Pastoralism and Pastoral Policy Training
Second Testing Workshop Report

Shambat, Khartoum
25th to 28th March 2012

May 2012
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This workshop report is one of several published outputs as part of a major three-year research project on Pastoralism, Trade and Markets in Sudan, under the UNEP Sudan Integrated Environment Project. We would like to thank and acknowledge the funding and support for this workshop and the wider project from United Nations Environment Program for Sudan (UNEP Sudan), and UKaid from the Department for International Development. Special thanks are also extended to SOS Sahel International/Sudan office and the Nomads Development Council for their active support and engagement. We would also like to extend our special thanks to the workshop participants.
1. Background to this report

This training constituted a second round of testing of previously adapted material (first tested 19-21 November 2011) and also served as a platform to test new material adapted since then. This report therefore folds in and builds on the first test training report, included here to give a complete picture of the test training process and to preserve continuity.

2. Introduction

Many people believe that the crisis facing pastoralists in Sudan and wider eastern, western and southern African regions is a result of their production system. Pastoralism, characterized by seasonal mobility of livestock in search of nutritious pastures and water, is widely believed to be uneconomic and environmentally destructive no longer able to provide pastoralists with sustainable and decent livelihoods. The recent droughts in eastern Africa seem to confirm this, prompting policies, particularly in the face of global climate change, to settle pastoralists and introduce them to modern agricultural and livestock production techniques.

Past experience in Sudan has shown that such proposals have persistently failed, often exacerbating poverty, environmental degradation and conflict in many pastoral areas. Despite decades of empirical research, scientific evidence on the dynamics of dryland ecosystems and the strategies and institutions used by local people to exploit environmental diversity and unpredictability to their advantage, has failed to inform policy. The inability of local pastoral communities to articulate the rationale of their livelihood system and the scope and scale of its benefits to the economy, the environment and society further exacerbates their marginalisation.

This failure to inform policy has perpetuated the implementation of development interventions for pastoral development, many of which have undermined pastoral institutions and their strategies for responding to, among others, drought, disease and conflict. This scenario poses serious challenge to the sustainability of pastoralism as a livelihood system in Sudan's rangelands.

In order to contribute to addressing these challenges, the Feinstein International Centre of Tufts University, SOS Sahel International UK and the United Nations Environment Programme with technical support from the International Institute of Environment and Development are designing a training course on Pastoralism and Policy Options in Sudan. The Sudan training is being adapted from a similar training already designed for eastern Africa currently being implemented by various organisations in Ethiopia, Kenya and Tanzania.

The adaptation process in Sudan started in May 2011 with a workshop to test the validity of adapting the eastern Africa training to Sudan.¹ This workshop attended by a wide range of national actors including the Nomads Development Council endorsed the decision to

¹ See Validation workshop report for details.
adapt the training. The agreed next steps were to set-up a professional “Adaptation Team” (AT) consisting of expert resource people who would work with the Tufts/SOS Sahel team and IIED in adapting the training to the context of Sudan. The AT members have since been working on adapting the material, which was first tested in November 2011.

This document reports on the second test-training workshop.

2.1. Opening the workshop

After welcoming addresses by Mohammed Zain of Nomads Development Council, Abdel Hafiz Elobied and Helen Young of Tufts University and Salih Abdel Mageed Salih of SOS Sahel, an exercise using pastoral proverbs was implemented to enable participants to get to know each other – see Box 1.

Each proverb was split into two phrases, with each phrase given to one participant. Participants then had to find the participant with the ‘other half’ of their proverb and having done so, to interview each other – their name and professional affiliations, their interests and how they felt their proverb related to the training on pastoralism – and then present their partner to the other workshop participants. Annex 1 presents a list of participants.

This was followed by a brief history of the training (see Box 2), after which the workshop objectives and the roles of the participants were clarified.

The objectives of the workshop were:

- To test the logic, sequencing and relevance of the adapted material to the Sudan context.
- To build the capacity of the facilitators in using various tools to facilitate semi-structured participatory discussion including the introduction of scientific evidence at key moments.
- To identify areas requiring further work in both the content and facilitation.

The role of participants was explained as twofold: first, to participate as ‘participants’ to enable the testing of the materials and second, to assess and provide feedback on the logic and pertinence of the training content and approach. Annex 2 provides the details of participants’ assessments.

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### Box 1: Using proverbs

The facilitation team identified nine proverbs relevant to pastoralism before the workshop:

1. اما عندها ضنك بحاجي لىها ربيها
2. الليبرسما يبغطلي دقو
3. العود المالغيه شق ما يقول طق
4. التنسي كريت في الفرض تلف ذغ في جلدها
5. قتنا تور قلنا أحبو
6. سيد الرابية يلقح خضم البقرة
7. الرجلين عز العرب
8. شهدت كان هوزت يا هوية يا أبلا
9. الخريف اللين من شوافرو بين

### Box 2: History of pastoral training

1998: Training on Pastoralism and Policy 1st developed in West Africa (French)
2000: Pulaar version of training developed in West Africa
2002: West Africa training adapted to East Africa (English)
2007: Kiswahili version training developed for Tanzania
2008: East Africa training adapted to Ethiopia
2010: Institutionalisation of Ethiopian training
2011: Adaptation of East Africa training to Sudan
3. The dynamics of the pastoral system

Through use of scientific evidence and participants’ own experiences and knowledge, the workshop demonstrated how pastoralism is a ‘system’ composed of three ‘pillars’ or components – natural resources, livestock or the herd and the family and wider institutions – that are inter-related and are regulated by ecology and complex modes of social, political and economic organisation with livelihood strategies adapted to exploiting environmental variability characteristic of pastoral rangelands in Sudan. The different training sessions questioned some of the widely held beliefs that the dry rangelands of Sudan are intrinsically fragile ecosystems that can be ‘easily broken’, and that for various reasons pastoralism as a system has no future, particularly as we move into an increasingly climate constrained world in Sudan and the region more broadly. Annex 3 provides a detailed agenda.

