Contents
Acknowledgements 3

1. Introduction 4

2. Opening the workshop 5

3. The dynamics of the pastoral system 6

4. The future of pastoralism 15

5. Closing the test training 18

Annex 1: List of participants 19

Annexe 2: Participants Evaluation of the Test Training Workshop 20

Annex 3: Training Timetable 22
Acknowledgements

We would like to especially thank Nomads Development Council for their active support and engagement. We would like to thank and acknowledge the funding for this workshop and the wider project from the United Nations Environment Program for Sudan (UNEP Sudan), and the UK Department for International Development (DFID). We would also like to extend our special thanks to the workshop participants.
1. Introduction

Many people believe that the crisis facing pastoralists in Sudan and the 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 to the extent that it is 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 dry land ecosystems and the strategies and institutions used by the 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 model to Sudan.1 This workshop, which was attended by a wide range of national actors including the Nomads Development Council, endorsed the decision to adapt the training. Following this a professional “Adaptation Team” (AT) was set-up. AT members is a group of expert resource people designated to work with the Tufts/SOS Sahel team and IIED in adapting the training to the context of Sudan. The AT has since been working on adapting the material in preparation for the 1st test training to judge the relevance of the adapted material so far.

1 See Validation workshop report for details.
This document reports on the 1st test training workshop.

2. Opening the workshop

After a short welcome address by Afaf Rahim of Tufts University and Adam Sheikha representative of the Nomads Development Council, 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 – Following this each of the paired participants presented his/her partner to the other workshop participants. Box 1 shows a list of the 9 Sudanese proverbs used in the “getting to know each other” exercise; these proverbs are listed below in Arabic:

1. الجمل ما يشرف عوبا رفو
2. شجاع كان عزرؤاي يا هويبي يا ليلة
3. اس قراريا بتح خض الفجر
4. الخريف اين من شرفاء بين
5. القوة تتعمى العقلة بجرا
6. الفلاور قل قل
7. كراع العفر حبية
8. الذي كرى في القرض لا ثقة في جدها
9. الملادها صلب يحميه لها رباب

The Equivalent English Proverb to the Sudanese Proverb no (8) above is “What goes around comes around”. The participants have linked this proverb to pastoralism through pastoral policy and explained that bad or good pastoralism & pastoralists’ development policies would result in poor or good economic returns from the livestock sector.

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.

Box 1: Sudanese Pastoral –related proverbs

<table>
<thead>
<tr>
<th>No</th>
<th>Proverb (in Arabic)</th>
<th>English Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>الجمل ما يشرف عوبا رفو</td>
<td>The virtue of a good friend endures</td>
</tr>
<tr>
<td>2</td>
<td>شجاع كان عزرؤاي يا هويبي يا ليلة</td>
<td>Courageous was my beloved until morning</td>
</tr>
<tr>
<td>3</td>
<td>اس قراريا بتح خض الفجر</td>
<td>A wise decision can bring success</td>
</tr>
<tr>
<td>4</td>
<td>الخريف اين من شرفاء بين</td>
<td>The autumn is where the young kings are</td>
</tr>
<tr>
<td>5</td>
<td>القوة تتعمى العقلة بجرا</td>
<td>Power blinds the mind</td>
</tr>
<tr>
<td>6</td>
<td>الفلاور قل قل</td>
<td>Speak softly</td>
</tr>
<tr>
<td>7</td>
<td>كراع العفر حبية</td>
<td>The grazing pasture is beloved</td>
</tr>
<tr>
<td>8</td>
<td>الذي كرى في القرض لا ثقة في جدها</td>
<td>The person who eats interest does not trust his father</td>
</tr>
<tr>
<td>9</td>
<td>الملادها صلب يحميها لها رباب</td>
<td>The child’s pain protects her</td>
</tr>
</tbody>
</table>

Box 2: History of pastoral training

1998: Training on Pastoralism and Policy 1st developed in West Africa (French)  
2000: Pulaar version of training model developed in West Africa  
2002: West Africa training model adapted to East Africa (English)  
2007: Kiswahili version training model developed for Tanzania  
2008: East Africa training model adapted to Ethiopia  
2010: Institutionalisation of Ethiopian training model  
2011: Adaptation of East Africa training model to Sudan
The role of the 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. Annexe 2 provides the details of participants’ assessments.

