

Across East and West Africa, an estimated 50 million traditional livestock producers are not only supporting their families, their communities and a huge meat and hides industry, but are also demonstrating a rare capacity to adapt to climate change. A new study into pastoralism in Africa's drylands shows that, despite serious problems caused by bureaucracy, border controls and, more recently, land grabbing, many of the livestock rearers are resourceful, highly productive and financially canny.

# Pastoralism

## an untold tale of adaptation and survival

GRAIN

Drylands make up 43 per cent of Africa's inhabited surface and are home to 268 million people – 40 per cent of the continent's population. By far the most important activity in these drylands is pastoralism. A study published recently gives outsiders a fascinating insight into these pastoralists' lives.<sup>1</sup> It shows that, given half a chance, pastoralists, who feed their animals solely on natural dryland pastures, can achieve high rates of productivity, significantly higher than on modern ranches built on the Western model. Using their deep knowledge of animals and ecosystems, pastoralists are also proving skilful in elaborating new strategies to tackle the consequences of climate change.

Mobility is key to the success achieved by these communities but, according to the study, the process is often poorly understood. For instance, pastoralists do not generally move in response to pasture shortage, as is widely believed. Instead, they seek out the best fodder for their animals:

As a general rule pastoralists are much more concerned with the quality of the diet (grasses, shrubs, tree leaves and water), as measured by their animals' health and productivity. They generally move towards higher quality, rather

than away from low quantity ... To an outsider the grasses, shrubs and trees of the drylands may look much the same, but in fact pasture quality varies on a daily, seasonal and annual basis, and most importantly is not evenly spread across the landscape. It is this scattering of different pastures over different places, at different times, which makes mobile livestock-keeping so productive in what is otherwise a difficult environment.<sup>2</sup>

It takes skill to ensure that the cattle are well fed. Communities have learnt both to guide cattle in their feeding habits and to be sensitive to their needs. The WoDaaBe from Niger say that they train their Bororo zebu to pick and choose from over 40 different plant species, including shrubs and trees and even wild melons and water lilies. They also know the conditions in which the cattle feed best: "They [the cattle] graze better and more when they find what they like – soft, delicious grass – and when they are given the opportunity to range any time during day and night. They graze badly when disturbed, for example by the bad smell of droppings, by pasture infested with grasshoppers, by the smell of a carcass, by grass that is brittle or spiky."<sup>3</sup> The pastoralists have also learnt, when appropriate, to trust their animals' instincts. According to Ereyey Hosiah Ekiyeyes, a

1 International Institute for Environment and Development (IIED) and SOS Sahel International UK, *Modern and mobile – the future of livestock production in Africa's drylands*, 2010, <http://www.iied.org/pubs/display.php?o=12565IIED>

2 *Ibid.*, p. 15.

3 *Ibid.*, p. 17.





Pastoralists no longer automatically take their cattle to the nearest market, but choose the one with the best prices.

Turkana from Kenya: “Another reason why people move is that your livestock will just force you to move because they know there is better grass in another place.”<sup>4</sup>

When a community is considering a move, skill and tact are needed to manage the social relationships both within the community itself and with other communities using the land in the new area. This becomes particularly important when a group is facing an emergency and levels of stress are high. Bot Bor Bule, a Borana elder in Ethiopia, explains how his community responded to a drought:

When rain fell in another area we got information about it. Our “ola” (camp) is composed of 28 households. Nine households wanted to shift, 19 said shifting has consequences, let’s wait. We democratically decided to separate. Every movement has a big impact on women and animals so people are often reluctant to take a risk. The nine households sent a delegation to go and scout for pastures and water-use rights,

and meet with the communities where the rain was. We have to ask them for rights to camp with them. This “scouting” is done by a very important person. They have to be truthful, observant, accepted by the new community and trusted by their own community. Once the community accepted us to come they assisted us to settle. For one and a half months they provided us with grain and provided us with security until our animals were lactating again.”<sup>5</sup>

**High productivity**

When they are free to manage their mobility as they wish, pastoralists can achieve very high levels of productivity:

Modern ranching is often believed to be an improvement over traditional livestock management. Many governments in Africa believe ranches will produce more and better-quality beef and milk than pastoralism. Ranches,



**Table 1: Comparative productivity of pastoralism and ranching**

	Productivity of pastoralism and ranching	Unit of measure
Ethiopia (Borana) <sup>1</sup>	157% relative to Kenyan ranches	MjGE/ha/yr (calories)
Kenya (Maasai) <sup>2</sup>	185% relative to East African ranches	Kg of protein production/ha/yr
Botswana <sup>3</sup>	180% relative to Botswana ranches	Kg of protein production/ha/yr
Zimbabwe <sup>4</sup>	150% relative to Zimbabwean ranches	US\$ generated/ha/yr

1 W.J. Cossins, “The productivity of pastoral systems”, *ILCA Bulletin*, 21: 10–15, 1985.

2 D. Western, “The environment and ecology of pastoralists in arid savannas”, *Development and Change*, 13: 183–211, 1982.

3 N. De Ridder and K.T. Wagenar, “A comparison between the productivity of traditional livestock systems and ranching in E. Botswana”, *ILCA Newsletter*, 3 (3): 5–6, 1984.

4 J.C. Barnett, *The economic role of cattle in communal farming systems in Zimbabwe*, Pastoral Development Network paper 32b, ODI, London, 1992.

4 *Ibid.*, p. 17.

5 *Ibid.*, p. 16.



Photo: Kelley Lynch / IIED

*Cattle drink from the trough while camels wait their turn at the borehole in Lehey, Somali region, Ethiopia. Thousands of animals come to the borehole every day.*

which control stocking densities and invest in high-yielding cattle breeds, water development and veterinary inputs, are able to meet the international health standards required for the export trade. But research in Ethiopia, Kenya, Botswana and Zimbabwe, comparing the productivity of ranching against pastoralism, all came to the same conclusion: pastoralism consistently outperformed ranching, and to a quite significant degree. Whether measured in terms of meat production, generating energy (calories) or providing cash, pastoralism gives a higher return per hectare of land than ranching. Whereas commercial cattle-ranching tends to specialise in only one product – meat – pastoralism provides a diverse range of outputs, including meat, milk, blood, manure, traction, which when added up is of greater value than meat alone [see table 1].<sup>6</sup>

Many pastoralists have also been quick to take advantage of new technology, particularly mobile phones:

Tirina ole Kailonko is a Maasai herder who lives in Mbirikani in Kajiado district of southern Kenya. When Tirina wants to sell his cows he has a choice of three markets: Emali which is 50 km away, Mombasa 350 km away and Nairobi 150 km away. With improvements in communication infrastructure, Tirina no longer relies on friends and middlemen. He uses his cellphone to speak to his contacts or queries the national livestock marketing information system for prices of cattle in the markets. Based on the cost of transporting the animals by truck and the time it takes to get his cattle to the market, he is then able to

make a decision on which market to deliver his load of animals to. According to Tirina, prior knowledge of the expected average prices in different markets has improved his bargaining power. He has gradually become independent of middlemen in the livestock marketing chain, and has improved his income.<sup>7</sup>

Pastoralism is important to the local economies: in many countries of the Sahel its contribution to the total agricultural output is above 40 per cent.<sup>8</sup> There are also other very important benefits that pastoralism brings, which are not captured in GDP figures: “National accounts are based only on the value of final products such as meat and hides, and leave out the many social, security and ecological benefits mobile livestock production adds to economies.”<sup>9</sup>

The dynamics behind pastoralism are subtle and delicate. Very often western governments and development agencies fail to grasp the complexities, and have unwittingly adopted policies that, although well-intentioned, have done long-term damage to the communities. Drought relief is a case in point:

