Securing Pastoralism in East and West Africa:
Protecting and Promoting Livestock Mobility

Sudan Desk Review

Final Version

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Hawazma cattle, South Kordofan, March 2008
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Introduction

This is one of a series of desk reviews produced as part of the project 'Securing Pastoralism in East and West Africa: Protecting and Promoting Livestock Mobility'. It summarises the general context affecting livestock mobility in Sudan but focuses in particular on Western Sudan (Kordofan and Darfur). The reasons for this are:

- This is an area where seasonal transhumance has particular significance, and where there are examples of specific actions taken to protect livestock routes.
- North/South Kordofan and North/South Darfur are the only states which have passed legislation governing livestock mobility.
- Limited time and capacity prevented detailed consideration of the situation in other parts of such a vast country.

Livestock mobility in Sudan is important for both seasonal transhumance and access to markets. This paper concentrates on the first of these, largely because it is the focus of most of the experiences and documents available for review. This bias perhaps reflects the growing attention being given to resource-based conflict in Sudan, within which mobility is an important factor.

The desk review was asked to focus on two issues:

1. The context affecting livestock mobility.
2. The work of key development and research actors involved in the promotion of livestock mobility.

The report has five sections:

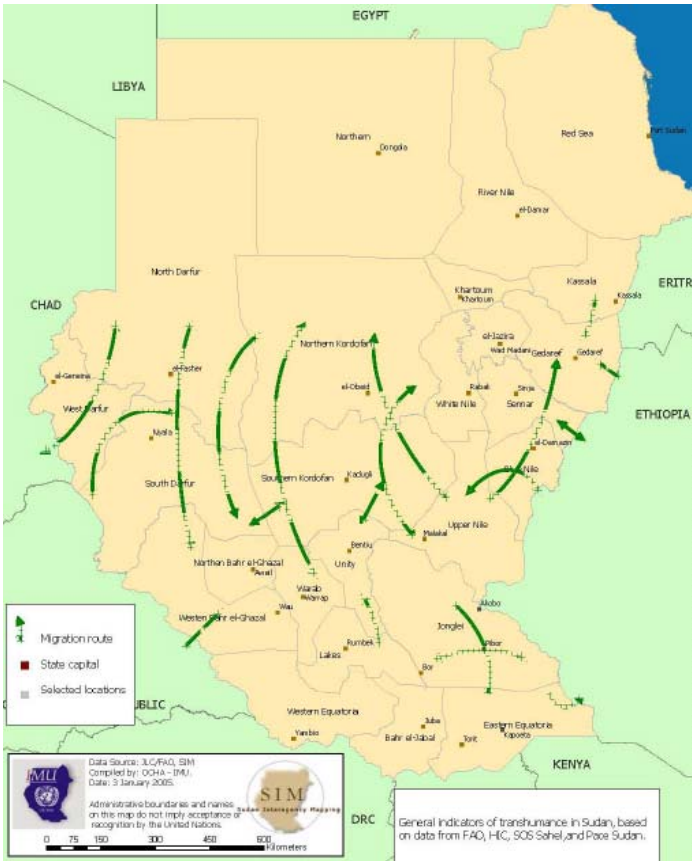
1. A brief overview of the nature of pastoralism in Sudan.
2. An analysis of the institutional context affecting livestock mobility in Sudan.
3. An illustration of how livestock mobility is changing in Western Sudan.
4. A summary of the work of key development and research actors in promoting livestock mobility in Western Sudan.
5. An indication of the issues that need to be addressed.

The assistance of the SOS Sahel UK team in Khartoum, and the various people who shared documents and ideas, is warmly acknowledged.

1 The nature of pastoralism in Sudan

Pastoralism in Sudan involves around one-fifth of its population of approximately 35m people and accounts for almost 80% of its livestock wealth (Babiker 2002). There are wide ecological variations across the country: in the arid north the mean annual rainfall is less than 200mm; in the sub-humid south it exceeds 800mm. In the transition zone between the two, mobile livestock production and crop production co-exist, although less amicably than in the past.

Fig. 1: Overview of transhumance in Sudan



A characteristic feature of livestock movement in Sudan is seasonal transhumance between southern dry-season grazing and northern wet-season grazing (fig. 1). A long-standing system of stock routes facilitates the movement of livestock through agricultural and forest areas in the central zone.

Most of these routes were demarcated during the colonial period, although some in North Kordofan are said to be several hundred years old (UNDP 2004). They are gazetted areas of 100-400km long and 20-200m wide, their size depending on the intensity of agriculture, the presence of villages and the natural contours of the land.

Not simply transit routes from A to B, the stock routes must accommodate pastoralists' complete social life, such as trade, ceremonies and family commitments. Several studies emphasise the social/cultural as well as the environmental/economic significance of mobility for pastoralists: being mobile is associated with meeting relatives, making new contacts, and acquiring information. To move or to travel is seen as a way of developing knowledge and becoming educated. Even when mobility becomes a less dominant aspect of a group's livelihood, it may remain an important component of its identity (Larsen/Hassan 2003).

In the south of the country livestock movement more commonly involves vertical transhumance over relatively short distances: cattle move from wet-season pastures on high ground to dry-season grazing on lowland river banks or islands. There are no demarcated routes in the Sobat Basin in Upper Nile State, for example, which accommodates livestock from North and South Kordofan and from While Nile and Blue Nile states during the summer season (El Tahir 2002). With the exception of the

mechanised schemes in the north-western part of Upper Nile, its cultivated areas are generally small, and incoming groups maintain good relations with their hosts.

As illustrated in fig. 1, livestock movements cross state boundaries, which may present administrative and policy challenges in the context of decentralisation. Prolonged periods of drought can also trigger much more extensive migration across international borders into Chad, Libya and Ethiopia.

A second characteristic of pastoralism in Sudan is its strong export orientation. Sudan is one of the leading livestock exporting countries in the region, and most of these animals come from the pastoral sector. Livestock production used to generate around 20% of national foreign exchange earnings, although since the oil boom this has fallen to 8%. In recent years annual exports have averaged over one million live sheep, 150,000 camels, and 10,000 tonnes of red meat (Young et al 2005). Annual export earnings from live animals and meat are thought to be around US$170m (Aklilu 2002).

Animals are trekked to terminal markets along well-defined routes, which differ from the corridors that facilitate access to seasonal pasture. International funding from agencies such as IFAD in the 1980s was directed towards improving these routes through the development of wateryards and the rehabilitation of rangeland. There are four main livestock export channels:

- Live sheep, goats and racing camels through Port Sudan.
- Chilled red meat by air from Khartoum.
- Live camels cross-border to Egypt.
- Live camels cross-border to Libya.

The last of these, and to some extent also the cross-border trade with Egypt, operates informally (Young et al 2005).

Historically, pastoralism was not a self-contained economy. The concept of pastoralists and farmers as distinct groups emerged in the 19th century under Turco-Egyptian rule; prior to this period their leadership was unified. In the pre-colonial era pastoralism represented an important route to accumulation and political power, contrasting sharply with pastoralists' loss of political status today (Shazali 2002). The next section summarises some of the main factors in the policy, legislative and institutional environment which have contributed to the progressive marginalisation not just of pastoralists but of smallholder farmers as well.[1]

[1] It should be noted that mobile forms of land use in Sudan are important not just for pastoralists but for farmers who practice shifting cultivation.

2 The institutional context affecting livestock mobility in Sudan

The general trend in recent decades has been a progressive reduction in livestock mobility across Sudan. However, there are some significant continuities between the colonial and post-colonial periods, the impact of which is still being felt today.

2.1 National development priorities

Successive governments from the colonial to the present have systematically favoured the 'modern' agricultural sector over small-holder farming or pastoralism. The first significant instance of the withdrawal of usufruct rights came in 1927 with the start of the Gezira Scheme. Some of the key pieces of legislation which have privileged large-scale investment above the rights of small farmers and pastoralists are summarised in Table 1.

