

Natural Resources, Governance and Pastoralism in Sudan

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Introduction

Pastoralism is an important livelihood system and is one of the major land uses world-wide. According to FAO (2001) pastoral production takes place on some 25 percent of the world's land area, supporting some 200 million pastoral households and herds of nearly a billion head of camel, cattle and small ruminants. Nomads in Sudan represent a significant portion of the population and amounted to 13 percent of the total population of the country in the 1956 census, and to about 10 percent in 1973, 1983 and 1993 censuses (UNDP, 2006). The rangelands of Sudan are estimated to cover about 110 million hectares, or about 46% of the country's total area before the South seceded. The vast rangelands encompass different ecological zones extending from desert and semi desert in the north, to low and high rainfall savanna in the south. These variations support diverse vegetation and production systems (Zaroug, 2000).

Pastoralists can be categorized either by their patterns of movement or by the types of animals in their herds. There are three main categories of pastoralists based on the degree of mobility these are: (1) Agro-pastoralists - normally practice significant cultivation alongside livestock raising. (2) Semi-nomadic pastoralists are those who leave part of the family in the Dar (homestead) while part of the family moves seasonally with the herd to areas where pasture and water are available. (3) Nomadic pastoralists are characterized by high mobility where the entire families and herds move between dry and rainy season domains in the search of pasture and water. On the other hand, there are two main categories of pastoralists in Sudan according to the type of livestock herded these are the *Abbala* (camel herders) and the *Baggara* (cows herders). Each type has its distinctive production systems and culture dictated by their *niche* within various ecological zones (UNDP, 2006); although under certain conditions raising a mixture of herds is practiced.

The rangelands of Sudan contribute to the income and subsistence of a large sector of the population and in addition provide more than 80% of the total feed requirements of the national herd (HCENR, 2003). Rangelands also host wildlife and play a vital role in soil and watershed protection, biological diversity, ecological balance and environmental conservation. In spite of its importance most quantitative data relating to rangeland productivity in Sudan are based on experts' estimations and rarely based on large-scale surveys.

Pasture, water and forestry are the most crucial natural resources for pastoralism – which is often defined as a form of land-use system that depends mainly on livestock raising using these

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interdependent natural resources. The sustainability of pastoralism and pastoral production system, therefore, hinges upon the way these resources are managed, used and interact with other components of the rangeland system.

In Sudan, pastoralism is considered a livelihood rather than simply a system of production. Herding practices dictate customs, habits, relations and patterns of daily living. Pastoralism requires access to significant land and must co-exist with other land use systems like smallholder farms and mechanized farming. In South Sudan there is less competition with agriculture but instead pastoralism competes with wildlife in certain areas.

The co-existence and interaction with other land-use systems is considered part of the balance of resource management. For example, grazing animals on crop residue benefits the farmers by providing manure directly to the fields, removal of crop residues, and balancing herbaceous plant composition through rational grazing. But there are also negative results especially when utilization levels are not balanced or not rational. These may include deterioration of resources through over-exploitation or conflicts over sole use that may lead to violence. For example, herds that enter fields to graze before the crops have been harvested, the exclusion of animals from harvested fields or the cultivation of areas designated as pasture. The simultaneous and/or sequential use of land, pasture and water makes the issue of rational use and balanced access to these resources by different users a critical challenge for sustainable natural resources management.

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Governance and Natural Resource Management

UNDP defines governance as "complex mechanisms, processes and institutions through which citizens and groups articulate their interests, exercise their legal rights and obligations, and mediate their differences." Natural resource governance includes how natural resources used at all levels are allocated and/or accessed. It influences how competition over resources is resolved and who ultimately benefits from them. Natural resource governance and pastoralism within the context of this review paper is about how pastoral communities interact with other actors to gain access to, control of and benefits from natural resources.

Many studies have proven that pastoralists in Sudan are marginalized compared to other natural resource users, especially with regards to access to land, pasture and water. Under a weak system of governance, people have limited incentives to manage their resources properly and face significant barriers to building sustainable livelihoods. Pastoralists are generally considered a vulnerable group because they are not supported by policies and are poorly represented among decision makers (Kipuri and Ridgewell, 2008) with weak recognition of their rights among policy-makers and government authorities (Morton 2008). This situation raises the need to address the subject of natural resources governance.

