

**GLOBAL DRYLANDS IMPERATIVE**

**CHALLENGE PAPER**

**PASTORALISM AND MOBILITY IN  
DRYLANDS**

**1. EXECUTIVE SUMMARY**

Nomadic pastoralists and the dryland ecosystems they occupy form a critically important but little known livelihood system. Pastoralists have been ill-served by development policies and actions so far, since planners have almost without exception tried to convert the pastoralists into something else, judged more modern, more progressive and more productive. Happily this is now changing, as researchers and planners revise their ideas and identify a new development agenda. Many of these changes have resulted from successfully listening to herders themselves.

On closer study, many widely believed ideas about pastoralists turn out to be myths without logical or factual basis, grounded in large part on ignorance and prejudice. A more realistic vision of future pastoralism envisages a flourishing economy, with well-educated and successful pastoral producers, no longer marginalised from mainstream society. To achieve this, we need for new policies about:

- the basic structure of the pastoral economy: a ranching model will not be successful;
- pastoral population growth: in many cases an overflow channel for herders who want to leave pastoralism is needed, so that pastoral populations can regain flexibility in relation to the natural resources that sustain them;
- managing natural resources to give priority to pastoralism where that is justified;
- improving natural resource tenure to remove present ambiguities and strengthen corporate tenure;
- improving pastoral productivity;
- providing more efficient markets, and encouraging pastoralists to identify and produce for particular markets;
- providing services including education and health, often through a mix of mobile and static facilities;
- providing financial services such as credit, savings, hire purchase and insurance, in forms adapted to a nomadic lifestyle;
- developing risk management plans, and ways to reduce conflict;
- improving pastoral governance.

## **2. BACKGROUND**

Drylands cover 40 percent of the Earth's surface, and more if mountain pastures, which share many dryland ecological characteristics without necessarily being dry, are included. Drylands have one over-riding feature: they have low, but highly variable, precipitation in the form of rain or snow. As much as lack of precipitation, it is the variability which gives drylands their special features. When rain fails across the Sahelian belt of west Africa, half a dozen countries may face disaster. Yet the following year there may be so much rain that herders lose their animals in the thick grass. On the edge of deserts like the Gobi, the Dasht-e-Lut or the Sahara, a single good rainstorm transforms the landscape, creating rich meadows on a broad front 100 kilometres deep, where the previous year there had been only sand and gravel. Mobile pastoralism is a sophisticated technique to make the best use of such ecological variability. Domestic animals transform the vegetation into economically useful products - meat, hides, wool, milk, traction power - and mobility allows them to find vegetation which is scattered sometimes over huge distances. Pastoralists tend animals which are adapted to particular environmental and economic niches: camels in the driest areas, goats where shrubs and trees dominate, sheep on mountain or dry pastures too rugged for cattle and where small readily marketable animals are convenient. Cattle are herded in richer areas where open savannas provide decent grass cover and adequate water.

### *Pastoral development*

Mobile pastoralism is an ancient form of land use, well-adapted to the problems of maintaining sustainable and productive livelihoods in drylands today. In the past half

century, research has illuminated the processes at work. Pastoralists have long been studied by anthropologists, interested at first principally in political systems and kinship, but since the 1950s also in pastoralism as an ecological adaptation to dryland environments. More recently economists and geographers have added new perspectives. Thanks to this work, we now begin to understand what mobile pastoralists do in everyday life, why, and with what consequences. Animal scientists came at pastoralism from a different point of view, often seeing traditional livestock systems as inefficient, to be modernised with the help of genetically superior animals, and new management systems. Range scientists at first followed the same path, promoting range management techniques developed in the prairies of North America. The spectacular failure of this enterprise prompted many range managers to rethink their science as it applied to the tropical drylands, with important results.

When governments and development agencies first started to address pastoralism in the early 1970s, the dominant view was that the enterprise was backward and needed to be modernised using an intensive, western livestock development model. 'Desertification' was thought to be in large part the result of anarchic pastoralism, and to threaten the future of the drylands. Modern science would provide the solutions, ignoring the very considerable scientific knowledge of the herders themselves, and the internal logic of their land use system. Government would play the main role, deciding investments and acting as overall land manager. Movement would be reduced by providing services and resources, ignoring the wider ecological necessity behind mobility. A development model depending on a new and untested scientific approach, sedentarisation, and a key role for government, underpinned the main projects funded in the 1970s.