The current steer for development in Sudan is the Comprehensive National Strategy, 1992-2002. Its revision stopped when the Comprehensive Peace Agreement was signed and has so far not resumed (Babiker/Pantuliano 2006). Its four objectives for pastoralism demonstrate a continued bias in favour of agricultural modernisation:

- To increase the number of livestock from 60m to 180m.
- To increase livestock exports 20-fold.
- To modernise pastoralism through commercial ranches.
- To integrate livestock in irrigation schemes.

Table 1: Legislation facilitating land alienation in rural areas

1970	Unregistered Land Act declared all unregistered land to be government property and abolished customary land use rights, making possible the seizure of land for investors.
1971	Abolition of the Native Administration, which removed the main mechanism for conflict resolution at the local level.
1974	Law of Criminal Trespass further restricted rights of access for pastoralists and small farmers.
1975	Mechanised Farming Corporation Ordinance gave bureaucrats authority to allocate land to individuals for investment in farming.
1983	Civil Transaction Act reaffirmed state ownership of non-registered land but acknowledged the value of customary usufruct rights and re-opened the possibility of registering those rights.
1990	Encouragement of Investment Act, the concessions under which typically privilege outside stakeholders with links to Khartoum-based elites. It was under this Act that the controversial Jandail Plantation in North Kordofan was approved, which granted 38,000 feddans to the Malaysian-African Agricultural Company, ostensibly for the planting of acacia for gum Arabic export.[2] The area encompasses village farmland, livestock corridors and wet season grazing (Babiker 2008).

A further illustration of this bias is the licence which has been granted the mechanised farming sector. In 1940 the first rain-fed mechanised schemes were opened up in Eastern Sudan, their main objective being to grow sorghum for Sudanese troops fighting in North Africa during World War Two (Ahmed 2008). Mechanised schemes expanded rapidly after independence: their area is thought to

[2] One feddan equals 1.04 acres.

have grown by over 500% since the 1960s (UNDP 2004).[3] Research across six states highlights their elitist nature: 48% of scheme owners were previously government employees and 31% previously traders; none had been involved in agriculture before.[4] Most came from outside the state in question, and 47% had a university education (Ijaimi 2006).

These mechanised schemes have appropriated prime grazing and smallholder farmland, blocked livestock routes, closed water points, increased socio-economic differentiation (as landless farmers become labourers, for example), and led to conflict between resource users. At the same time they are poorly managed and are making a diminishing contribution to agricultural GDP. Land is not always used for the purpose it was allocated. In Blue Nile State, for example, one company was granted over 200,000 feddans, of which not more than 10% is cultivated annually (Ahmed 2008).

2.2 Legislation governing land and natural resources

Neither the colonial nor the post-colonial administrations have recognised pastoralists' rights to land, other than usufruct rights (Babiker 2008). To date, no federal law sanctions pastoralists' rights over natural resources. This leaves small farmers and pastoralists vulnerable to alienation from communal land by wealthier investors.

Land policy is characterised by legal dualism (IFPRI 2006): on the one hand there are the entitlements enjoyed by individuals who have registered land within the formal system, and on the other, the unregistered rights customarily exercised on a group basis. At the same time, new entitlements are being extended to groups such as urban investors and the military. The Interim Constitution recognises the equivalent status of customary law within the legal framework but still focuses on rights of use not ownership (Babiker 2008). Under the Comprehensive Peace Agreement (CPA) a series of Land Commissions was envisaged – one at federal level, one for Southern Sudan, and a series of state commissions in conflict-affected areas such as South Kordofan. These have not yet started work. In addition, the CPA requires the Government of National Unity and the state governments to pass legislation devolving responsibility for managing natural resources to local communities, but this is also facing some resistance (Babiker 2008).

Under law, grazing is treated in only passive terms as residual. Proposed legislation by the Range and Pasture Administration would demarcate farming and grazing areas and limit the current tendency of the National Forests Corporation to annex grazing areas and declare them 'reserve forests' (Babiker 2008). However, range management does not receive the attention it requires at either federal or state level. Regulating mobility makes little sense unless complementary investments are also made in the quality of range resources.

[3] An exact figure of the size of land under these schemes is difficult to ascertain given the existence of many unauthorised/undemarcated schemes which are started by investors without prior technical arrangements with the authorities, possibly occupying as much as 17m feddans of land (Ijaimi 2006).
[4] It should be noted that rich pastoralists have also invested in these schemes.

2.3 Legislation governing livestock mobility

There is no national legislation regulating livestock mobility, and no comprehensive map of the livestock corridors for the whole country; documentation of livestock routes takes place at state and locality levels. A draft law was submitted to Parliament in 1996 but not passed due to a dispute between the Ministry of Agriculture and the Ministry of Animal Resources as to which had overriding authority. Only four states have passed legislation governing mobility: North Kordofan, South Kordofan, North Darfur and South Darfur. Gedarif and Sennar states have developed proposals for livestock routes but these have not yet been passed. The content of this legislation is very similar, and is summarised in Box 1.

Box 1: Examples of the main provisions in state legislation governing livestock routes

1. Prohibited actions inside the routes:
    a. Crop planting or other investment except when approved by the minister or when related to livestock development/proper use of the rangeland.
    b. Using services along the routes for purposes contradictory to grazing.
    c. Setting fires that expose the rangeland to harmful burning.
    d. Removal, change or obliteration of boundary signs or trees demarcating the routes.
    e. Cutting trees prohibited by forest law.
    f. Practising trade that affects the environment (charcoal, firewood).
    g. Establishing permanent villages, except for nomads.
    h. Introducing or burying any material harmful to the rangeland.
2. Closure of routes and water sources.
3. Power of the Ministry: the Minister or the Administration is entitled to enter the route for inspection and to give directions concerning adherence to the rules. They have the right to sue those who do not abide by the rules. Animals that do not comply with the stipulated health regulations are not allowed to use the routes and are subject to quarantine in coordination with the Ministry of Animal Wealth.
4. Pesticides, herbicides and drugs: use of these materials must be in line with laws and regulations to avoid harmful residual effects along the routes or near water sources.

The lack of an appropriate legislative framework at federal level undermines any efforts made at state level. Livestock cross the boundaries of states whose regulations may not be compatible. States have weak implementation capacity and few means of enforcing the laws they pass. Decentralisation of responsibility for managing range resources is taking place without a parallel investment in capacity; state-level appointments are often of people with insufficient expertise. Federal endorsement of state legislation might strengthen their hand. More generally, an overarching framework is required that takes the interests of the whole ecosystem into account and that can reconcile the interests of different users and investors.

2.4 Institutional confusion: local government restructuring

The abolition of the Native Administration in 1970 created a major institutional vacuum at just the time local-level conflicts were increasing with the expansion of irrigated and rain-fed farming (Shazali 2002). The Native Administration had been key to managing mobility in the colonial period. Colonial officials in North Sudan used grazing lines to enforce the separation of cultivation and grazing. Local Orders stipulated the timing and direction of pastoral movements along the livestock corridors, the opening and closing of water points and the latest date for harvest,

after which livestock could enter fields and graze the crop residues. Farming was forbidden in the corridors, and agreements were periodically facilitated between groups in order to head off conflict (Box 2).

Box 2
'It was agreed that Felatta on returning from the North in the darat [harvest] *not proceed to Dar Habania beyond Abu Salaa, Mugrana, Dikeir and Musanad on the east of Abu Salaa, Umbalola west of Abu Salaa….'*
Extract from agreement between Habania and Felatta tribes in Darfur in 1951 (Takana 2008)

The government attempted to reconstitute the Native Administration with the 1987 Native Administration Bill and the 1998 Local Government Act. In practice it politicised local institutions through the exercise of patron-client ties (Siddig et al 2007). At lower levels the formal and customary structures overlap, creating a confused authority, particularly in remoter rural areas (Table 2). Alienation of land for mechanised farming, for example, passes through the formal land allocation system without reference to the customary. No credible alternative to the Native Administration has been established, and no institution appears capable of articulating pastoralists' interests vis-à-vis the state (Shazali 2002).