Millions and millions of US dollars have been spent in pastoral drought relief in dryland Africa since the 1970s. Nearly all of this money has gone on buying food aid, which while saving pastoral lives has failed to save livelihoods. For many pastoral communities, the return of the rains after the drought has not allowed them to return to mobile livestock keeping. Having lost their animals during the drought, they either remain in or around the towns from which they achieved the food aid that saved their lives, sometimes succeeding in a new livelihood, or they try their hand at agriculture, charcoal making or, in extreme cases, adopting a violent lifestyle. This failure is not only a human tragedy but an economic one too, as governments bear both the price of livestock production forgone and the cost of supporting these communities.<sup>10</sup>

Another important issue raised by this study is the role of pastoralism in both mitigating and adapting to climate change. Grasslands store about 34 per cent of the global stock of carbon dioxide. Africa – which covers about one fifth of the earth’s land area – is the key continent, for it has about 13 million sq. km of grasslands, far more than any other region in the world. If the grassland becomes degraded or is converted to cropland, it loses its capacity to store this carbon. So pastoralists, by helping to maintain the grasslands, are playing

<sup>6</sup> *Ibid.*, p. 19.

<sup>7</sup> Provided to the study by Mariuki Gatarwa Global Livestock Research Support Program – Livestock Information Network and Knowledge System, Nairobi, Kenya.

<sup>8</sup> WISP, *Global review of the economics of pastoralism*, Nairobi, 2006.

<sup>9</sup> *Modern and mobile*, p. 25.

<sup>10</sup> *Ibid.*, p. 65.



## Box 1: Land loss in numbers<sup>1</sup>

- In Ethiopia, the Afar have lost over 408,000 hectares of prime dry-season grazing along the Awash river to irrigated farming and the Awash National Park, while in the Somali region over 417,000 hectares of prime grazing land have been converted to rain-fed and irrigated agriculture in the last 60 years.
- In Senegal, thousands of hectares of riverside land were converted to commercial irrigated farming in the 1950s, seriously disrupting the seasonal movements of livestock and denying them access to highly nutritious dry-season grazing.
- In Mali, the state-run cotton company (CMDT) expanded into the region of Kita in 1991. Thousands of agricultural migrants flocked to the area occupying former pastoral lands and investing their profits in livestock that now compete with pastoralist-owned animals for access to pasture and water.
- In Chad, it is estimated that in 20–30 years, about 2 million hectares, 5 per cent of the total land area, will have been lost to pastoralism because of agricultural expansion.
- In Tanzania, over 30 per cent of land is classified as national parks, game reserves, hunting blocks, or protected forests from which pastoralists are either excluded or to which they have restricted rights of access.

1 *Modern and mobile*, p. 40.

a key role in carbon sequestration. The study reiterates a point made by GRAIN in its special *Seedling* on climate change:<sup>11</sup> it is quite wrong to include pastoralism in a general livestock category that also contains high-intensity industrial meat and dairy production. It is extremely unlikely that pastoralism makes any significant contribution to the estimated 18 per cent of global greenhouse gas emissions attributed by the UN to the livestock sector.<sup>12</sup> While further study is required, it is probable that on the contrary pastoralism, through its role in conserving grasslands, plays an important positive role in mitigating the crisis.

Pastoralists could also play a key role in adaptation. For some 7,000 years they have used mobility to respond rapidly to variations in the drylands' climate, and they have developed strategies for spreading the risk of losing their stock. This means that they are in a much better position to adapt quickly and successfully to the changing climate than are those tied to sedentary land uses. If Africa is to take advantage of these skills, pastoralists must be included in decision-making at all levels: "To continue to adapt, pastoralist communities need to be informed of changes to come, to be involved in planning for the future, including measures to secure mobility together with access to grazing and water, and to explore new ways to secure their livelihoods."<sup>13</sup>

### Constraints on pastoralism

Despite the undoubted economic, social and environmental benefits it brings, pastoralism is under threat. Some of the constraints are the result

of the arbitrary way African territory was carved up into nation states by the European powers towards the end of the nineteenth century. Pastoral communities were split apart, with seasonal grazing lands divided and trade routes closed. Even today, pastoralists face constant hassle as they try to cross borders.

