effect of water-based conflicts on pastoral livelihoods? More specifically, what livelihood opportunities are lost to people when they spend their time and resources managing water related conflicts?"

The field study was carried out at Dadajabulla location of Wajir district, in Kenya. This was during the months of June and July 2002. Data for the study was obtained from primary and secondary sources, and through observation. Primary data was collected using a structured questionnaire administered through face-to-face interviews to a sample of 100 household heads. The sample was obtained through the use of a multi-stage sampling design to get the final sample size of 100 household heads.

The study findings confirm the assumption that water is a critical resource that determines success of pastoralism as a way of life in arid and semi arid lands. Availability of water determines where people and livestock settle in during the different months of any given year. During the dry season, all the temporary water sources dry up so that people rely solely on the Dadajabulla borehole. Over-concentration of pastoralists in a few areas leads to competition for the limited water, resulting in conflicts. The conflicts in turn consume time and resources needed to support pastoralism, which is a source of food security, cash money to pay for school fees and healthcare, livestock to maintain social-cultural functions, among other needs. The conclusion from the research is that conflicts over water resources have a negative impact on pastoral livelihoods.

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CHAPTER 1

INTRODUCTION

This is a study of the effect of water related conflicts on pastoral livelihoods in Wajir District of Kenya. Wajir lies in the northeastern part of Kenya, a water scarce region with an annual rainfall of between 200 and 300mm. The District has a population of between 300,000 and 350,000 people. The people's livelihood mainly depends on pastoralism as the most efficient method of exploiting transient resources in the arid lands. The people keep cattle, goats, sheep, camels and donkeys; and grow annual crops along drainage lines and swamps. Water is rare in the District, except for the highly seasonal Ewaso Ng'iro River that forms the boundary between Wajir and Garissa districts. Other available sources of water are boreholes, shallow wells, pans and dams. Since livestock depend on water for survival, its availability determines where people and livestock are found at different months of any given year.

People of Somali origin from the Ajuran, Degodia and Ogaden clans mainly inhabit the District. Traditionally, most of the people identified with clans, whose elders governed access, use and control of watering points and other shared resources. Sharing of the common and limited water implies competition and conflicts. Some of these conflicts have been so intense that they have sometimes turned into wars using sophisticated weaponry. Violent conflicts have rendered some of the watering points 'bandit areas', inaccessible to livestock. This has affected the productivity of livestock, hence the people's livelihood. This, therefore, necessitates the need to understand how arising water-related conflicts impact on the livelihoods of pastoral people, especially in a district that depends on livestock products for subsistence and cash income (Wajir District Development Plan, 1997-2001).

1.1 Pastoralism as a Way of Life

Pastoralism is a production strategy in which people raise herd animals such as cattle, goat, sheep, donkeys and camels, often in arid and semi arid lands (ASALs) to sustain a livelihood. Pastoralism relies on the availability of water, pastures and labour to thrive - with water as the determining factor. Pastoral production is mostly subsistence based and aimed at providing a regular supply of food in the form of milk, meat and blood for household members. Pastoralists also trade livestock, hides and milk for other food products or for cash income to purchase grains, pay school fees and for healthcare services. Production is usually organized within household units consisting of a male livestock-owner, his wife/wives, children and other dependants.

Swift (1988) in Bonfiglioli and Watson, 1992, defines pastoral production systems as “those in which 50 percent or more of household gross revenue comes from livestock or livestock related activities, or where more than 15 percent of household food energy consumption consists of milk or milk products produced by the household”. Pastoral nomadism involves both rearing of livestock and movement of livestock and people.

The availability and utilization of water determines transhumance i.e. the selective and regular movement of livestock and sometimes, entire settlements from one place to another. The movements are to areas where water can reliably be found all year round such as wells, rivers, permanent springs and dry season grazing areas (Umar, 1994). The mobility is a rational response to seasonal changes in the environment. Successful management requires access to water, pastures and labour. All these are interrelated resources such that without water, pastures will not be usable. Without labour, livestock cannot be moved over long distances to where water abounds. Proximity to water determines where people can live.

Though pastoralism entails the same concepts of raising livestock and movement of livestock and people; the practice varies with regions so that various types of

pastoralism are found in different regions of Africa. Most of the East African pastoralists are organized as small, decentralized, and autonomous household units from where livestock are herded daily or moved periodically as resources diminish or physical security threats increase.

Pastoralism is a highly flexible system. According to Umar (1994), the practice has evolved over time as the most efficient means of exploiting transient water under ecologically marginal conditions, and prevailing technological and economic situations. The pastoral resource-use pattern is characterized by risk spreading and flexible mechanisms, such as mobility, communal land ownership, large and diverse herd sizes and herd separation and splitting. Pastoralism also entails seasonal migrations of humans and livestock between wet and dry season grazing areas. During the dry season, the availability of limited water demands that many people and livestock crowd together, each trying to have access to water. Access, use and management of water works as long as it is governed by rules and regulations, but once flouted, leads to conflicts among users.

The mixture of livestock is a risk management system. Small stock like goats and sheep, although more vulnerable to disease when compared with large stock, are cash buffers for they have a high reproduction rate and they lactate during dry periods. Goats and camels can survive longer dry periods than cattle and sheep, and the small stock allow more rapid herd growth. The composition of livestock per family is determined by ecological circumstances, personal preferences, available labour and family size (Lane, 1996:10).

Pastoralism is a valued and profitable way of life with a rational explanation behind each action. Livestock is acquired through inheritance, purchase, loans and gifts. Livestock, especially cattle are valued as expressions of wealth and objects of social prestige. Livestock provide for subsistence, security, cohesion and welfare for society as a whole. The transfer of stock from the endowed to the less endowed households

achieves this. This involves loan and exchange mechanisms that bind the community in a web of reciprocal relations (Lane, 1996). Livestock being a provider of basic needs, pastoralists have developed a special attachment, that outsiders find hard to comprehend.

Non-market transactions are also relevant to the way of life of pastoralists, in that livestock possession is a central element of one's social, economic and religious life. Without livestock, one is lost, as one will not have social status, power and cannot support a family. Animals form an integral part of social life and ideological values that guarantee the survival of individuals and the continuity of institutions. To pastoralists therefore, livestock are insurance as they provide social links through bride price, inheritance, and as ritual objects. Livestock are a means of subsistence and prestige goods that enable individuals to establish social relations with other members of society. At the same time, the animals enable individuals to establish and achieve mystic, but not irrational linkage with the supernatural. The social but non-market transactions using animals enable pastoralists to attain food and social security, social reproduction and reduce risks (Umar, 1994).

Pastoralists control the number of livestock in line with availability of pastoral resources like water. Resource degradation is avoided through frequent movements to utilize different resources at different times - made possible by their common land tenure arrangements. Society's rules and regulations and customs encourage co-operation and regulated individual behaviour in support of interdependency amongst community members. As Lane (1996:15) says, "individual behaviour towards common property resources is mainly based on what the individual expects of the community and what the community expects of individuals. From mutual expectations, arise assurance and security". Individual behaviour is controlled by social sanctions, for example, a curse.

Therefore, African pastoralists have common property regimes that regulate and control access within and between clans and tribes. The system is at its best when pastoralists are able to move over large areas in response to seasons, social constraints and needs of their animals. "In pastoral domains, it is water and not land which constitutes the essential element determining land use practices. It is in fact the control over access to water which gives pastoralists the possibility of exploiting a given area" (Bonfiglioli and Watson, 1992:20).

1.2 Problem Statement

In Wajir District, attempts by many users to access the limited water resources has resulted in conflicts that have negatively affected pastoralism as a way of life. This study, therefore, describes and analyzes livelihood opportunities lost to people when they get involved in water resource based conflicts.

In its attempt to 'take' development to people in ASALs, the government effected clan boundaries and grazing blocks. This policy has ignored the fact that pastoralism survives on frequent movements. As a result, some pastoralists have found themselves without access, ownership or control of critical resources like watering points. In Wajir, the boundary demarcation placed the Ajuran in the West, the Degodia in the East and the Ogaden in the south. As a result, the smaller clans and sub clans have found themselves without access, ownership or control of natural resources, especially watering points. But since it's the human instinct to survive, the need to access water compels pastoralists to use force. A good example is the 1992/94 and 1996/98 inter-clan conflicts over access to limited water due to severe droughts. The question however is, 'why is it that even after most clans and tribes have control over watering points, we still have water related conflicts? How have the conflicts affected pastoralism as a livelihood?'

This study therefore aims to establish the relationship between water-based conflicts and pastoral livelihoods in Dadajabulla location of Wajir District. Scarcity of water necessitates a need to understand how this impacts on the livelihoods of pastoral communities. In other words, what livelihood opportunities are lost to people when they spend their time and resources managing water related conflicts?

1.3 Study Objectives

The broad objective of the study is to describe and analyze the relationship between natural resource based conflicts, particularly water, and pastoral livelihoods in Wajir District.

The study therefore aims to:

1. Understand the socio-economic characteristics of the study area
2. Understand water resource governance - ownership, access and use
3. Understand water related conflicts and their management
4. Analyze relationships between the limited water resources, arising conflicts and pastoral livelihoods.

In trying to answer the broad question, the study identifies the various water stakeholders, available watering points, water management systems in place, and arising conflicts as a result of many users trying to access a limited water resource. In other words, how has engagement in conflicts impacted on pastoral output as a development activity that supports local livelihoods and contributes to the national economy?

1.4 Research Questions

The study is based on the following broad question: “what livelihood opportunities are lost to people when they spend their time and resources managing water related conflicts?”

The study therefore set out to answer the following specific questions:

1. What are the main available watering points in the study area?
2. What traditional and modern rules and regulations govern ownership, access and use of available water resources?
3. What are the common conflicts over water, and what factors trigger, renew and sustain these conflicts over time?
4. What is the impact of water conflicts on the livelihoods of the people of Dadajabulla?
5. What has been done to manage the conflicts over water?
6. What would the people involved in the conflicts like to see done to manage the conflicts in future?

1.5 Justification of the study

Water plays a critical role in development through provision for domestic, industrial and agricultural needs, for which there are no substitutes. This implies that lack of sufficient water will slow down overall development. Scarcity of this critical resource will lead to intense competition and conflicts over ownership, access and control. Conflicts impact negatively on livelihoods when people spend valued time and resources to manage conflicts. The urgent need to manage water related conflicts arises from the fact that globally, water resources have dwindled leading to a situation of many users of a limited resource.

It is estimated that 80 percent of countries in the world currently suffer from serious water shortages. This situation is expected to worsen in the coming decades as the population of users is ever growing. Africa, with substantial water resources still experiences chronic shortages attributed to uneven distribution of rainfall, underdevelopment of potential water sources and poor management of existing ones. Africa's renewable water resources average 4,050km³/year, providing in the year 2000 an average of about 5,000m³ per capita/year (UNEP, 2003). This is significantly less than the world average of 7,000m³ per capita/year. In Kenya, the ecological set-up and climatic conditions make water a critical resource in the achievement of sustainable development. This calls for a study to establish the relationship between water related conflicts and livelihoods in water stressed pastoral areas.

Left to continue, the conflicts will spread from pastoral areas to other parts of the country. This is already evident in many ASALs where intense competition over the dwindling water has resulted in prolonged conflicts. Therefore, in an area where livelihoods of communities largely depend on livestock, whose survival in turn depends on availability of water; conflicts will lead to higher levels of poverty.

By focusing on the interplay between water resource conflicts and pastoral livelihoods, this study hopes to highlight critical issues in resource-based conflicts. This will contribute to a better understanding of pastoralism and its contribution to development among researchers, government officials, and aid and development workers. The held notions on pastoralists and pastoral systems are based on stereotype views and images of African pastoralists and their environment. Some of these portray them as "arrogant, warlike, economically irrational, unresponsive to development, and environmentally destructive" (Hendrickson, et al, 1998:5). The stereotypes on African pastoralists have contributed to situations where cattle raiding and resulting conflicts are seen as 'primitive' features of pastoral relations. Yet, this is a complex system in socio-cultural reproduction and the management of pastoral resources. The result is a

misunderstanding of the complex socio-political processes of the conflicts that have impacted on pastoralism as a sustainable way of life.

Information on the diversity of conflicts, stakeholders and the conflict management methods in use, will make a contribution to the local people's search for a solution to the on-going conflicts. The generated information will be used to inform and support the policy making process on the management of natural resources, especially in ASALs. The information will also be used to design and implement development projects in support of pastoralism at the local, national and international levels.

CHAPTER 2

PASTORALISM AND THE PASTORAL ECONOMY

2.1 Pastoralism and Development in Africa

Pastoralists are livestock keeping people found throughout Africa's arid regions, and they constitute between 12 and 16 percent of the total population. The regions are North Africa, West Africa, South Africa, and East Africa. The East African region has the largest variety and number of pastoral societies. Pastoralists occupy over 70% of the Kenyan land and 50% of each of the following countries - Ethiopia, Somalia, Sudan, Tanzania and Uganda. The pastoralists range from specialized camel keepers among the Somali, Afar, Beja, Rendille and Gabra. To cattle and small stock keepers among the Turkana, Pokot, Maasai and Samburu of Kenya; the Nuer, Dinka and Toposa of Sudan; the Dasenech, Mursi and Oromo of southwestern Ethiopia. The Karamajong, the Jie and Teso of Uganda; and the Parakuyu and Tatoga of Tanzania are the other groups found in the region (Elliot, et al, 1994).

In most of these countries, pastoralists are minorities as they lead a different way of life in terms of culture, values and language. Their lifestyles are incompatible with those of the majority of the population from where those who govern originate. This partly explains why views and needs of pastoralists are rarely taken into consideration in planning (Bonfiglioli and Watson, 1992). Though pastoralism entails the same concepts of raising livestock and movement of livestock and people; the practice varies with regions so that various types of pastoralists are found in different regions of Africa.

The ASALs of Africa share roughly similar environmental conditions, types of livestock and methods of economic production. High temperatures with a monthly mean of 30 degrees Celsius characterize the climate in the pastoral areas. Rainfall is unpredictable, highly variable in space and time and approximating an annual average of 350mm. Long rains are received between the months of April and May, and short rains between November and December. These climatic conditions limit crop-farming activities so that the people are left with pastoralism or nomadic pastoralism as the most viable livelihood in these ASALs. Pastoralism develops to get the most out of the opportunity provided by a surfeit of water and other resources in good seasons, and accepts losses in low seasons. Pastoralists increase livestock numbers in good seasons to maximize on available resources and carry over enough health stock to provide for subsistence during the dry and risky seasons.

In the 19th century (1890s) pastoralism was a very valued and profitable way of life. The pastoralists' herds were universally acknowledged as a store of durable, investable and reproductive wealth. Even male heads of farming households acquired livestock from pastoralists and used them to translate their control over labour and land into authority within the community. At the same time, they used herds to ensure the continuation of their own lineages through the investment of stock in marriage, thereby controlling female fertility (Eliot F, et al, 1994:45). As viable as the practice has been, times have changed; people's lifestyles have changed resulting in a new and conflict-ridden pastoralism. A threatened pastoralism is a danger sign to livelihoods of people who depend on the system for their survival.

As a result of the prevailing stereotypes and practices on pastoralism, by 1950, pastoralism was losing its hold in the economic, social and political system that was now dominated by the needs of export agriculture. The support was mainly to white settlers and mixed producers from agriculturally high potential areas. Pastoralists having less to offer the state especially in terms of resources for the export market

meant that they had less political influence both in the colonial and independent governments. This led to the assumption that pastoral communities were unwilling and unable to modernize.

Pastoralism as a way of life is very unique. As a result, many have failed to understand it as the most productive way of utilizing resources in ASALs. A good example is African pastoralism and its development, which are surrounded by a host of assumptions, myths, preconceived ideas, generalizations and pseudo-scientific pronouncements. The result is that the concept of pastoralism passed on over the years is deprived of history, a pure or absolute phenomenon, autonomy, is isolated and refusing all relation with the outside world. Others have therefore viewed pastoralism as an arrested stage in the evolution of humanity. All these generalizations make up part of the discourse on African pastoralism (Bonfiglioli and Watson, 1992:19). The misconceptions are still reflected in development policies to date. This has sometimes lead to resource degradation, scarcity, competition and conflicts, that in turn deny people full practice of pastoralism as a way of life to support livelihoods.

2.1.1 Development of Pastoralism During the Colonial Period

During the colonial period, there were general policies aimed at pacification of pastoralists. For example, in East Africa, the colonial administration denied power and legitimacy of existing pastoral institutions. This was done through a reduction in livestock numbers, importing new breeds, providing permanent sources of water and improving veterinary services. The objective was to establish meat-producing centers. These interventions had negative effects, as improved animal health resulted in an increase in livestock that led to overuse of the common resources like water. The provision of permanent watering points changed former migratory patterns, leading to large concentrations of livestock in areas that were previously not used for dry season grazing (Umar, 1994).

In West Africa, the colonial policies were aimed at the powerful pastoral societies of the Sahara and the Sahel. The long conflict between nomadic pastoralists and sedentary agriculturalists was resolved in favour of the cultivators. In Mauritania the colonial administration practiced strict control over pastoral communities and effected extensive requisitions of their animals. This led to the dismantling of existing patterns of power and those of economic resource management.

In Niger, the colonial regime, from the 1930s to the 1950s, aimed at developing groundnut cultivation for the market. This led to expansion of cultivated areas that compressed pasture in pastoral areas. At independence, the new government continued with these colonial policies of suppression of pastoralists. In Senegal, the government's large-scale projects along the Senegal River Valley threatened survival of pastoralists by replacing them with irrigation schemes. In Sudan, the state gave priority to large public and private schemes based on political influence at the expense of pastoralists and other small-scale land users.

In Somalia, the pastoral economy has been underdeveloped by the creation and expansion of the bureaucratic state. The state took over control of the livestock sector, limiting pastoralists' access to pastures and watering points. In Ethiopia's Awash River Basin, home to pastoral communities, land was taken over in the 1950s and converted into irrigated agricultural production. The government policies on development of the Awash Basin led to the establishment of large state farms to produce cotton and sugarcane on a commercial basis. To do this, pastoralists were evicted from the land. In 1962, the Awash Valley Authority was established to coordinate and administer development of natural resources in the valley without involving local communities. Over time, development activities in the Basin have reflected priorities of the central government or those of some select commercial and political interest, in disregard of interests of pastoralists. Annexation of pastoral land resulted in conflicts between pastoralists and developers.

In Tanzania, cultivation was extended to pastoral areas. A good example is that of a Canadian sponsored wheat cultivation project that took large tracts of pastoral land in the Hanang district, land traditionally used by the Barabaig pastoralists. This led to the degradation of common pastoral resources, as pastoralists could no longer practice their complex system of land use that involves movements. In a research in the dry parts of Tanzania - mainly the west and central zones suitable for livestock production, William Mackenzie concluded that lack of water is the main factor that restricts cattle to one-third of the country. Large herds of cattle are walked from villages to streams, lakes or pools over distances exceeding nine kilometers and sometimes up to 25 kilometers. In the dry season, livestock are concentrated around the limited water resources, leading to competition and conflicts (Economic Research Bureau Paper 73.1).