The training workshop consisted of two phases. Phase 1 focused on the dynamics of pastoral systems in Sudan, while Phase 2 analysed the implications of these dynamics in determining the future of pastoralism as a livelihood system and an actor in Sudan’s livestock sector. See Annex 3 for the workshop agenda.

3. The dynamics of the pastoral system

Through use of scientific evidence and the participants’ own experiences and knowledge, the first phase of 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 the 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 environment in Sudan and, more broadly, in the region.

The topics covered included the following:

1. The many and changing faces of pastoralism

In Sudan, pastoralism is characterised by huge diversity – consider for instance, in pastoral areas, the environments in which pastoralists live, the species and the breeds of livestock they raise, their cultural practices, their specific livelihood strategies and the way in which they respond to both inside and outside pressures. Despite this diversity however, pastoralists share many problems including, among others, 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 the problems of drought, land alienation, and conflict. Relations of power and processes of decision-making are also changing within their societies as a result of education, increasing involvement with markets, poverty and conflict levels.

Pastoral systems in Sudan, while sharing many problems in common are also highly diverse, complex and dynamic. In many respects, pastoralism is at cross-roads in Sudan with many doubting that it has a future. The objective of the training is to explore these issues and to 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.

2. Pastoralism is a ‘system’

Pastoralism, like other production systems (e.g. farming or ranching), has an internal rationale and a set of production and decision-making components that that are inter-dependent and that need to work together according to a set of rules, so that the system can work properly. The pastoral system is composed of three 'pillars' or components – natural resources, livestock or the herd and the family and the wider social institutions.
These pillars are common to all pastoral systems in Sudan and represent the essential resources needed to practice pastoralism. Other resources such as veterinary services or supplementary animal feeds are useful, but they are not crucial. Yet many pastoralists do not have easy access to them.

For pastoralism ‘to work’, it has to be supported by policy and practice in a holistic manner.

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

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 access. As such, natural pastures are the major source of feed and, given the inter-relationship between natural resources and the other pillars of the pastoral system; we need to 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.

4. **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 the geographic location. The seasons have a major impact on people’s lives. 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 internal and external parasitic infestations, etc.), and when conflicts also proliferate.
The dry season is very difficult for both people and animals. It is hot and dry and there is a limited stock of pasture that is available until the arrival of the next rainy season; animals often have to walk long distances to find pastures and water. Milk production declines and food prices on the market increase while the price of livestock decreases. Animals and people lose weight. This 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 therefore, developed various strategies to maximise the productivity of their animals during the wet season while limiting losses during the dry season.

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 digestible protein, vitamin A precursors and minerals. This explains why animals put on weight, produce more milk and become more fertile during the wet season.

<table>
<thead>
<tr>
<th>Grass species</th>
<th>Water</th>
<th>Protein</th>
<th>Digestibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Themeda triandra</td>
<td>Wet season</td>
<td>Dry season</td>
<td>Wet season</td>
</tr>
<tr>
<td></td>
<td>95</td>
<td>5</td>
<td>14</td>
</tr>
<tr>
<td>Panicum maximum</td>
<td>94</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>Brachiaria superba</td>
<td>95</td>
<td>5</td>
<td>13</td>
</tr>
</tbody>
</table>
During the dry season, trees and shrubs are very important for livestock diets. This is because they have higher levels of water, protein, higher digestibility rate and more minerals than the surrounding grasses.

**Protein content in wet season: Themeda triandra vs. Acacia tortilis**

<table>
<thead>
<tr>
<th></th>
<th>Themeda triandra - wet season</th>
<th>Acacia tortilis leaves - wet season</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein content</td>
<td>14.0%</td>
<td>17.0%</td>
</tr>
<tr>
<td>Other components</td>
<td>86.0%</td>
<td>82.0%</td>
</tr>
</tbody>
</table>

**Protein content in dry season: Themeda triandra vs. Acacia tortilis**

<table>
<thead>
<tr>
<th></th>
<th>Themeda triandra - dry season</th>
<th>Acacia tortilis leaves - dry season</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein content</td>
<td>4.0%</td>
<td>15.0%</td>
</tr>
<tr>
<td>Other components</td>
<td>96.0%</td>
<td>85.0%</td>
</tr>
</tbody>
</table>
Research in Eritrea confirms the nutritional value of feeding acacia pods to livestock during the dry season. Pastoralists know this and they 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 easily accessible to pastoralists (e.g. protected forests, wetlands, highlands). This undermines livestock productivity during the dry season.