According to Calkins (2009), access to productive resources among pastoral communities in the lower *Atbra* area of northern Sudan is being progressively limited by expanding agriculture and large infrastructural projects, leading to resource contraction and is considered among the major forces driving the transformation of livelihood systems. Abusas (2009) states that most of the transhumance routes in the Blue Nile area have disappeared during the last fifty years as a result of being taken up by a number of development projects.

In Sudan, erosion of environmental governance has contributed to conflict. Lacking access to natural resources contributes to many of the local level conflicts in which pastoralists are involved, whether as farmer/herder or herder/herder conflicts. Many contributors, including Yousif (2009), consider competition between nomads and settlers over resources use, mainly grazing and water resources, among the main causes of conflicts and violence. Despite this, little emphasis is given to setting genuine legislation or empowering the native administration to address these conflicts. According to Shazali (1999), the failure of pastoralists to defend their rights may be partly explained by their political marginalization. On the other hand pastoralists themselves need to have the capacity to perform effective community organization that can result in selection of more dedicated and active bodies or persons to represent them.

Conflicts arise between farmers and herders or Silaim and Ahamda because animals coming for water usually destroy some of the sorghum farms, leading to conflicts and sometimes violence. This happened intensively during the period 1982-1988. The area witnessed seasonal conflicts that usually involved government authorities resulting in sending the cases to courts. Range and pasture administration exerted intensive efforts to settle the problem without significant success. Later, leaders from the two tribes sat together with the concerned farmers and set a regulation for the time of water use and for the routes and directions to be used by the herders in order to avoid damaging farms during times of intensive use. After leaders set the customary system, use of the water area and grazing around it became more organized, with less risk of conflict.

Local leaders are often the most experienced and best placed individuals to achieve practical solutions for existing problems. Additionally, they are respected by their people and their word is more honored by members of the tribe than is the word of an unrelated government official. This demonstrates the need to investigate the mechanisms by which these customary laws are made and how they are managed, so that some of these customary laws could be empowered and institutionalized within the sanctions and acts of natural resources departments.

The importance of pastoral resource governance has received international and regional concern, as it is considered an important contribution in a sector that is undervalued. Regional efforts for promoting pastoralism include the Policy Framework for Pastoralism in Africa which is an initiative ignited by the Department of Rural Economy and Agriculture of the African Union which aim to promote policies that can contribute to the development of rural economy and improve livelihoods and promote rights of African pastoralists. Its aim is to mobilize and coordinate political commitment to pastoral development in Africa, and ensure involvement of pastoralists in sustainable development that secure rational access to pastoral resources.



Background On Natural Resources Used By Pastoralists In Sudan

Pasture, land, water and livestock are the main components of pastoralist systems influenced by rangeland management. Vegetation cover is by nature more diversified and constitutes the most dynamic component in the management process.

The two terms *range* and *pasture* are used interchangeably in many texts even within some publications of wide coverage, but there is a difference between them as detailed in the second expert meeting on harmonizing forest-related definitions for use by various stakeholders (FAO, 2002). Rangelands are mainly natural, native and have social, economic and environmental importance; while pasture is more influenced by human activity (*planted or intensively altered by management*) with an objective oriented more towards animal production.

Rangelands in the Sudan form a huge natural resource; they constitute various types of grazing lands, which vary from open grasslands to seasonal watercourses, flood plains, river banks and associated islands, woodlands, hills and mountain slopes (Zaroug, 2000). The natural rangelands include herbaceous (mainly grass and forbs) and shrubby covers, and naturally forested areas. Vegetation intensity and diversity become richer from north to south, across the different ecological zones of semi desert, low and high rainfall savannah, flood plains and mountain areas.

According to the Ministry of Animal Resource, in 2004 Sudan had livestock estimated at more than 140 million heads. Sudan is the first among Arab countries according to the number of livestock (AOAD, 1996), though it must be said that most livestock population estimations in Sudan are based on the results of the census held in the 70's with a pre-determined rate of increase which may not be reliable under changing environmental conditions (for example, the drought of 1984). Sudan is ranked among the top countries according to the percentage of families that depend on livestock as a main component of their income, accounting for about 80% of those living in the rural areas.