The topics covered included the following:

3.1. Who and where are the pastoralists in Sudan?

The training started with a participatory exercise to identify who are the major pastoral groups in Sudan and where can they be found. This consisted of composing four sub-groups and asking each group to write down the name of all the pastoral groups they know onto “post-it” stickers (one pastoral group per sticker). Each group then posted their post-it stickers onto a map of Sudan – see the Figure below.

Through this exercise and the subsequent discussion the following issues were raised and discussed:

- There is a great diversity of pastoral groups in Sudan e.g. Bagara, Bushareen, Kawahla, Rizigat, Bani halba, Hamar, Awlad hamid etc
- Pastoralists are found throughout the country; they are not limited to one or two areas.
• Some pastoral groups are found in two or more countries - e.g. Rashaida.
• The various pastoral groups are interconnecting internally and across borders.
• It is believed that about 80% of Sudanese people are pastoralists, and there is diversity within the pastoral groups in terms of tribes, animals and local language.
• There exist conflicts between different pastoral groups over resource use.

3.2. The many and changing faces of pastoralism

In Sudan, pastoralism is characterised by huge diversity - in pastoral people, the environments in which they live, the species and breeds of livestock they raise, their cultural practices, their specific livelihood strategies and the way in which they are responding to both inside and outside pressures. But within this diversity, they share many problems including land alienation, poverty and conflict.

Pastoralists in Sudan are also highly differentiated by gender, age and wealth within their respective groups or tribes. Because of this, not all pastoralists are affected in the same way by problems of drought, land alienation, and conflict. Relations of power and processes of decision-making are also changing within society as a result of education, increasing involvement with markets, poverty and conflict. Pastoral systems in Sudan while sharing many common problems are highly diverse, complex and dynamic.
3.3. What is the future of pastoralism in Sudan?
In many respects, pastoralism and pastoralists are at cross-roads in Sudan with many doubting it has a future. The objective of the training was to explore these issues and establish whether or not it does have a future, and if it does, what are the policy issues that need to be addressed to ensure its future viability.

In order to begin to address this issue, participants were divided into three groups to discuss the following questions/scenarios:

**Scenario 1 "An Optimistic Scenario"**: Pastoralism is the most effective and efficient system to rear livestock in Sudan. The strategies used by pastoralists to respond to climate variability including drought – such as mobility - are the most appropriate. Sudan needs a livestock sector based on mobility.

**Scenario 2 "A pessimistic Scenario"**: The crisis facing pastoralists today is a result of their production system. The strategies they use to respond to climate variability including drought – such as mobility - are no longer as effective as they used to be. Sudan needs a modern livestock sector based on sedentary production techniques and mixed land use systems including irrigated agriculture.

**Scenario 3 "An Ambivalent Scenario"**: Pastoralism used to be an effective and viable system in the past; however, in recent years external pressures on pastoralism have been steadily increasing and in some regions escalated dramatically. Current trends include; expanding land under cultivation; urbanization; commercialization of livestock; increasing human and livestock numbers in the face of shrinking rangelands; multiple levels of protracted conflict; and weak or ineffective governance etc. These pressures affect all aspects of the pastoral system. Participants argued that land tenure legislations; land use planning and natural resource governance are important first steps to revert the decay in the viability of pastoralism system.
3.4. Pastoralism is a ‘system’

Pastoralism, like other production systems (e.g. farming or ranching), has an internal rationale and set of production and decision-making components that are inter-dependent and need to work together according to a set of rules for the system to work properly.

In order to demonstrate this, a participatory exercise was conducted with participants to identify the most important resources needed to practice pastoralism in Sudan. Through discussion, these were identified as: **natural resources**, **livestock** or the herd and the **family** and **wider social institutions**. These three resources constitute the **three ‘pillars’** or components of the pastoralism, and are common to all pastoral systems in Sudan. Other resources such as veterinary drugs or supplementary animal feeds are very important, but they are “enabling” factors that improve the productivity system. Similarly, government policy on land or livestock and institutions such as Native Administration while being critically important, are also external factors that can either support or undermine the pastoral system, but they are not intrinsic to the pastoral system.

![The Three Pillars](image)

The importance of this exercise is in demonstrating that policy and practice must recognise that pastoralism is a SYSTEM composed of three core inter-dependent components, and that to support the system, it must adopt a holistic approach. Narrow sector policies or activities on just one “pillar” of the system (e.g. water development or veterinary care or marketing) without considering the implications these interventions will have on the other two “pillars” of the system (e.g. stocking levels on seasonal pastures) risk undermining the pastoral system.

In order to understand how the whole pastoral system works, and how policy and practice can best support pastoralism, it is important to understand the dynamics of each of the three “pillars” of the system and how they interrelate and impact on each other.

3.5. Natural pastures are the major source of feed for livestock in a pastoral system and are found in diverse landscapes

Through discussion and the projection of photographs, participants agreed that in the pastoral areas of Sudan natural pastures are the major source of feed for livestock.
Although other resources such as cottonseed, hay, crop residues or irrigated pastures will improve livestock diet, for most pastoralists in Sudan such resources are either too expensive or increasingly difficult to access. Thus, given the importance of natural pastures to livestock reared in pastoral areas, it is important we understand their dynamics and the factors that influence their nutritional quality and quantity for this will impact on the productivity of livestock and the livelihoods of pastoral communities.

In Sudan, natural pastures and water are found in a wide variety of ecosystems. These range from arid and semi-arid savannah environments in the north of the country to higher rainfall grasslands to the south. Critical pastoral resources are also found in certain specific areas like flood zones near rivers or in highland areas (e.g. Jebel Marra). All these areas are important for pastoralists representing wet and dry season pastures, or places of refuge during drought years.