### Table: Correlation between rainfall amount and pasture production

<table>
<thead>
<tr>
<th>Area</th>
<th>Average rainfall</th>
<th>Biomass gm/m²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2008-2009</td>
<td>2009-2010</td>
</tr>
<tr>
<td>Domokya</td>
<td>250-350</td>
<td>106.1</td>
</tr>
<tr>
<td>Delling</td>
<td>250-750</td>
<td>300.54</td>
</tr>
</tbody>
</table>

### Table: Contribution of Acacia pods to goat nutrition

<table>
<thead>
<tr>
<th>Diet composition</th>
<th>100% Grass hay</th>
<th>75% hay 25% pods</th>
<th>50% hay 50% pods</th>
<th>25% hay 75% pods</th>
<th>100% pods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial wt. (kg)</td>
<td>13.8</td>
<td>13.2</td>
<td>12.2</td>
<td>12.0</td>
<td>13.7</td>
</tr>
<tr>
<td>Final wt. (kg)</td>
<td>12.1</td>
<td>15.9</td>
<td>15.8</td>
<td>17.5</td>
<td>18.6</td>
</tr>
<tr>
<td>Total gain in wt. (kg)</td>
<td>-1.7</td>
<td>2.8</td>
<td>3.4</td>
<td>5.5</td>
<td>4.9</td>
</tr>
<tr>
<td>Daily gain in wt. (g)</td>
<td>-19.9</td>
<td>32.7</td>
<td>40.6</td>
<td>65.5</td>
<td>58.5</td>
</tr>
</tbody>
</table>

### 5. 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** – a comparative field study to measure the nutritional quality of pasture in the dry and wet seasons was conducted in two sites in North and South Kordofan in Sudan, the main finding is that generally pastures in wetter areas are of lower nutritional value **vis-à-vis** pastures in the drier areas.
Correlation between rainfall amount and pasture production

Variations due to different rainfall amount at different sites in North and South Kordofan state

<table>
<thead>
<tr>
<th>Area</th>
<th>Average rainfall</th>
<th>Biomass gm/m²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2008-2009</td>
</tr>
<tr>
<td>Domokya</td>
<td>250-350</td>
<td>106.5</td>
</tr>
<tr>
<td>Delling</td>
<td>350-750</td>
<td>300.54</td>
</tr>
</tbody>
</table>

Relationship between Rainfall and Pasture Quality

<table>
<thead>
<tr>
<th>Site</th>
<th>Growing season</th>
<th>C. Protein (%)</th>
<th>C. Fiber (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demokeya</td>
<td>On-set of the rainy season</td>
<td>8.64</td>
<td>34.37</td>
</tr>
<tr>
<td>(N. Kordofan)</td>
<td>Seed setting</td>
<td>3.20</td>
<td>42.38</td>
</tr>
<tr>
<td>Dilling</td>
<td>On-set of the rainy season</td>
<td>4.12</td>
<td>35.39</td>
</tr>
<tr>
<td>(S. Kordofan)</td>
<td>Seed setting</td>
<td>4.06</td>
<td>36.74</td>
</tr>
</tbody>
</table>
The total seasonal rainfall also affects the species composition (i.e. more perennials where there are wetter conditions and more annuals and ephemerals where there are drier conditions).

<table>
<thead>
<tr>
<th>Site</th>
<th>Dominant species</th>
<th>Rainfall mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>North scrape</td>
<td>Astelia carex</td>
<td>Dry</td>
</tr>
<tr>
<td></td>
<td>Hyparrhenia confinens</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cenchrus biflorus</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eragrostis termula</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hyparrhenia confinens</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cenchrus biflorus</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eragrostis termula</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hyparrhenia confinens</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cenchrus biflorus</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eragrostis termula</td>
<td></td>
</tr>
</tbody>
</table>

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 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.