Water is the determinant factor of rangeland use in Sudan, leaving some areas under-utilized due to lack of water, while other areas are overgrazed due to water availability, especially around permanent water sources. Rains are the main source of water during the rainy season. In the summer, or dry season, some of the pastoralists may go to river banks, streams and water yards, while others may use wells, "Edud,"², "Ruhud"³ and Hafirs"⁴.

Common Property Resources (CPR) is the condition where natural resources are owned, managed and/ or used by several users, simultaneously or sequentially. More than 90% of the national herd is raised under an open grazing system where resources such as pasture and water are common properties and their use based on inherited and communally recognized means (Darag, 1988). Use of CPR usually raises the issue of competition and governance especially when the rights and means of access are unclear. Under this system some areas around villages and tribal territories are known to be customarily within tribal authorities and those who do not belong to the tribe may need permission to use these areas. An *example of this is the "hawakeer"* in Darfur (Abduljalil, 2006).

²Shallow well in an area of high water table usually used seasonally

³depressed water collection sites (used mainly during summer for human consumption and villages-based livestock)

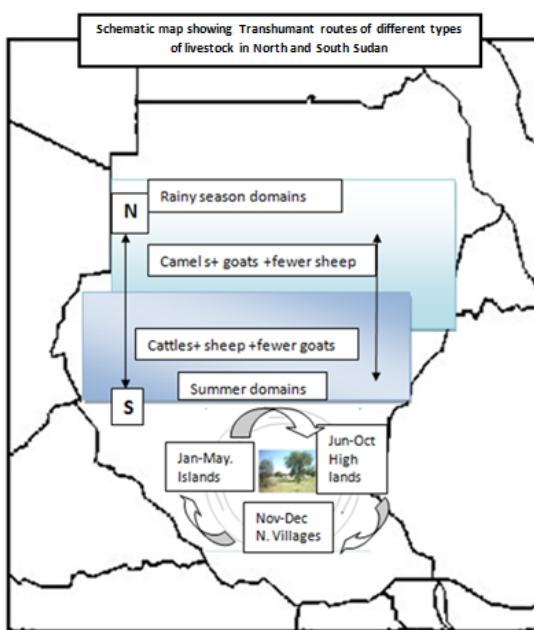
⁴ Man made water pools usually used after the rainy season end



Mobility is one of the most prominent features of pastoralism in the Sudan. Nomads cannot stay all year in one place as they must seek better forage and water, usually moving seasonally to other sites when range and water resources became depleted. In north and central Sudan they move from the summer (dry) season domains in the southern parts of central Sudan to the rainy season domains in northern parts of savannah and semi desert areas to escape mud and irritating flies, following traditionally known transhumance routes. This movement is one of the best adapted and effective means to provide for livestock needs in a variable environment. According to Niamir (1991) livestock mobility is one of the major ways in which African pastoralists have managed uncertainty and risk in arid lands. It is the only way that enables nomads to cope with (or benefit most from) the variation and to manage or escape drought (Oba and Lusigi, 1987). There are many schematic maps showing the locations of the livestock routes based on traditional and customary practices, but these maps are not approved by surveying authorities.

According to Gaiballa and Abukasawi (2004), in South Sudan as shown in the schematic⁵ map below, the pattern of movement practiced is different but still regulated by traditional know-how. It is characterized by resting in three different domains:

- Camping around villages (Nov - Dec). This is the time of crop harvesting, where crop residues are available, and where water is to some extent attainable. Most of the villages are not far from streams and rivers.
- Islands domains (Jan – May). This is a relatively dry period of the year, and the time when water is problematic in other areas.
- Rainy season domains (June – October). This is the time of movement to the high lands, where herders escape the flooded islands and the crop farms. This is the time when water always becomes available by the collection of rain in natural depressions, or at seasonal streams.



Trees provide an important part of the animal feed in semi-arid and savannah areas, especially during the summer. They are the main source of feed for browsing animals, mainly camels and goats. Acacia trees mainly “seyal”⁶*Acacia tortilis*, “talih” *Acacia seyal*, and “Kitir” *Acacia melifera* are among known browse trees in these areas. The total forest area in Sudan accounts for 17% percent of its total land area (FAO, 2001). Browsing is not only confined to forested areas, it also includes other areas of herbaceous cover intermingled with scattered trees and shrubs. Abusuwar (2007) reported that, forests in Upper Nile state in South Sudan represent important grazing resources for pastoralists during summer and are used heavily. Therefore, it was estimated that, in tropical savanna, browse from trees and shrubs provides animal feed during critical seasons, particularly on ranges where grasslands are

associated with open stands of trees and shrubs (Le Houerou, 1980).