3.6. **Seasonal variations in rainfall have an important influence on pastures**

Rainfall in Sudan is characterised by one or more distinct dry and wet seasons depending on location. The seasons have a major impact on people’s lives. Using a participatory exercise, participants constructed a seasonal timeline for North Kordofan.
The wet season, once it is established, is a time of plenty. There is fresh grass, and water is usually easily found in surface ponds. Animals and people put on weight, milk production increases and this is often the time for social events (marriages, etc.). But the rainy season is also a time when human and livestock diseases are more prevalent (malaria, tick borne diseases), and when there is conflict.

The dry season is very difficult for people and animals. It is hot and dry and there is a finite stock of pasture that is available until the arrival of the next rains; animals often have to walk long distances to find pastures and water. Milk production declines and food prices in the market increase while the price of livestock decrease. Animals and people lose weight. It is a very difficult time of the year for pastoralists.

These seasonal variations are however a NORMAL feature of the dry-lands in Sudan, and pastoralists have developed various strategies to maximise the productivity of their animals during the wet season while limiting losses during the dry season.

- In some seasons animals eat whatever they find
- Animals may have to eat salt to compensate
- Moving is a necessary strategy in order to find nutritional quality
- The seasonal timeline is a fact, a part of the natural cycle, not a negative feature
- The drying of some plants is good
The rainfall received during the wet season has a significant impact on the quantity and quality of pastures. Pastures in the wet season contain more water and are richer in protein, digestibility and minerals. This explains why animals put on weight, produce more milk and become fertile during the wet season.

During the dry season, trees and shrubs are very important for livestock diets. This is because they have higher levels of water, protein, digestibility and minerals than the surrounding grasses.

<table>
<thead>
<tr>
<th>Protein content in Themeda triandra - wet season</th>
<th>Protein content in Acacia tortilis leaves - wet season</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein</td>
<td>Other components</td>
</tr>
<tr>
<td>14.0%</td>
<td>86.0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Protein content in Themeda triandra - dry season</th>
<th>Protein content in Acacia tortilis leaves - dry season</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein</td>
<td>Other components</td>
</tr>
<tr>
<td>4.0%</td>
<td>96.0%</td>
</tr>
</tbody>
</table>

Protein content in wet / dry season: Themeda triandra vs. Acacia tortilis
Research in Eritrea confirms the nutritional value of feeding acacia pods to livestock during the dry season. Pastoralists know this and traditionally feed their animals on tree products, particularly during the dry season.

In many places, trees and shrubs are found in strategic locations, which are not of easy access to pastoralists (e.g. protected forests, wetlands, highlands). This is undermining livestock productivity during the dry season.

3.7. Total seasonal/annual rainfall has an important influence on pastures

In general, there is a correlation between the amount of rainfall and the amount of pasture that grows (i.e. the more it rains the more pasture will be produced).
But this is **not the case for pasture QUALITY** – research in Sudan shows that in general pastures in wetter areas are of lower nutritional value than those in drier areas.

![Pasture Comparison](image1.png)

Total seasonal rainfall also affects the species mix of pastures (i.e. more perennials where there are wetter conditions and more annuals and ephemerals where there are drier conditions).

![Rainfall](image2.png)

**The distribution of total seasonal rainfall is scattered, variable and unpredictable**
Rainfall is highly localised in space. This means that pastures do not grow evenly over the land during the rainy season.

![Rainfall](image3.png)

Rainfall is also highly variable in time. This means that pastures do not grow everywhere at the same time – pastures are at different stages in their growth cycle over the rangelands throughout the rainy season.
Because rainfall is highly variable and scattered, the **QUANTITY** of pasture is also highly variable and scattered in time and space across the rangeland. Grass will be at different stages of growth in different areas throughout the rainy season. It is not an even growth pattern.

**BUT IT IS MORE COMPLICATED!**
Evidence from the Sahel (Senegal) shows that even if annual rainfall is roughly the same from one year to the next, it is not necessarily the case that the same amount of pasture will be produced from one year to the next. This is because rainfall in the wet season comes in a “start–stop” fashion (i.e. it does not rain everyday). And when it rains, some rains are more useful for the reproductive cycle of pasture plants than others (i.e. rainfall events can be more or less intense or heavy).

**MORE IMPORTANTLY,** the highly variable and scattered nature of rainfall also affects **NUTRITIONAL QUALITY.** Because of the scattered nature of the rainfall in time and space, pastures are at different stages of their growth cycle in different areas. And because pastures are at different stages in their growth cycle, the nutritional quality of pastures over the rangeland is not the same – different places have pastures that have a higher or lower nutritional quality than others and this is constantly changing over the rainy season. You could say the nutritional profile of the rangelands is highly diverse and changing.

The situation is **further complicated** by the fact that there are different species of grass, different topographies and different soil types all of which also have an impact on the nutritional quality of pastures.
**Box 3: Key points on seasonal rainfall.**

1. There is a positive correlation between seasonal rainfall and pasture production.
2. Rainfall has an impact on the species composition.
3. Rainfall amount within the rain season varies from one year to the next.
4. Not all rainfall events are useful for good pasture growth.
5. Even if total rainfall in a season or year is about the same, the amount of pasture biomass produced is not necessarily the same.
6. Rainfall in pastoral areas is unevenly distributed in space and time, is unreliable and unpredictable.
7. Implication of (6) is that pastures are scattered in time and space, and mobility is essential to utilize such pastures.

**Dry-land pastures are DIVERSE, COMPLEX, ADAPTABLE and RESILIENT** – contrary to popular perception they are not inherently fragile. Like other ecosystems (wetlands, highlands, etc), they have the capacity and the potential “to fix” themselves and to “bounce back”. This is largely because of the seed bank in the soil. But like all other ecosystems, the pastoral rangelands have to be carefully managed; care has to be taken not to damage or destroy their capacity to “fix themselves”.