Table 2: Hierarchy of formal and customary authority [UNDP 2007]

Formal	Customary
Federal	-
State	-
Province (Commission)	Tribe (Nazir, now Amir)
Locality (*Mahalia*)	Section (Omda)
Village	Clan (Sheikh)

2.5 Institutional chaos: ministerial restructuring

Responsibility for pastoralism in Sudan has been described as 'institutional chaos' (Manger 2002). In the colonial era the management of range and water was integrated. In the immediate post-colonial period government prioritised water development in isolation from its impact on rangelands. Parallel to the abolition of the Native Administration there were repeated ministerial and departmental restructurings, the net result of which tended to compromise pastoralists' interests (Shazali 2002). The Range and Pasture Administration, for example, was separated from the Rural Water Development Corporation, after which co-ordination between the two has been 'virtually non-existent' (UNDP 2007).

The Range and Pasture Administration occupies a marginal position within the Ministry of Agriculture and receives irregular and insignificant funding. While policy-makers appreciate the importance of livestock in supplying domestic and export markets, they do not appear to appreciate the importance of sound management of the natural resource base which allows the export sector to flourish.

2.6 Regulations governing livestock marketing

Most of the issues discussed above affect the seasonal movement of livestock for pasture and water. But the movement of livestock to markets is also constrained by institutional factors. According to Aklilu, 'Sudan probably applies the most excessive and complex fees and taxation system on livestock trading in the region' (2002). Since most states rely on livestock taxes as a primary source of revenue, taxes and fees can

constitute as much as 27% of the cost of an exported animal, or even 40% if fodder is included (Aklilu 2002). Table 3 contains an anecdotal illustration of this from a speech by the former chairman of the Livestock and Meat Export Council at a conference in Khartoum.

Since the demise of the Livestock and Meat Marketing Corporation in 1992 there is no single entity managing the domestic livestock trade (export trade is managed by the Ministry of Foreign Trade).

Table 3: Livestock taxes on sheep for export [Aklilu 2002][5]

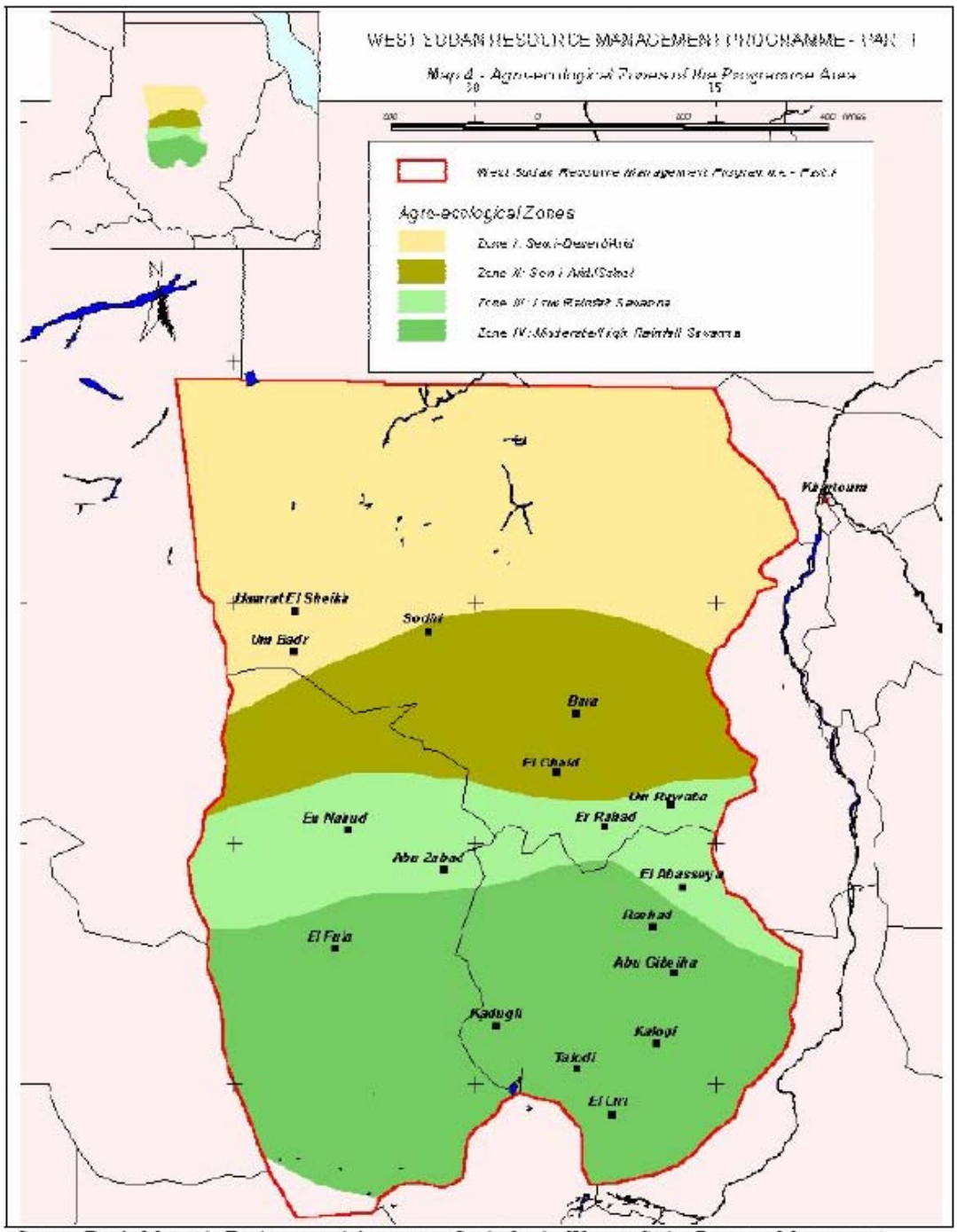
Point of purchase in Darfur:	1. Product tax per head
	2. Livestock market charges
Passing through North Kordofan:	3. Sodiri Local Council tax
After reaching Omdurman:	4. Ombada Local Council tax
	5. Animal Resources Bank Service Charges
From Omdurman to the Kadero quarantine area:	6. Kenana and El Rashad scheme
Before reaching Kadero:	7. Halfaiya Council tax
Before entering Kadero quarantine the Ministry collects:	8. Quarantine entrance fees
	9. Vaccination fees
	10. Costs of blood tests
On loading for transfer to the exporting port:	11. Kenana and El Rashad scheme (2nd time)
Where the main road to Port Sudan crosses the Hantoob Bridge:	12. Kenana and El Rashad scheme (3rd time)
In Gezira State:	13. Political work support
	14. Jihad tax
	15. Gezira state support
Crossing the FAO-supported El Rashad scheme:	16. Kenana and El Rashad scheme (4th time)
Arriving at Port Sudan:	17. Public litter collection fee
	18. Quarantine entrance fees
Other taxes include:	19. Finance tax (2%)
	20. Transport tax (3%)
	21. Tax for the new port at Suakin
	22. Export tax
	23. Business profit tax
	24. Occasional other unspecified taxes

[5] The Ministry of Finance exempted traders from numbers 5, 6, 7, 16 and 19 for a period of three months to promote exports (*check period when this applied*).

3 The changing nature of livestock mobility in Western Sudan

Livestock movement in Western Sudan is characterised by north-south seasonal movement along livestock corridors. This movement is a response to the agro-ecological conditions which, from north to south, range from semi-desert, through semi-arid and then low rainfall savanna, to moderate/high rainfall savanna (fig. 2).