⁵ Schematic map designed by the author to illustrate the movement pattern in north and south Sudan

⁶ Local names

The rangeland vegetation cover in Sudan has severely deteriorated, particularly in semi desert and low rainfall savanna ecological zones, which constitute 80% of the total rangeland areas (Muna *et.al*, 2004). According to HCENR (2003) the deterioration is attributed to expansion of mechanized and traditional rain-fed cultivation, seasonal fires which remove 15-30% of the annual production of range plants, deforestation, excessive grazing by large livestock populations concentrated around perennial sources of water and wet season grazing areas and recurrent droughts. In addition to overall vegetation change and decline, there is also a decline of some key species like perennial *Andropogon gayanus* or some species which have become endangered such as *Belephairs linarifolia*.

National Constitutions, Legislation And Commissions Influencing Access To And Use Of Natural Resources By Pastoralists

Use of common lands is organized by customs and traditional rules that have long been recognized by local communities. According to Adams et al (2006), in Anglo-Egyptian times, governance was customary and flexible with pastoralists free to use pasture and free standing water within tribal areas, while boundaries between tribes were defended by the condominium government but could be crossed after negotiating permissions. Customary land tenure systems were administered for decades by the Native Authority (native traditional leaders) (Mustafa, 2008), a system where leaders were masters, supervisors, and controllers of the practices and uses of resources and even other related social aspects. They had the authority to endorse and protect traditional regulations governing the use of pastoral resources. They even usually had the power to punish for misuses and to solve conflicts when they occurred.

All members within each community are traditionally known to respect regulations set by the native system. Pastoralists benefited from this system because they were living in remote areas where government representation was limited, compared with villagers or settled farmers. Although regulations set by native systems are effective, acceptable, practical and based on rooted indigenous experience, they have not been strongly acknowledged or supported in the last three decades, especially after abolishment of the native administration system in 1971. Subsequent federal and/or state natural resources laws issued in Sudan proved to have a negative impact on access and use of these resources, failing to cater to the needs of rangeland users effectively. Before 1925 when mechanized rain-fed farming started to spread, pastoralists used to move freely in vast open rangelands without facing difficulties in accessing sufficient fodder and water. As mechanized rain-fed farming increased the need to organize land use became necessary, and many acts and laws that have been issued have had an impact on pastoralism.

Acts Affecting Land and Natural Resource Management

Prior to 1977 the issue of conservation of the natural resources was handled through the establishment of protected areas rather than as part of a holistic planning process. In 1991 The Higher Council for environment and Natural Resources was established whose primary mandate was to coordinate the field of environment and natural resources. The National Comprehensive Strategy (1992 – 2002) represents real progress in national planning towards integration of environment and development on national and regional levels. Natural resource management, including rangelands and pastoralists, are addressed in the Sudan National Comprehensive Strategy only as policy guidance but have not been practically developed into laws governing rangeland use. Among the most influential acts are:-



- Unregistered Land Act of 1970, which stated that all unregistered lands of any kind are governmental property. Pastoralists are still allowed to use open lands unless they have been allocated by the government for other use. As a result of this act investors began to register lands for big investment like private agricultural farms without considering the disturbance to pastoral systems. Farmers had the advantage of gaining allotments of vast areas for crop farming, while livestock herders were far from the decision-making process.
- The 1971 Act that abolished the Native Administration has further aggravated the marginalization resulting from Unregistered Land Act by removing from positions of policy influence those that understood and represented pastoralists.
- The Regional Government Act of 1980 divided Sudan into six regions and the subsequent Local Government Act of 1991 which divided it into nine states, followed by the act of 2003 which divided the country into twenty-six states. These acts led to the decentralization and devolution of natural resource policies to the state level, but were not followed by strong co-ordination between the central government and the states, or among the states. This resulted in many problems in the use of transhumance routes including double taxing and sometimes conflicts. States did not coordinate well with the central government in relation to building the capacity of staff working in areas and fields related to pastoral aspects. The states further left funding of rangeland activities at the locality levels, where these activities were not among their funding priorities, due to limited budgets.