**Key Questions for discussion:**

- Does more rain mean more quantity and/or quality of pasture?
- What are the implications if the biomass is bigger in the north than the south?
- Do the same types of grass grow in different ecological zones in Sudan?
- What is the role of the environment in shaping plants?
- When rains come, is rainfall even everywhere?
Key concluding points:
- Rainfall variation affects pastoralist movement
- More rain does not necessarily equal better pasture quality
- Plants are adapted to their environment
- It is a highly complex system, variable in time and space
- It is organized, diverse and resilient (*muqawim* ‘resistance’)

3.8. Group work on “does the Pasture Management Commission understand the dynamics of dry-land pastures?”

Following the presentation and discussion on the impact of total seasonal rainfall on the quantity and quality of pastures, participants were divided to three groups. Each group was asked to reflect on the degree to which the work of the Pasture Management Commission in Sudan recognises and incorporates the dynamics of dry-land pastures in its work. The specific question addressed by the group was:

*To what extent does the national pasture management (Pasture Administration Corporation) understand the pasture system? Does the president need to understand this system in order to manage it?*

Following the groups’ report back (see Annex 4) for details of each group’s findings, the following points was raised in discussion:

- The pasture administration uses traditional seed dispersal mechanisms; also at times it has used seeds that are not tested and not adaptable to the area.
- There is lack of coordination between the department of pasture and pastoralists.
- Poor coordination between the pasture department and other relevant authorities (e.g. agriculture, livestock and forestry).
- Lack of scientific experiments and models to produce local seeds reserves.
- Absence of pastoral extension.
- Low enforcement mechanisms to rules that regulate grazing routes, this had lead to either closure of routes or to narrow grazing routes (the exception is the Blue Nile where some routes are now re-opened).

Concluding point: We need to seek the reality, to understand the nature of pasture. The objective of mobility is what is good for your animal. We agree that the broadcasting of these seeds is a part of an elaborate system, but there is now need to adopt mechanisms and regulations that ensure sound management of pastoral lands e.g. opening line fires, sowing seeds, establishment of reserves and fenced areas, burning part of the pasture for renewal, regulate pastoralists access to water points in order to avoid overcrowding and deterioration of pasture.
3.9. What is the significance of standing biomass at the end of the rainy season?

This session discussed the significance of standing biomass at the end of the rainy season. Through reference to the seasonal timeline and in discussion with participants, it was recognised that in many pastoral systems the standing biomass at the end of the rains represents the total amount of pasture available for livestock until the next rainy season. This means that the standing biomass has to feed the animals throughout the dry season and as such represents an important source of food, which has to be carefully managed.

Three management scenarios were presented – as shown in the right-sided figure – and participants discussed which of these represented the “ideal rhythm” at which pastures should be grazed in the context of the pastoral system. Scenario 1 was agreed to be the best because it ensured (i) livestock have enough grazing throughout the dry season to keep them from starving and (ii) that the standing hay is eaten before the start of the new rainy season to allow for the regeneration of new pastures.

3.10. Under what conditions do livestock degrade the environment?

Using the seasonal timeline, participants discussed the conditions under which livestock can degrade the environment. These included:

- At the start of the rainy season when seeds begin to germinate. If animals are sedentary, they will continuously graze and trample the new shoots and prevent the grasses completing their annual cycle and producing seeds for the next generation of pastures. Over time, this may lead to the disappearance of certain species of grass. However, if animals are free to move, once the rains are well-established, they will disperse.
- At the end of the rainy season before annual and perennial grasses have had a chance to produce their seed for the next crop. Again, if animals are unable to move, there is a danger that they will eat and trample the grasses before they produce their seeds. Over time, this may lead to the disappearance of certain species of grass.
- When animals are sedentary and graze the same area throughout the rainy season this will prevent the pastures completing their reproductive cycles.
- During the dry season, if there are large concentrations of livestock around permanent water points.
- In areas where rules for sustainable resource management are no longer applied – e.g. forested areas under government management where pastoralists no longer have any
authority or responsibility for protecting trees and where government is unable to enforce its laws – creating a condition of “open-access”.

- In areas where pastoralists’ traditional rangelands have been encroached by farming or other land uses and they are increasingly squeezed on smaller and smaller pieces of land.

### 3.11. Carrying capacity

Carrying capacity is a tool widely used by government and other range managers in Sudan. After a presentation of the definition of carrying capacity and how it is calculated, a wide ranging discussion concluded that it is a tool which has many flaws when applied in pastoral areas of Sudan. These flaws include:

- The concept was designed in the USA and Australia to regulate livestock numbers on commercial ranches. These typically raise beef cattle only within a defined or enclosed area where the objective is to maximize productivity per animal and per unit of labour. This is very different to pastoralism.
- Carrying Capacity calculations are not based on sound research but on educated guesses. For example, it is assumed livestock eat 2.5% of their body weight every day. In practice, this doesn’t happen as forage intake is often limited by accessibility and the time spent in intake is usually limited by forage accessibility and the time spent searching for pasture. Also the “proper use factor” is no more than an educated guess, but has a profound influence on the calculation – using a proper use factor of 45% instead of 30% increases carrying capacity by 50%!
- Biomass production is calculated at the peak of the rainy season, and not the end when a more realistic calculation could be made of available forage until the next rains. And the calculation does not include browse resources – a key source of food for camels and goats.

### 3.12. Livestock mobility – a critical strategy for resilient pastoral systems

Given the critical importance of livestock mobility as a strategy (i) to maximise productivity in areas characterised by highly dispersed, variable and unpredictable pastures; (ii) to access often distant markets; and (iii) to escape from severe drought, conflict or disease a full day of the training was dedicated to this topic.

The session opened with a plenary discussion on the reasons underpinning participants’ perceptions of livestock mobility taken from the ‘perceptions questionnaire’ filled in by all participants at the start of the training.

The results of the questionnaire showed that 19 out of 25 participants (76%) strongly or partially agreed with the statement that “livestock mobility causes conflict”.

15 out of 25 (60%) strongly or partially agreed with the statement that “livestock mobility reduces livestock productivity”.
Annex 4 shows participant's comments' in support of or arguing against the above two perception questions.