Mackenzie dwells more on obstacles such as the conflict between serving the export market and the need to meet local nutritional requirements. He also focuses on the marketing policy, conflict between the market activities of cooperatives and livestock marketing procedures, and access to pasture. However, Mackenzie does not dwell on the linkage between the limited water resources, arising conflicts and level of livelihoods of these pastoral communities.

Ayele Gebre Mariam, writing in 'The Future of Pastoral Peoples' (Galaty, et al, 1980) uses the example of Borana Nomadic pastoralists to demonstrate that rainfall is the most significant factor in the pastoral production system, yet it is not constant or evenly distributed in any one year. Because of this, the weaker lose their grazing rights and watering points to the stronger groups. Mariam recommends the need to study the relationship between individual pastoralists during drought and non-drought periods to find out how individuals act towards other units sharing the same circumstances.

Recent studies by the World Bank's Rural Development Department's (RDV) assessment of Bank supported work, on land tenure in dry land areas in Kenya, revealed that: of the 39 projects related to pastoral land tenure since 1995; access to resources, land tenure and conflict resolution were identified as key issues by 27 cases. The RDV concluded that conflict management is an important area for future attention especially now that livelihoods in dry areas are changing. Most of the pressures facing the livestock sector, leading to more vulnerability among livestock herding households are attributable to the lack of alternative livelihood sources.

2.1.2 Development of Pastoralism in Post Independent Period

Recognizing the important contribution ASALs could make to development; governments and other development agencies developed plans and strategies for the development of dry areas. To do this, they borrowed heavily from existing literature and theories on pastoralists and pastoralism. Most of the literature depict pastoralists as "arrogant, warlike, economically irrational, unresponsive to development and environmentally destructive" (Hendrickson, et al, 1998:5). Herskovits (1926:22) in "Theories of the East African Cattle Complex" argues that pastoralists keep excess numbers of animals. That cattle are valued for their own sake and for the prestige they confer, rather than for the substance they provide. These stereotypes on pastoralists tend to separate the people's actions from their environment. But in reality pastoralism had evolved to adapt to the harsh environmental realities of ASALs.

The view of development agencies on pastoralists and their natural environment has also greatly been influenced by Hardin's (1968) "tragedy of the commons". In trying to explain the status of natural resources held and shared in common; Hardin argued that common resources are prone to degradation as they are "unmanaged, open-access, no-man's land, inevitably doomed to degradation as each individual withdraws more of the resource than would be optima from the perspective of the users as a whole".

(Hardin, 1968:3). To Hardin, the individual benefits at the expense of society because they know that being a common resource, all will share the costs of degradation.

The development agencies relied on the populists' who generalize rural communities, including pastoralists, as stuck, simple, homogenous and durable. Yet pastoralists have important differences as individuals and groups in terms of gender, class, strength, wealth and profession. In pastoral societies, a domestic unit alone is a complex collective arrangement, variable and changing. In reality pastoral societies are not untouched, isolated, and living in harmony, rather they are complex systems linked to the outside world through towns, markets, and administrators.

The approach used in the development of ASALs left the areas with a wide development gap that has persisted to-date. What happened to these pastoralists conforms to Burton's (1993) theory of nature verses nurture. To Burton, certain people are born with conflicts and there isn't much that can be done by manipulating nature to change the situation. Conflicts are prevalent among pastoral communities not because of the limited shared natural resources i.e. nature, but because by nurture, these pastoralists are prone to have conflicts. Burton's argument however puts emphasis upon genetic determinism and fails to take culture and social institutions into consideration.

The colonial government subjected the pastoralists to the theory of nature i.e. the pastoralists are born hostile, aloof and unreceptive, and there is nothing one can do about it (Mwagiru, 1998:7). The colonial government assumed that there wasn't much they could do to develop the pastoral areas. Pastoralists were thus left them on their own, as development activities were concentrated on areas with high potential for crop production.

The policy makers also borrowed heavily from the views of modern theorists such as W.W. Rostow, Gabriel Almond, Edward Shils, Lucien Pye and Samuel Huntington

(Leys Colin, 1996). These theorists explain the development trend in Africa especially in the 1960s in terms of change. Change of government policy from communal to private ownership forced local people to abandon traditional systems that governed ownership, access and use of for example water resources among pastoral communities. The traditional resource management systems enable users avoid the 'tragedy of the commons'. The modern theorists advocate for modernization of what was traditional; yet, the history of a society lies in the traditional features that form the basis for future development. Government development policies forced local people to abandon traditional systems that governed ownership, access and use of common resources for 'modern' ones from outside.

Some of the tenets of the modernization theory namely - privatization, universalism, achievement and individualism have therefore pervaded the pastoral economy. This is evident from the commodatization of pastoral economies and livelihoods, for example, through the sale of hides, skins, beef/meat and milk. With the opening up of pastoral areas and their exposure to the monetary economy, each livestock owner tries to keep as many animals as possible so as to satisfy the household requirements and achieve a surplus to sell and make more profit. As such, modernization and commodatization leads to competition, overuse and degradation of the common and limited resources like water, resulting in the "tragedy of the commons". This tragedy of the commons can be attributed to the breakdown of traditional management systems of natural resources in terms of access, use and ownership.

The crisis facing most pastoralists is partly an outcome of the historical upheavals that have interfered with the social, economic and ecological foundations of subsistence systems of most rural societies in Africa. The upheavals during the colonial period and in postcolonial governments, destabilized pastoralism as a way of life leading to marginalization and impoverishment. In East Africa, the colonial administration denied power and legitimacy of existing pastoral institutions. They demonstrated this through

the destruction of houses and capture of available stock. Yet, this was the stock that offered the margin of surplus and security, separating pastoralists from famine.

Research on pastoralism has countered some of the arguments held by Herskovits (1926), Hendrickson (1998), Hardin (1968) and others. Findings show that the number of livestock kept is rarely in any excess, but just enough to satisfy the pastoralists' subsistence needs. Using milk, as the most desired pastoral food, Dahl and Hjort in Lane (1996:11) developed a "minimum herd for self sufficiency" model. The model shows that a reference family of 6.5 persons would require nine lactating cows for sustenance. Taking into account the low calving rate, the need for male cattle and the necessary presence of young stock in a reproductive herd, an average pastoral family would therefore require a total herd of at least 60 animals. In the dry seasons when lactating cows are fewer and milk yields are lower, they estimate that a family of five adult equivalents would need as many as 593 animals. Adding on to this minimum number for subsistence is male herds, young immature stock, and old stock for social ceremonial functions, and herds to cover any future normal crisis like drought.

The combined effect of development efforts during the colonial and postcolonial periods was a weakened internal management and leadership capabilities of pastoral societies. This in turn resulted in the disruption of the ecological balance of pastoral areas, accelerated deterioration of natural resources, conflicts over available resources, thus rendering pastoralists more vulnerable to famine and crisis. At the same time, this made little if any contribution to development.

2.2 Pastoralism and Development in Kenya

Kenya has the highest number of pastoralists in the East Africa, region covering up to 70% of its landmass. The development trend for Kenya's ASALs was set during the colonial period, and perfected by the independent government. In an attempt to develop pastoral areas for beef production and to improve living standards of

pastoralists, the colonial and post independence administration employed a variety of approaches. The colonial administrators were mainly indifferent; while the independent government maintained a heavy presence to curb insecurity in pastoral areas, and at the same time have their beef production contribute to the national economy (Markakis, 1998). Decisions and planning were done at national level, and taken to the ASALs for implementation, with little if any involvement of the local people.

In trying to incorporate pastoral areas into mainstream national activities, the development of policy and implementation strategies borrowed heavily from existing theories and views on pastoralists and pastoralism as a way of life.

2.2.1 Historical

During the colonial period, the pastoralists north of the equator were considered hostile, aloof and unreceptive to development. This was compounded by the distance of their territories from the administrative center of the colonial powers in Kenya. The colonialists were mainly interested in the development of agriculturally high potential areas for cash crop production for export. For easier management, they divided Kenya into three regions - the highly developed white highlands; a less developed native lands which was a pool of cheap labour, and the frontier/pastoral zones that were out of bounds. The pastoral areas were closed off and one needed a permit to travel there. Left on their own, pastoralists suffered from negligence and lack of attention.

Policies of the colonial regime were aimed at the creation of stable administrative structures, and the transformation and intensification of crop production for export. As a result, little if any attention was given to the herding sectors, their environment or to the human and social promotion of pastoral societies. Bonfiglioli and Watson (1992) argue that generally, governments mistrust pastoralists and their lifestyle. Governments see pastoralists as politically unreliable and difficult to control, hence, a threat to national security. Furthermore pastoralists are perceived as primitive, violent and

hostile towards change, and they lack in national loyalty because of their cross border movements.

The fact that pastoralists had less to offer to the state, especially in terms of resources for the export market, meant that they had less political influence in governments (both in the colonial and independent Kenya). This led to the assumption that pastoral communities were unwilling and unable to modernize; have an emotional attachment to their livestock; lack rules and regulations to manage their resources; and are attached to the traditional way of life (Hendrickson, et al, 1998). Some of these perceptions on pastoral communities have persisted to date, sometimes contributing to structural and violent conflicts.

2.2.2 Independent Kenya

The general assumption of the modernization approach adapted by the government at independence in 1963 was that the state was to function as the motor of development. The state was also to serve as the central means by which to fulfill social aspirations and bring about positive change. While focusing on development of ASALs and pastoralists, the government based its development policies and strategies on faulty assumptions, harmful myths and images of pastoralists and pastoralism. Faulty data, pure prejudice and other notions on pastoralism, combined to produce the stereotype of pastoralists as “primitive and irrational people who create problems”. This perception resulted in policies that have put emphasis on changing the pastoralists themselves, rather than the circumstances that surround their existence.

However, at independence, the Kenyan government realized the potential of livestock products for export and consumption. The government therefore formulated development plans and strategies to develop pastoral areas. Unfortunately, policies to encourage pastoral production were aimed at sedentary livestock production, a system not suited to the ASAL climatic and ecological conditions. These policies have resulted

in more threats to pastoralism, as pastoral management systems have broken down. At the same time, people from outside have invaded pastoral areas resulting in conflicts over ownership, access and use of pastoral resources.

Attempts to develop the ASALs were aimed at incorporating pastoralism into the country's economic system, thus recognizing pastoralism as a potential contributor to national development. The initial attempts were immediately challenged by the secessionist attempt Shifta¹ war from early 1964 to 1967. The Somali waged the war with the Oromo and Rendille support, against the Kenyan government. The government won by retaining the land under conflict. The result was a government restriction limiting pastoral families to within 4 kilometers of towns as one way of monitoring their movements. The area was given little security attention, resulting in the northern part being abandoned to armed groups that have to date subjected the area to mass looting and killings (Umar, 1997). As serious as the secessionist attempt was, the event did not deter the government's development agenda for ASALs and pastoralism as a way of life.

Water Development Funded Projects

After independence, the Kenyan government constructed some pans and drilled 10 boreholes along the Waso Belt (Lorrain Swamp) in Wajir District, using loans from the United States Agency for International Development, Range Management Programme. This was to tap water from the Merti aquifer, which runs along the Waso River from Habaswein up to Somalia following the Waso belt. This permanent water supply attracted settlements of pastoralists, resulting in a reduction in livestock mortality and increased stability of the people's source of livelihood. However, reduction in mortality of livestock led to more animals and intensified competition for the limited water, resulting in conflicts.

¹ Shifta war was a secession war aiming at incorporating Northeastern Kenya in the Republic of Somalia.

In an attempt to manage some of these conflicts, the government set up government-managed boreholes, which were common resources, with open access to all. Later on to achieve sustainability, the government facilitated the local people to set up user groups to manage the boreholes. This did not work as the major clans in each settlement took over ownership of the boreholes at the expense of others, especially the minority clans. To survive, people from the minority clans came together in one area to set up their own borehole. But why is it that even after almost each clan controlled a water point, we still have water resource based conflicts?

Kenya Livestock Development Project

Further attempts to develop the livestock industry in ASALs were made in the 1970s through the Kenya Livestock Development Project (KLDP). The Project was a replication of a range management model developed in America and Australia for their dry lands. The model was tried in Africa in the 1960s and 1970s. The project proposed a beef stratification policy where the rangelands in the north of Kenya were managed as grazing blocks. Boreholes and dams were developed to provide water for the animals. The plan was that the grazing blocks would produce immature stock that would be fattened in the southern dry lands that were wetter. The southern rangelands in Narok and Kajiado were organized into group ranches to buy and fatten the immature stock. To achieve that, the National Livestock Marketing Division was strengthened to purchase the immature stock, and the Kenya Meat Commission was to be the final destination for the product.

The project failed basically because the local people were not involved in the initiation and implementation of the project. This was a Government designed project aimed at helping the pastoralists from destroying the fragile land. The project definition of pastoral development was that of settlements' based service delivery, implying that the pastoralists were to pay for the growing demand of beef in Kenya. This ignored the fact that these were people with very specific needs of frequent movements. The KLDP

intervention saw an increase in health and education services and vaccination of livestock. With these free services, the local people got used to government provision for their needs, slowing down their practice of pastoralism to its full potential.

Policy Paper for ASALs

In 1979, the government of Kenya developed a policy paper for ASALs (revised in 1992). The paper focused on contingency planning for drought, human resource development, natural resource management, and integration of ASALs into the national economy. But the policy paper did not focus on pastoralism as a livelihood. Thus, it failed to take note and show understanding of the increasing vulnerability of pastoralists to effects of drought and conflict.

Arid Lands Resources Management Project

Another attempt focusing on pastoral areas was made in the mid 1990s through the government initiation of the Arid Lands Resources Management Project (ALRMP). The drought management, community development, marketing and infrastructure project was supported by the World Bank, and located at the Office of the President. To date, the project has teams in each of the pastoral districts and a national coordination office in Nairobi. The ALRMP has so far played the role of a medium through which policy options for pastoral areas are defined, and it promotes experiences of best and viable practices. ALRMP has played a critical role in mobilizing input from pastoralists to policy makers at national level. A good example is during the drafting of the Poverty Reduction Strategy Paper (PRSP). Through the Project, development workers from ASALs were enabled to make their contribution.

Events in the 1990s and into the present time have resulted in the pastoral areas making little contribution to national development. These include the withdrawal of government from the provision of basic needs and services, conflict spill over from collapse of government in Somalia, the 1991 severe drought, and clan tension resulting from the introduction of multi-parties in Kenya in 1992. Change of policies and poor

economic growth at the global level saw a reduction in government provision of services and the introduction of cost sharing in education, health, water supply and veterinary services. It also resulted in the impromptu hand over of boreholes to communities. Once again, these changes were made without any consultation or explanation to the recipient communities. The communities' interpretation of the events was that the government had abandoned them, resulting in aggressive behaviour towards government.

Abuse of commonly held pastoral resources in Kenya has been witnessed where closing of range areas has occurred. Drawing of political boundaries, creation of block grazing schemes, development of state/group ranches, national parks and promotion of farming settlements have also contributed to the degradation of pastoral resources. These have combined to reduce pastoral mobility and disrupting the internal mechanisms that control the use of pastoral resources. This has also led to over concentration of livestock on fragile lands, degradation of the resources and conflicts on access and use of the limited water resources.

2.3 Conflicts in Pastoral Societies

Conflicts over natural resources such as water, land, forests, wildlife and minerals occur everywhere. This is as people compete for the resources they need to ensure or enhance their quality of life. Conflicts over natural resources are embedded in the environment where the actions of one group can have unforeseen effects elsewhere or on another resource. One group can use the natural resources in a way that undermines the livelihoods of another, leading to conflicts.

Marx Weber (1948), in Sandole, et al (1993), argues that conflicts occur whenever an individual's action is oriented intentionally toward carrying out their own will against the resistance of the other party or parties. There is a close association between conflict and power in that conflict results when there is scarcity of resources and one individual

gains at the expense of another. Social and cultural factors are also involved in natural resource based conflicts. This arises from the fact that perceptions, access, and use of natural resources vary according to class, gender, ethnicity, and age, among other factors.

Conflicts are not inevitable. They are more likely to occur where the broad range of livelihood strategies as normally pursued by pastoralists is undermined. Undermining can be done by stressors like drought and lack of harmony between customary and modern mechanisms for managing access to resources and handling arising conflicts (Hendrickson, 1997). Conflicts are concerned with issues that are not negotiable like faith, family, life and identify - issues that relate to ontological human needs that cannot be compromised (Burton, 1990:55). This means that individuals or groups, when deprived of some essential human needs like identity or source of a livelihood, cannot be socialized or induced to behave according to the dictates of law. Neither can the resulting conflicts be suppressed.

Conflict of interest is normal as often there are opposing relationships between actors who have different objectives and interests in the use of local resources. As a result, where environmental variability is high and resources are scarce like in ASALs, conflicts of interest are greatly accentuated. Confrontations between individuals or groups become much more likely, especially when it blocks their access to a livelihood. Attaining a livelihood in the ASALs is a matter of life and death and people will fight to access the capabilities, assets and activities that will ensure their survival.

The ability of people to access, control and make use of a resource like water is defined by rules and social norms of any particular society. But experience has shown that people abide by rules as long as the resource is enough. Once the rules don't guarantee them access, they flout them leading to haphazard use and finally conflicts. For marginalized groups, especially among pastoral communities seeking to redress

injustices or inequalities in water resource distribution, conflict becomes an inherent feature of their struggle for change. Conflict provides a justification needed for them to assert their claims. As a result, conflicts are inevitable, legitimate and even desirable depending on circumstances and views of the involved parties.

Governments and development agencies are said to cause conflicts when they treat extensive livestock production systems as if they were essentially similar. They limit livestock to the carrying capacity of the rangeland, assign property rights to individuals and the state under the assumption that the livestock groups are not in a position to control access and use of the resource by its members. The agencies assume that the resource is perfectly divisible and that sub-division will help minimize conflicts among members. Yet, nomadic pastoralism exists to take advantage of the ecological variability and possibility of uncertainty, which they overcome through livestock mobility and flexibility. Mobility enables them to maximize on the limited resources spread over large and diverse landscape niches. Communal ownership by sub-groups under rules and regulations assures the users of access and sustainable use. Once these realities are ignored, misunderstandings and conflicts occur.

The traditional property rights system of group ownership and management has been tampered with. This intensifies when external pressures have seen the better-watered pastoral land, mainly dry season grazing areas, converted to production of crops and environmental conservation. This has led to the shrinking of the fixed points, alteration of the pastoral ecosystem as a result of increased human pressure, state policies and a shift towards a generally drier climate. The situation has resulted in a rise in the number of users for a limited resource. This means that the people's way of life is interrupted, sometimes leading to conflicts from within and without. When all pastoralists cannot access water for their livestock, they use force, whereby the stronger and better equipped win.

The views on why conflicts arise compounded with generalizations and assumptions on pastoralists and pastoralism, have been carried over into development thinking. This has left a big gap between scientific research and development practice of governments and other development agencies. In Kenya, such thinking has enhanced conflicts in pastoral areas.

2.3.1 Commercialization of the Pastoral Economy

In Kenya, threats to the pastoral sector are in terms of collection of taxes, confiscation of animals and labour recruitment. Ineffective market systems in that the price of pastoralists' livestock in the market place is affected and determined by climatic conditions, poor infrastructure, foreign exchange fluctuations, labour availability, politics and competition from subsidized imports in the international market. Control on movement and the sedentization policy, exclude pastoralists from the major centers of power and influence. Instead they are administered in isolation from the rest of the country. Pastoralists have therefore been impoverished, as their livestock have decreased over time. A good example is poverty witnessed among the Kenyan Maasai who for a long time were considered to be one of the richest groups of pastoralists in Africa.