Role of the Range and Pasture Administration

The Range and Pasture Administration (RPA) is the government-appointed authority responsible for managing rangelands and organizing their use, but its role has become less effective with the decentralization of resources management. All natural resources, including rangelands, are managed at state level with very limited co-ordination or control by the central Ministries of Agriculture and Animal Resources. Additionally, the RPA has a history of being transferred from one ministry to another since the seventies. This year (2011) it was transferred from the Ministry of Agriculture to the Ministry of Animal Resources. Lack of a stable organizational position has greatly reduced its administrative and technical effectiveness. Its relationship to different ministries and connections to regulations and laws related to different ministries has been muddled, inhibiting the development of pastoral communities and rangelands. In almost all states, including Darfur, rangeland acts are proposed and raised to the states' parliaments for approval, but a lack of concern for these issues at the state level leaves these processes unfinished.

Pasture and water are two linked resources while land constitutes the spatial dimension for them. Pastoralists need land where both pasture and water are available at the right times. Land tenure, the way in which land is held or owned, therefore is the key issue to resource use (Elhadary, 2010).

Natural resources and land tenure policies, legislation and related acts and/or ordinances are all determinant factors for natural resource use and management. But land tenure is so critical because it determines access to other resources and therefore the success of a livelihood strategy. When a livelihood strategy, and therefore the possible survival of a group of people, is felt to be at risk, conflict to protect or gain access to the necessary resources can result. Competition among farmers and herders over land or natural resources more generally are considered by many authors to be among the main reasons local level conflict and violence occur (Siddig *et.al*, 2007). In Sudan, pastoralists' access to land is still an issue of concern and source of conflicts. It is one of the main factors affecting pastoralism, evident through blocked transhumance routes, closing of watering areas, the enlargement of rain-fed and irrigation



agricultural schemes such as in the Gedarif area in eastern Sudan and in the Blue Nile area. The establishment of a big project like the Kennana sugar plantation between Blue Nile and White Nile is an example of how grazing lands are fragmented and reduce, and how transhumance routes are blocked. Not only is there spatial shrinkage but also a decrease in the range and quality of plants as a result of intensive grazing on remaining grazing lands. According to the RPA (1993) rangelands in Sudan have witnessed sizable shrinkage also as a result of urbanization. As noted above, the abolition of the Native Administration system in 1971 has limited the power and control owned by nomads' leaders, giving room for investors to expand into unregistered lands. Land is then demarcated for such mechanized farms and big agricultural schemes.

There is no central approved act or law regulating or clearly protecting rangelands. Grazing land tenure is governed by local regulations and customary land rights, supervised by tribal leaders. There have been many attempts by the RPA to develop regulation to support rangelands, but so far without success. Many acts have been proposed at the state level but are either not approved by the state parliament or approved but not legally endorsed, even in Darfur where conflicts demonstrate the impact of competition over reduced rangeland. This makes it difficult to recognize and protect rangelands or routes. Unlike forests, rangelands are easily lost under the Unregistered Land Act of 1970 (now repealed), where the routes of *Kenna* and *Rufaa* tribes in central Sudan were lost, and according to Bakhtan (2006) rangelands and routes of the *Misserya* tribe were blocked by oil fields around *El Muglad* town.

According to Mustafa (2008) some state acts like the Regulation of Use of Agricultural Machinery in North Kordofan State Act 2002, which banned the use of agricultural machinery north of lat. 13° N. were produced. However, in practice these acts have not been enforced and farmers continue to plant crops in this area without being prohibited by concerned authorities.

Although the Forest Act of 2002 includes more than one item about the protection of range lands,

Taliq: a customary law adopted long ago, mainly in areas with intensive sorghum production, such as Gedarif in eastern Sudan and in Kordofan state, and also in the Darfur region, where by mid-January (nearly two months after harvest period), all crop fields with their remaining crop residues are available for grazing and crossing. Owners of these farms have no legal position to prohibit anyone using the crop residues or the farm land for the purpose of livestock herding.

Farshat albahar and Elmasharej: The area covered by vegetation at the river bank after the flooding of White Nile recedes, is named locally "Farshat albahar". Herders from *Silaim* and *Ahamda* tribes in White Nile State have the right to use this area mainly during the summer period (April – May). They use passages through gardens named locally *Elmasharej* which means permanent passages for watering animals. They are demarcated and protected by native authorities (leaders).

it is designed to protect reserved forest areas, particularly where grazing is allowed in some of these forests like the Lambwa forest in Sennar state in central Sudan, but has no clear provision for enforcing those items regarding rangelands.