Not surprisingly, they failed. 'Genetically superior' animals died from disease and malnutrition, grazing rules based on the ecological dynamics of the western United States didn't work in Tanzania, and sedentarisation was resisted by herders who needed grass for their animals and had to move to find it. The new services were not delivered. Following the principle of blaming the victim, pastoralists were accused of sabotaging development in the name of ignorance and tradition (which were seen as synonymous). The large pastoral livestock projects of the 1970s and early 1980s were halted, and major donors abandoned the livestock sector as too difficult.

In the last decade, interest has been growing cautiously again in pastoral livestock development, led by some imaginative projects constructed by the World Bank and by non-governmental organisations. The new generation of pastoral projects has common characteristics: a respect for mobile pastoral strategies, and for herders' technical understanding, a concern with risk and variability, a priority given to institutional development, and to a systematic participation of pastoralists themselves in project identification and management. Scientific approaches have become more relevant: range managers are starting to understand the vegetation dynamics of drylands, animal scientists have a new respect for the genetic potential of indigenous breeds, and social scientists are beginning to understand how customary institutions work. In a remarkable reversal of its reputation, mobile pastoralism is now seen as one key to environmental sustainability in the drylands. Paradoxically, just as we are coming to realize the real

value of traditional and emergent forms of mobile pastoralism to biodiversity conservation, we are once again undermining the forms of land tenure that support these systems, this time through measures “scientifically” designed for environmental protection.

Problems remain. Old myths die hard, and outdated policies are recycled. Pastoralists are still often treated as second-class citizens when it comes to investments, service delivery, political power and citizenship. Their 'irrational' mobility is often cited as a reason, although an atavistic fear among sedentary people of those who are here today and gone tomorrow may be more often to blame.

### *Nomadic pastoralism*

Pastoral systems take many forms, adapted to particular natural, political and economic environments. There are two components in any definition: the degree of dependence on livestock-based activities, and the nature and form of mobility.

Different livelihood systems use animals in different ways. At one extreme, a farming household or a city school teacher may keep a sheep at home, fattened on household scraps for an annual religious festival. At the other is a prosperous Turkana household in northern Kenya entirely dependent on a herd of cattle for every aspect of daily life and all its income. The latter is clearly a pastoralist, the former clearly not, but where is the break point on the continuum which separates them?

Mobility creates a similar definition problem. There are many types of mobility and the degree of mobility may change according to environmental conditions, or household life cycle stage. Mobility can be seasonal, regular as a pendulum between two well-defined pasture areas, following marked transhumance routes that have not changed for centuries. It can also be nearly random, following erratic rain clouds, and rarely the same from one year to another. Movement can be up and down mountains, between a summer and a winter village. Movement is not necessarily only for ecological reasons: it can be for trade, because of conflict, or to seal new political alliances. People move away from drought, animal disease or conflict, towards newly available resources, or simply because they don't like their neighbours.

This makes it difficult to classify mobility. At one extreme, a Wodaabe pastoral nomad household in Niger may move its camp every few days throughout the year. It is clearly highly mobile. The same household, after a catastrophic drought in which it loses all its animals, may settle and live from agriculture, food aid or migrant labour while it builds up its herd again. For a time it becomes sedentary. But as soon as the herd grows large enough again for the household to live from it, the household will become mobile again, to find pasture for the animals. At the other extreme from the Wodaabe is a farming household where a young girl takes the sheep away from the village every day a mile or two to graze. There is some displacement, but the livelihood system clearly does not depend on mobility. There is also a difference between mobility of animals (some may move and some stay behind, or all may move) and mobility of people (members of the

household may all move together, or herdsman and women alone may move, leaving other family members in a fixed camp or settlement).

Any definition is arbitrary to some degree, but we need to clarify how we are using words. Recognising that there will be many cases which are borderline or fall outside neat categories, we may think of mobile pastoralism in a grid. One axis shows the degree of dependence on livestock, the other the importance of mobility. We may arbitrarily label an economic system in which most households gain more than 50 percent of total gross household income (ie including the value of products produced and consumed within the household) from livestock related activities, using unimproved pastures, as *pastoral*. Systems where more than 25 percent of income comes from livestock, and more than 50 percent from cropping may be labelled *agro-pastoral*, other rural households as *agricultural*, ignoring in this the important role played in most rural household income by off-farm activities. On mobility, we may label all types of movement which include substantial irregularities as *nomadic*, regular back and forward movements between two relatively fixed locations (for example summer and winter pastures) as *transhumant*, and others as *sedentary*. This gives the following grid. The number of stars gives an idea of how commonly these two sets of criteria combine in real livelihood systems:

	pastoral	agro-pastoral	agricultural
nomadic	***	*	
transhumant	***	***	*
sedentary	*	***	***

In this paper, if not otherwise qualified, we use the term mobile pastoralism to refer mainly to nomadic and transhumant pastoral livelihoods. But many of the conclusions also apply to nomadic and transhumant agro-pastoral livelihoods.