Government interests to develop ASALs and pastoralism have been governed more by interests of the state rather than by the needs of local communities. The failure of government to consult with the local people, and lack of understanding among development planners of pastoralism as a rational land use system; has resulted in development plans that restrict the pastoralists mobility and by-pass of customary institutions when defining land tenure policies. Missed targets at planning stage implies lack of involvement of target populations, which in turn leads to low levels of development in the pastoral areas. This results in more resource degradation and intense competition leading to conflicts.

The failure by the government in its development plans to acknowledge pastoralism as a complex system that involves economic activities, with social structures and cultural values linked to market relationships has resulted in conflicts. To increase production, government has in the past tried to convert pastoralists to sedentary 'modern' commercial ranching, irrespective of the pastoral requirements. Such misconceptions and practices conflict with the reality of pastoralism.

The agricultural impasse resulting from internal imbalances in the agricultural production systems destabilized pastoral systems from within. Shrinkage of pastoral lands and blockage of their routes to watering points have resulted in conflicts. A good example is the conflict between the Pokomo, Somalis and Borana over access to the River Tana to water their animals. Unfortunately, the Pokomo have extended their farming activities to the traditional routes used by pastoralists to access watering points.

Commercialization of the pastoral economy has accentuated the role of the household as a unit of production and decision-making. The outcome is disengaging individuals from wider patterns of social and economic reciprocity, leading to new forms of social stratification. Pastoral households have become more vulnerable to drought as they operate with diminished and beyond subsistence level of their own and entrusted animals which they cannot sell. This rising inequality among pastoral households has rendered the poor to perpetual poverty, and the rich better off. When the gap is too big, misunderstandings and conflicts increase.

2.3.2 The Search For Ownership of, and Access to Water Resources

Water resource conflicts are seen as a relationship between parties - those who have and those without access to water. Such conflicts are dynamic in nature and they are influenced by factors such as ethnicity, patterns of governance and social relations. At their core, most of these conflicts are about the allocation of power and the distribution

of water resources between groups (Hendrickson, 1997). The ownership, access and use of water as a common, shared and limited resource makes the various users (clans, tribes and families) compete against each other. This brings to the fore Weber's (1948) assertion that social life is a competitive struggle among individuals for social and economic rewards, and for power over others. Some of the conflicts are attributed to the fact that water is scarce and seasonal in the fragile and arid environment where pastoralists are found.

In the northern part of Kenya, water is associated with the rainy season limited to the months of April and May. During the other months of the year, water is scarce and people use all available means to access it. During these months, the herds have to move long distances in search of water, which at this time of the year is normally abundant at the boundaries in the form of rivers. This result in conflicts because the huge concentrations of livestock found at borders is very tempting to raid the livestock. During the rainy season, raids and conflicts are encouraged by the abundance of water. Pastoralists are tempted to increase their stock in multitudes and multiply them during the breeding season as they make fewer movements, and as a result have plenty of spare time.

The importance of water and how it enhances conflicts is witnessed in the Borana rangeland tenure systems. Water is the most critical resource and it is used to regulate access and use of other pastoral resources. The superiority of water in pastoral livelihoods is further demonstrated through proverbs and sayings of the Somali people like "poor management is more disastrous than drought". It rains differently each year "we follow the rain, we have to" (Birch and Shuria, 2001:88). Drought leads to water shortages that lead to crises in vegetation cycles. Drought reduces rangeland productivity, which in turn affects nutritive quality and species diversity, and alters the structure and size of herds.

National government policy of reaching more people has failed to take into consideration environmental realities as witnessed in Wajir district. Development of water points guided by migration patterns has increased permanent settlements, leading to degradation of the rangelands. Birch and Shuria (2001) point out that in 1940, there were four settlements in Wajir District located at Gurar, Buna, Habaswein and Wajir. They had increased to 45 in 1992. Between 1992 and 1996, a number of locations and sub locations increased to almost 190. In about 50 of them, small trading centers have developed. This has resulted in unplanned pace and pattern of settlements that have in turn had a negative impact on herding practices, composition and productivity of livestock. Unproductive livestock leads to the acquisition of more in numbers that result in stiff competition for water, resulting in conflicts.

From the above discussion, most of the attention has been on the management of resource-based conflicts. Not much attention has been given to the issue of water resource conflicts and their impact on pastoral livelihoods. Hence, the main reason why this study focuses on what livelihood opportunities are lost when people in Wajir spend their time and resources in managing water related conflicts. The question therefore is: what underlies the natural resource based conflicts. In other words, why should conflicts over water arise and when they do, why must they have an impact on pastoralism as a way of life?

CHAPTER 3

THEORETICAL AND CONCEPTUAL FRAMEWORK

This study set out to describe and analyze relationships between natural resource based conflicts and pastoral livelihoods in Wajir District. The literature review has indicated that pastoralism as a way of life is threatened by conflicts over the declining pastoral resources, especially water. Water resources in ASALs have dwindled over time while the number of users is on the increase. The resultant situation is one of intense competition and conflicts among the users. This therefore means that the people of Wajir are bound to forgo certain livelihood opportunities when they spend their time and resources managing the water related conflicts.

In this section, I discuss natural resource based conflicts in the context of common property. This is followed by assumptions guiding the study, and definition of used concepts.

3.1 Theoretical Framework

Common property implies an arrangement where some groups of individuals share rights to a resource. The resources are accessed only by a specified group of users who hold their rights in common (Runge, 1981, 1992; Bromley and Cernea, 1989; Bromley et al, 1992), Ostrom et al (1995), in FAO, Unasylva No. 180, have noted that common property regimes are a way of privatizing the rights to something without dividing it into pieces. Such regimes have evolved in places where the demand on a resource is too great to tolerate open access, so that property rights are created; yet some other factors

make it impossible or undesirable to parcel the resource itself. Viewing common resources from outside, Hardin (1968) summed up this management system as open access and prone to abuse, leading to the 'tragedy of the commons'.

By the "tragedy of the commons", Hardin (1968) coined a phrase that has for decades been used to explain the management of commonly shared resources such as water, pastures and forests. Hardin, while trying to understand how resources like water and pastures were held and used by many people; failed to understand the complexities and social institutions, rules and regulations involved in the whole system. He reached a conclusion that common property resources are "unmanaged, open-access no-mans-land, inevitably doomed to degradation, as each individual withdrew more of the resource than would be optima from the perspective of the users as a whole" (Hardin, 1968:3).

The tragedy of the commons is therefore said to develop when resources are open to all users and it is expected that each user will try to utilize as much of the resource as possible. The tragedy develops when each herdsman seeks to maximize his gain. The main unannounced argument by each is that "what is the utility to me of adding one more animal to my herd?" (Hardin, 1968:4). The additions by each herdsman remain unnoticed as long as the population of man and livestock is below the carrying capacity of the land. The adding of one more animal to the herd benefits the herdsman as he receives all the proceeds from that animal. But when the total number of animals so added is taken into account, the negative effect on the "commons" is noticeable, as competition over the resource becomes intense, sometimes leading to conflicts. In the long run and with population increase, this leads to over consumption created by one more animal of each herdsman.

Thus, individual decisions of each herdsman lead to overuse, whose negative effects all the households share. These in turn lead to another stage whereby the rational

herdsman decides that the best way to maximize on the limited resources is to add another animal to his herd. Yet such a conclusion is not limited to only one herdsman. It is a conclusion reached by all the rational herdsmen sharing the common resource. As Hardin concludes, therein is the tragedy. Each man is locked into a system that compels him to increase his herd without limit, in a world that is limited. Each and every herdsman is pursuing his best interests in a community that believes in the freedom of the commons, apparently without noticing that it is the freedom in a commons that eventually brings ruin to all.

Hardin's argument had a powerful influence on governments in promoting policies in favour of individualization, privatization and government appropriation and management of common property natural resources like water. In doing so, governments failed to realize that these resources were in reality shared private property, carefully managed by local communities through internally coherent rules and regulations on access and use. As such the resources were not open access property.

The real tragedy therefore occurred when governments assumed ownership and responsibility for the management of these resources. This led to the breakdown of traditional common property management systems, thus rendering the resources open access. Each individual, in trying to maximize the use of the resources in a situation characterized by the absence of traditional management systems, has behaved in a manner, which has led to resource degradation, a tragedy to the commons (FAO, *Unasylva*, No. 180). Once the common resources are overused, degradation occurs. Degradation implies limited resources accessed by many users who will compete and fight for access and use.

The theory of the tragedy of the commons - in both cases where the tragedy is the result of the "rational" behaviour of a herdsman who adds one more animal to the herd, or the result of the government taking over management of the common resources - implies

that there will be conflict over the resources - in this case water resources. Limiting of access could take the form of enclosures or “capture” of the common resource through the use of force. Either way, it involves the infringement of somebody else’s right of access which naturally leads to conflict.

Some economists (North, 1990; Anderson and Hill, 1977; Libecap, 1989) in *Unasylva* (No. 180) have argued that the result of conflict over use of common resources is the emergence of property rights. That the property rights help promote a more efficient use of the resources and more responsible long term care of the resource base. In the Dadajabulla case being examined here, the focus is not so much on the emergence of individual property rights as a result of conflict, but on the other factors contributing to the emergence of conflict in the first place. How the conflicts have in turn impacted on pastoralism as a livelihood to the people of Wajir.

The factors contributing to conflicts over watering points demonstrate the relationship between issues of a shared natural resource, conflicts and sustainability of livelihoods. Consequences of human impact on the environment can include social and political conflicts, but these are also seen as one way in which human society adjusts in the face of environmental degradation. The strong and well equipped win irrespective of whether their cause is morally justified or not.

The theory of the tragedy of the commons is therefore useful, but several things must be kept in mind even as one tries to use it as a guiding framework. One, the commons is only justifiable under conditions of low population density, so that as the human and livestock population increases, the commons has to be abandoned in one aspect or another. Two, protection of the commons through enclosures only works for resources such as land and forests that can be protected through fencing off. Fencing off is not possible for water as a common property resource, but privatization, individualization and commercialization can act as the equivalent of “fencing off”.

Three, and related to the two above, some of the tenets of modernization namely privatization, universalism and individualization have pervaded the pastoral economy. This is evident from the commodatization of pastoral economies and livelihoods, for example, through the sale of hides, skins, beef/meat and milk. With the opening up of pastoral areas and their exposure to the money economy, each livestock owner now tries to keep as many animals as possible so as to satisfy the household requirements and a surplus to sell and make more profit. This raises the question whether the theory of the commons is still applicable to the “modern” pastoral economy adding to this tragedy.

Four, one must keep in mind that Hardin (1968), in the tragedy of the commons only pointed to the hazards of open access that might come about due to lack of property rights or management regime and not as a result of sharing of the resource. Hardin himself initially failed to make this distinction. But, later on in 1994, he rectified the situation by distinguishing between the unmanaged and un owned commons as the ones subject to tragedy, while the managed or owned commons with property rights that can prevent misuse of the resource are not predisposed to the tragedy.

This study will utilize Hardin’s (1968) framework of the tragedy of the commons, later modified in 1994, to explain the study questions as follows: To what extent can the framework help us understand the lives and livelihoods of the people of Wajir? To what extent has the local people’s management of water resources as common and accessible to all contributed to the scarcity, hence conflicts? To what extent has the government policy in support of privatization of common resources, especially in pastoral areas resulted in the breakdown of traditional management systems, degradation of the resource, scarcity, and conflicts over the limited resource?

Secondly, to what extent has the privatization and commercialization of common water resources such as boreholes and dams, contributed to the sustainable or unsustainable

management of water resources. To what extent has modernization reduced or enhanced water resource based conflicts among pastoral communities in Wajir District? What is the impact of these conflicts on the people's livelihoods?

In other words, what is the challenge of water resource based conflicts; what is their impact on pastoralism as a way of life; and what is the role of local communities in its sustainable management?

3.2 Study Assumptions

Both the literature review and theoretical framework suggest the following assumptions:

1. One's clan orientation determines their participation in water resource based conflicts.
2. Pastoral household characteristics to an extent determine one's participation in water related conflicts.
3. The shift in rules and regulations governing ownership, access and use of water determines frequency of conflicts in pastoral areas.
4. An increase in the number of water resource stakeholders trigger and sustain conflicts in pastoral areas over time.
5. Water resources-based conflicts among pastoral communities are found among those with lower levels of income, education, health, food security and physical security.
6. Pastoralists would like to find solutions to prevailing water related conflicts.

3.3 Operationalization of Concepts

The following is a definition of key concepts used in this study.

3.3.1 Pastoralism/pastoralists

In this particular study, pastoralism will mean ownership of 15 or more livestock, and the movement of pastoralists (whole households or part of a household and part of the herd) and their livestock from one place to another in search of water and pastures.

3.3.2 Conflicts

Conflicts in this particular study will mean misunderstandings and fights between the water stakeholders as manifested through disagreements on certain issues, commotion, stealing of livestock, abusing others, quarrels and physical fights that result in injuries or death.

3.3.3 Water resources based conflicts

Water resource based conflicts in this study will refer to disagreements, quarrels, fights, commotions and exchange of bitter words over access, ownership and use of water among the pastoralists in Dadajabulla location.

3.3.4 Stakeholders

Stakeholders to a conflict can be at various levels and can be insiders or outsiders. These are people who have a stake, a claim or an interest in a certain resource. Water stakeholders at Dadajabulla are the men and women pastoralists who access water from the available natural watering points like ponds, pans and seasonal rivers that

sometimes flows past many territories. The other stakeholders will be those from outside Dadajabulla, but who share water from the Dadajabulla borehole. Also those involved in the conflict either as water resource users, government administrators or outsiders involved in the management of the conflicts.

3.3.5 Livelihoods

A livelihood is a means to a living or the way in which a living is obtained and expressed. This can be in the form of incomes, livestock, food, identity and security. In this study, livelihood will mean and include pastoralism as a source of life in terms of actual source of basic food for the family, source of income to meet immediate needs like food, shelter, education, health services, and physical security.

3.3.6 Household

In this study, a household will be defined as a group of blood related and kinship related individuals residing within one homestead. Families composed of parents, children – both foster and blood, living in the same house/dwelling. Many families live in houses at one particular location and within an enclosure forming a homestead. They have one leader who is involved in reaching final decisions on the management and use of livestock; their products and other resources. This household head is of superior age to most of the members and is a blood relation to most of the subjects within.

CHAPTER 4

STUDY METHODOLOGY

4.1 Site Selection

Kenya covers an area of 592,000 sq. km of which 571,416 sq. km is dry land and 11,230 sq. km is open waters. Of the territorial area, the lakes occupy about 11,200 sq. km (2%). About 15% of the land constitutes the agriculturally high potential land, while the Arid and Semi-Arid Lands (ASALs) occupy about 490,000 sq. km (80%). These ASALs support approximately 25% of the country's human population and over 50% of the country's livestock population. The livestock industry contributes approximately 10% to the Gross Domestic Product (GDP) - could be higher if figures of unrecorded slaughter and home consumption were available (National Development Plan, 2002 - 2008). The fact that 80% of Kenya's land area is ASAL, with pastoralism as the most suited land use activity, calls for a study to find out how the limited water resource is shared, resulting conflicts and the impact of the conflicts on people's livelihoods.

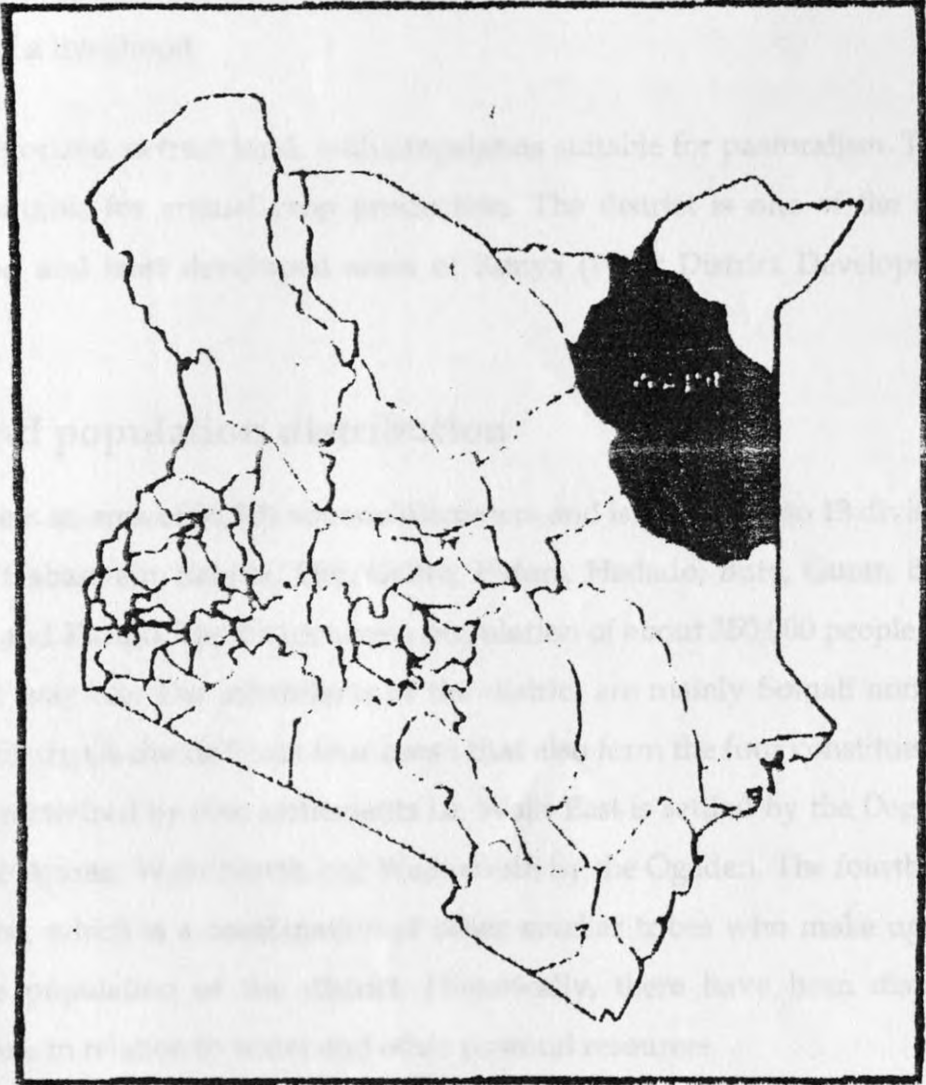
Data for this study was collected in Wajir district in the Northeastern province of Kenya. This study chose to focus on Wajir district because it is an ASAL area, and the largest of the districts in the province, with a conflict-ridden pastoralism as the main source of the people's livelihood.

4.1.1 Study Population

4.1.1.1 Characteristics of the Study Area

Wajir district lies in the northeastern part of Kenya where it runs 226 kilometers east west and 350 kilometers north south. Wajir borders the Republic of Somali to the east, Ethiopia to the north, the district of Garissa to the south, Isiolo to the southwest,

Map of Kenya showing location of North Eastern Province and Wajir District



Adapted from: Birch and Shuria. *Perspectives on Pastoral Development*, 2001:4

Marsabit to the east, and Moyale to the northwest. The district is classified as Zone VII i.e. 100% ASAL with an average annual precipitation of 280mm. Therefore; scarcity of water in terms of quality and quantity is a major bottleneck in the development of the district, as availability of water largely determines the presence of human activity. Water scarcity in the district has defined nomadic pastoralism as the most feasible and consistent source of a livelihood.