However, a much more serious problem for them stems from the recent expansion in farming:

The slow but inexorable advance of family farms, combined in places with the establishment of large-scale commercial farming, is swallowing up vast areas of grazing lands. The United Nations Environment Programme (UNEP) has called for a moratorium on the expansion of large mechanised farms in Sudan's central semi-arid regions, sounding a warning that it

11 GRAIN, *Seedling*, October 2009, <http://www.grain.org/seedling/?id=657>

12 See FAO, *Livestock's Long Shadow: environmental issues and options*, Rome, 2006 <http://www.fao.org/docrep/010/a0701e/a0701e00.HTM>

13 *Modern and mobile*, p. 74.



Photos: Kelley Lynch / IIED

*A Hamar man ploughs his land after the first rains. As agro-pastoralists the Hamar keep cattle and also grow crops.*

was a “future flash point” for conflict between farmers and pastoralists.

As rains become increasingly erratic through climate change, subsistence farmers across the Sahel experiment with different techniques to ensure a minimum harvest. To hedge their bets against a bad rainy season, farmers scatter fields over a wide area in the hope that some will produce a harvest. This fragments the open grazing land and makes livestock mobility a much harder task. Animals now have to be supervised at all times to prevent them from entering fields and destroying the crops. Sowing late-maturing crops and flood-retreat sorghum in low-lying areas or along seasonal river beds also seriously delays and disrupts the movement of herds which now cannot move until the crops are harvested.<sup>14</sup>

Particularly in East Africa, land is also being lost to national parks and conservation areas, which further restricts pastoral mobility.

At the same time, cattle corridors, which are essential for effective and orderly mobility, have been encroached upon. Bouréima Dodo, Executive Secretary of Billital Maroobe in Niger, complained: “Paths do not belong to us any more. They have become risky because at any moment herders can find themselves hemmed in, without being able to move, because all the land is privatised.”<sup>15</sup> Not surprisingly, conflicts arise, as herders seek alternative routes, often through fields.

### Conflict resolution

Over the last few decades a series of initiatives has been taken to create new mechanisms for resolving

these conflicts. The IIED study points to a case in Ethiopia where communities have formed “landscape assemblies” to manage local resources. During the assemblies, communities map the key features in their areas (seasonal grazing, water points, salt pans, forests, livestock routes, and so on) and these maps are then used as the basis of community discussions to identify and plan remedial action:

Assemblies can involve as many as 350 pastoralists and last as long as three days. Discussions focus on rangeland management issues including mobility, the dismantling of private enclosures and the reopening of formerly closed stock routes to water and mineral licks.<sup>16</sup>

Numerous other projects have been set up in Burkina Faso, Mali, Niger, Chad and Sudan to reduce conflict by re-opening traditional transhumance routes or by demarcating new ones. Experience has taught that these projects are effective only if they work within the logic of the pastoral system, which views natural resources as being owned, managed and used collectively by different users, either at the same time or sequentially.

### Ways forward

The IIED study ends with a number of recommendations. Of perhaps the two most important, one is that proper recognition should be given to pastoralists for what they are:

Mobile livestock keeping is a sophisticated, rational and productive use of dryland resources. If properly supported, it sustains millions of people at low cost to governments, contributes positively to sound environmental management, generates substantial revenue for national economies, and keeps the peace in remote and sparsely populated regions. It has significant comparative advantage above alternative methods of animal husbandry or land use in drylands. Policy should be directed towards realising these advantages.<sup>17</sup>

The other is that the pastoralists should be listened to:

This book includes numerous examples of the deep indigenous knowledge that informs pastoral systems. Policy-making processes need to be informed by this knowledge so that they benefit from the experiences and insights of pastoralists and their representatives.<sup>18</sup>

14 *Ibid.*, p. 39.

15 GRAIN, “Rights of Passage in Niger”, *Seedling*, January 2008. <http://www.grain.org/seedling/?id=531>

16 *Modern and mobile*, p. 60.

17 *Ibid.*, p. 84.

18 *Ibid.*, p. 84.



Photo: Michael Wadleigh / IIED