Fig. 2: Agro-ecological zones in Kordofan [source: IFPRI 2006 p.7]



Source: Dr. A. Merzouk, Environmental Assessment Study for the Western Sudan Resource Management Programme , Kordofan States – March 2004, IFAD

Two generic terms describe nomadic pastoralist groups in Western Sudan – *abbala* camel herders and *baggara* cattle herders. In recent decades both groups have been caught in a pincer movement: the *abbala* camels have less access to the arid north during droughts, but their movement south is impeded by the dense farming populations in central Kordofan and central/south Darfur and by the risk of livestock disease. The options open to the *baggara* cattle owners have been similarly squeezed by the unplanned expansion of mechanised rain-fed farming in the central belt and by the civil war in the south, which has undermined historical patterns of co-operation with southern Sudanese pastoral groups.

This section illustrates how livestock mobility is changing in both Kordofan and Darfur. These changes are not unique to this part of Sudan, however. As a brief comparison, Box 3 illustrates similar processes at work in two other states, and shows how conflict, drought, the weakening of traditional institutions and land rights, and a policy bias towards large-scale agriculture all combine to reduce mobility.

Box 3
Factors curtailing livestock mobility in Red Sea and Blue Nile States

Red Sea State (Babiker/Pantuliano 2006):

- Land alienation driven by a policy bias towards agriculture; key grazing reserves were taken during the colonial period for cotton cultivation, for example.
- The undermining of traditional Beja leadership and the creation of an unsympathetic and artificial ruling elite which was unable to articulate genuine Beja interests.
- Conflict with Egypt in the north and the Eastern Front in the south, which reduced access to key grazing areas.
- A lack of appropriate investment in rural areas which exacerbated the economic pull factor of Port Sudan and thus the loss of household labour, requiring families to minimise the distances covered in seasonal transhumance.

Blue Nile State (Ahmed 2008):

- Uncontrolled agricultural expansion on the clay plains, which has blocked livestock routes and access to watering points. Pastoralists now follow the tracks of the commercial trucks in their seasonal movements through the mechanised schemes. As these tracks are narrow, crop damage and consequent conflict between scheme owners and pastoralists both increase.
- Prolonged drought in the north of the area and civil war in the south, which have concentrated livestock in substantially reduced grazing areas on the plain.
- 'The most serious threat to pastoral production in the Blue Nile State rests in the growing inability of the pastoralists to maintain their rights to grazing land.'

3.1 Kordofan

Context
Kordofan occupies a central position in Sudan, at the crossroads of trade routes that run from west to east and south to north, and within easy reach of the Nile Valley. Unlike the historical Darfur Sultanate it never had a unified political authority; Kordofan's fluid tribes were allocated to territorial nazirates by the British (Manger 2002).

Repeated efforts have been made since the colonial period to give formal state recognition to stock routes in Kordofan (*maraheel*). There are 24 main routes (plus many subsidiary routes) of 100-450km in length (Table 4), each with around 10 camping or resting stations known as *manzala*. The wet grazing areas (*makharif*) where pastoralists stay for 2-3 months are approximately 1.5-2.5km in radius (El Tahir 2002). Their location near roadsides, permanent villages or the railway allows access to markets and helps to cement social ties. The only small stock taken on seasonal migration are those to be sold to livestock traders or locally for cash.[6] Other small stock are kept at the home base, where women, children and the elderly now usually remain, and where pastoralists pursue other livelihood activities (Siddig et al 2007).

Table 4: Livestock routes in Kordofan

Tribe	Number of routes	Total length (km)
Hawazma	15	2748
Misseriya Zurug	3	510
Misseriya Humur	6	1410
	24	4668

The routes are demarcated by marks or pegs of two kinds:

- Tubular iron of 4in diameter buried in the ground, with one metre above ground painted in black & white.
- Trees painted in white on the stem about two metres from the ground.

Pastoralists traditionally notify the sheikh or omda before entering the area and pay compensation if required. The level of compensation is determined by multiple criteria (Box 4).

Box 4
Criteria determining compensation

- The amount of crop damage.
- The stage of growth of the crop (the closer to harvest, the higher the penalty).
- The price of the crop at the time of damage.
- The number of animals which entered the field.
- Whether or not they were accompanied by a herdsman (if yes, this is said to indicate intent).
- Whether or not an apology was given.

El Tahir 2002

North Kordofan state passed a law governing stock routes in 1999. A subsequent Act in 2002 banned the use of agricultural machinery north of latitude 13 degrees north – but land is still ploughed by tractors. The 1999 Act had limited geographical coverage: it did not apply to the north-west of the state where there

[6] The nomadic Kababish of North Kordofan have hardy sheep which can withstand long-distance migration and more arid environments.

was intense conflict between pastoralists in Dar Kababish and Dar Hamid (Shazali 2002). There were no herder or farmer representatives on its conflict resolution committee; the lack of real contact with the grassroots by the committee's town-based members left it too remote to deal with problems. South Kordofan state passed two laws in 2000 and 2002 regulating agriculture and pasture. None of these laws in either state has been enforced, partly due to lack of clear enforcement mechanisms and partly due to lack of investment in services along the routes, such as water, pasture, markets and veterinary services (Siddig et al 2007).

Changing mobility

Abbala pastoralists in the northern part of North Kordofan traditionally made long-range migrations to the *gizu* grazing in North Darfur and as far as Dongola in the Northern State. However, recent droughts have brought them south earlier and further – as far as the Nuba Mountains and beyond. At the same time the civil war in the south has caused *baggara* pastoralists to stay longer in their wet-season areas. Until the late 1980s pastoralists tended to move in small camps with relatively small numbers of livestock; with growing insecurity the sizes of these groups have increased.

The following factors have influenced resource management practices in general in Kordofan, and constrained livestock mobility in particular:

- Prolonged drought periods, which have relocated pastoralists closer to farming areas.
- Man-made environmental degradation, such as deforestation to expand agricultural land and the growth of the oil industry. The development of oil fields in South Kordofan and their associated infrastructure (roads, pipeline) has blocked stock routes, reduced forest areas and farmland, and obstructed access to water (Siddig et al 2007).
- Expansion of mechanised farming, particularly on the clay plains.
- Demographic pressure, with an increase in both human and livestock numbers (El Tahir 2007 and UNDP 2008).
- Inaccessibility of some areas due to insecurity.
- Shifts in land use practices by settled communities, such as burning crop residues thus preventing pastoralists from grazing their animals on them.
- Gum Arabic producers preventing pastoralists from grazing their stock on foliage; this has become more significant as the gum Arabic belt has shifted south since the droughts of the 1980s (Siddig et al 2007).
- Small-scale settlements being started in wet-season grazing areas (El Tahir 2002).

One result of all the above is that the main livestock corridors have become less viable, prompting pastoralists to use alternative routes which may encroach on farmland. Levels of acrimony between farmers and herders have increased: one study cites an example of farmers deliberately neglecting maintenance of their *hafirs*,[7] because these would otherwise attract pastoralists (IFPRI 2006). Local-level mechanisms to manage such conflict have been weakened (particularly through the changes to the Native Administration). Table 5, from the same study, illustrates the various conflicts now taking place between different resource users in Kordofan, almost all of which suggest problems relating to livestock mobility.