The district is categorized as trust land, with rangelands suitable for pastoralism. These are small parts suitable for annual crop production. The district is one of the most sparsely populated and least developed areas of Kenya (Wajir District Development Plan, 1997-2001).

4.1.1.2 Size and population distribution

Wajir District covers an area of 56,501 square kilometers and is divided into 13 divisions namely: Central, Habaswein, Sabule, Diff, Griftu, Eldars, Hadado, Bute, Gurar, Buna, Wajir Bor, Tarbaj and Kutulo. The district has a population of about 350,000 people who follow a nomadic way life. The inhabitants of the district are mainly Somali nomadic pastoralists. The district is divided into four zones that also form the four constituencies of Wajir, and characterized by clan settlements i.e. Wajir East is settled by the Degodia; Wajir West by the Ajuran; Wajir North and Wajir south by the Ogaden. The fourth clan is the Corner tribe, which is a combination of other smaller tribes who make up less than 10% of the population of the district. Historically, there have been disputes between these clans in relation to water and other pastoral resources.

4.1.1.3 Poverty, Literacy levels and Resource Management

Majority of the people in the district live below the monetary poverty line of less than a dollar a day. Of the total population, 42% are not expected to live beyond 40 years, 96% lack access to safe drinking water, 80% are illiterate and only skilled in nomadic livestock production, and 89% lack access to health services. The district has a life

expectancy of 50.6 years. Primary and secondary school enrolment of 5.1 each, and tertiary enrolment rate of 1.1 (UNDP, 2001:100). Out of the total pupils who enrolled in standard one in 1995, only 30% reached standard eight, with a female drop out rate higher than that of males. The population growth rate is less than 3.3%, but is considered high as it exerts great pressure on the fragile environment, leading to a decline in the pastoralism-based economy. The population growth rate projected at 1.2% per annum has grown from 122,769 in 1989, to 233,048 in 2001. This is a high rate for the ASAL as manifested in the rising incidence of poverty among the people, and reduced access to basic needs and food security.

Traditionally, the people of Wajir had no boreholes, which meant that during the dry season, they moved close to traditional permanent water points like shallow wells. At other times, especially in severe droughts, they migrated to rivers that are in Garissa and Mandera districts, or crossed over to Somali to access the Juba River. The current livestock population in the district is about 260,000 cattle, 280,000 camels, 265,000 sheep and 130,000 goats, depending on 35 operational boreholes, 15 of which are in Wajir South (WASDA, 2002:2). This implies that there are more users of the limited water, and as such chances of conflicts over access and use are very high.

A series of droughts have hit Wajir district from time to time with a devastating effect. The droughts of 1984 to 1992 resulted in massive livestock deaths, impoverishments and displacement of large numbers of people. The worst drought was that of 1991-1992 which saw an influx of pastoralist refugees from Ethiopia and Somali. This resulted in more conflicts as the refugees came in with their livestock leading to more users and uses of a very limited water resource. The result was more loss of livestock leaving thousands of people without their main source of livelihood. Survival of livestock depends on availability of water. For example, in the 1992 drought, the population of cattle reduced from 320,000 in 1991 to 162,000 in 1992. With improvements in climatic

conditions in terms of water availability, the figures rose to 257,000 in 1995 (Birch and Shuria, 2001).

Wajir district was purposely selected for this study. Being the largest district in the arid and semi arid lands of the Northern part of Kenya, it is a good representative of Kenya's pastoral areas dependent on livestock, yet faced with water resource based conflicts. The study findings can be generalized to other districts within the same agro-ecological zone, with similar social-cultural set-up. The size and area covered by the district and the population of the district necessitated the use of sampling in the research process. The other reason is the limited time and funds available for the research.

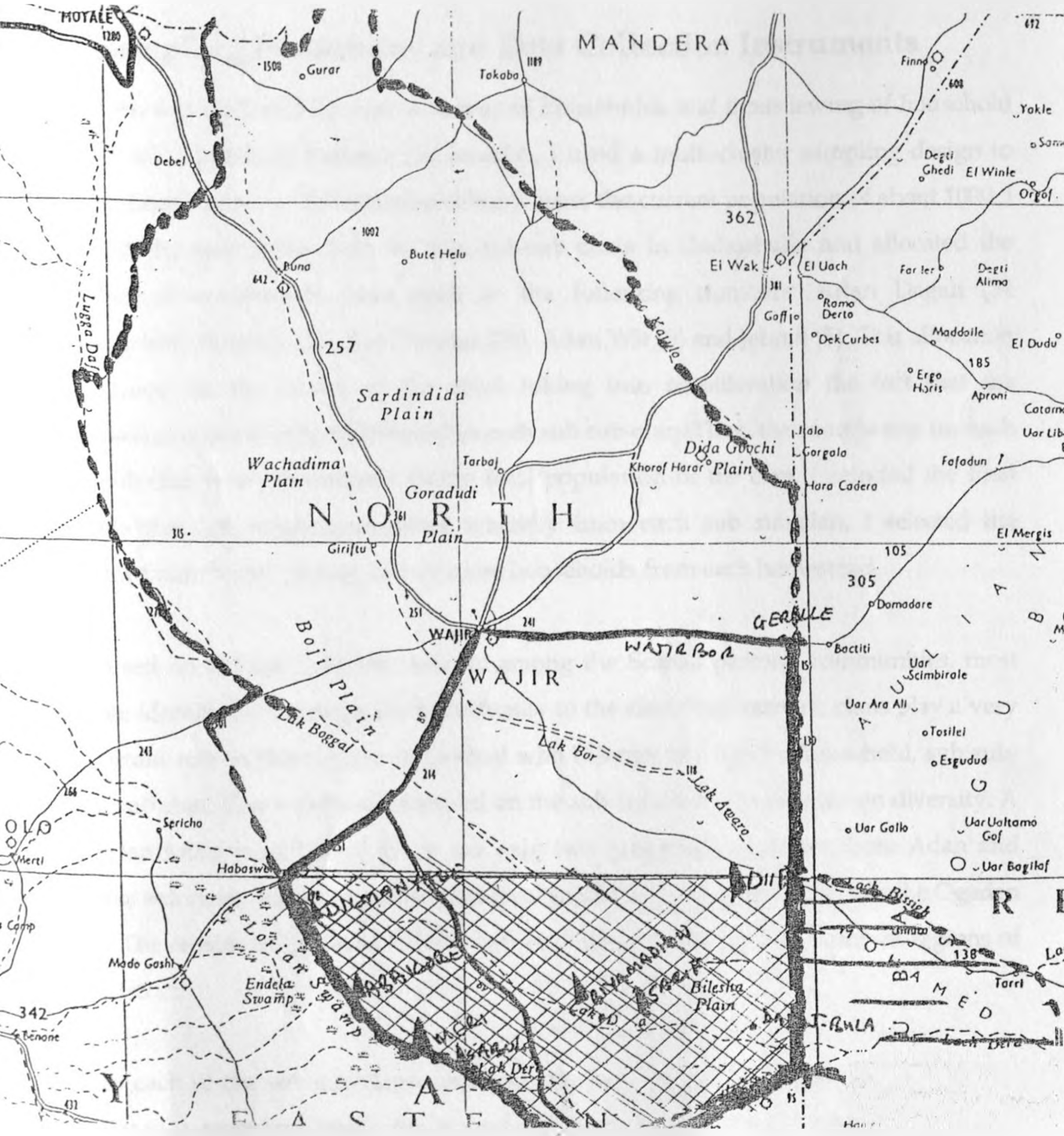
4.1.2 Dadajabulla Location

Dadajabulla is a Boran word which means "Acacia tree with a bird nest". Dadajabulla is in Diff Division with a total population of about 3,000 people. The location is 230 kilometers from Wajir town. Diff is the least densely populated division, a fact attributed to the extreme scarcity of water. Liboi in Garissa district, Dhobley in Somali, and Sabnley division, border Dadajabulla location. Dadajabulla is located within the Bilesa (ban) plains, a dry season grazing area that acts as a main water source for people and livestock during the dry season.

The main resources in the location are livestock, livestock products, local building materials, pasture and water. The main sources of livelihood for the people are livestock and livestock products, contractual labour, firewood collection for sale, sale of building materials, small scale trade, and donkey and donkey carts. One of the problems faced by the people is that there is only one borehole that is congested, especially during the dry season.

The physical location of Dadajabulla in Wajir District makes it a good study area to meet my study objectives. During the dry season, there are water related conflicts as

Map of North Eastern Kenya showing location of Dadajabulla



people and livestock from within and without the location flock there, each trying to access the available water. Dadajabulla was purposefully selected because it is a dry season grazing area. As such, it experiences more water resource based conflicts as many pastoralists gather there during the dry season to water their livestock.

4.2 Sampling Procedures and Data Collection Instruments

The data was gathered through a survey of households and interviewing of household heads. After selecting Dadajabulla location, I used a multi-cluster sampling design to get the final sample of 100 household heads from the current population of about 1000. I divided the population into the five sub-sub clans in Dadajabulla and allocated the number of households from each in the following numbers: Adan Dagah (34 households), Haglale (35), Rer Hermar (20), Adan Wit (6) and Jebrail (5). This allocation was based on the advice of the chief, taking into consideration the fact that the population is not evenly distributed in each sub sub-clan. Thus, the sample size for each sub sub-clan was proportional to the total population of the clan. I selected the final sample through random sampling whereby from each sub sub-clan; I selected the required number by picking one or more households from each homestead.

I focused on the sub sub-clan because among the Somali pastoral communities, most people identify their lineage from the family to the clan. Furthermore, clans play a very important role in shaping the individual who belongs to a family, household, sub sub-clan, sub clan, clan and tribe. I focused on the sub sub-clan to maximize on diversity. A sub clan focus would have given me only two groupings of people from Adan and Gamas sub clans. Focusing on the clan level would have limited me to only the Ogaden clan. The reason being that in Wajir district, different clans inhabit different regions of the district.

From each of the sub sub-clans, and with the help of the local clan leaders/elders, I prepared a sampling frame for households and then randomly selected household

heads to be interviewed using a standard interview schedule/questionnaire. The 100 heads of households were considered representative of the pastoral community in the study area.

My main data collection instrument was a structured questionnaire administered to each household head through face-to-face interviews. The structured interviews were conducted through translators from English to Somali and from Somali back to English, and then recorded on the spaces provided in the questionnaire. I also used open-ended guiding questions to interview Key Informants. Key Informants, considered to be more knowledgeable on the issues under discussion, were interviewed to provide supplementary information from the household heads. They included the Secretary to the Dadajabulla Water Users Association, one borehole operator, one elderly woman, one elderly man and the Chief of the location. In addition, I used secondary data and observation to enrich the research findings.

The objective of using Key Informants was to gather detailed information to enable me clarify certain issues touched upon in the questionnaire, but required to be elaborated on. Through structured interviews and discussions with Key Informants, I was able to capture qualitative information that enriched the survey and enabled me reach plausible conclusions on the findings.

Secondary data was obtained from university libraries and those of environment and development organizations. Information was also collected from the offices of the Arid Lands Resources Management Project and the Wajir South Development Association (WASDA) offices both in Nairobi and Wajir. Observation of structures in the study area such as family houses, homesteads, livestock sheds, boreholes, pans, seasonal rivers, dams and daily family tasks, in relation to livestock, enabled me get a clearer picture on the people's dependence on pastoralism as a source of livelihood.

4.3 Data analysis

I used descriptive statistical analysis, using the Statistical Package for Social Sciences (SPSS) computer programme to analyze the collected data. After data collection, I developed a coding scheme and coded the responses. For quality control and to ensure that the information on the questionnaire was ready to be transferred into the computer for analysis, I edited the work at different stages - while out in the field during data collection. Editing after each interview gave me a chance to get back to respondents in case of missing information. After data collection, I once again edited the questionnaires while developing a codebook.

I relied on descriptive statistics to organize and summarize the data on the degree of association between water related conflicts and pastoral livelihoods. I used inferential statistics to generalize the study findings to the entire study population. This helped in assessing the impact of water resource based conflicts on pastoral livelihoods.

I set out to establish associations in water resource based conflicts and pastoral livelihoods. I relied on descriptive statistics to organize, summarize and present research findings in relation to the study objectives. To analyze the effect of water resource based conflicts on pastoral livelihoods; I relied on statistical techniques of univariate analysis to examine one variable at a time in the form of frequency distributions. Bivariate analysis enabled me examine relationships between two or more variables like the frequency of water related conflicts and levels of education, income generating activities, health status and number of livestock. Analysis of the qualitative information collected through open interviews beefed up the quantitative data.

CHAPTER 5

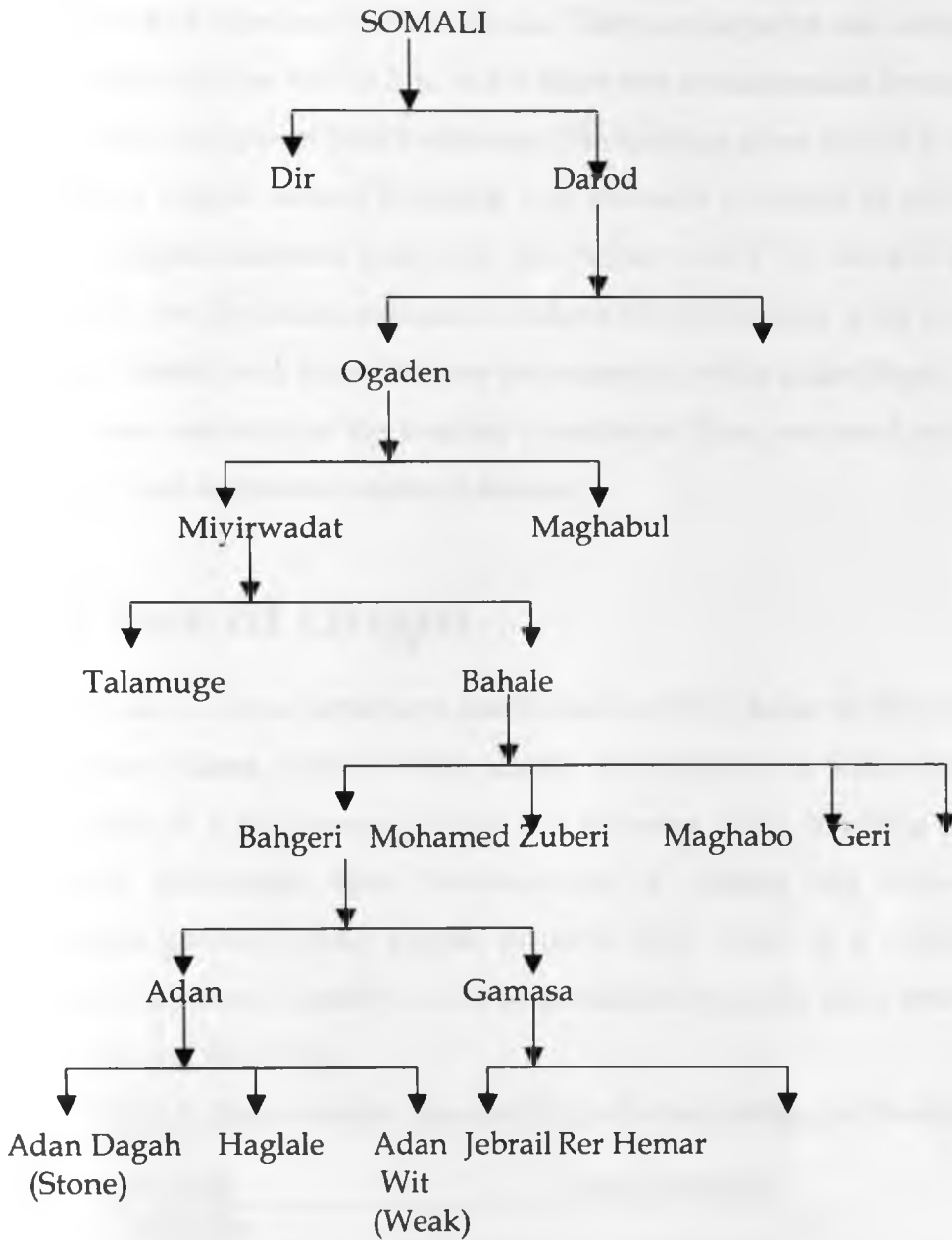
STUDY FINDINGS ON: SOCIAL-ECONOMIC CHARACTERISTICS

This section covers the socio-economic characteristics of the people of Dadajabulla location of Wajir district. The aim is to show whom these people are. I therefore focus on how they are organized into the clan system, their place of origin before they settled at Dadajabulla, household composition, religious beliefs, and their age, sex and marital status. Level of education and source of income, number of livestock owned and distance they cover to watering points. All these attributes combine to define the social-economic characteristics of the people of Dadajabulla location.

5.1 Clan System

The Somali are organized around a clan system that divides down to the family and individual levels. Literature shows that most of the people prefer to live near each other based on clan and sub-clan origins. As a result, they still identify with a clan, sub clan, sub sub clan or family depending on circumstances. The people in Dadajabulla fall into the Bahgeri sub clan of the Ogaden clan. The Bahgeri is further divided into Adan Dagah, Haglale, Rer Hemar, Adan Wit and Jabrail sub sub clans. The research findings show that 34% of the respondents are from Adan Dagah, 35% from Haglale, 20% from Rer Hemar, 6% from Adan Wit, and 5% from Jabrail. This is in line with the purposely-selected number of households to be interviewed from each one.

Figure 1: Clan structure of Dadajabulla Pastoralists



Among the Somali community, clans play a very important role in the social, cultural, economic and political life of its members. In this particular case, those from the Bahgeri and Adan lines of the Ogaden clan are considered more “pure” and traditionally get more respect and priority in accessing water.

From the literature review and reconnaissance study, I noted that there are bigger and small clans and sub-clans in Dadajabulla. There are superior and inferior clans and sub-clans. I reviewed the two to find out if there was a relationship between one's sub sub-clan and main source of their livelihood. The findings show that 32% of the respondents from Adan Dagah named livestock and livestock products as their main source of income. Haglale followed with 33%, Rer Hemar with 17%, Adan Wit with 5% and 4% for Jabrail. But the main explanation behind the differences is the fact that in terms of numbers, Jabrail and Adan Wit are the minority, while Adan Dagah, Haglale and Rer Hemar have majority of the location's residents. Thus, no noted relationship between one's clan and source and levels of income.

5.2 Place of Origin

Dadajabulla is a new settlement established in 1996. Most of the people moved there from other places within Wajir district as detailed in Table No.1. Traditionally, Dadajabulla is a dry season grazing and watering point, implying that there were no long-term settlements there. Establishment of villages and homesteads is due to population growth forcing people to settle there, which is a violation of traditional migratory patterns. Majority of the respondents originally came from Wajir Bor (59%) Diif (16%) and Sarif (9%).