BUT, this variability is NOT necessarily a CONSTRAINT for pastoralists. Through mobility pastoralists are able to lead their animals to those areas where the pastures are at the peak of their nutritional content. And in this way, they are able to feed their animals on a more constant diet of high nutritional pastures than would be the case if they didn’t move. Research in Niger shows how Wodaabe pastoralists very carefully breed cattle that are able to exploit the unpredictable environment in which they live. Through controlled breeding and selection they keep animals that are to reach maturity and then select, for them the most nutritious grasses available – this allows their animals to make the best use of the variable pasture conditions in the rangelands.

Plants have complex mechanisms to ensure that the species is not made extinct either by erratic rainfall or animals. These include:

- Grasses react to differences in rainfall amounts and timing to ensure that the species as a whole reproduces itself (e.g. not all germinating at the same time).
- Grasses produce thousands and thousands of seeds to perpetuate the species.
Grasses in drier areas generally produce more seeds per plant than grasses growing in wetter areas.

Most grasses have various defence mechanisms to protect themselves from being over-grazed to ensure that they complete their cycle and produce seeds for the next generation.

Dry land pastures are DIVERSE, COMPLEX, ADAPTIVE 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”.

4. The future of pastoralism

The second phase of the workshop analysed the implications of the dynamics of Sudan’s rangelands in determining the future of pastoralism as a livelihood system and as an actor in Sudan’s wider livestock sector. Two scenarios were presented to participants for discussion:

**Scenario 1**: 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.

**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 rainy 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.
Scenario 2: 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.

During the discussion, most participants argued that there was a third 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.

Following this discussion, participants were divided into two groups to discuss the following questions:

- Is pastoralism important for Sudan? In what way?
- Why is mobility essential for pastoralism?
- What are the obstacles to mobility in Sudan?
- What are the opportunities and ways forward to enhance mobility in Sudan?

---

**Box 4: Report back from Group 1**

Yes, pastoralism is important for Sudan, because:
- It provides animal products – using natural pasture as major input.
- Supports the national economy.
- Acts as an income source for wider population.
- Contributes to the environmental equilibrium.
- Plays an important role in the Sudanese culture.

**Mobility is essential because:**
- It allows maximum utilization of natural resources under conditions of climate variability.
- It is a mechanism to prevent the spread of endemic diseases and pest infestation.
- It is a natural coping strategy to climate variability (an adaptable system).

**Obstacles to Mobility:**
- Lack of land use plan.
- Resource base conflict.
- Non supportive state policy e.g. multiple taxation.
- Poor access to basic service (e.g. education and health).
- Length of livestock routes (corridors) has negative effect on animal weight and productivity.

**Opportunities and Way for ward:**
- Ensure that the appropriate public policies essential for pastoralism development are in place (e.g. land use policy).
- Build the capacity of pastoral associations and the institutional capacity of government relevant bodies (e.g. Dept of Range and Pasture).
- Provision of basic services (education, health) and water points along the corridors.
Following a report back on each group’s responses – see Box 4 and Box 5 – the following issues were raised and discussed:

- Poor research capacity in Sudan and weak link of research findings at policy domains.
- Policy makers are concerned with the economic returns from pastoralism but not necessarily the welfare of pastoralists.
- “Who speaks for the pastoralists” – there is an elite capture e.g. MPs and chairpersons of pastoralists associations although they are descendents of pastoralists’ families (groups)- but they are increasingly detached from pastoralism, pastoralists and the challenges/problems they face.
- Pasture lands are not recognized and registered-whereas mechanized agricultural schemes and reserved forests are recognized and registered.
- Linked to the above there is an absence of pasture land legislations/acts.

This session closed with an overall summary of the key issues presented and discussed during the whole training workshop. These included:

- Pastoralism is an inclusive complex resilient system and we need to understand its components as well as the interaction between these components before we design policies or program interventions.
- What has been discussed and the scientific information provided during this training has bearings on pastoral system management; and therefore, should be taken on board when designing pastoral policies and management programs.