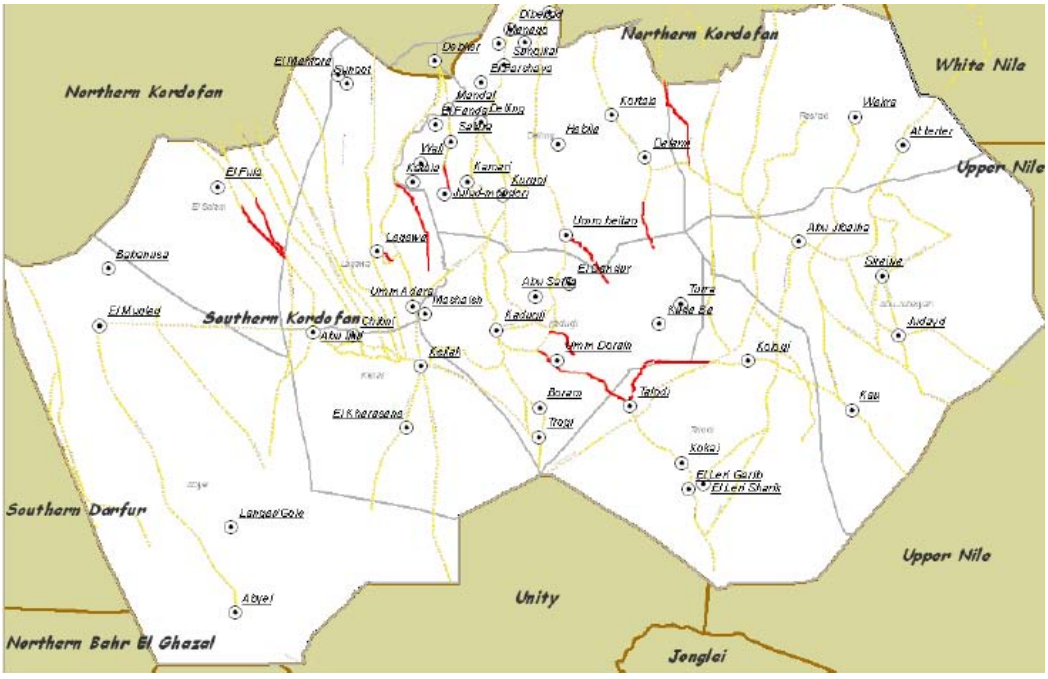
[7] Man-made water catchment reservoirs.

Table 5: Types of conflict analysed in 20 case studies [source: IFPRI 2006 p.71][8]

	Types of conflict	Number of cases studied
I	**Conflict between pastoralists and farmers**	**10**
	Over land and pasture around stock routes and in village lands	7
	Over use of *hafirs*	2
	Around plots cultivated as vegetable gardens	1
II	**Conflict between "new settlers" and *Dar*-holding tribes**	**4**
III	**Conflict between pastoralists/farmers and large private investors and the state**	**5**
	Over mechanized agriculture schemes	2
	Over areas covered by oil investments	2
	Over areas covered by other private investments	1
IV	**Conflict between upstream and downstream water users**	**1**
	Total	**20**

In addition to these general factors, the civil war in Sudan has had a particular impact on livestock mobility and relationships between resource users in South Kordofan (the state was on the frontline). The war caused 'an extensive breakdown of the monitoring, policing and conflict resolution mechanisms of both traditional and legal land management systems' (UNDP 2008). Some livestock corridors were abandoned, new ones opened, and others blocked.[9] Fig. 3 shows blocked livestock routes in South Kordofan in red.

Fig 3: Livestock routes in South Kordofan, those blocked in red [source: UNDP 2008]



[8] The authors emphasise that this merely illustrates the range of case studies reviewed, and gives no indication of the relative frequency of different kinds of conflict in Kordofan.
[9] Bashir/Tahir [*check source*] mention mine removal as an additional consideration when re-opening livestock routes in South Kordofan.

The 'war clientelism' practised by the Sudanese state, in which certain groups are co-opted as protagonists in the conflict on the state's behalf, has also shifted the balance of power between resource users and eroded trust between communities (IFPRI 2006).[10] The arrival of returnees after the war is further exacerbating tensions (Pantuliano 2007). South Kordofan has so far failed to constitute the Land Commission mandated by the CPA, nor has it passed a Land Act, thus perpetuating a dangerous vacuum in policy direction and coordination in a highly sensitive area.

3.2 Darfur

Context

The spatial distribution of groups in Darfur has not changed significantly from the time of the Sultanate (Pantuliano 2007a). Broadly, the northern semi-arid belt is dominated by nomadic camel herders (*abbala*), the relatively wetter southern parts by cattle herders (*baggara*), and the centre by farming communities such as the Fur. The colonial administration demarcated 11 livestock routes through Darfur, totalling nearly 5000km in length, which are still officially recognised today (Table 6). They are wider at the northern end, where crop productivity is lower, and narrower in the fertile areas, such as around El Fasher and Kebkabiya. The 1991 Transhumance Act for North Darfur regulates these routes but is widely held to be ineffective because of lack of proper implementation.

Table 6: Stock routes in Darfur [source: Young et al 2005, p.55]

Northern end	Southern end	Total length (km)
El Wakhaim	Um Dafoug	606
El Wakhaim	Fora Boranga	588
El Wakhaim	Garsilla	380
Wadi Hawar	Dar El Ta'aisha	673
El Ba'ashim	Dar Fellata	467
Um Siddir	Dar Rizeigat	386
Um Sayala	Dar Fellata	357
Birka Jowro	Towal	371
Um Sayala	Dar Rizeigat	400
Khazan Kulkul	Dar Rizeigat	252
Tabous	Dar Rizeigat	391

In the pre-colonial period land concessions (*hakura*) were given to clients by the Sultanate. The British built on this by allocating a territory, or *dar*, to various settled and nomadic tribes – but not to others, such as Arab camel herders from the north. Without a *dar*, these groups relied on customary rights to move and graze their livestock in areas dominated by farmers. Such a system requires a high degree of cooperation to work. Until the 1980s there was a 'relaxed reciprocity' (de Waal 2004) between pastoralists and farmers who exploited different ecologies – the farmers on the sandy soils and pastoralists on the clay (Shazali 2002). Livestock fertilised harvested fields and helped villagers transport grain to market; transhumant families purchased cereals from their hosts and herded their livestock in return for a cash or

[10] This is also true of Darfur.

in-kind donation (OCHA et al 2005); according to villagers in El Dour, a camping place for nomads close to Kutum, the elementary school was rehabilitated in 1970 with help from Galool camel-owning pastoralists (El Tahir 2002).

Changing mobility

The prolonged drought of the 1980s undermined these symbiotic relationships, as both groups started to converge on the clay soils. Pastoralists from the arid north were forced to move south, where farming in the central rangelands was already expanding. Deepening processes of commercialisation were also changing patterns of ownership and investment: wealthy farmers and pastoralists both moved into mechanised farming (sorghum); enclosures expanded, particularly in the south; large-scale traders began raising livestock for export on communal grazing land, leading to a change in herd composition (more sheep in the north and more cattle in the south and west); crop residues began to be sold rather than left for pastoralists; and the expansion of farmland blocked migration routes (Young et al 2005). These processes were exacerbated by population growth: one study estimates that population density in Darfur has risen from 3/km^2 in 1956 to 18/km^2 in 2003 (Sudanese Pastoralism Society 2007).

As a result, the livestock routes have become a source of conflict, due to the following factors:

- More animals moving at one time, as extended families move together for security.
- Administrative errors, such as inadequate demarcation of the routes.
- Expansion of agriculture, including the use of tractors and irrigated farming.
- Obstruction of water points and burning of pastoral land.
- Enclosures, including pastoral enclosures for fodder production. (El Tahir 2002)

Growing tensions between mobile pastoralists and settled farmers (and between different pastoralist groups) in a context of environmental stress has been a factor in the current conflict in Darfur, although not its primary cause (Pantuliano 2007a). The war has further changed and constrained livestock mobility. Research carried out in 2005 showed that the *abbala* camels were south of the Jebel Marra mountains when they would normally be much farther north on the southern fringes of the Sahara, while the *baggara* cattle were confined in the south (fig. 4: Young et al 2005). The concentration of livestock is increasing the risk of disease and putting more pressure on water sources and pasture.