Table 1: Respondents' place of origin before settling in Dadajabulla

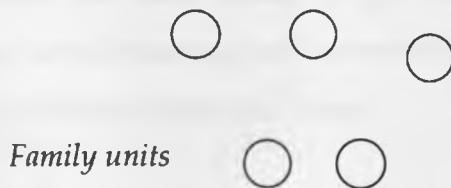
PLACE	PERCENTAGE
Wajir Bor	59.0
Diif	16.0
Sarif	9.0
Kulan	4.0
Arkani	3.0
Wajir Town	3.0
Dobley	2.0
Liboi	1.0
Degahley	1.0
Abakore	1.0
Sabuli	1.0
TOTAL	100

The high number of migrants (59%) from Wajir Bor implies that they were faced with many problems at the place of origin that forced them to migrate. This is supported by the fact that the Oxfam supported Wajir Pastoral Development Project chose to focus its phase one activities at Wajir Bor. The goal of the Project was to “reduce poverty and vulnerability among pastoralists and settled communities in Wajir Bor division and Wajir town” (Birch and Shuria, 2001:7). The people migrated with hopes of a better life in the new settlement.

5.3 Household Size

The household size varied from two to 40 members. The highest concentration was in 6 and 8 members cited by 18% each, followed by 4 members cited by 10% of the respondents. The average number is 8 members per household.

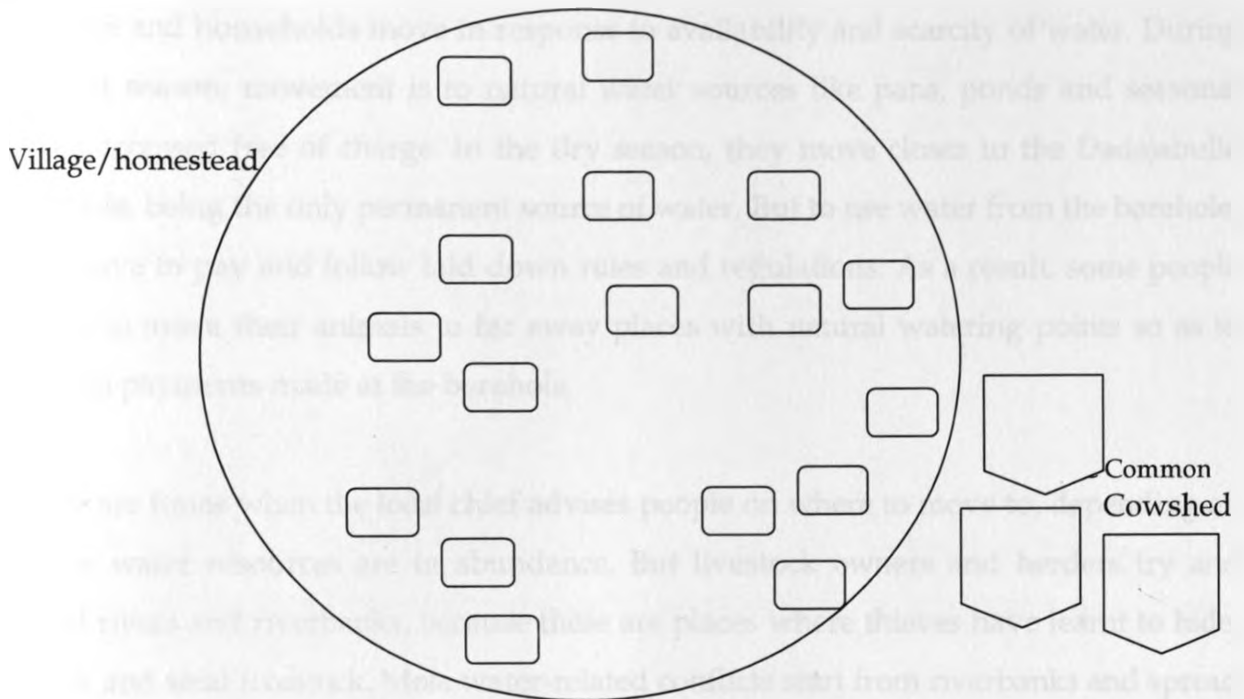
A family is made up of parents and children - blood or foster living in the same house/dwelling. More houses for a family are constructed as children become adults and construct their own houses, especially in the case of boys. A household is made up of more than one family unit. It is composed of parents, children, brothers and sisters, grandchildren, great grand children, relatives, and hired labour. A household has one or two elderly people as the decision-makers with whom the rest identify.



A village is made up of many households within one common locality, one enclosure, common fence, but with more than one decision maker. This conforms to the definition of a household by Ellis (1993) as “a social group, which resides in the same place, shares the same meals, and makes joint and coordinated decisions over resource allocation and

income pooling". He further notes that the household has attributes like co-residence, social unit, and can include family and non-family members permanently in residence.

Figure 2: General structure of a village in Dadajabulla



5.4 Mobility

The frequency of movement by pastoralists is determined by a number of factors ranging from drought, size of household, alternative sources of income, to size of livestock herds. When the need arises, people move towards specified traditionally known directions to avoid meeting with strangers or enemies. They move as families, households, villages, sub-sub clans and clans.

Families and household members move towards directions where they will automatically meet with people from other households to form sub-sub clans. As movements continue, they meet with more sub-clans, and finally as the Ogaden clan.



Families and households move in response to availability and scarcity of water. During the wet season, movement is to natural water sources like pans, ponds and seasonal rivers accessed free of charge. In the dry season, they move closer to the Dadajabulla borehole, being the only permanent source of water. But to use water from the borehole, they have to pay and follow laid down rules and regulations. As a result, some people prefer to move their animals to far away places with natural watering points so as to save on payments made at the borehole.

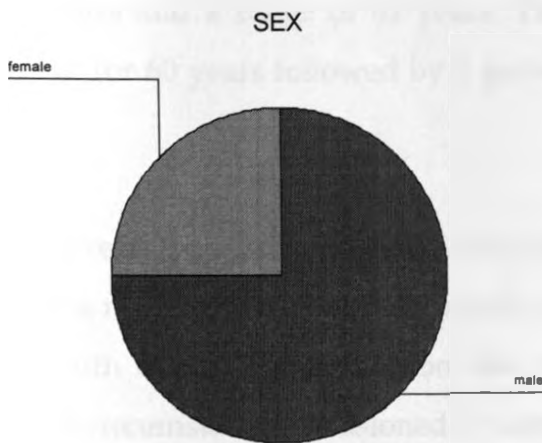
There are times when the local chief advises people on where to move to, depending on where water resources are in abundance. But livestock owners and herders try and avoid rivers and riverbanks, because these are places where thieves have learnt to hide, attack and steal livestock. Most water-related conflicts start from riverbanks and spread upwards to households, villages, and sub clans. At the clan level, the conflict is normally interpreted as one between clans over livestock theft, when the real cause is competition over access to water. As a result, many people are drawn into or join conflicts that they don't fully understand.

Rarely do people move towards directions where they will meet with 'strangers' or the 'enemy'. This is supported by the existence of traditional rules and regulations that govern community members on access and use of resources. Household heads, local leaders and chiefs guide people on movement routes. This confirms that common resources in Wajir are private property held and accessed in common by members under very clear rules and regulations. The findings contradict Hardin's (1968) argument that common resources are open-access, prone to degradation.

5.5 Gender and Conflicts

Out of a total of 100 household heads drawn from Dadajabulla location that were interviewed, 75% of them ended up being male while 25% were female household heads. This conforms to secondary literature that the community is patriarchal. Female-headed households are as a result of special circumstances like divorce, death or husbands in employment away from home.

Figure 3: Sex of respondents



The large number of male-headed households implies that decisions made on access to water and conflict management will be inclined towards male needs.

Women in most African homes are the ones who provide food and healthcare for their families. More conflicts imply insecurity that will bar them from practicing their way of life. There is need to involve women in sessions where decisions are reached on conflicts. This is supported by the reasons behind the formation of the Wajir Peace Initiatives by women who were not able to continue with their social and marketing activities while the men were away fighting.

All the respondents are Muslims. Based on this and the fact that they are Africans, then gender plays a role in conflict initiation and management. Traditionally it is men who

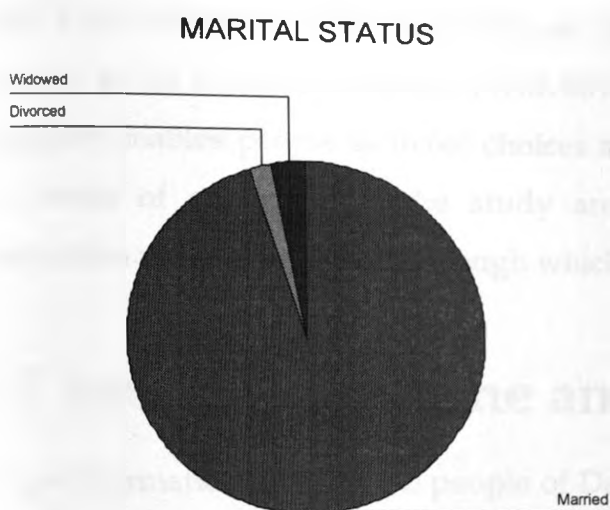
go out to fight. It is the same within the teachings of Islam where women are not allowed to go out of their compounds unescorted, let alone to fight. This implies that any efforts made at curbing violent water resource based conflicts will need to start with men. Dealing with non-violent conflicts will need to involve women as well for they are the wives, sisters, and mothers of the males who go to fight.

5.6 Age, Marital Status and Level of Education

The age of the respondents ranged between 20 and 81 years, coming to an average of 46.5 years and a range of 61 years. The age is spread out so that the highest was 7 percent for 60 years followed by 5 percent each for 28 years, 38 years, 40 years, and 70 years.

All the respondents had been married at one time. From the responses, 95 percent were still in a marriage, 2 percent divorced, and 3 percent widowed. This information ties up well with the study assumption that most of the houses are male headed except in special circumstances occasioned by death or divorce. The main question has to do with the collaboration between male and female household members in decision making necessitated by the fact that men are household heads, decision makers and go out to fight when violent conflicts erupt. On the other hand, male decisions and actions are bound to impact on the ability of women as providers of food, social relations and health care.

Figure 4: Marital status of respondents



From the responses, the highest level of education attained is secondary. Furthermore, only two percent of the respondents have secondary level education and another 4% have primary level education. Most of the respondents (94%) have no formal education. This shows that most of the people within the community lack formal education. In relation to sex of respondents, none of the 25 female (100%) respondents has any formal education.

Dadajabulla has low levels of education. This has implications on the people's sources of income. To be engaged in the formal sector demands a certain level of schooling, hence most of the people from the Dadajabulla community have limited choices and alternatives to pastoralism. This explains the large number of people involved in pastoralism as their main source of a livelihood. More people depending on pastoralism implies that they will be forced to keep large numbers of livestock, that will compete over the limited pastoral resources like water, leading to conflicts.

Table 2: Respondents' Level of Education

Level of Education	Percentage
None	94.0
Primary	4.0
Secondary	2.0
TOTAL	100

The findings conform to the 2002-2008 National Development Plan and the UNDP (2001) Kenya Human Development Report. The documents report that Wajir district has very low levels of formal education with 80% of the total population being illiterate. Yet education enables people to make choices and offers alternatives in employment. The low levels of education in the study area imply that the people are limited to pastoralism as the only means through which to earn a livelihood.

5.7 Source of Income and Food

To get information on how the people of Dadajabulla earn a livelihood, and the extent to which they rely on livestock; questions were asked in relation to their main source of income, and where they get help from whenever they lack their staple food, or cash money. The responses range from relatives, relief agencies, neighbours, NGOs, government and God through prayers.

But if majority of the people from the clan depend on livestock, it means that they have to compete for access to the limited water resources. In total, 91% of the respondents depend on livestock and livestock products as their main source of income. What are the implications when livestock rearing is restricted by the arid and semi-arid conditions of Dadajabulla? Either the people have a very well outlined system of accessing, using and managing the resource for the benefit of all; or the people are always in conflict with each other while trying to access the limited resource in support of pastoralism.

The research findings show that 55% of the respondents rely on relief agencies compared to 6% who rely on government as a source of food. This shows that the district is still not well provided for by the national government. Both categories indicate a high poverty level in that the community is not able to support itself in times of need. Could it be that the development attitude of isolating the area from the rest of the country during the colonial period, and perfected in the 1960s secession attempt has

continued to date? Or is it that the government has not given much attention to pastoralism, apart from when trying to change the way of life of pastoralists to produce livestock for the national economy? This was witnessed in the introduction of development projects in pastoral areas in the 1970s and 1980s.

Table 3: Who helps when they lack staple food?

	PERCENTAGE
Relief agencies, NGOs	55.0
Relatives	13.0
Relatives and relief agencies	11.0
NGOs	7.0
Government relief agencies	6.0
Relatives and neighbours	3.0
Relatives and government	3.0

Currently, the local communities are unable to provide security for themselves unlike in the traditional set up. This could be an indicator to the modern sophisticated “means of violence” through the use of automatic weapons, which the community’s defense mechanisms cannot match. When asked on whom they report to when they feel physically insecure; responses range from the police, local security station, to district headquarters. These are places with security people armed with weapons that can match those of the aggressor. A minimal number (1%) go to the elders, pointing to the fact that traditional institutions are no longer valid or practical, as they have been overtaken by new conflicts using automatic weapons.

5.8 Number of Livestock Owned

Livestock is the major occupation of most people (91%). As a survival strategy, they keep a variety of livestock such as cattle, camels, donkeys, goats and sheep. The different types of livestock survive under different climatic conditions. As a result, the people are assured of a source of livelihood whenever disaster strikes on one type of livestock. The variety of livestock corresponds to secondary literature where Lane (1996)

argues that the mixture of livestock is a risk management system. Research findings show that people keep an average of 41 cattle. Of this, the lowest is 3 cows while the highest number is 760 cows. Goats and sheep were grouped together by the respondents as small stock, and the average number of goats/sheep owned is 40.

Responses on the preferences and number of livestock respondents have varied so that 70% of them said available resources like water and labour limit the number. Thirteen percent said that is the number to support survival of the household as their only source of livelihood. The responses watered down Herskovits' (1926) "Theories of the East African Cattle Complex", which argues that the number of animals kept is in excess since cattle are valued for their own sake and for the prestige they confer, rather than for the substance they provide. The 70% and 13% imply that 83% of the respondents retain the number of livestock that provides for their subsistence.

Table 4: Respondents' Preference for No. of Livestock Owned

REASONS	PERCENTAGE
Lacks capacity to have more (Resources, labour)	70.0
Only source of livelihood for survival of family.	13.0
The number that God gave	4.0
The number inherited from parents	3.0
For pride	1.0
The only number left	1.0

Most of the pastoralists rely on livestock for survival in that when asked about their main source of income; 91% cited livestock; 5% small-scale trade; 2% wages and sale of firewood. Livestock being their main source of livelihood, questions to do with how often they increase the number of livestock through purchase, gifts from parents and relatives, reproduction or through raids were asked. Majority of the respondents increase livestock annually (30%) and 66% after the long rains. Pegging increase to availability of water is in line with Ayele Mariam's (1981) proposal. He used the case of Borana Nomadic pastoralists to support his argument that rainfall is the most

significant factor in the pastoral production system. As a result, availability of water is the main determinant of where pastoralists and their livestock are found at different months in a given year. If water availability determines decisions on number of livestock and when to increase it, then people have to use whatever means, even violence to safeguard their access to water for livestock.

The fact that two-thirds of the respondents increase their livestock after the long rains shows that water is very critical to the survival of pastoralism as a way of life. People can only take a risk to increase the number of livestock when they are assured of water availability.

5.9 Distance to Watering Points

Traditionally, the clan had structures that provided the basic framework for accessing water and other natural resources. "Access was clearly understood to be part of reciprocal agreements. For example, the digging, use and maintenance of wells were governed by an elaborate system of customary rules among both the Somali and Borana communities" (Umar, 1997:15). The traditional systems combined a degree of private ownership and communalism in well digging, use and maintenance. In addition, most clans regulated the ownership of resources by association of ownership with a clan's ability to claim and maintain effective occupation. Common among most communities was that large dams and wells were not owned by any group and had no permanent rules that regulated their use. But clans or communities owned and regulated access and use of small dams, pans and shallow wells. The pastoral system of resource use and management has survived over thousands of years, supporting households and whole societies by providing for their livelihoods.

The Dadajabulla borehole is the main source of water for livestock and domestic use, especially during the dry period when natural sources such as pans, dams, and seasonal

rivers have dried up. Water from the borehole is pumped into a nearby tank for domestic use.

Respondents were asked about the distances they covered during the rainy and dry seasons to access water. Responses show that on average, distance covered in the dry season is 19 km, and an average of 8.2 km in rainy season. Water availability reduces distance covered by 50% i.e. from an average of 19 to 8.2km. From the responses, distance covered during the rainy season varied from 1 km to 40, showing a range of 39km. Thirty two percent of the respondents said that they cover 2 km, 13% cover 2.5 km, 4% cover 20km, 5% cover 30km, 1% cover 35km, while 2% said they cover a distance of 40km. The distances are long, taking into consideration the fact that this is during the rainy season. This shows that water is rare in Dadajabulla, and even when available, is limited to few areas.

When asked how many times per week the animals are watered during the wet season; a sizeable number (22%) said once per week, about a third said twice per week, 17% four times, 16% said five times, and 11% 6 times. This shows that the area experiences water scarcity even during the wet season, when under normal circumstances, one would expect majority of them to water livestock at least once a day.

The long distances covered, especially in the dry season explains the necessity for nomadic pastoralism. Up to 56% of the respondents cover between 20 and 35 km in search of water for livestock, in the harsh terrain and risky environments. The number of times livestock are watered per week points to the severity of limited water resources for livestock, which are the main source of earning a livelihood. Sixty six percent of the respondents water their livestock at the Dadajabulla borehole once per week, 20% twice per week, and 11% three times per week.

The distance covered by livestock to the watering points in the dry season range from 3km as the minimum to 35 kilometers as the maximum, showing an average of 19km. Details show that 21% cover an average of 19km - 25km, 11% cover 20km, 16% cover 11km, and 6% cover 27km. These findings compliment Mackenzie's findings in Tanzania, that large herds of cattle are walked from villages to streams, lakes or pools over distances exceeding nine kilometers and sometimes up to 25 kilometers.

Maintenance of law and order in Dadajabulla has necessitated the need for rules and regulations to govern the use and management of water resources. Without proper governance, people will use unorthodox means to access water for their livestock.

CHAPTER 6

GOVERNANCE OF WATER RESOURCES

The aim of this section is to present and discuss research findings on available water resources, how the users access water, control and management of water points and rules and regulations to guide the users.

6.1 Water Availability, Ownership and Access

Water is scarce both in terms of quality and quantity; hence a major bottleneck in the development of the area. Availability of water largely determines the presence of human activity. Long periods of scarcity of water imply that the communities have evolved mechanisms of managing the little water that is available so as to provide for their needs.

Except for the highly seasonal Ewaso Ng'iro River, which forms the boundary between Wajir and Garissa districts, other available sources of water in the district are boreholes, shallow wells, seasonal rivers, pans and dams. The seasonal sources are mainly available immediately after the rainy season in the months of March to May. During this period, people and their livestock move away from their homesteads that are normally built surrounding permanent water sources like boreholes. They move to far away places where temporary water sources are found. The southern part of the district has seasonal swamps that are important dry-season grazing zones and allow some cultivation.