**Box 5: Report back from Group 2**

**Importance of pastoralism to Sudan:**

**Social/cultural:**
- Major component of Sudanese culture.
- Accounts for a sizable portion of labor force.

**Economic:**
- Cheap production system.
- Source of natural food security.
- Competitive source of organic food.
- Major contributor to national economy (GDP/Gov. treasure)
- Part & parcel of local economy (HHS).
- Source of revenue to local govt.

**Environment:**
- Preserver & fertilizer to land.
- Adaptive to environment.
- Production of high income products from cheap resources.
- Using land resources that could otherwise be unusable.

**Political:**
- Important to national security & Sudanese geopolitics.
- Potential source of political instability.
- Major actors in conflicts.

**Importance of Mobility:**
- Helps pastoralists to use different environments and resources.
- Adaptation to climate change and seasonality.
- Escapes diseases and pests.

**Obstacles to mobility:**
- Expansion of agriculture (MFC)
- Expansion of urban cities.
- Development of oil & mining sectors.
- Lack of services.
- Land tenure arrangement.
- New international border.
- Poor natural resource governance.
- Conflicts & insecurity.

**Opportunities:**
1. Increased national and international concern of pastoralism (conflict) + potential source for revenue (loss of oil revenue) +Biodiversity conservation.
2. Expansion in civil society engagement advocating the rights of pastoralists.
3. Improvement in water delivery services.
4. Control of Tsetse flies & pests.

**Way forward:**
1. Recognition of pastoralism as a livelihood system.
2. Legalization of pastoralists rights (land/N.R &services).
3. Legalization of mobility.
4. Effective representation of pastoralists at different levels of government.
5. Closing the test training

Prior to closing the training, the Nomadic Development Council projected a film entitled “Alza’ina”-“The life of a Nomadic woman” which demonstrated the lifestyle, gender division of roles among pastoralists (men and women) during the dry and wet seasons.