Participants were then divided into three groups representing the following regions in Sudan Kordofan, Central Sudan and Eastern Sudan. Each group was given the following task: Compare mobility today with how it used to be. What were the causes and impacts of it? If you see a future how do you see it in your region?

The main points raised and discussed by the groups are summarized below - (see Box 4 for a summary on changes in mobility routes in Kordofan and Darfur. Annex 5 shows the group work on livestock mobility).

In eastern and central Sudan livestock mobility also has changed. Previously pastoralists used to move shorter distances but with increasing water scarcity and climate variability livestock mobility takes place over longer distances. The secession of South Sudan, and creation of a new international border has been an additional challenge. Additionally, the establishment of mechanized farming also has resulted in loss of former pastoral lands. Before all family members used to move with livestock in search of pasture and water. Marriages and other social events would occur while pastoralists were en route. Thus corridors represent a livelihood and social space, although now only youth move with the herds and the rest of the family remain behind.

During the group work on livestock mobility, participants identified different types of mobility and their local names; these are shown in the below table:

<table>
<thead>
<tr>
<th>Mobility Purpose</th>
<th>Darfur</th>
<th>Sinnar, Blue Nile, Kassala &amp; Gedarif</th>
<th>Eastern Mountains</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moving South when the rain starts (for pasture and water)</td>
<td>el Shofara</td>
<td>el Murshasheib</td>
<td>el Murshasha</td>
</tr>
<tr>
<td>Moving North to el Mukhari (to rainy season resorts - areas where they spend the rainy season - escaping diseases and insects)</td>
<td>el Nashoof</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moving south to el Masalif (areas where they spend the summer searching for water)</td>
<td>el Watoo</td>
<td>el Kassah</td>
<td></td>
</tr>
<tr>
<td>Moving in search for secure places</td>
<td>el Gelan</td>
<td>el Tazeeb/el Azeeb</td>
<td></td>
</tr>
<tr>
<td>Moving Southwards (with livestock and without the family) to reduce the pressure on pasture</td>
<td>el Tahawoul</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moving in search of water and pasture for short distances</td>
<td>el Sidir/el Gorga</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobility that involves separation of herd and excluding livestock that has difficulty in moving (e.g. Sidir, Rabob, Nimorz)</td>
<td>el Rawaag</td>
<td></td>
<td>el Nashoof</td>
</tr>
<tr>
<td>Moving towards Butana area when pasture is plentiful</td>
<td>el Midrata</td>
<td>el Muraasasa</td>
<td>el Talga</td>
</tr>
<tr>
<td>Moving by herder to survey water places and determine mobility routes</td>
<td>el Talga</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moving from el Masalif (summer areas/resorts)</td>
<td>el Gotaar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moving to farming areas for the livestock to feed on crop residues</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moving to escape diseases</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Productivity of mobile versus sedentary livestock

The debate then shifted to whether or not livestock mobility enhanced or reduced livestock productivity. To contribute to this debate, data from a study conducted in the 1970s by two animal scientists was presented. The research was conducted on four highly mobile livestock herds belonging to a group of pastoralists called the Baggara, and three sedentary livestock herds belonging to a group of agro-pastoralists living near the town of Nyala in Darfur.

The data demonstrates that the mobile Baggara livestock are significantly more productive than the more sedentary herds of the agro-pastoral communities around Nyala. Through discussion this was explained by the following factors:

- The Baggara pastoralists practice an annual movement that takes them from their 'home areas' in southern Kordofan to distant pastures north of Nyala. Typically, the Baggara move north with the arrival of the rains feeding their animals of fresh pasture, high in nutrients, as the rainy season progresses. At the end of the rainy season, the Baggara move south driving their animals to places where fresh new forage is sprouting along the edges of seasonal water points that are now gradually drying up. These “flood retreat” grasses are also highly nutritious enabling the cattle to continue to thrive despite moving. The exact timing of the return trip is very carefully planned to make sure the herds return to their dry season areas with permanent water before the drying of temporary water sources makes movement dangerous. By the end of the dry season, pastures in these southerly areas are unpalatable, and they are burned to induce fresh re-growth suitable for grazing. Through this system, the Baggara are able to maintain a high quality diet for their animals throughout the year, which compensates for the energy expended during their movements. This explains why they have a high level of productivity.

- In contrast, the agro-pastoral groups reside all year in the area around Nyala only benefiting from fresh, nutritious pastures in the rainy season. For the rest of the year they have to feed of poorer quality pastures and this explains why they are less productive than the mobile livestock who feed of highly nutritious pasture throughout the year.

Productivity of pastoralism and ranching

It is widely believed that ranching is more productive than pastoralism and as such offers a viable alternative to raising livestock in the dry-lands of Africa. In order to assess the
appropriateness of ranching for Sudan, research findings from four research studies in Botswana, Ethiopia, Kenya and Zimbabwe were presented.

The data shows that when productivity is measured on a **per hectare** basis, then pastoralism is significantly more productive than ranching. Through mobility, pastoralists are able to keep greater numbers of livestock on an area of land (high stocking density for short periods) than more sedentary ranching that keeps fewer livestock on a given area of land (low stocking density). Pastoralism also produces a greater number of outputs than ranching – for example, meat, milk, blood and hides and skins, which when added up have a higher value than ranching which usually focuses on a single product (meat, usually beef).

Ranching by keeping relatively few animals per hectare (low stocking level) will produce animals that are larger and heavier than pastoral livestock, and through the provisions of external inputs (e.g. supplementary feeds, veterinary drugs) can also rear cross-breeds or even exotic breeds that are more productive than pastoral livestock. But this will be at a greater cost per animal and per hectare than animals reared under pastoral systems; and overall few animals will be reared.