Legislation related to access and use of water by pastoralists is one of the weakest areas of rangeland resources governance. Pastoralists greatly depend on the use of seasonal water and grasslands whose coverage varies from year to year. As noted above, both

grazing and water are necessary together and as with grazing land, competition over water



source becomes more acute during the dry seasons when it is most scarce. Similar to land, there is no law protecting or providing for the use of water by pastoralists.

Customary Laws And Local Practices

There have been many customary laws adopted by pastoralists in Sudan throughout the generations, including controlling the use of tribal territories, time of using water wells and crop residues and defining certain water points to be used, although some of them are no longer valid or have eroded with time becoming less suited to the prevailing pattern of natural resources use.

Customary practices of grazing resources use include *Talig*, *Farshat* and *Elbahar*, among others. *Talig*, for example, is a system organizing the use of crop residues after the harvesting period. It is particularly important in areas intensively covered by wide spread rain fed mechanized farming, and where herders need space and feed for their animals late in the rainy season when they are migrating back to summer domains in the south parts of central Sudan.

Dar and hakoora are two words commonly used in western Sudan; they refer to dominant customary practices related to ownership and right of use of rangeland areas for grazing. Gardud Elkhail in the south part of White Nile state is a good case study for the importance of customary laws, reflecting how they can work and be effective. This area is located close to two pastoralist's tribes namely Silaim and Ahamda in south White Nile state of central Sudan.

Although customary laws are not enforced in the way that legislation is, neither within the government system nor within the range and pasture frame of authority, in many circumstances they are used as a reference for settling disputes and conflict resolution. This indicates that they are still respected by the local communities and can be used to suit resource management despite not having been formalized and having lost some of their power since the abolition of the native administrative system. It seems important to reconsider the enhancement of these laws. They evolved as a result of long indigenous experience that consider the peculiarities of the concerned communities and have been tested over a long period of time.

It is also important to develop participatory research as an essential contribution to the discourse on environmental governance and to assess the workability, suitability and possible validity of selected customary laws, aiming at proving their usefulness and defending their enforcement within official and legal system.

Discussion

Pastoralism is a system which contributes significantly to the national economy, to society and to the environment. It is a livelihood system as well as a system of production which supports a significant portion of Sudan's population.

Dar and *Hakoora* are areas belonging to specific tribes, mostly allocated to them during the colonial period. *Dar* means *home or land* of a specific tribe while *Hakoore* (from the local word *Hikir*) means authority and restriction of use. The two words together mean (we own the land and only us have the authority to use it). The tribes that came later in certain areas may be given the right to use the *Hakoora*, but will not have the right to own it (as a *Dar*). *Salamat* tribe in South Darfur shares grazing lands with the *Taysha* tribe where the latter tribe has the *Hakoora*.



Pastoralists are often blamed for the deterioration of rangelands and thought to be the cause of conflicts. Accusations of causing range deterioration site keeping herd sizes beyond the carrying capacity of the rangelands. The "Tragedy of the Commons" is used by many authors to support the idea that pastoralists are behind deterioration of rangelands (Hardin, 1986). In fact it is a "Tragedy of **Negligence**". The concept of the tragedy of the commons is based on the idea that livestock numbers continue to increase even with limited carrying capacity leading to over-use. More recent range management concepts, according to Behnke and Scoones (1992), raised the issue of rethinking range management under the condition that in semi-arid range ecology is at non-equilibrium state with regards to multiple factors (e.g. climate variations) and range degradation is not based only on utilization levels imposed by the number of livestock as expressed in carrying capacity. This means that degradation of the rangeland cannot simply be attributed to large numbers of livestock raised by pastoralists.

A further aggravation of the problem of rangeland deterioration is climate change, defined as the change in long-term average weather over time and differing from climate variability which is the variations in the mean state of climate on all temporal and pastoral scales beyond that of individuals' weather events like droughts and floods (USAID, 2007). Many studies including IFAD (2007) and Yousif (2009) listed climate change among the reasons leading to the deterioration of natural rangelands in Sudan, implying that pastoralists' herding practices may need to adapt to climate change. This will require additional research as well as raising of awareness.