Following this Afaf Rahim acknowledged that the workshop was an important part of the adaptation process and has generated considerable insights for- and will be incorporated in- the adaptation process. She thanked the participants for their full and valuable engagement during the three days of the training. She also 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. Finally, she indicated that the current workshop participants (and the former participants) are important stakeholder contacts with whom Tufts/UNEP will keep in touch-through regular mailings, dissemination of relevant material and, if possible, local and national activities and generating active involvement. The final workshop words were given by the director of the Nomads Development Council his Excellency Lieutenant General Safi El Nur who highlighted the importance of disseminating the scientific findings to the policy makers and confirmed the continuous support to research and training aiming towards a better life for the pastoralists/Nomads. He ended by re-stating the willingness and commitment of NDC to support the activities of Tuft project.
## 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>
<td>1</td>
<td>Ali Adam Eltahir</td>
<td>Animal Resources Research Corporation</td>
<td><a href="mailto:Aliadam_ett1989@hotmail.com">Aliadam_ett1989@hotmail.com</a></td>
<td>0912295550</td>
</tr>
<tr>
<td>2</td>
<td>Dr. Adam Salih</td>
<td>Independent Consultant</td>
<td><a href="mailto:adam_salih@live.com">adam_salih@live.com</a></td>
<td>0122487719</td>
</tr>
<tr>
<td>3</td>
<td>Dr. Babo Fadlalla</td>
<td>Sudan University of Science &amp; Technology</td>
<td><a href="mailto:Babo_f@yahoo.com">Babo_f@yahoo.com</a></td>
<td>0912297800</td>
</tr>
<tr>
<td>4</td>
<td>Abdelrahman Mohamed</td>
<td>Range and Pasture Administration</td>
<td><a href="mailto:abdghamid@gmail.com">abdghamid@gmail.com</a></td>
<td>0121065961</td>
</tr>
<tr>
<td>5</td>
<td>Adam Sheika Hassaballa</td>
<td>Nomads Development Council</td>
<td><a href="mailto:Nomads_council@hotmail.com">Nomads_council@hotmail.com</a></td>
<td>0183228339</td>
</tr>
<tr>
<td>6</td>
<td>Dr. Ekhlas Ahmed Nour</td>
<td>U.of K./Export Institute</td>
<td><a href="mailto:ikhlas_nour@yahoo.com">ikhlas_nour@yahoo.com</a></td>
<td>0122271833</td>
</tr>
<tr>
<td>7</td>
<td>Dr. Haja Siddig Gandour</td>
<td>Nomads Development Council</td>
<td><a href="mailto:Nomads_council@hotmail.com">Nomads_council@hotmail.com</a></td>
<td>0129037088</td>
</tr>
<tr>
<td>8</td>
<td>Ibrahim Sati Hassan</td>
<td>University of Butana</td>
<td><a href="mailto:Satti96@hotmail.com">Satti96@hotmail.com</a></td>
<td>0122857829</td>
</tr>
<tr>
<td>9</td>
<td>Ahmed Ali Abdelgadir</td>
<td>Community Development Association</td>
<td><a href="mailto:a_abdelgadir@hotmail.com">a_abdelgadir@hotmail.com</a></td>
<td>0912303334</td>
</tr>
<tr>
<td>10</td>
<td>Dr. Ahmed Hussien</td>
<td>Central Veterinary Labs</td>
<td><a href="mailto:Ahmedrahman2001@yahoo.co.uk">Ahmedrahman2001@yahoo.co.uk</a></td>
<td>0916828335</td>
</tr>
<tr>
<td>11</td>
<td>Dr. Omer Egami</td>
<td>U. of K.</td>
<td><a href="mailto:Omer.egeami@hotmail.com">Omer.egeami@hotmail.com</a></td>
<td>0910089818</td>
</tr>
<tr>
<td>12</td>
<td>Magda Nassif</td>
<td>UNEP</td>
<td><a href="mailto:Magda.NASSEF@unep.org">Magda.NASSEF@unep.org</a></td>
<td>0912154787</td>
</tr>
<tr>
<td>13</td>
<td>Dr. Abdelaziz Karamalla</td>
<td>Sudan University of Science &amp; Technology</td>
<td><a href="mailto:gaiballa@gmail.com">gaiballa@gmail.com</a></td>
<td>0918275494</td>
</tr>
<tr>
<td>14</td>
<td>Dr. Hanan Abdelmoula</td>
<td>Gender Research Centre</td>
<td><a href="mailto:hananmola@hotmail.com">hananmola@hotmail.com</a></td>
<td>0911223000</td>
</tr>
<tr>
<td>15</td>
<td>Dr. Mohyeldin Eltohami Taha</td>
<td>University of Bahri</td>
<td><a href="mailto:mohyeldeent@yahoo.com">mohyeldeent@yahoo.com</a></td>
<td>0912235700</td>
</tr>
<tr>
<td>16</td>
<td>Elmardi Hassn</td>
<td>FAO</td>
<td><a href="mailto:Elmardi.ibrahim@gmail.com">Elmardi.ibrahim@gmail.com</a></td>
<td>0912396242</td>
</tr>
<tr>
<td>17</td>
<td>Ismail Sherief</td>
<td>Development Initiatative group</td>
<td><a href="mailto:ismailsharief@yahoo.com">ismailsharief@yahoo.com</a></td>
<td>0912906758</td>
</tr>
<tr>
<td>18</td>
<td>Ced Heses</td>
<td>IIED</td>
<td><a href="mailto:ced.hesse@iied.org">ced.hesse@iied.org</a></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Salih Abdelmageed</td>
<td>SOS-Sahel</td>
<td><a href="mailto:Saliheldouma@sahel.org.uk">Saliheldouma@sahel.org.uk</a></td>
<td>0911268215</td>
</tr>
<tr>
<td>20</td>
<td>Dr. Afaf Rahim</td>
<td>Tufts</td>
<td><a href="mailto:Afaf.Rahim@tufts.edu">Afaf.Rahim@tufts.edu</a></td>
<td>0923675514</td>
</tr>
<tr>
<td>21</td>
<td>Abdelhafiz Elobied</td>
<td>Tufts</td>
<td><a href="mailto:Hafiz.adam@tufts.edu">Hafiz.adam@tufts.edu</a></td>
<td>0912288033</td>
</tr>
</tbody>
</table>
Annexe 2: Participants Evaluation of the test Training Workshop