The implications of these two models for Sudan – pastoralism and ranching - are that while ranching will produce animals that are heavier and larger, less meat overall will be produced at a higher cost. Pastoralism, on the other hand, while producing smaller, lighter animals will contribute more meat and milk overall, at lower cost. These systems are not mutually exclusive – there are benefits to be had in having a range of different livestock rearing systems in Sudan that make the most efficient use of resources – e.g. zero-grazing systems around large urban centres, ranches to fatten livestock for export and pastoralism to make the best use of scattered, variable and unpredictable pastures in the rangelands.

**Mobility is not incompatible with a modern State?**

This session examined the legal frameworks provided by Spain and a number of Sahelian countries in West Africa to protect pastoral land and enhance livestock mobility.

The session first looks at Spain's recent decision to legally protect the extensive network of livestock trails, developed in the 12th and 13th century to support the extensive rearing of sheep and cattle.
Discussion: Can mobility be compatible with modernity?

Some responses included:

- In Sudan we have laws like this even before Europeans and African countries but up to now the laws are not enforced. We have the laws. We need a strong cooperation to enforce them. We need a strong state.
- Concerning problems of land we need intervention of the government, in order to get experience from organizations and the government.
- Pasture management administration should be supported, staffed and well-trained so to be ready for the future. It is still naive and underdeveloped. It needs legislation.
- All these laws are identified but people grab these routes for agriculture and other uses. You have now very good experience from people in this workshop, people who are considered to be leaders. Make law in every state to open corridors and suggest the rehabilitation of pasturelands.
- This group [of participants and facilitators] should be sent to witness this abroad together with the group that trained the facilitators.

West Africa's experience of developing an institutional framework from the regional to the local level to protect pastoralism, and pastoral mobility in particular was then presented – national pastoral laws in Mauritania, Mali, Burkina Faso and Niger (2009) and the regional framework provided by ECOWAS.

3.13. The family and wider social institutions

Pastoral society is at crossroads; traditional roles and relations between family members are changing. In some pastoral groups, the youth are introducing new methods and innovations to maintain mobility (e.g. mobile phones, motor bikes); in others they are leaving pastoralism and moving to towns to take up other work and livelihoods. Women's roles are also changing as well as their status within society - in some cases, where the men of the family are absent, women are increasingly responsible for taking decisions over herd management, in others, through successful livestock marketing activities, women are investing in non-pastoral activities, and this gives them greater economic independence.

Pastoral institutions are also evolving; in many cases, traditional institutions for managing water, pasture use and mobility are losing their authority, undermined by the passing of new statutory laws and regulations. The failure of the latter to ensure sound natural resource management is contributing to resource degradation in many pastoral areas. Pastoral society is also becoming more polarised – there is evidence of livestock wealth becoming increasingly concentrated among fewer and fewer families, and there is a growing number of poorer households.
Participants were divided into four groups and asked to discuss the following questions:

*What is a pastoral family? And what are the roles of the members of a pastoral family and how are they changing?*

**Summary of group reports in pastoral family:**

Pastoral family is a group of one family or one tribe that depends on livestock herding as the main livelihood system, the division of roles within the pastoral household members though varied a bit over time but remained the same:

- The father is the head of the family, responsible for the overall family affairs and management of household’s assets (mainly livestock) and family affairs representation.
- Mother responsible to manage the home affairs, housekeeping and taking care of children and small herds. Mother and daughters fetch water, firewood, process animal products (e.g. ghee, yoghurt) and handicrafts for family consumption and also for income generation and sell.
- Sons: responsible for herding (*el Sarha*) and taking care of household animal wealth under the supervision and direction of the father, elder sons, and in the absence of the father, take the responsibility of managing the overall family affairs and livestock wealth. The sons are also responsible of protecting and securing the herd.
- Daughters: Help the mother in housekeeping and managing the affairs of the house e.g. cooking, fetching water and firewood, milking cows and goats, processing milk, small herd care and working on local handicrafts.

However, pastoral families are not restricted to first blood relations but extends to distant relatives, the community and the tribe- the pastoral tribe is managed by certain hierarchal structure with the heads of the tribe (*Nazirs* and *Omdas*) shoulder the responsibility of the overall tribal affairs and also play a vital role in resolving conflict incidents with other tribal groups or communities.

Education and technology has results in changing the nature of work and roles among the pastoral family members e.g. educated sons most likely dropout, migrate to big cities and/or abroad, so they rely on other income sources (e.g. employment, hired labour or business).

**3.14. The future of pastoralism**

In the final session of the workshop, participants were asked to reconsider their views about pastoralism. The three scenarios were presented again to participants for discussion: **Scenario 1: Optimistic. Scenario 2: Pessimistic. Scenario 3: Ambivalent.** Each scenario was written on a separate flip chart and placed at opposite ends of the room. Participants were then asked ‘to vote with their feet’ and choose with which of these three scenarios they agreed, and to articulate why.

Following a report back on each group’s responses –the following arguments and points were raised by the supporters of each particular scenario:
Scenario 1: Optimistic (*Mutafayal*)
This group represented the majority of the participants (67%) and the main arguments justifying the optimistic stand of the group are:

- South Sudan succession and the associated loss of 2/3 of Sudan oil revenue, has resulted in increased emphasis and focus of Sudan government on livestock and agricultural sector as an alternative source of income.
- The prevalence and availability of diverse pasture land that suits the diversity of livestock in Sudan.
- The possibility of combining modernity and traditional systems i.e. modern and traditional systems are interconnected and mutual – the presence of one does not exclude the other.
- Presence of advocates on behalf of pastoralists.
- The presence of laws and legislations in support of the pastoral sector
- The adaptability and resilience of Sudanese breeds to the harsh environment
- The belief that pastoralists represent a very large percentage of Sudan population (around 80%).

Scenario 2: Pessimistic (*Gyeer Mutafayal*)

- The separation of South Sudan and the loss of large area of pasture have resulted in restricting the mobility of pastoralists.
- Land grabbing and the expansion of agricultural land at the expense of pastoral lands.
- Climate change and its negative impact on pastoral resources.
- Limited funds from the national and international community for the development and rehabilitation of pastoral sector.
- Pastoralists' dropout.
- Unfavourable laws and legislations for pastoralism/pastoralists (e.g. 2010 producer act).