Access to water is controlled by group membership so that unauthorized use may be met with persuasion, force or legal action. Non-members are only allowed access after making substantial payments. During the dry season, well ownership restricts access to water, so that water rights belong to individuals or groups who built the well or paid to have it built. Natural sources of water such as streams, ponds and water holes don't belong to any individual or group. This allows free access.

Whenever water in the Dadajabulla borehole decreases, which normally happens as drought progresses; the officials of the Water Users Association, in collaboration with the borehole managers, re-adjust the livestock drinking registers accordingly. When water is scarce, the register is changed so that each household waters their livestock once per week. This changes to once every two days or even to daily depending on the availability of rainwater.

Asked on access to water during the rainy and dry seasons; respondents reported that there are wet and dry season water points in Dadajabulla. When asked where they take their livestock to drink water during the wet season, the responses indicated pans, dams and seasonal rivers. Thirty two percent named pans, dams and seasonal rivers, 22% named pans and dams, 17% named pans only, 16% named dams only and 11% named pans and seasonal rivers. Most of the respondents (63%) said the watering points are natural points, 21% said they are owned by individuals, while the rest said they are natural or belong to individuals.

Responses reveal that the people avoid using the borehole during the wet season. Avoidance is one way of saving on costs, or more importantly, they respect the borehole as the only source of water in the dry season, and therefore exploit seasonal water sources, available at this time. This view is reinforced by the responses that during the

dry season, their livestock is taken to Dadajabulla borehole to drink water, as the only available source of water.

6.2 Management of Watering Points

Respondents were asked questions in relation to the construction, control, guarding, maintenance and payment for repairs and use of the watering points. Responses to the question on who constructed both the dry and wet season watering points ranged from local community, leaders, Wajir South Development Association (WASDA), NGOs and individuals. The rainy season watering points are natural and require little if any management.

On the maintenance of watering points, 45% named the Water Users Association, 25% named the community, Steering Committee/Water Management Team (9) and local elders water association. Since all the respondents indicated that they pay to access water from the Dadajabulla borehole, they were asked into what use the collected funds were put? Responses varied from maintenance of the borehole (68%); pay wages to the operator, and buy fuel. These responses show that the people are willing to pay because they understand and value the role that water resources play in support of their livelihoods.

6.3 Control and Governance of Watering Points

Respondents were probed on who decided on where livestock will be watered and when, payments and how the collected money is used. On the ownership of the borehole, all except one respondent said the borehole belongs to the Dadajabulla community. The single respondent said the borehole belongs to an individual from within the community - referring to the person who initiated and coordinated the construction of the borehole.

On the control of the watering points, 95% of the respondents said the Bahgeri control access of others to the watering points, while 5% said there is no particular group with control. The reasons given for the clan's control are that it is the majority clan and its members were majority contributors during the construction of the borehole. They are the ones who take care of the repairs, buy fuel and pay wages to the operator. In other words, the community controls watering points. Naming of Bahgeri implies the community, for all the respondents are Bahgeri, but belong to different sub sub clans. Therefore, in essence all the respondents are the owners and controllers of the borehole, to the exclusion of those from the Corner tribe.

If people are paying for water, what type of arrangements have they put in place to ensure availability and access to water by all as one way to avoid getting into conflicts? Most of the respondents (91%) said there are water user associations with rules and regulations on the management and use of watering points. The existence of the rules and regulations implies that people value the resource and would like to manage it sustainably. It could also be that the community has had conflicts before in relation to access to water, and resolved to formulate rules and regulations to guide users, hence avert conflicts.

This qualifies secondary literature that conflicts can be positive or negative depending on how the involved parties view and handle them. A positive view sees conflicts as one way that brings unclear issues into sharp focus. In the dadajabulla case, conflicts over access to water resulted in discussions between users, and development of rules and regulations on governance of water as a resource. Conflicts became a constructive mechanism through which customary laws evolved to take into consideration new patterns of resource use. The findings build on secondary literature that conflicts undermine the sustainability of resource use and at the same time allow groups to adjust and adapt to unavoidable change.

The research generated the following information on the rules and regulations (traditional and modern), for managing the water resource.

6.3.1 Borehole use and management

The Dadajabulla borehole is managed by the:

- 1) Water Users' Association
- 2) Water Users' Association Committee
- 3) Borehole managers/guards

The water users' association is made up of livestock owners from the various households and villages. Members of the Association discuss and generate rules and regulations to govern their access and use of available water. The association elects a committee of nine members i.e. Chairman, Treasurer, Secretary, with two assistants each, to run the day-to-day activities of the Association. Some of the tasks include:

- Appointing two people to guard and manage the borehole, for example organize people and their livestock.
- Refining the rules and regulations governing access and use of water from the borehole.
- Organizing the register showing households and when they take livestock to the borehole to drink.
- Allocating numbers and times of the day when each household will be expected to take their livestock to the borehole to drink.
- Discussing and give priority to special cases to access water. For example needy cases of family/household, whose livestock have not drunk water continuously for five days in a row, are allowed to by-pass others and water their livestock.

Asked if there are rules and regulations governing access and use of watering points, most (91%) of the respondents answered in the affirmative. The following is a compiled list of rules and regulations as provided by respondents.

- ◆ All must pay for their livestock to access water
- ◆ Follow the given timetable on who accesses water and when
- ◆ People to access water first followed by livestock
- ◆ Users must try and achieve minimal wastage
- ◆ No violence at the borehole
- ◆ The borehole is open for 12 hours during the wet season and 24 hours during the dry season.
- ◆ One must be a member of the Water Users Association (WUA) to access water
- ◆ The borehole operator must keep records of all money collected and hand over to the treasurer every day
- ◆ Each herdsman to pay before livestock can drink water
- ◆ Maintain proper communication with the public
- ◆ No interference by the community in the operation of the borehole
- ◆ The same amount of money to be paid by each livestock owner to access water
- ◆ Meetings be held once a week
- ◆ The borehole operator to be compensated only during the dry season
- ◆ Report conflicts to WUA, and use negotiation and compensation to manage conflict
- ◆ Keep proper records as a conflict management strategy.

The Secretary to the Water Users Association, who was one of the Key Informants, gave the following as the documented rules and regulations to govern the management of watering points.

1. All cows whether from the village or outside should be counted, then obtain a receipt in order to be given water.
2. No water distributor is allowed to receive any cash.

3. Only the designated recipient is allowed to receive the cash payments
4. The recipient is instructed to hand over all cash by 6 p.m. to the treasurer, witnessed by the auditor.
5. No money deposits allowed from the Water Users Association
6. If anybody owes money to the management, they will not be given water for their animals until they pay the sum owed.
7. All animals over 2 years old are paid for to drink water.
8. Only 10 cows belonging to Mahamed Abdille who is suffering from a stroke are allowed free water for 2 years. Other members of his family and relatives should pay water bills for their animals.
9. No village cows are allowed to roam around the water trough in the night. A fine of Ksh. 100 is imposed on anyone whose animals are found breaking this law.

The existence of the written rules that are different from the ones respondents listed above can be a source of conflicts. It means that the rules exist but are not enforced leading to an assumption from people that there are no rules. As a result they have resorted to defining and interpreting them in their own way. Existence of these rules and regulations once again contradicts existing literature that the commons are degraded because there are no rules and regulations to guide the water users.

6.4 Payment to Access Water

All the respondents said they pay to access water from the borehole for livestock. The question on whether they pay to graze was asked as a way of finding out which of the two resources – water and pastures, is rare and valued, hence a source of conflicts. Majority said they don't pay to access the grazing lands.

Payments for water are uniform for all the people. Animals of two years and below drink free of charge while those over two years old attract costs as follows: Ksh 2 per cow, Ksh 5 for a camel and Ksh 1 for every goat or sheep. Those not in a position to pay

using cash money are allowed to use part of their livestock as payment. The borehole managers take one animal, sell and give an account to the owner on how the generated funds have been used to pay for his livestock to drink water from the borehole. Any change is given to the livestock owner.

The funds collected are used to finance a number of activities ranging from repairs and maintenance of the borehole, wages for the operator and diesel for the machine. Some of the funds are saved and used for community projects like construction of health centers. Payment for livestock to access water shows the value attached to water as a pastoral resource. Payments are an indicator that the local people value and would like to conserve the resource for current and future generations. The pastoralists are organized with rules, regulations and penalties as one way to achieve sustainable water management in the midst of scarcity.

Availability of these clear rules and regulations prove that water is rare, users are many and they have in the past experienced some conflicts on access and use of water. Rules and regulations reveal the concern and alternatives that community members have so as to take care of members who are unable to pay using cash. By allowing unable members like Mahamed Abdille to water 10 cows free of charge, implies that the people already know that 10 cows provide basic needs for one person. This explains the reason for large herds kept and contradicts myths and perceptions in literature that pastoralists keep large numbers of livestock for no good reason.

Moreover, availability of these clear rules and regulations prove Hardin's theory (1968) invalid. In the tragedy of the commons, Hardin argues that common property resources like water, pasture and forests are bound to degradation as they are "unmanaged, open-access no-man's land, inevitably doomed to degradation as each individual withdrew more of the resource than would be optima from the perspective of the users as a whole". From the Dadajabulla case, we see that people have both traditional and

modern rules and regulations that govern ownership, management, access and use of water resources.

CHAPTER 7

The research findings reveal that watering points in Dadajabulla are managed and governed by clear rules and regulations. Hardin (1968) must have realized this and rectified his earlier definition of common resources. He distinguishes between the commons to show that only the un owned commons as the ones subject to tragedy, while the managed or owned commons have property rights that can prevent misuse of the resource (Hardin, 1994).

From the above research findings and discussions; a conclusion can be reached that the conflicts over water occur in a situation of a dwindling water resource and increasing number of users, rather than a result of lack of rules and regulations. As indicated in the secondary literature, people only follow rules and regulations as long as they enable them access the needed resources, in this case water. Once the water is not enough, people flout the rules and regulations and use whatever means to access water. In the process they get into conflict with each other. For posterity, society has defined ways and means of managing arising conflicts; otherwise society might become too chaotic for anyone to survive.

CHAPTER 7

WATER RELATED CONFLICTS AND THEIR MANAGEMENT

Traditionally, the various pastoral communities and clans conducted mutual raids and counter raids as an organized and governed survival mechanism. Such raids were prevalent, for example during periods of severe droughts. During such times, very many people and livestock tend to congregate around the few remaining watering points, a situation which would often end up in conflicts.

Once conflicts occurred, there were socially defined and acceptable ways of negotiating or fighting. But of late, traditionally governed conflicts have been transformed and replaced by modern “war” in terms of intensity, fatality and extensity through the use of modern weaponry. These modern conflicts are so fierce that they have exacerbated poverty levels as they deny the local people access to their source of livelihood. The reason is that there is no matching traditionally evolved mechanisms to enable people earn a living in the midst of such violent conflicts.

The aim of this section therefore is to discuss arising conflicts as people share the limited water resources. To unearth information on causes of conflicts over water, questions were asked on the availability of rules and regulations governing the use of watering points, competition for water, arising conflicts, who goes to fight when the need arises, and the conflict management methods used. Additional questions revolved around frequency of conflicts, seasons with intensified conflicts, and weapons used when fighting.

7.1 Competition Over Water and Resulting Conflicts

The population of water users (people and livestock) in Dadajabulla has grown over the years and the water resource continues to dwindle. A limited water resource implies that there will be competition among the users. Competition can degenerate into conflicts if not well managed through the use of clear rules and regulations. Dadajabulla has clear rules and regulations on access, use and management of water resources. But conflicts still occur as more than 90% of the population depend on pastoralism to support livelihoods. This implies that for their survival; they must access water for their livestock. In the process of trying to access this limited but valuable resource, they get into conflict with one another.

Rarely do people fight over nothing. The people of Dadajabulla get into violent conflicts when they are unable to access water for their livestock. To fight over the resource implies that the water is less than their needs require. Most of the respondents (71%) said the water is not enough and when asked on whom they compete with for water, responses ranged from amongst themselves, to sometimes with people from outside Dadajabulla location. The other source of conflicts is that some people gather at watering points to steal livestock, and others to settle old scores.

On the local people's knowledge on availability of rules and regulations governing water use, 70% said they are aware. The conflicts can be explained as resulting from the urgent need for water, which presses people to dare break rules irrespective of penalties. Asked if they ever have disagreements with other water users; a third responded with a yes, while 65% said no. Through observation, the 65% response can be explained as a "convenient response"- for most people don't want to appear like they have conflicts, more so to a stranger.

The distance covered to watering points is determined by where one's family has chosen to settle. Some of those who cover long distances, for example 40 km explained

that they prefer the particular water point, as their relatives use it as well. Others indicated that there are 'enemies' using the water point near them and therefore they prefer to travel far as one way of avoiding the enemies. Meeting the enemies is a sure way of starting new or reviving old conflicts.

Conflicts are bound to occur because there are too many users of a limited resource. Other causes of conflict are that there are some people who would like to water their livestock at the borehole without making any payments. When one is unable to pay cash, the borehole managers take one livestock as payment for water. Sometimes this leads to conflicts between the people manning the borehole and livestock herders. Disagreements arise over the actual cost of the animal taken for sale, and on verification of the number of livestock to be watered. The herders prefer to give wrong information on the number and age of livestock as one way to avoid making payments. Arising arguments can take hours to settle, and sometimes end up developing into physical fights.

On what happens when there are disagreements over water, 90% of the respondents said that they discuss and negotiate, while the rest said they resort to fighting. Of those who indicated that there are disagreements, 14% noted that disagreements are with family members, 5% reported that it is with hired labour, 39% named livestock owner and hired labour, while 42% have disagreements with clan members. The high response of 42% indicating intra clan conflicts can be interpreted to mean that water has become very scarce and people within the same clan go for it at any cost. The traditional rules and regulations that held the clan together have broken down, especially with the introduction of sophisticated war weaponry, privatization, commercialization and individualization of pastoral resources like water.

7.2 Violent Conflicts, Participants and Weapons Used

Respondents were asked on who goes out to fight when conflicts become violent. When these conflicts become violent. Responses indicate that majority of those who go to fight are men from the sub clan (74%), hired labour and family members.

Table 5: Who goes out to fight?

	PERCENTAGE
Men from sub-clan	74.0
Hired labour	5.0
Family members	4.0
Others	3.0
No response	4.0
Not applicable	10.0
Total	100.0

Most of those who go to fight are able-bodied men from the clan and hired labour (79%). This means that their labour contribution to pastoralism is lost as long as the conflict is on. The result is that women and children are forced by circumstances to take up men's responsibilities, in addition to their normal workload. In this regards, women find themselves challenged to take livestock out to far away places in search of water and other livestock resources – a big security threat to their lives. At the same time, women, children and the elderly people are exposed to more insecurity as there are no strong young men nearby to defend them incase of an attack.

Insecurity confines them to homesteads, as they cannot venture out to places like markets to engage in trade as an income generating activity. And because hired labour and men from the sub clan (74%) go out to fight, this implies that at least once every year, whenever violent conflicts occur, households are deprived of the men's labour, especially their contribution in taking livestock out to available watering points in far away places.

When asked about the type of weapons they use when fighting, the respondents named knives, sticks, clubs, arrows and bows. Most of these weapons are locally manufactured. Based on available information from existing literature on small arms and light weapons currently in ASALs; I reached a conclusion that respondents preferred to name the traditional and accepted weapons, for fear to name the automatic and illegally acquired weapons such as guns and rifles. The responses are based on fear of victimization, especially by the fact that I was a stranger to their community. Or, they fear to expose their levels of preparedness to their 'enemies' who might move on to acquire more sophisticated ones. Just like in modern societies, security, conflict and how prepared one is, is a confidential matter, among pastoralists too.

Today, we have conflicts that are threatening the stability of pastoral communities and pastoralism as a way of life. Normally, people resort to violence after all the other socially laid down and acceptable means of conflict management have been tried in vain. With the existence of conflicts, most of the pastoral communities have evolved mechanisms for conflict management and peace building.

On the source of rules and regulations for conflict management, the respondents named the Water Users Association, the local leaders and elders, the water elders association and the local community. The respondents noted that water was not enough to meet their needs; therefore they had to compete with people from within the community and from neighbouring areas for the little water that is available.

While competing to access the limited water, sometimes they end up with commotion, abusing one another, physical and violent fights, and in livestock being stolen. When such disagreements and conflicts arise, the people use a variety of ways to manage them. The actions taken range from fighting, livestock being stolen (18%); elders hold discussions to calm the situation down (10%); death, loss of property and food (22%). This shows that most of the actions are violent. When probed further on as to why they

get involved in violent activities; most respondents reported that violence is not their choice or wish. Circumstances force them into violent actions.

Table 6: What happens when conflicts become violent?

	PERCENTAGE
Death, loss of property, food through raids and people migrate	22.0
Fights, livestock stolen	18.0
Lack of access to pasture, water, people migrate	18.0
People get ready to defend themselves	16.0
Elders hold discussions to calm down the situation	10.0
Borehole is closed, deaths, injuries, police come in to help	3.0

Forced migration of people to safer areas leads to lack of water and pastures (18%), people take up arms to defend themselves (16%); police come in, and the borehole is closed. Loss of property and food (22%) further destabilize pastoralism as a way of life. For example, forced migration to safer areas (18%) implies that livestock will be crowded together at specific locations. This in turn results in overuse of available resources, competition and conflicts. Conflicts destabilize the people's way of life. To maintain the status quo, society uses a number of conflict management strategies and methodologies.

An analysis of the gathered information shows that 82% of the male respondents and 76% of the female respondents reported that water resource based conflicts are managed through negotiations. 3% of the male respondents and 4 percent of the female respondents reported that conflicts are solved through fighting, while the rest said the arrival of rains provides water, hence takes away the reason for conflict. The use of negotiation confirms that the community has traditional conflict management mechanisms that encourage relation building. In most cases people only resort to fighting as a last option.

Respondents were asked where people go for help whenever they feel physically insecure. Responses vary, with 69% of the respondents saying they go to the nearest police station, 24% go to the local security station and 5% go to Wajir district headquarters to report to the authorities. When these responses are compared with those of where people go to for assistance in times of need for food; responses vary - for food, up to 79% turn to relief agencies, NGOs and relatives. But when physically insecure, most (98%) seek help from the police; local security station and district headquarter. Unlike assistance in times of need for food from relatives and relief agencies, when physically insecure, the local people know where government institutions dealing with security are. This points to the fact that the government considers the town insecure and a security risk, and as a result, has more security presence compared to other service providers.

7.3 Role played by Households and Clan in Conflict Management

Culture and religion have classified women as weak, and not to venture into hostile situations, that are only fit for men. But women still play a role in agitating for war or maintaining peace. Respondents were asked on the role of gender in conflict management at the household and clan levels. Responses show that 12% of the women and 3% of the men play a role at the household level to maintain peace. They do this by engaging household members in time consuming activities, making them busy so that they have no time to go out to fight. They teach them the usefulness of respecting life. Household heads desist from the provision of weapons required for fighting to members of their households.