Different parties to the conflict now control different parts of the routes. Table 7 shows the impact of conflict on the routes for Arab groups from the Wadi Shallal and Wadi Shoba areas of Kebkabiya; the socially and environmentally important *gizu* grazing in the north of Darfur is now inaccessible (see Box 5).

Fig 4: Conflict reducing mobility [source: Young et al 2005, p.73]

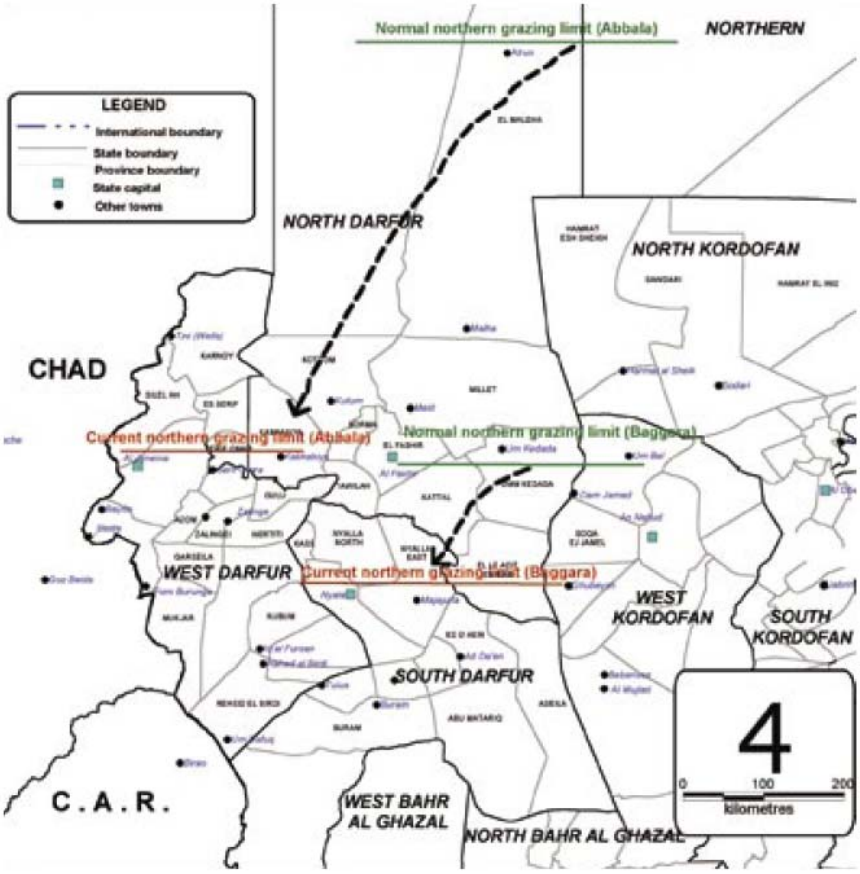


Table 7: Changes to stock routes in Darfur [source: Young et al 2005, p.131]

Season	Month	Area on the migratory route, pre-crisis	During the crisis
Winter – dry season	January	Wadi Azoum – El Tiraig	Area inaccessible
	February	Wadi Saleh	
	March	Kibar	
Summer – hot season	April	Um Dokhan	
	May	Wadi Salih – El Tiraig	Wadi Azoum
	June	Wadi Azoum – Saga	Wadi Azoum/Saga, in an area called Gaili, which used to be a transit point. In 2003 herders had to stay at this point throughout June and July.
Autumn – rainy season	July	Kebkabiya – Baray	Saga
	August	Abusnuot– El Dor	Kebkabiya – Um Bari
	Sep/Oct	El Wakhaim – El Gisou	Jidar and Kebkabiya
Winter – dry season	November	Kebkabiya area	
	December	Um Bari – Saga	Area inaccessible

The conflict in Darfur has also affected the livestock trade routes. The route to Libya was closed in 2003; the southern route to Omdurman and Egypt is also closed, while the northern route is insecure. Traders are finding alternative routes further south,

but at the cost of a longer trek and the risk of movement through tsetse-infested areas. The combination of blocked routes and collapsed livestock markets means that pastoralists are unable to produce and sell enough animals to earn an adequate living. They thus resort to alternative income-generating activities which bring them into further conflict with other groups, such as farming and firewood collection (Young et al 2007a).

Box 5: Gizu grazing

The Gizu is a grazing area of particular significance. Straddling the international boundaries between Sudan, Libya and Chad, it is frequented by pastoralists from all three countries. The Sudan part of the Gizu is in North Darfur, and is also used by pastoralists from North Kordofan during the wet season.

The grazing consists of ephemeral succulent plants with high moisture content, which are triggered by substantial summer rains. It can support animals for 4-5 months without the need for water. Its quality was described by Harrison in 1955 (Shazali 2002):

> *'Only about one year in two is there sufficient rainfall to give a 'gizzu' [which] is best only where shower[s] have been heaviest. Yet there is a time lag of about three months between the end of the rains, in August, and the springing up of the 'gizzu' in November… The 'gizzu' grazing then lasts and grows green from November to February.*
>
> *The 'gizzu' grazing is the best grazing enjoyed by camels and sheep, better than any other grazing anywhere at any time, better than rains grazing in higher rainfall areas. In a year with good 'gizzu' the female camels are said to all give calves, while in a year without 'gizzu' only half of them do so. Some Kababish travel 500 miles to the 'gizzu', the longest seasonal migration of any Sudan tribe.'*

Newbold witnessed the annual migration of the Kababish herds to the Gizu in 1924:

> *'Towards the end of September a Northward movement takes place and the herds bit by bit spread out fanwise into the great gizzu area… This movement is not a casual drifting but an organised migration demanding preparation. I had the luck to witness the departure of Sheikh Ali el Tom's own herds… Great bustle attended their send-off. Herd-boys were clamorous to be provided with clothes, tea and sugar. Saddles were had out and mended. Sick camels were weeded out. The Nazir's son, El Tom, was on his feet all day supervising the distribution of stores… Eventually the herds had their last drink, with plenty of rock salt and moved off… [A]nimal disease is almost unknown on the gizzu and the herds are putting on wool against the winter and fat from the succulent grasses.'*

With the increase in summer rains since the early 1990s some Kababish families extended their *gizu* grazing northwards from the Middle to the Lower Wadi Howar (Kröpelin et al 2007). However, the conflict in Darfur has now made the area inaccessible.

4 Actors involved in the protection or promotion of livestock mobility

4.1 Administrative Committee for Stock Routes Delineation – Darfur States

This committee was established by Presidential decree in March 2005 with the purpose of delineating and demarcating the livestock routes and preparing projects to supply essential services along them. It involved a Higher Committee and three state-level committees, which included representatives from the administration, chiefs, Farmers Union and Pastoral Union. Although covering all three states in Darfur, South Darfur was prioritised having taken into account the time of year and the security situation. Route Committees were established in nine Localities of South Darfur.

The Committee contracted the Sudanese Pastoralism Society (PAS), a local NGO, to carry out the demarcation process, which they did with funding from IUCN. Table 8 summarises the progress in route delineation to date.