Scenario 3: Ambivalent (*Been-Been*)

- Climate change
- Urbanization and pastoralists dropouts.
- Grabbing of pastoral lands via agricultural expansion, oil exploration and investments.
- No clear pastoral policies, particularly in relation to land (pasture lands are common pool resources)
- Education and modernisation changes the lifestyle of new generations (pastoral was of life might not be appealing to the new generations).
- Loss of huge pastoral lands with South Sudan succession/restricting pastoralist mobility.

4. Closing the test training
At the end of the training workshop participants identified issues for the AT to consider in their adaptation of the training module.

**The way forward:**
- Incorporation of comments raised by participants
• Organization of similar four training workshops in Kordofan, Darfur, Eastern Sudan and Central Sudan.
• In the coming workshops, a section on private sector institutions (dairy companies, Meat exporters, and others) should also be included.
• Engagement of native administration representatives and local government representatives.
• There is need to organize briefing events for decision makers, leaders (ministers and executive managers) on the training and the overall Tufts/UNEP/SOS Sahel project.
• Undertake an analysis of current situation of pastoralism in Sudan and explore the use of Media to get the message across and create awareness on pastoralists’ problems.
• Ensure the incorporation and communicate with pastoralists through their traditional organized bodies in all the above proposed suggestions/activities.

Some comments on the contents of the training manual:
• Insert a section on the microfinance fund to pastoralists’.
• Marketing (local, national and cross border).
• The concept of leadership is not addressed in the training manual.

Following this Hafiz Obeid gave a word of thanks to all, and stated that this workshop is an important part of the adaptation process and has generated considerable insights and comments that will be incorporated in the adaptation process. Further he thanked the participants and distinguished guests - particularly those coming from other states in Sudan- for their full and valuable engagement during the three days of the training. Finally, he acknowledged the support in Sudan offered by the Nomads Development Council and internationally by the UN Environment Agency and UK DFID-all of which contributed to the success of this workshop and the adaptation process in Sudan.
Annex 1: List of participants

<table>
<thead>
<tr>
<th>No</th>
<th>Name</th>
<th>Institutional Affiliation</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
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Annex 2: Participants evaluation of the test training workshop

Comments on the Graffiti Board:

<table>
<thead>
<tr>
<th>Positive comments</th>
<th>Negative comments</th>
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</thead>
<tbody>
<tr>
<td><strong>DAY 1</strong></td>
<td></td>
</tr>
<tr>
<td>- Valuable information &amp; good participatory technique used</td>
<td>- Group works is a little bit unorganized</td>
</tr>
<tr>
<td>- Training content and facilitators’ performance are excellent.</td>
<td>- No handouts.</td>
</tr>
<tr>
<td>- Everything is 100%</td>
<td>- The starting time is too early</td>
</tr>
<tr>
<td>- Great participation level.</td>
<td>- Too short break time.</td>
</tr>
<tr>
<td>- Organization and presentations are excellent.</td>
<td>- Too long lectures</td>
</tr>
<tr>
<td>- Equal discussions’ chances for all</td>
<td>- The venue is too far</td>
</tr>
<tr>
<td>- Team work is well coordinated</td>
<td>- Long debates and discussion, and some are off points</td>
</tr>
<tr>
<td>- Good harmony between participants and facilitators</td>
<td></td>
</tr>
<tr>
<td>- Good organization and clear division of roles.</td>
<td></td>
</tr>
<tr>
<td>- Best utilization of photos for sending messages</td>
<td></td>
</tr>
<tr>
<td><strong>DAY 2</strong></td>
<td></td>
</tr>
<tr>
<td>- Heavy but valuable information</td>
<td>- Very interesting issues but summarized in just half a day.</td>
</tr>
<tr>
<td>- Presentations and discussion are interesting</td>
<td>- Long, busy and tiring day</td>
</tr>
<tr>
<td>- Materials plus facilitators, no comments</td>
<td>- No training programme is provided</td>
</tr>
<tr>
<td>- Quick positive response for distribution of handouts in day 1.</td>
<td>- Please pay attention to the aged participants when distributing handout.</td>
</tr>
<tr>
<td>- Effective participation led to the filtration of the information</td>
<td>- One facilitator is un-fair in providing opportunities among participants</td>
</tr>
<tr>
<td>- Good to compare the correct pastoralism system with the actual practitioner at land users level and pasture administration</td>
<td>- It would be great if we get the materials in CD.</td>
</tr>
<tr>
<td>- Timing keeping and breaks are fine</td>
<td></td>
</tr>
<tr>
<td>- Facilitators are highly professionals and Equal opportunities for discussants and comments</td>
<td></td>
</tr>
<tr>
<td><strong>DAY 3</strong></td>
<td></td>
</tr>
<tr>
<td>- Amazing performance</td>
<td>- It will be great if we have some of the decision makers in the room</td>
</tr>
<tr>
<td>- One of the top discussion days</td>
<td>- Some participants (sometimes) deviated from the core discussion.</td>
</tr>
<tr>
<td>- Heavy information</td>
<td>- In the last session, some participants repeated the already discussed issues in a boring manner.</td>
</tr>
<tr>
<td>- Effective engagement of participants, especially around corridors sessions, great local experiences.</td>
<td>- Some important issues are discussed slightly</td>
</tr>
<tr>
<td>- The discussion around mobility is very interesting and needs more space and research.</td>
<td>- Discussion opportunities are not enough.</td>
</tr>
<tr>
<td>- Excellent day, we kindly request the organizers to organize an exchange visit to the neighbouring countries to see and adopt their experiences</td>
<td>- Some issues ended without final conclusions.</td>
</tr>
<tr>
<td>- Today’s issues are very important; we appreciate your considerations to all emerging suggestions and recommendations.</td>
<td></td>
</tr>
<tr>
<td>- Full attendance up to the end of the day.</td>
<td></td>
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Mood Metre