Day 1 comments on the Graffiti Board:
- Good day, the information received is valuable
- V. Successful day, time is well utilized.
- I like the way of presentation and the dissemination of data.
- I like the way the facilitator allowed everyone to be introduced, very interesting.
- Good day.
- Good sessions.
- The 2nd and 3rd sessions are v. useful, high and effective participations, the materials are also good.
- Pastoralism component.
- Great use of proverbs to break ice and introduce participants to each other & to the training.
- 1st photo slides of “setting the scene” too long & discussion needs to be guided a bit more + pictures described at the end.
- Positive - “setting of the Scene” photos covered the wide geographical spread of pastoralism.
- In the “where pastoralists exercise” there could be a wrap up of what we learned.
- The approach and way of presentation of all sessions is exciting.
- Nice valuable sessions.
- Good facilitation skills.
- Good participatory approach.
- More on the pillars: question Why couldn’t one use the same pillars to describe settled livestock producers? Why is this specific to pastoralism?
- The first session is too longer (about 2 hrs) it can be managed within just 30 minutes?

Day 2 comments on the Graffiti Board:
- The facilitation approach is fantastic, it prompts us to focus and concentrate, we gain more knowledge.
- Great input on Sudan – specific naming & practice in rangelands.
- Key points to summarize the whole session.
- The presence of additional experts and accumulated experiences enriched the discussion.
- Good scientific sessions.
- Useful comments.
- I like the effectiveness and homogeneity of the group that promoted by the facilitators.
- The facilitation was satisfactory.
- The conclusion of today sessions was excellent.
- The adaptation is progressing v. well.
- There are signs of success for the workshop.
- Very good day, v. Scientific and useful programme.
- Congratulation to the facilitators.
- The discussion is v. Vivid
- New & fruitful points were raised.
**Mood Metre**

In the first day the participants agreed to use a simple assessment/evaluation tool (daily mood metre), which is represented by four faces, v. smile, smile, neutral and sad. Below is the result of mood metre:

<table>
<thead>
<tr>
<th>Day</th>
<th>V. Smile</th>
<th>Smile</th>
<th>Neutral</th>
<th>Sad</th>
<th>Missed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>10</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2.</td>
<td>8</td>
<td>3</td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>
Annex 3: Training Timetable

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
</table>
| 09.00 – 11.00 | • Welcome and opening  
• Introductions using proverbs  
• History/objectives of the test training  
• Different perceptions exercises  
• Workshop behaviour – 'do's and don'ts' |
| 11.00 – 11.30 | Break                                                                  |
| 11.30 – 13.30 | Setting the Scene  
• Who and where are the pastoralists in Sudan?  
• Many and changes faces of pastoralism  
• Key characteristics of pastoralism |
| 13.30 – 14.00 | Break                                                                  |
| 14.00 – 15.15 | Introduction to the pastoral system  
• Constructing the 3-pillars  
• Discussing the inter-connectivity of the 3-pillars |
| 15.15 – 15.30 | Break                                                                  |
| 15.30 – 16.30 | KQ1, A1: Natural pastures are the major source of feed in pastoral areas |
| 16.30 – 17.00 | Peer review of 1st day training by AT                                   |

Day One: Saturday 19th November

Day 2: Sunday 20th November 2011

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
</table>
| 9.0-11.00  | • Recap Day 1  
• P1, KQ2, A1, Step 1: Seasonal timeline                                 |
| 11.00-11.30 | Break                                                                  |
| 11.30-13.30 | P1, KQ2, A1, Steps 2-3: seasonal changes in quality of pasture & the importance of trees |
| 13.30-14.00 | Break                                                                  |
| 14.30-15.15 | P1, KQ2, A2: Impact of wet seasonal variability on pasture quantity and quality |
| 15.15-15.30 | Break                                                                  |
| 15.30-16.30 | P1, KQ2, A2: Impact of wet seasonal variability on pasture quantity and quality |
| 16.30-17.00 | Peer review of 2nd day training by AT                                   |

Day 3: Monday 21st November 2011

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
</table>
| 9.00 - 11.00 | • Recap Day 2  
• The future of pastoralism in Sudan – what are the options? (Group work) |
| 11.00 - 11.30 | Break                                                                  |
| 11.30 - 13.30 | • The future of pastoralism in Sudan – what are the options?  
• Film  
• Wrap-up and close of training |