Table 8: Route delineation in South Darfur [Source: Sudanese Pastoralism Society 2007]

Route name	Km	Interventions	Year
Totah	220	▪ Provision of water and rehabilitation of 9 water points (WP). ▪ Range rehabilitation: water spreading, fodder planting (at 3 sites) and range reseeding. ▪ Education: establishment of 6 primary schools. ▪ Veterinary services at 2 sites.	2005
Domayia- Dar Falatta	245	▪ Provision of water and rehabilitation of 8 WP. ▪ Range rehabilitation and protection: fodder planting (2 sites), range reseeding (9 sites). ▪ Education: establishment of 6 primary schools. ▪ Veterinary services: establishment of two mobile hospitals and 2 animal breeding centres. ▪ Establishment of police points at two areas.	2005
Wadi Hawar-Dar Taaisha	420	▪ Provision of water: drilling of 6 surface wells, 3 deep wells and 3 hand pumps. Excavation of 6 hafirs. ▪ Range rehabilitation: range reseeding around Sawani, and organization of range extension programmes. ▪ Education: establishment of 8 schools. ▪ Veterinary services: establishment of 4 mobile hospitals and training programmes. ▪ Establishment of police points at two sites.	2005
Samaha	132	*Interventions not listed*	2005
Dar Alsalam (Eastern route)	57	"	2005
Bigera Shailah	250	"	2006
Buram route being demarcated	250	"	2007
Total	**1574**		
Dehail Dabi			2008
Slaim-Wadaa			2008

Demarcation was carried out by fixing coloured cement posts 1-3 metres high at both sides of the route (150m in width) at intervals of 1-3km. The colours act as warning indicators to pastoralists: red meaning close to cultivation, yellow meaning further away but within reach of animals, and white meaning safe. Farms that fell either wholly or in part within the routes were compensated, to a value determined by the Locality Committees and the Native Administration. An initial report of this work suggests that the process lacked adequate stakeholder involvement but did reduce conflict. Other sources suggest that the process left both farmers and pastoralists dissatisfied, with farmers critical of their lack of inclusion in the commission and pastoralists critical of the narrow routes (Youssouf 2008).

A summary of this work is available (Sudanese Pastoralism Society 2007), and full documentation is underway. The main recommendations based on lessons learned from the process, distilled from the summary document, are given in Box 6.

Box 6: Recommendations based on learning from ACRD-DS process

- Strengthen participation of beneficiaries at the local level, especially in the process of fixing posts which should be done by both parties not by hired labour.
- Reliable data is a pre-requisite for success: the present situation with respect to natural resources, population number and distribution should be assessed.
- Delineated routes should be officially registered and directly linked to the State Range and Pasture Administration, which should be responsible for their future management and improvement, as well as the body to which violations are referred.
- The committees at Higher, State and Locality levels need mechanisms for follow-up and monitoring.
- Extension efforts, through group discussion and so on, are essential to the success and sustainability of this work, in order to promote sharing of natural resources between groups.
- Beneficiaries, including women, should be directly involved in implementation and management through resource management organisations/development committees.
- The Higher Committee should consider allocating a specific development fund to respond to proposals raised by communities.
- Route patrolling teams should be constituted, made up of pastoralists' scouts, farmers, and the Native Administration, to observe the situation along the routes prior to the movement of pastoralists and to report to the Locality Committee any violation.
- The status of surface and ground water resources and the availability of water for people, animals and crop production should be assessed.

4.2 Reduction of Resource-Based Conflict Project (RRBC), UNDP/SOS Sahel UK

The overall objective of this project is to contribute to the reduction of natural resource-based conflict between pastoralists and farmers and between different pastoralist groups. Its specific objectives are:

1. To promote institutional and legal reform in natural resource management to improve productivity and reduce conflict.
2. To strengthen capacity in government and civil society to manage natural resources and mitigate conflict.

3. To design and promote measures to reduce and better manage risk in pastoral livelihood systems.
4. To promote a culture of peace.
5. To develop and promote clearer strategies for pastoral and agro-pastoral livelihood development.

The project, which has just completed its first phase (2004-07), is based on the premise that the traditional natural resource tenure system was once effective in meeting the demands of pastoralists and farmers but has since been weakened by the factors discussed in sections 2 and 3. These have disrupted transhumance routes and forced pastoralists to move further south, leading to conflict with other land users.

The project covers Kordofan (implemented by SOS Sahel UK), the Sobat Basin (ACORD) and Upper Nile (Oxfam GB). Work initially planned in Darfur was abandoned due to insecurity. The project has three main elements: a community development fund for investing in shared assets to promote peace between communities, the mapping and demarcation of livestock routes, and extension, training and dissemination of peace messages with multiple stakeholders.

In North Kordofan five routes had been mapped by the end of 2006, involving a joint team of pastoralists, farmers, the Native Administration and government technical institutions (fig. 5).[11] The team was trained in natural resource management, conflict resolution, *judiya* (mediation), map preparation, use of GPS, and laws governing natural resources. A local patrolling team was established along each route to investigate the situation prior to movement and report any violations to the Range and Pasture Administration. In addition, three key wet-season grazing areas were rehabilitated, two emergency reserves were demarcated, and three other areas were closed for rehabilitation during the rainy season under the supervision of the Sheikh.

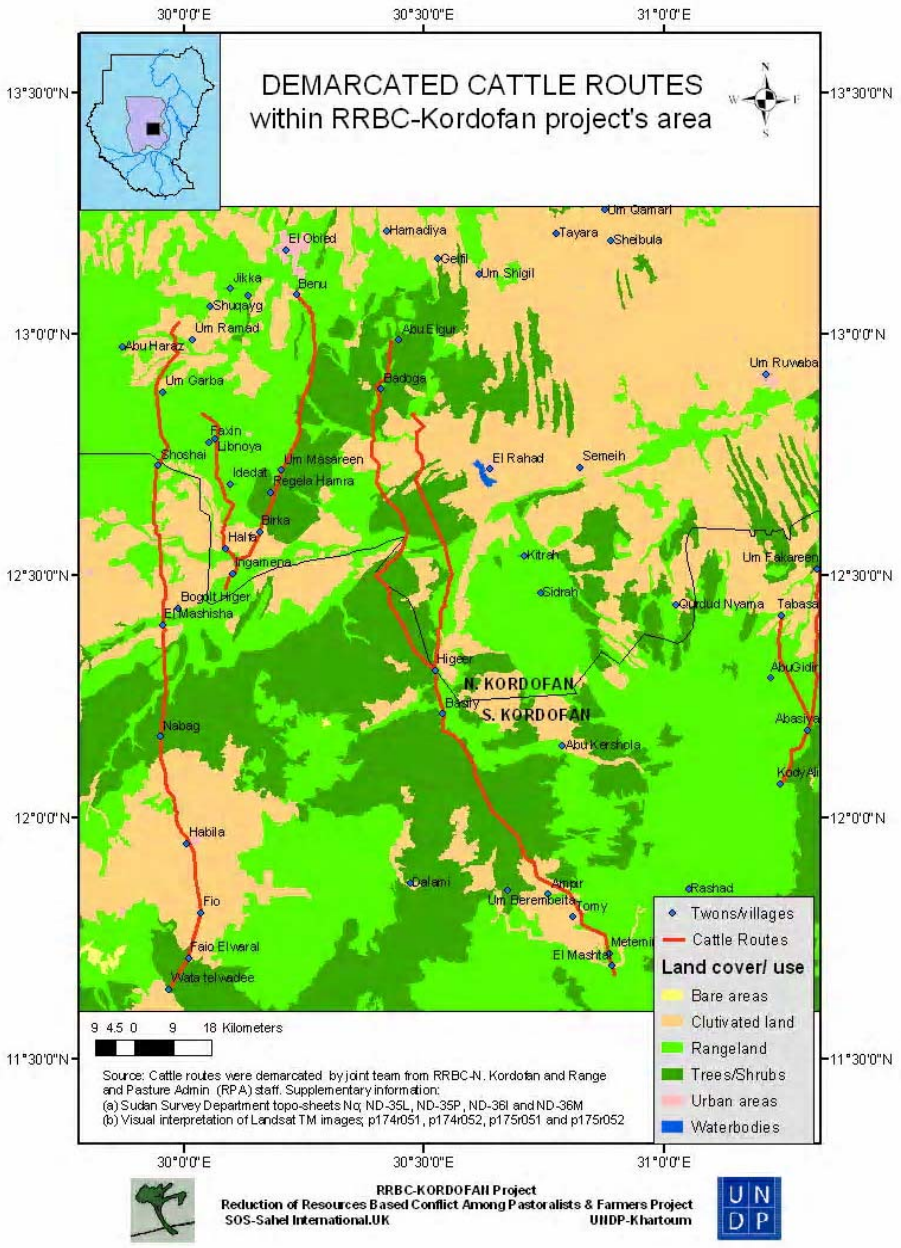
In South Kordofan four routes have been demarcated and mapped since 2006 using the same procedure as in North Kordofan, to a total length of 445km. These cross the boundaries between North and South Kordofan. According to the Pastoral Union in El Diling, the incidence of conflict with farmers has noticeably decreased (El Hassan 2007).