Over 90% of the men and 88% of the female respondents said they advice members at the household level on the importance of peace and forgiveness. At the same time they restrict the herders to specific places where chances of getting into conflict with others are low. This proves that members at the household level understand the negative impact of conflict and try their best to avoid violence. The responses conform to

available secondary literature on the role of the family and clan in an individual's life, whereby children are socialized into the ways of the clan they have to know who are their allies and who their enemies are.

Basing my arguments on the clan as the one that shapes people's opinions, attitudes, and instills survival tactics in them; details on the respondent's clan and what happens when people fight over water was compared. This was aimed at getting information on the extent to which the local people know and understand the consequences of conflicts. Respondents cited the following as the outcome whenever people fight over water resources: loss of livestock; elders get together to discuss and calm the situation; people cannot access water and other resources; people forced to migrate to other areas in search of water and peace. The borehole is closed; police are called in to quell the volatile situation.

Respondents were asked to what happens to the winners and losers involved in any violent conflict. Responses range from winners can be forced to negotiate so as not to fight (58%) in future; the loser can go and plan on how to revenge (5%); they get killed, and sometimes nothing happens. In most cases, losers are compensated after lengthy discussions and negotiations between elders from the warring parties. When asked on the most preferred conflict management method, most of the respondents (81%) prefer discussions and negotiations. 3% would rather fight, another 3% prefer to go to court. A limited number (10%) said that since conflicts are over limited water, the arrival of rains solves any conflicts over water.

Does level of schooling attained shape one's opinions and attitude on issues of conflict? To find out more about this, information on the respondent's number of years of formal schooling in relation to how water related conflicts were solved was analyzed. Information on levels of education reveals that 94% of the respondents have no formal schooling. Responses show that those with between 6 and 11 years of formal schooling

(4%) see fighting and negotiations as the way out to resolving conflicts. Two respondents with 5 years of schooling cited negotiations and discussions as the best way to get out of a conflict. The conclusion reached is that ones level of formal education has little influence on use of violent means to manage water resource conflicts.

7.4 Seasons and Frequency of Conflicts

Are the people of Dadajabulla always fighting, or are there times when they are at peace with each other. Questions were asked on frequency of water related conflicts, and how often they go out to fight over water resources. The responses reveal that almost half of the conflicts (49%) occur once a year, during the long dry period when water becomes very scarce. While 36% said the conflicts occur twice annually during the dry period implying the *Hagaar* (cold, windy in June to July) and *Jilaal* (Dry and windy in January to March) seasons.

To further understand if there is a relationship between water availability and intensity of conflicts, respondents were asked about the climatic season when they experience more water resource based conflicts, if at all? The four major seasons in Dadajabulla are the *Hagaar* (cold, windy in June to July), *Jilaal* (Dry and windy in January to March), *Deer* (short rains, October to November) and *Gu* (Long rains, April to May). During the *Hagaar* season 54% said they do experience conflicts. During the *Jilaal* season, 98% of the respondents said they experience water conflicts. During the *Gu* season only one person did experience conflicts.

This shows that most of the conflicts are water related as they occur during the dry season and become less as the wet season sets in. Towards the end of March, many raids occur as people steal livestock to fatten when the April-May rains arrive. During this time, livestock require little attention as resources are in abundance within easy reach from homesteads.

Further, they were asked to give reasons for the many conflicts during the *Hagaar* and *Jilaal* seasons. All respondents attributed it to prolonged drought leading to water scarcity.

Table 7: Frequency of Water Conflicts within Clan

	PERCENTAGE
Annually during dry season	49.0
Twice annually during dry season	36.0
Rarely	9.00
After the long rains	3.0
Once every week	2.0

Depending on the frequency of conflicts, respondents were asked how often they go out to fight over access to water resources. Most respondents (72%) said they rarely go out to fight, while 8% cited once a year, which is during the dry season; 7% said after the long rains, and 6% said they don't go to fight due to their advanced age. Once again, the 72% is an indication of respondents preferring to give a 'suitable' answer so as not to be seen as people who like fighting.

The findings indicate that water is a constraint to the full productivity of pastoralism. As a result, there are rules and regulations from within and outside Dadajabulla on how best to manage arising conflicts. The effort to manage conflicts arising from the sharing of water resources is made more urgent when we analyze the impact of these conflicts on livelihoods of the people of Dadajabulla.

CHAPTER 8

IMPACT OF THE CONFLICTS ON LIVELIHOODS

Conflict emerges as one way in which human society adjusts in the face of scarce resources. The way people view conflicts over resources conditions the nature of their responses. A negative view sees conflicts essentially as the product of competition between groups, and thus a problem that needs to be resolved. On the other hand, a positive view sees conflicts as constructive mechanisms by which rules and regulations on resource management, adapted to prevailing situations, evolve to take into consideration new patterns of resource use. So, have the water resource based conflicts in Dadajabulla had a positive or negative impact on the people's assets, activities and capabilities required for their survival?

In this section, I will present and analyze relationships between the limited water resources, arising conflicts and pastoral livelihoods as experienced in Dadajabulla location of Wajir district.

Respondents were asked on ways through which their families are affected during and after fighting. The impact is in terms of access to food, schools, health services, and markets. Responses indicate that 69% are denied access to food, 61% access to schools, 58% access to health services and 63% access to markets. This is a blow to an area already experiencing figures below the national average in health, education, and nutrition. A World Bank Appraisal Report for 1995 reported that, "The literacy rate in Kenya's arid district's was below 20 percent, compared to a national average of 69%". According to UNDP, in 1999, Wajir district had a school enrollment of 5.1 each for

primary and secondary education and 1.1 for tertiary (UNDP, 2001:97). A further denial of access to food, healthcare services and education jeopardizes the people's survival.

8.1 Access to Water

Asked how they access water for livestock when fighting is on; 58% said they migrate or move their livestock to boreholes in the neighbourhood where there is peace, while 42% said they hold discussions and negotiate with the other party to the conflict to allow them access water. Asked if their family life is affected in any way during and after the fights, 68% of the respondents said yes, while the rest were not. Forced migration can lead to more conflicts (58%) as people move to neighbouring boreholes where there is peace. Those from warring parties can meet and revive the conflict while in foreign land.

Table 8: Is family affected during fighting?

	PERCENTAGE
Yes	68.0
No	32.0
Total	100.0

Over 95% of the respondents reported that they fear going to watering points in times of conflicts. The reason given is that since the fights are over water, there are frequent fights at watering points making the places insecure both for people and livestock. The result is sometimes damage to the borehole, which makes it inefficient, leading to restrictions on the number of days when water can be accessed, resulting in more intense conflicts over water.

Table 9: How households are affected by conflicts

	PERCENTAGE
Raids, loss of life, reduction of livestock, food supply, no markets, lack of water, forced to migrate	66.0
Lack of access to school, water and health services	2.0
Not affected	32.0
Total	100.0

The families are affected in a number of ways: 66% said through raids, reduction in number of livestock, through theft, loss of life, loss of properties, reduction in supply of food, and insecurity, leading to reduced activities at markets. Lack of water as the borehole is closed; and forced migration of families and livestock to safer areas. Others fail to access schools, health centers and watering points.

8.2 Time Lost in Managing Conflicts

Conflicts are complicated issues that get interwoven with other social, economic and political activities within society. Being that delicate, conflict management consumes time and resources. The respondents were asked about the number of weeks that it normally takes them to manage a conflict through negotiations. Almost half (48%) of the respondents said it takes them up to one week, 10% said up to 2 weeks, 23% up to 4 weeks, 8% up to six weeks and 1% up to seven weeks. On the number of weeks taken to solve a conflict through fighting; 51% said it takes them up to one week, 16% up to one and half weeks, 16% up to two and half weeks, 6% up to 4 weeks, 1% up to six weeks and another 1% up to 25 weeks.

Table 10: Weeks spent managing conflict through negotiation

PERIOD	PERCENTAGE
1 week	48.0
1.5 weeks	1.0
2weeks	10.0
3	8.0
4	23.0
5	1.0
6	8.0
7 weeks	1.0
Total	100.0

Due to the harsh environmental realities in the ASALs, time is very important. This means that being away for an average of 5 weeks fighting will affect productivity. On average, the people take about 5 weeks to negotiate a conflict. Assuming that

negotiation fails and they resort to fighting for an average of another 5 weeks; a total of 10 weeks is spent managing conflicts, a very high tax on pastoralism.

The amount of time spent negotiating or fighting to solve a water-based conflict is high. This arises from the fact that pastoralism relies on the availability of human labour to cover long distances in search of water, pasture, better markets, and physical security. A reduction in labour affects livestock rearing and production cycles.

8.3 Loss of Livestock and Status of Borehole

Asked if they have lost any livestock during conflicts, 39% said they have, while the rest said no. Of those who said yes, the number of livestock lost ranged from two to 230. Loss of livestock is critical to survival, as large numbers are needed to support few family members. A reduction in livestock, even by small numbers is critical to a people already living at the verge of poverty and malnutrition. Loss of livestock is a sure way to create conflicts, as those affected will try their best to get more livestock from someone else, and the cycle of conflict will continue.

On the status of the borehole during fighting, 99% said the borehole is closed when fights break out. This becomes another source of conflict in that most fights occur during the dry season when water is limited. In the dry season, Dadajabulla borehole is the only source of water for pastoralists. Closure of the borehole means that people have to trek far in search of water, yet, such movement is constrained by the fact that able-bodied men, are the same ones involved in the fights. Families end up losing more livestock, a fact that will force them to steal from others if they are to meet their needs.

8.4 Death and Injuries to Family Members

In response to a question on if any family member had ever been killed when fighting over water, 2% said yes, while the rest answered no. If any of their relatives or hired labour had ever been killed when fighting over water, 8% said yes while 92% said no.

On injuries to those who take care of the livestock, 18% said yes, while 82% said no. Death and injuries are a cost to households, for they interfere with the flow and allocation of resources for subsistence, and have high chances of initiating new conflicts in the form of revenge.

8.5 Mobility of Pastoralists and Their Economic Activities

Do family members move freely when violent conflicts are on going? Most of the respondent said their family members don't move freely. For those whose movements are not affected (10%), the reasons given ranged from the fact that they are used to such conflicts, to the fact that at such times there is still enough security available, and no threat of being killed. Those who said their movements are interfered with gave fear as the main reason. Since pastoralism thrives on mobility, majority being unable to move freely will result in low livestock production and death of others. People not being able to survive on livestock, will be reduced to perpetual reliance on relief food.

When asked on the impact of conflicts on their income generating activities, 96% of the respondents said they experienced negative impact in terms of price increase of products in the market. The contributing factor is that many people feel insecure to leave home and go to market areas. Those who visit market areas to sell produce experience problems of low prices, as there are a limited number of buyers. Rampant insecurity, robbery and long distances covered to reach markets located in peaceful areas, discourages many from participating.

8.6 Physical Insecurity, Food Production, Access to Schools and Health centers

As already discussed, conflicts and their management are time-consuming ventures. Findings indicate that respondents spend an average of 10 weeks managing a conflict through negotiations and actual fighting. Knowing that time is fixed with 24 hours each

day, spending weeks on negotiations or fighting is an expensive affair. The expense is on account that most of these people are involved in pastoralism as a way of life. The practice demands mobility of livestock from place to place, covering long distances each day in search of water and other resources. Pastoralism involves the separation of livestock into many units to move to different places in search of resources for their survival. It involves milking and individual animal attention to watch out for ailing ones and treat them. So if some people are withdrawn, especially in the dry season to go and fight instead of taking livestock to far away places in search of water; then livestock as the main source of milk, meat, blood and income are negatively affected.

Insecurity and fear affect levels of food production at the household level due to a reduction in the quality and quantity of livestock. The livestock get stolen and there are no stable markets to rely on (96%). Reduction in quality and quantity leads to hunger and increased poverty. Physical insecurity bars people from moving to market places to buy and sell foodstuff and participate in other income generating commodities. Insecurity sparks a whole new cycle of poverty, limited water and conflicts.

Conflicts affect physical access to schools and the parents' ability to pay school fees. As reported by majority of respondent (86%), students and teachers are unable to go to school due to insecurity resulting from conflicts. In most cases, schools get closed. Children cannot to go to school due to lack of school fees, as parents are unable to fully participate in income generating activities. On access to income generating activities, 63% of respondents revealed that it was hard because of thefts and fights at the market place. The closure of the Dadajabulla borehole renders guards who are parents without payment; in turn they are unable to pay children's school fees. 89% of the respondents said that due to insecurity, they are confined to low income generating activities, as they cannot move to far away markets for profitable business transactions.

Water resource based conflicts bring a lot of suffering to many residents as revealed by 80% of the respondents said that physical insecurity means that young children are insecure and the best alternative is for them to stay home, away from school. Teachers who come from outside Dadajabulla or Wajir district prefer to return to their home areas whenever there are conflicts.

Older students, through requests from parents, or based on social cultural and family obligations, abandon school (69%) so as to join others in 'fighting the enemy'. Children are forced to drop out of school when families decide to migrate to other areas in search of physical security (16%). Once again, disruption of school, leads to low levels of education, confining more and more people to pastoralism as the only source of a livelihood. The large number of people relying on pastoralism implies large herds of livestock kept. The herds require water, especially during dry seasons. As we have reported above, lack of access to water leads to competition and conflicts.

Most of the respondents (81%) reported that water resource conflicts lead to physical insecurity. Physical insecurity impacts negatively on access to grazing and watering points, schools, health centers and markets. Other people (79%) are forced by circumstances to move to drier but secure areas (9%). Over concentration of people and livestock in small areas will lead to eruption of more conflicts as people start to compete and fight over the limited water resources, creating more insecurity in the previously secure areas.

Water based conflicts interfere with people's access to health services and facilities as they are unable to move far. At the same time, people lack income to pay for services due to lack of access to income generating activities. Most (99%) of the respondents reported that insecurity leads to the closure of health facilities, and lack of water for hospitals, so they cannot cater for patients. Due to insecurity, the main NGO, which provides health services, is unable to deliver medicines to service centers.

8.7 Future of Conflict Management

Conflict is a collective activity as it takes more than one to cause and resolve a conflict. To find out more, respondents were asked about what role and contribution they will make to the future management of conflicts? What has been their role in maintaining peace at the household, sub-clan, and clan levels and within Wajir district? To find out more about the future of water resource based conflicts and their management; respondents were asked why they participate in water resource based conflicts. They were also asked on what they would like to see done at various levels to help curb the conflicts.

If in reality the people of Dadajabulla were not war-like by nature, what would they like to see done in order to stop the frequent water resource based conflicts?

8.7.1 Role of Households and Clan in Maintaining Peace

To maintain peace at household level, most respondents (90%) reported that they advice members on the need to maintain law and order, the need to restrain oneself, forgive, and the need to share resources equitably with others.

When it comes to the level of the sub sub-clan, most members (40%) prefer negotiation in place of fighting, while 28% suggested the need to initiate local peace groups and committees that will help create awareness on the importance of peace. Equitable resource sharing was put forward by 23% of the respondents, following elder's advice, while 7% named initiation and contribution to the development of community projects to keep the youth busy and away from conflicts.

At the sub sub clan level, 86% of the respondents said there is need for construction of more boreholes and adoption of negotiation in place of fighting as a conflict management strategy. There is need to deploy more security personnel in the area (9%) and improve on water management.

Table 11: Maintaining peace at the sub sub-clan level

	PERCENTAGE
Negotiate in place of fighting	40.0
Initiate local peace groups, committees, public education workshops	28.0
Share resources equitably	23.0
Initiate and contribute to community development	7.0
Participate in peace conferences	1.0
Report cases of conflicts to the elders	1.0
Total	100.0

Respondent feel that the government needs to do more work by providing more security stations, create borders to separate each sub-clan from one another, and encourage intermarriages and use of common leaders.

Table 12: Maintaining peace at Bahgeri sub clan level

WHAT CAN BE DONE	PERCENTAGE
Government to provide more security stations	41.0
Borders to separate them, encourage intermarriages, have common leaders and peace groups	24.0
Create public awareness on the importance of peace, participate in peace forums	16.0
Share the ltd resources, contribute to community development projects	12.0
Request for more donor support especially during dry season, for more water points	6.0
Use Islamic law to manage arising conflicts	1.0
Total	100.0

At the level of the Ogaden clan, most respondents' feelings are that the way forward in terms of peace would be through the following avenues: People's participation at peace conferences, formation of committees and the initiation of peace groups. Have common leaders, and learn to negotiate when conflicts arise. Form peace groups to initiate and participate in clan development activities, and use of Somali traditional law to manage water resource based conflicts.

The peace effort builds up so that at the district level, 62% of the respondents said they would like to see more restraint from fights at individual level, and deployment of more security personnel. Through participating in peace conferences (14%), provision of information through the mass media, public education, and avoid crossing borders to other areas. Another 14% said through having good and common leaders. Others named initiation of development activities and construction of more and separate water points for different clans.

The request for construction of more boreholes (86%) as a way to manage the conflicts implies that most of the people fight because water is critical to the survival of their livestock. If there were alternatives or a substitute to water, they would take it, but since there isn't; they see the construction of more boreholes as the way out. The request for deployment of more security personnel implies that the people love peace and since they are not able to provide physical security for themselves; they would like to see more security personnel deployed there by government to help them manage the situation. This request is tied to the fact that nowadays the violent conflicts are sorted out using automatic weapons and indiscriminate killing of women, children and the elderly, a situation only matched by the government security with automatic weaponry.

People of Dadajabulla are faced with a situation of many users of a limited water resource. In the process of accessing water, conflicts arise. The community has defined some conflict management mechanisms but the water resource based conflicts persist and have affected the people's livelihoods negatively. What is the best way out?

CHAPTER 9

Conclusion and Recommendations

The research findings have revealed information on the social-economic characteristics of the people of Dadajabulla. The society is patriarchal and basically dependent on livestock and its products for subsistence, and as a source of cash income to pay for education, health and other necessities. The area, being AN arid and semi arid can only support pastoralism as the most efficient way to make use of the available transient resources. The limiting natural conditions combine with the prevailing high illiteracy levels to limit most of the Dadajabulla population to pastoralism to support their livelihood.

The productivity of livestock is dependent on availability of labour and water that in turn guarantees growth of pastures. Being an ASAL, with an annual average rainfall of 300 mm, implies that livestock is moved according to seasons to places where water is available. Rainfall being scarce and unpredictable, means that sometimes livestock are moved long distances in search of water. It is in the process of movement and search for water that many herders and livestock are crowded together at the few and available watering points. Competition to access water for livestock increases and in the process, people fight with each other.

Once fights break out at watering points, other family and clan members at home or at other watering points, join in to assist their own fight back. As more people join, so does the intensity of the conflict increase. Pastoralism is a labour intensive activity that gets affected negatively whenever the able-bodied herders abandon livestock to go and fight. There are more water conflicts in the dry season when compared to the rainy one

- this is very unfortunate, this being the season that demands more labour as livestock are divided and herded to many and different directions in search of water. Lack of this much-needed labour, will result in less productivity of livestock. A reduction in the productivity of livestock leads to unsustainable livelihoods among pastoralists in terms of food security, income to pay school fees, for education, and other necessities.

Being an ASAL, drought and lack of water have become common occurrences in Dadajabulla location and Wajir District general. With time, the people have evolved structures to govern water resources and manage arising conflicts. For example, natural water points like ponds, pans, seasonal rivers that are available during and after rains are accessible to all. Access to water from the borehole and dug wells is limited to registered members with water user associations. The members pay a fee based on the number and type of livestock to drink water. There are both traditional and modern rules and regulations on how, who and when to access water, the necessary steps to be taken into consideration when conflicts occur, and penalties for violators of the laid down rules.