Livestock marketing is a forgotten opportunity that if properly mobilized could be used to improve pastoralists' livelihoods. According to a comprehensive study held by PAN African program (Yacob, 2002) covering Sudan, Ethiopia and Kenya, livestock marketing is an important dimension in rural development, yet has long been neglected. They emphasize the critical internal information gap on livestock marketing, and inadequate provision of animal healthcare.

A new challenge facing the fate of pastoralism in southern parts of central Sudan is how the dispute between the government of National Unity and the Government of South Sudan is going to be resolved in the three areas of interface; Abyei, the Nuba Mountains, and the Blue Nile area. The 2005 Comprehensive Peace Agreement (CPA) with its protocols does not clearly address aspects of natural resources use. There are many pastoral tribes whose normal migration routes cross borders in these areas. Among them, the "Mysseria", "Hawazma" and "Rufaa" traditionally migrate south during the dry season and have traditionally witnessed conflicts between these tribes and the neighboring tribes in the South. Likewise, several tribes in the South have traditionally migrated north. The CPA concentrates more on political sovereign border issues rather than regional cross-border issues though transhumance routes that are directly related to conflict and are affected by the implementation of the CPA. In this area land tenure is problematic and still under the fate of political push and pull. There is a hope that this situation will be settled for the benefit of all.

All those who are supposed to value the importance of pastoralism and to promote its development are implicated in the negligence of rangeland management. In fact little concern is given by related bodies whether governmental or non-governmental to this vital sector, reflected by many factors including:

- Lack of legislation to protect and organize the use of rangeland resources and maintain the rights of pastoralists regarding access to these resources



- Limited capacity of the Range and Pasture Administration to perform its leading role in development of pastoral systems (capacity building, lobbying and advocacy). The administration has been suffering from high turnover of qualified staff, inadequate financial support and no legislation governing rangelands use
- The Pastoralists' Unions have weak presentation among decision makers
- Limited support from NGOs, expressed in limited projects directly supporting pastoralists
- Lack of leadership, strategic thinking or vision for the rangelands

The RPA does not possess the capacity to perform effective range management practices and monitoring and lack even available technologies such as remote sensing (RS) and Geographical Information System (GIS) for monitoring and management decision making. According to Paul and Tueller (2000), traditional methods of rangeland assessment have often been time consuming and have not always been successful in terms of accurately measuring the amount of forage produced over large areas of rangeland. The future of rangeland resource development and management is dependent upon increased scientific capacity with remote sensing technology able to contribute to the provision of information for a variety of rangeland resource management applications.

Conclusions

Pastoralism in Sudan constitutes a livelihood based upon unique land and resource use strategies upon which a large section of the population depends with significant economic, social and environmental importance. Pastoralism as a system is facing many challenges that are leading to its transformation and deterioration. It is not true that pastoralists are the sole cause behind system deterioration. Irrational land-use, expansion of agricultural schemes and climate change are all among the factors endangering the adaptive capacity of this system. Deterioration of the system can be largely attributed to the negligence of different actors in their responsibilities to the pastoral communities, including both governmental and non-governmental bodies, as well as a need for international concern to be articulated through direct interventions, since support in this respect is still limited.

The Range and Pasture Administration as primary authority assigned to support pastoralists has not received significant international support in terms of capacity building projects or empowerment, especially when compared with that provided to the Forests National Corporation.

There is a lack of legislation addressing pastoralists' access to resources. In the absence of any legislation protecting rangelands and resource users' right to rangelands, The Unregistered Lands Act of 1970 essentially facilitates the transfer of vast rangelands areas for the benefit of agricultural expansion.

Customary laws have been weakened after abolishment of the Native Administration system. These should not be ignored; rather they should be supported and used as a guide considering the respect and compliance they receive from the local communities. Research for testing their suitability may be needed to support their enforcement.

Climate change is among the subjects receiving international concern. It is intimately linked with natural resource management and therefore with pastoralism. It is one among several changing factors negatively affecting pastoralism forcing herding practices to adapt (Hartmann and Sugulle, 2009). Research may also be required to assess the impact of herding practices and traditional range management on climate change.



Conflicts over resources at the three border areas between Sudan and South Sudan will not be solved based on the CPA. They will remain a significant problem for pastoralism in Sudan until the political push and pull between Sudan and South Sudan are resolved.

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