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<tr>
<th></th>
<th>😊</th>
<th>😊</th>
<th>😞</th>
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<th>Missed</th>
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<tr>
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<td>13</td>
<td>5</td>
<td>1</td>
<td>-</td>
<td>6</td>
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<td>9</td>
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<td>12</td>
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## Annex 3: Training timetable

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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</table>
| 09.00 – 11.00 | Welcome and opening  
Introductions using proverbs  
History/objectives of the test training  
Workshop behaviour – ‘do’s and don’ts’ |
| 11.45 – 13.45 | **Setting the Scene**  
Who and where are the pastoralists in Sudan?  
Many and changes faces of pastoralism  
What is the future of pastoralism in Sudan? Group work. |
| 14.15 – 15.15 | **Introduction to the pastoral system**  
Constructing the 3-pillars  
Discussing the inter-connectivity of the 3-pillars |
| 15.45 – 17.00 | **KQ1, A1: Natural pastures are the major source of feed in pastoral areas** |

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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</thead>
</table>
| 09.00 – 11.00 | Recap Day 1  
Seasonal timeline  
Seasonal changes in quality of pasture & the importance of trees |
| 11.45 – 13.45 | P1, KQ2, A2  
Group work on “does the Pasture Management Commission understand the dynamics of dryland pastures?” |
| 14.15 – 15.15 | Group report back  
Significance of standing biomass at the end of the rainy season |
| 15.45 – 17.00 | Value of carrying capacity in pastoral systems |

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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</thead>
</table>
| 09.00 – 11.00 | RECAP Day 2  
Group work on mobility |
| 11.45 – 13.45 | Group report back  
Mobility names |
| 14.15 – 15.15 | Productivity of mobile versus sedentary livestock  
Productivity of ranching versus pastoralism |
| 15.45 – 17.00 | Is mobility incompatible with a modern state? |

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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</thead>
</table>
| 09.00 – 11.00 | RECAP Day 3  
The family and wider social institutions |
| 11.45 – 13.45 | The family and wider social institutions  
Summary of key messages |
| 14.15 – 15.15 | Group work: are you more or less pessimistic on the future of pastoralism in Sudan?  
Group report back  
Closing of test training |
| 15.45 – 17.00 | Participant questionnaires  
The way forward  
Evaluation and closing |
Annex 4: Group work on the Pasture Management Department

Participants were divided to three groups to reflect on the degree to which the work of the Pasture Management Commission in Sudan recognises and incorporates the dynamics of dryland pastures in its work. Participants also reflected on the Pasture Management Commission capacity and degree of involvement/coverage of its delegated responsibilities. Below is a summary of the group work.

- The main responsibilities of the pasture department includes: seed collection, seed dispersal, opening fire lines, demarcation of routes, storage of fodder, establish *Hafirs* (water reservoir) and pasture reserves. Nevertheless, the capacity of the pasture commission to undertake these major tasks in terms of human and financial resources is low. Civil society (NGOs and CBOs) and also international NGOs play a role in covering this gap about 40% of the demarcated livestock routes, and establishment of water *hafirs* was done through community actors and national/international NGOs.
- Pasture department does not follow an innovative and scientific approach in seed dispersal. At times the dispersed seeds are imported and do not fit the local environment.
- There is lack of coordination between the pasture department and pastoralists – who are not involved in the decision making mechanism of managing the pasture resources. Also there is lack of coordination with other relevant resources e.g. ministry of livestock, agriculture and forestry.
- Low or poor enforcement mechanism of grazing rights regulating laws- this had led to closure of routes and/or narrower routes (the exception is the Blue Nile State as routes has recently been re-opened).
- Lack of regular maintenance of water resources (except Blue Nile).
Annex 5: Group work on livestock mobility
Maps showing livestock mobility in East, Central and N & S Kordofan

Figure on local mobility names

Participants’ comments on livestock mobility included:
I agree that mobility is part of the values and traditions and cultures of the pastoralists and it's not easy to abandon that, especially for the herders. I believe that mobility is very important for camels. It doesn't negatively affect the environment as they move from place to place. There was interaction with other tribes, communication with other people. So mobility is positive.

I think the mobility of the animals has negative effects. They get disease while the herd is moving. While moving they clash with others, especially if there is interference from the government. There is diversity in the biomass but if you compare between the two you see that the negative impact is bigger than the positive.

I think mobility should be a matter of history now. Our method is conventional and traditional, so in order to reduce the conflict over resources, mobility should be limited. We need a new way.

I think mobility now matches with pastoralist system, there is no negative impact. Concerning conflicts, they are not a result of mobility; this is because sometimes the route is blocked.

I think we put too much on mobility as the cause of conflict. It's because we fail to manage our resources. The main cause is bad management.

Mobility is the lifestyle for a group of people, 50 years ago there used to be no conflicts, this is new. So because of these people, others intervened in their areas like agricultural projects. So if we can deal with these things, we can prevent conflicts.

They will never abandon mobility even though it's very hard. They depend on it. The risk is that they need education and health, or they have to pass by villages for services, and this creates conflicts.

Animals needed for productivity don’t move. These long-distance animals are not for productivity.

Naturally Arabs don’t care about productivity, just about the number of the herd.

Mobility is about traditional and culture and they will never abandon it.

So when you say, traditional culture, you say these people are born with it? To be a pastoralist is to be genetic? It seems it’s by practice. Are there justifications or do we just keep on doing it?

I have evidence that this mobility is genetic in these pastoralist groups. For example, they brought a camel herder in the city, even in the wet weather he would not sleep inside.

The development of this life came slowly and gradually so if you want to change the mentality you need to build confidence in them that they have no education and no civilisation, and believe that there is a better way than this, and we can provide this. Mobility causes an animal to be unproductive. Mobility – people have feeling of belonging from area to area, they look down on others outside their area so that’s why there’s conflict.