Existence and use of rules and regulations invalidate Hardin's (1968) theory of the "tragedy of the commons". The theory advocates that common resources like water and pastures are "unmanaged, open-access, no-man's land, inevitably doomed to degradation". From the study findings, water resources in Dadajabulla are not unmanaged for the people use both traditional and modern rules and regulations to access control and manage available water resources. Access to the borehole is based on membership. There are regulations and conditions under which non-members can access water from the borehole and natural points. The pastoral land is communally owned, so it belongs to the local community with an internalized system of guarding against trespassers. The only way that pastoralism and ASAL resources are doomed is through the eyes of outsiders who fail to take note of the existence of traditional institutions that govern the resources. Literature review revealed the various attempts that were made by the Kenya government to "modernize" pastoralists. Most of the

attempts failed because they did not involve the local people in the planning and implementation processes.

From the above discussion we have seen the critical role-played by families, households and clans in shaping an individual into a particular way of life. This calls for policy makers and implementers to tap onto the richness of the clan system and other traditional institutions. This will be one way of formulating relevant and practical policies and strategies that will lead to sustainable management of natural resources, as a conflict management strategy. There is an urgent need for government and other development agencies to learn and understand that pastoralism has evolved to take advantage of the harsh climatic conditions of ASALs.

By reviewing literature on pastoralims as a way of life, analyzing research findings on how the livelihoods of the people of Dadajabulla are affected by water resource based conflicts; following are some of the lessons to be shared at the local, national and international levels:

Lessons Learnt

- That any sustainable pastoral development program needs to be based on the particular people's history, culture, environment, economic and political realities.
- The need to involve local people when defining development. This is illustrated by the failure of attempts made by the Kenya government to develop pastoralists and ASALs, without involving the local people.
- Development cannot be defined from outside and imported for implementation as the Kenya government did by importing a model designed for American and Australian dry lands, to ASALs in Kenyan. The well-intended project failed.
- Conflicts are not limited to areas of origin; rather, they have a spiral effect that spreads to other stakeholders in the natural resource sector.

- There is need for the government and other development agencies to focus on ASALs and pastoralism as one way of helping them out of the perpetual conflicts and poverty they live in.
- Sedentization of pastoral communities through provision of permanent watering points is not a way out of water resource based conflicts. The reason being that the fragile environments where pastoralists live demand that they move frequently for the resources to recover and avoid permanent degradation.

Way Forward on Pastoralism, Conflict Management and Development

What contribution does pastoralism make to national development? Most people view pastoralism as a waste of time and resources by comparing it with crop cultivation. They forget to ask themselves as to what other productive use ASALs can be put into? If none, then there is need to support the most practical use of the available land and its resources. This can be achieved through:

- ❖ Coming up with ways to tap and store rainwater and make it accessible to pastoralists during the long dry periods.
- ❖ The need for extensive discussions aimed at harmonizing modern and traditional practices of pastoralism, such as resource and conflict management methods. This will help do away with some of the prevailing contradictions that lead to conflicts.
- ❖ The undertaking of an environmental impact assessment before sinking more boreholes in ASALs. More boreholes can encourage large concentrations of people over long periods of time, leading to land and resource degradation.
- ❖ Identifying profitable markets where pastoralists can sell their livestock profitably. This will encourage them to cut down on any extra numbers.
- ❖ Availing education to more children as one way of reducing the large numbers of people dependent solely on pastoralism. Education equips one to choose between available alternatives.

- ❖ Involving pastoralists in the policy making process so as to generate relevant and practical policies.

The above recommendations can be realized through further field research on the role that conflicts play in the development of pastoral areas. This can be in the area of the role-played by women in the enhancement of resource conflicts. Dwindling water resources and conflicts among agricultural and pastoral communities, and the annexation of communal resources to state ownership (pastures, forests, water) and how it has resulted in the tragedy of (previously) common property resources.

The epi-center of most conflicts in Wajir district is water related. Competition over water resources leads to conflicts that in turn lead to insecurity. Insecurity on its part limits movement of people and their livestock. The overall effect is that productivity of pastoralism is lowered. This amounts to pressure put on social groups to secure their position by attempting to take control of water resources to support pastoralism that will in turn provide for their livelihood. In the process of trying to safeguard their main source of livelihood, people are forced to use whatever means will enable them access water. In the process of competing, conflicts arise and since they have a negative impact, they need to be managed with some urgency. In the process of managing conflicts, other sectors of their livelihoods like health, food security, education, borehole management and marketing activities are disrupted. Achieving water security becomes essential for the achievement of sustainable livelihoods in pastoral areas.

From the literature review, research findings and discussion, I conclude that conflicts over water resources have a negative impact on pastoral livelihoods. To develop the pastoral sector, hence the local people's livelihoods; demands that the government and other development agencies, consult with the local people on pastoralism and pastoral systems. Such a participatory process will lead to the development of policies and implementation strategies relevant to the ASALs and in support of local livelihoods.

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SURVEY QUESTIONNAIRE

Water Resource Based Conflicts and Pastoral livelihoods at Dadajabulla

No.	Question	Response	Code
	Background		
1	Questionnaire Number		
2	Sex of respondent	1=Male 2=Female	
3	How old are you? (In years)		
4	What is the name of your location		
5	Which sub-sub clan do you belong to?	1= Adan Dagah 2= Haglale 3= Rer Hemar 4 = Adan Wit 5 = Jabrail 6= Other, specify _____	
6	What tribe are you?	1 = Somalia 2 = Borana 3 = Afar 4 = Gabra 5 =Beja 6=Other, specify _____	
7	Where were you before you came to Dadajabulla?		
8	Religion	0=None 1= Muslim 2=Traditional 3=Catholic 4=Protestant 5= Other, specify _____	
9	Marital status	1= Single 2= Married 3= Divorced 4= Widowed 5= Other, specify _____	
10	How many people make up your household?		

No.	Question	Response	Code
11	Highest level of education attained (Years of schooling indicate level e.g. primary class 4 or secondary form 2).	0= None 1= Primary ____ 2= Secondary ____ 3= Training college ____ 4= University ____ 5= Other, specify _____	
Livestock			
12	In which year did you start keeping livestock?		
13	How many herds of livestock do you own?	<p style="text-align: right;"><i>Number</i></p> 1= Cows _____ 2= Camels _____ 3= Goats _____ 4= Other, specify _____	
14	Why do you prefer the size of livestock that you have?		
15	What does your livestock need to survive?	1= Water 2= Pasture 3= Salt licks 4= Medicine 5= Other, specify _____	
16	How available are the above resources that your livestock need?	1 = easily available 2 = with some difficulty 3 = Not available at all 4 = Other, specify _____	
17	How accessible are the above resources that your livestock need?	1 = easily accessible 2 = with some difficulty 3 = Not accessible at all 4 = Other, specify _____	
Livestock and Livelihoods			
18	What is your main source of livelihood?	1 = Livestock and livestock products 2 = Small scale trade 3 = Firewood collection 4 = Contractual labour 5 = Sale of building materials 6 = Donkey and donkey carts 7 = Other, specify _____	

No.	Questions	Response	Code
19	What makes up your stable food?	1= Meat 2= Milk 3 = Cereals (maize) 4 = Beans 5 = Other, specify _____	
20	How do you acquire the staple food?	1=Own (purchase, cultivate, livestock) 2= Relatives 3= Market 4 = Relief supply 5= Other, specify _____	
21	What is your main source of income?		
22	How do you acquire the income?		
23	Who do you go to for help whenever you lack your stable food ?		
24	Who do you go to for help whenever you lack income ?		
25	Who do you go to for help whenever you feel physically insecure ?		
26	Are there times when you are not able to provide the required food for your household?	1= Yes 2= No	
27	What are the reasons for being unable to provide the food?		
28	What is the main source of income for your household?	1= Monthly salary 2 =Sale of livestock and products 3 = Small scale trade 4 = Other, specify _____	
29	What problems do you face when selling livestock?	1=Lack of market 2 = Low prices 3 = Long distance to market 4 = Theft of livestock 5 = other, specify _____	
30	Into what use do you put the earned income?	1= School fees 2= Purchase food 3= Buy more livestock 4= Pay for hospital/healthcare 5= Other, specify _____	
31	How often do you increase the number of your livestock?	1= Weekly 2 = Monthly 3 = After the long rains 4 = Other, specify _____	

No.	Question	Response	Code
32	Through what process do you increase the number of your livestock?	1= Purchase 2 = Gifts (from who?) _____ 3 = Reproduction 4 = Raids 5 = Other, specify _____	
	Livestock Consumption Needs		
33	Who takes the livestock to the watering points?	1= Children 2 = Husband/ wife 3= Hired labour 4 = Family and hired labour 5 = Other, specify _____	
34	Who takes the livestock to the grazing areas?	1= Children 2 = Husband/ wife 3= Hired labour 4= Family and hired labour 5= Other, specify _____	
35	Who milks the livestock?	1= Children 2 = Husband/ wife 3 = Hired labour 4 = Family and hired labour 5 = Other, specify _____	
36	Who takes the livestock to the market to sell?	1= Children 2 = Husband/ wife 3 = Hired labour 4 = Family and hired labour 5 = Other, specify _____	
	Watering Points – as boreholes, pans, dams, and seasonal rivers.		
	Wet Season (Gu and Deer)		
37	Where is your livestock taken to drink water during the wet season?		
38	How far (km) are the livestock taken in search of water during the wet season?		
39	Who owns the wet season watering points		
40	How many times in a week are the animals taken to the watering points?		
	Dry Season (Hagaar and Jilaal)		
41	Where is your livestock taken to drink water during the dry season		

NO	Question	Response	Code
42	How far (km) are the livestock taken in search of water during the dry season?		
43	Who owns the dry season watering points where you take your livestock?		
44	How many times in a week are the livestock taken to the watering point during the dry season?		
	Shared Water Resources		
45	Which is your regular watering point?		
46	How many watering points in your area do you have access to		
47	How many households use the watering point each day?		
48	How many livestock use the watering point in a day?		
49	Who decides where the livestock will be taken to for watering?	1= Household head 2= Herder 3= Sub, sub clan elders 4 = Area chief 5= Other, specify _____	
50	Who decides where the livestock will be taken to for grazing?	1= Household head 2 = Herder 3 = Sub sub clan elders 4 = Area chief 5 = Other, specify _____	
51	Do you pay for your livestock to drink water at the watering points?	1= Yes 2= No	
52	If yes, which water point?		
53	If yes, how many Ksh. or livestock?		
54	If yes, why?		
55	If no, why?		
56	Do you pay for your animals to graze?	1= Yes 2= No	
57	If yes, for which pastures/grazing areas?		
58	If yes, how much in Ksh. or livestock?		
59	If yes, why?		

No.	Question	Response	Code
60	If no, why?		
	Management of Watering Points		
61	Who constructed the watering point where you take livestock to during the dry season?		
62	Who constructed the watering point where you take livestock to during the wet season?		
63	Is there any particular clan that controls the access of others to the watering points?	1 = Yes 2 = No	
64	If yes, which one?		
65	If yes, reasons		
66	Which sub-sub clan guards the watering point?		
67	Who organizes and guides livestock herders to ensure organized access of livestock to the watering points		
68	Who maintains the watering points when they are not in working condition?		
69	Who pays for the costs of the repairs?		
70	Do you pay for your livestock to drink water from the watering point?	1 = Yes 2 = No	
71	If yes, who collects the payment		
72	Into what use is the money/payment collected put?		
	Water User Associations		
73	Do you have Water User Associations in your area?	1 = Yes 2 = No	
74	How many water user associations are in your area?		
75	Who formed the water user associations		

No.	Question	Response	Code
76	What criteria were used to form the existing Water User Associations?		
77	What is the role of the associations in water management?		
	Rules and Regulations		
78	Are there rules and regulations governing the management of the watering points?	1 = Yes 2 = No	
79	If yes, what are some of the rules and regulations?		
80	If no, what governs the management of the watering points?		
81	Are there rules and regulations governing the use of the watering points?	1 = Yes 2 = No	
82	If yes, what are some of the rules and regulations?		
83	If no, what governs the use of the watering points?		
84	Who are the members of the water user associations?	1 = Household head 2 = Interested individuals 3 = All livestock owners 4 = All sub-sub clan members 5 = Other, specify _____	
85	What are the benefits of being a member of a water user association?		
86	Into how many water user groups do you belong?		
87	If more than one, why?		
	Water related conflicts and management		
88	Are there rules and regulations governing the use of the watering points?	1 = Yes 2 = No	

No.	Question	Response	Code
89	Which of the rules and regulations are from your community i.e. traditional?		
90	Which of the rules and regulations are from outside i.e. modern?		
91	If yes, who makes the rules and regulations		
92	List some of the rules and regulations.		
93	If no, what guides the water users?		
94	Is water always enough for the needs of all the users?	1= Yes 2= No	
95	If no, with whom do you compete to access the water?		
96	Have you ever had disagreements with the other people who share the watering points with you?	1= Yes 2= No	
97	From which sub-sub clan are the people you have had disagreements with from		
98	If yes, list some of the incidents.		
99	If yes, how did you manage the disagreements/conflicts?		
100	What is the relationship between the Adan Dagah, Haglale, Adan Wit, Jebraail and Rer Hemar in relation to access to water?		
101	What is the relationship between the Bahgeri sub clan and the other Ogaden sub-clans in relation to access to water resources?		
102	What do you do when disagreements over access to watering points occur?	1= Negotiate/discuss 2= Fight 3= Sell livestock 4= Run away 5 = Other, specify _____	
103	Whom do you report to when you have disagreements with the other water resource users		

No.	Question	Response	Code
104	With whom are most of the disagreements	1= Owner/family 2= Hired labour 3 = Owner and hired labour 4= Sub-sub clan members 5= Others, specify _____	
105	What normally happens when you fail to reach an agreement over the conflict?		
106	Are there times when the conflicts become violent/you fight?	1= Yes 2= No	
107	What happens when the conflicts become violent		
108	When conflicts become violent, who goes to fight	1= family members 2=Men from the sub-sub clan 3= Hired labour 4=Others, specify _____	
109	When you fight over water resources, who normally wins?		
110	Why do they win?		
111	What happens to the winners afterwards?		
112	What happens to the losers afterwards?		
113	How are water related conflicts resolved	1= Fighting 2 = Negotiations/ discussions 3 = Court case 4 = By arrival of rains 5 = Other, specify _____	
114	Who helps you solve the conflicts		
115	What are some of the available and used conflict management systems within your clan/community?		
116	When you are out fighting, who takes care of the livestock?	<i>People?</i> 1=Watering _____ 2=Grazing _____ 3= Milking _____ 4=Selling _____	
117	How often do the water related conflicts occur within your clan		
118	How often do you go out fighting over access to water resources		

No.	Question	Response	Code
119	Which weapons do you use when fighting over water		
120	Where do you get the weapons?		
121	During which climatic season do you experience more water resource based conflicts?	1 = Hagaar 2 = Jilaal 3 = Deer 4 = Gu	
122	Why that particular season?		
	Impact of conflicts		
123	When fighting is on, how do you get water for the livestock?		
124	During and after fighting, is your family life affected in any way?	1 = Yes 2 = No	
125	If yes, explain how		
126	If yes, how is your family affected?	1= Cannot access food 2= Cannot access schools 3=Cannot access health services 4= Cannot access markets 5 = Other, specify _____	
127	How many weeks do you normally spend solving a conflict through negotiations?		
128	How many weeks do you normally spend solving a conflict through fighting?		
129	How many people from your family go out to fight whenever the need arises		
130	Have you ever lost any livestock when fighting over water?	1= Yes 2= No	
131	If yes, how many livestock in total?		
132	Have any of your family members been killed when fighting over water?	1= Yes 2= No	
133	Have any of your relatives or hired labour ever been killed when fighting over water?	1 = Yes 2 = No	
134	If yes, how many in total?		
135	Have any of the people who take care of your livestock ever been injured when fighting over water?	1 = Yes 2 = No	

No.	Question	Response	Code
136	If yes, how many in total?		
137	What happens to the watering points whenever there is fighting over water		
138	Do your family members move freely from place to place whenever there is fighting over water resources?	1= Yes 2= No	
139	If yes, reasons		
140	If no, reasons		
	Impact of Involvement in Conflicts on livelihoods		
141	How do the water resources based conflicts affect your buying as an economic activity?		
142	How do the water resources based conflicts affect your selling as an economic activity?		
143	How does the water resource based conflicts affect access to schools for your children?		
144	How does the water resource based conflicts affect your access to income generating activities to pay school fees ?		
145	How does the water resource based conflicts enhance school dropouts due to physical insecurity ?		
146	How does the water resource based conflicts enhance school dropouts to go and assist with the fighting .		
147	How does the water resource based conflicts affect your access to health services ?		
148	How does the water resource based conflicts affect your access to higher income generating activities to pay for health services.		
149	How does the water resource based conflicts lower your access to water for livestock and domestic use ?		
150	How does the water resource based conflicts affect your level of physical security ?		

NO.	Question	Response	Code
151	How does the water resource based conflicts affect your access to watering points and gazing grounds ?		
152	How does the water resource based conflicts affect your level of food production for the household?		
	Conflict Management		
153	Do you enjoy participating in water resource based conflicts?	1 = Yes 2 = No	
154	If yes, why?		
155	If no, why?		
156	If no, what would you like to be done to stop the conflicts/fights		
157	If no, what are you going to do to stop the conflicts/fights?		
158	What has been your role in maintaining peace within your household ?		
159	What has been your role in maintaining peace within your sub-sub clan ?		
160	What has been your role in maintaining peace within the Bahgeri sub clan		
161	What has been your role in maintaining peace within the Ogaden clan?		
162	What has been your role in maintaining peace within Wajir District?		

GUIDELINES FOR INTERVIEWING KEY INFORMANTS

Water Resource Based Conflicts and Pastoral Livelihoods at Dadajabulla

- Name of respondent
- Age
- Sex
- Sub-sub clan
- Location

1. Which year respondent started keeping livestock?
2. Are there times when you have had disagreements and conflicts with other water users? Please narrate.
3. Which rules and regulations on water resource management and conflict management do you prefer, the traditional or modern ones? Explain reasons for that one.
4. What are some of the conflict management systems that your community has used over time to manage conflicts arising over the use of water resources for livestock? Both where you were before coming to Dadajabulla and while here at Dadajabulla.
5. Have the water related conflicts changed over time or are they still the same old conflicts?
6. What changes have you seen over time in relation to water resource management, conflicts and conflict management?
7. What would you say has been the main cause of conflicts in pastoral areas over time? How have these conflicts affected your way of life e.g. education, health services, income generation, food security, physical security, etc.
8. Where were you before coming over to Dadajabulla?
9. What made you move here?
10. Have you ever been involved in a conflict in your life, which one, with whom, over what, and how did you handle the conflict.
11. Would you like the water related conflicts to continue, if no, what do you suggest should be done so as to do away with the current and potential future conflicts?
12. What is or has been your role in maintaining peace in relation to water within your household, sub-sub clan, Bahgeri sub clan, Ogaden clan, and Wajir District.