One important lesson is that the technical intervention in route mapping and demarcation must be complemented by investment in the institutions and skills to make the routes work. According to the project's 2007 evaluation:

> '[t]he most important achievement is the demarcation and mapping of stock routes together with the formation and training of mobile extension teams. This has clarified the status of routes, paved the way for better management and offered recognition of pastoralist rights.' (El Hassan 2007)

[11] The institutions through which the project has had to work (in the absence of others) have significant weaknesses. The Pastoral Union and Farmers Union formally represent the interests of farmers and pastoralists in Sudan but the quality of that representation is often questioned (given that they tend to be dominated by rural elites). However, this caveat about institutional effectiveness does not detract from the quality of the particular individuals involved in the demarcation teams and the respect they may enjoy locally.

Fig 5: Livestock routes demarcated by SOS Sahel UK in North Kordofan



There are few actors involved in route demarcation in North Kordofan. In South Kordofan, however, there are similar projects being implemented by DAD, IFAD/Ministry of Agriculture, and SOS Sahel UK/UNDP which are not well coordinated (UNDP 2008). The 2007 RRBC evaluation comments on inadequate attention being given to conflicts in the wet-season grazing areas while efforts are so concentrated on route demarcation. And it notes that these kinds of interventions (demarcation) 'become meaningless' if range resources are not also improved. An important lesson is that the livestock corridors will only work as part of a broader strategy to promote shared ownership and responsibility for the natural resource base as well as effective mechanisms through which access to resources by multiple users can be equitably negotiated and monitored.

4.3 Western Sudan Resources Management Programme (WSRMP), IFAD

This is a major (US$49m) programme targeted at an estimated 44,000 settled households and 17,000 pastoralist households living around 17 stock routes and six markets in Kordofan. It has an eight-year timeframe and began in 2005. Its activities include:

- Land zonation for herding and for traditional and mechanised farming to limit encroachment.
- Demarcation of stock routes based on land zonation and registration of the stock routes to herders' groups.
- Improved access to water for domestic and livestock use.
- Marketing modalities that improve the market value of the crop or animal sold.
- Improved coverage of extension services.
- Strengthening the role and accountability of community and local government organisations.

A significant problem at present is the lack of co-ordination between the WSRMP and the RRBC in Kordofan, which is leading to duplication of activities and differences in mode of implementation.

4.4 Sudan stock route project

Between 1985 and 1993 IFAD implemented a stock route project with the aim of stimulating meat production among traditional meat producers and ensuring flows of marketed livestock, with minimal trekking losses, from the project areas to meet domestic and export demand. Specific activities included improvement of water supplies and veterinary services along livestock trade routes.[12]

The project was implemented in an area running approximately 1000km west from Nyala in Darfur to Khartoum. Concerns about the condition of rangelands and water along the main (northern) route led to the parallel development of a secondary dry-season southern route.

According to IFAD, the construction of wateryards was the most important component of the project: 50 were operating by the project's close, which could be used by local communities and by pastoralists on seasonal migration as well as by livestock being trekked to market. The route is still considered to be successful, although some of the water points are now suffering from poor management.[13]

4.5 Research initiatives

a) Tufts University

A team of food security specialists from the Feinstein International Famine Center at Tufts University has been carrying out detailed livelihoods research in Darfur since 2004. It now plans to supplement this with additional qualitative research among specific groups of pastoralists living in the vicinity of the previous case study areas (Zalingei, Kutum and Kebkabiya). The assessment of the research team is that mobile

[12] NB: these are different from the livestock routes previously discussed which facilitate access to seasonal pasture/water.

[13] Further information can be found at: http://www.ifad.org/lrkm/region/pn/sd_155.htm

pastoralists in Darfur have received comparatively little attention from the international community and are now even harder to reach, partly because of security constraints and partly because adequate levels of trust have not been established (Young et al 2007b)

b) UNDP Threat and Risk Mapping Unit

UNDP's Threat and Risk Mapping Unit in Khartoum is developing an information management platform to support strategic planning, coordination and programming. It is generating risk analysis of key areas, such as South Kordofan, and overlaying available information about migratory routes with information such as the location of armed groups.

c) UNDP RRBC

UNDP's Reduction of Resource-Based Conflict project also commissioned some research on the experience of settlement schemes for pastoralists in Sudan (Sammani/Salih 2006). This reviewed 11 case studies of settlement on irrigated and rain-fed agricultural schemes. The authors note that these schemes were products of the commercially driven models of agricultural and economic development favoured by both colonial and post-colonial governments, and reflected the views of an urban-based elite that mobility was inherently backward and incompatible with service provision, effective administration and nation-building.

4.6 Other contacts

a) World Bank

The World Bank recently commissioned a study in Sennar, Blue Nile and While Nile States with a view to identifying one locality in each state where a project to improve livestock production and marketing will take place. A project plan has been formulated and is currently with the federal government. No further details are currently available.

5 Conclusion: issues to be addressed

If livestock mobility in Sudan is to be effectively protected and promoted, whether for seasonal transhumance or to access markets, the following areas will need attention.

1. Land
Sudan lacks a coherent institutional framework that can deal effectively with land issues. All the Land Commissions envisaged under the CPA need to be constituted quickly and begin their work. Recognition of customary rights to land, including communal land tenure for pastoralists, must be one of the elements included in any future land policy.

2. Agricultural expansion
According to Pantuliano (2007), agricultural expansion 'remains a key dynamic in sparking group conflict, mainly by disrupting pastoral movement, to which both drought and insecurity have contributed.' In particular, the planned and unplanned expansion of mechanised farming needs attention.

3. Livestock corridors
The status of migration routes and potential conflict flashpoints needs proper management and monitoring. Knowledge about the routes held by elders should be complemented with formal mapping which can substantiate claims and entitlements (Siddig et al 2007). Local re-negotiation of routes should make a realistic assessment of their contemporary viability and relevance given changing patterns of resource use (Shazali 2002). The success of efforts to delineate and demarcate migration routes depends on the levels of trust and confidence which all groups affected by the routes have in those processes. The utility of the routes will also be enhanced by greater investment in complementary service provision along or close to them, as well as for neighbouring communities.

4. Range management
The authority and capacity of the Range and Pasture Administration at both federal and state levels need strengthening. A clear strategy should be developed for range management and rehabilitation in Sudan, without which isolated interventions on livestock corridors, for example, will have little impact.

5. Attitudinal change
Shazali (2002) suggests that pastoralists in Sudan are commonly viewed as 'users' or 'consumers' of natural resources, on a par with charcoal makers, rather than as active producers, on a par with farmers or gum tappers. Greater understanding of the value of pastoral systems, and appreciation of the importance of mobility within them, is required.

In recent decades some pastoral groups have been perceived as allies of the state. Their impoverishment – particularly those without a *dar* (homeland) – has made them susceptible to co-option as militia in wider conflicts. This has further damaged their relationships with other groups. International agencies are starting to recognise that the relative neglect of pastoralists within their programmes is inequitable and counter-productive (Young et al 2007b).

6. Implementation of the CPA

Implementation of the provisions of the Comprehensive Peace Agreement is key to ensuring the future peace and stability of Sudan as a whole, and to putting in place a framework within which conflicts in different areas of the country can be addressed.

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