Mobile pastoralists are found in most of the world's drylands and mountains. This includes South America, where there are indigenous grazing economies in the highlands of Peru, Bolivia, northern Chile and Argentina. One example: Aymara herders live at a mean altitude of 4,000m in the Bolivian Altiplano at the limit of agricultural production, where altitude and latitude combine to form one of the harshest and driest landscapes in the continent. Native varieties of potato yield a meager harvest once every two or three years, making agriculture a precarious investment. Livestock - alpacas, llamas, and sheep - remain the core of local livelihood systems. Paradoxically, the Aymara keep their animals in the same pastures most of the year, but make a seasonal migration to their distant potato fields.

Mobile pastoralists are found in Alpine and Mediterranean Europe. Transhumance is widespread in the dry uplands across southern and parts of central Europe. Flocks - mainly sheep and goats, but in some cases cattle - depend on natural rain-fed pastures and sometimes cereal stubble. Harvested fodder is rare. Seasonal movements of flocks with their shepherds, occasionally also with their families, are generally from summer highland pastures, where herding households have a village base, to winter lowland areas. In some cases the pattern is reversed: the base is in the winter pastures, with summer visits to the uplands.

Such mobile pastoral populations are usually ethnic minorities, and include the people of the Spanish Sierra, Basque shepherds, shepherds of Languedoc in France, herders in the Abruzzi in southern Italy, Sarakatsani and Koutsovlach shepherds in northern Greece, other Vlachs distributed throughout the Balkans, Muslim shepherds in the mountains of Bosnia-Herzegovina, as well as pastoralists on the islands of Corsica, Sardinia, Sicily and Crete. In many parts of Alpine Europe, cattle from agricultural villages migrate in summer to mountain pastures. Mobile pastoralism is also found in northern Europe if Sami reindeer herders in northern Scandinavia, and the transhumant sheep flocks of Wales are included.

Africa is home to large numbers of nomadic pastoralists, ranging from the camel and sheep herders of North Africa, the Sahara and northern Sahel (including Sudan), the cattle herders of the belt of savanna vegetation from west Africa to the Horn and south into Kenya and Tanzania. Pastoralists, some of them mobile, are also scattered throughout southern Africa.

Much of the Middle East, and south-west Asia, especially Iran and Afghanistan, has large nomadic pastoral populations, as do the deserts and mountains of India and Pakistan. Mongolia has the distinction of being a largely pastoral country, with between a third and a half of the national population engaged in mobile livestock husbandry. Large areas of China are inhabited mainly by pastoralists, as are parts of central Asia, although on a smaller scale

Because of the difficulty in defining them, it is almost impossible to say how many pastoralists there are in the world today. Using the strict definition of nomadic and transhumant pastoralists outlined above, there may be between 100 and 200 million people in such livelihood systems. If nomadic and transhumant agro-pastoralists are included, the number rises very sharply, and such people are often a clear majority of dryland inhabitants. Interestingly, the number of mobile pastoralists is probably stable in many countries, but rising in some. In parts of southern Europe for example, and even more in central Asia following de-collectivisation, mobile pastoralism is seen as a viable and modern livelihood, and people are reverting to ways of living which seemed to have disappeared a generation earlier.

Mobile pastoralists are the subject of an unusually large number of myths and misunderstandings. These lead to inadequate, often hostile, development policies and

interventions. In this paper we discuss some of the key myths, and explore an alternative set of policies in favour of sustainable development for mobile pastoralists.

### 3. MYTHS AND MISUNDERSTANDINGS

Nomadic pastoralism is still viewed by many people, including decision-makers, through a prism of myths and half-truths. These distort policy-making about pastoral livelihood systems and result in policies which are at best inadequate and ineffectual, and at worst highly destructive and discriminatory. Some of the most enduring myths:

*"Nomadic pastoralism is an archaic form of production, whose time has passed."* A century ago it was believed that nomadic pastoralism was an intermediate development stage between mobile hunting and gathering on one hand, and settled agriculture on the other. Nomadic pastoralism was considered a historical anomaly, practiced by people who were not modern and who had been left behind by evolution. Modern archeological research shows this is untrue. Animal domestication took place at the same time as, or later than, the domestication of plants. Nomadic pastoralism developed as a specialised form of production, almost certainly initially based in early agricultural settlements, to allow the productive use of extensive seasonal rangelands. Pastoralism is no more archaic than agriculture itself, and mobility was a feature from the beginning, allowing herders to use rich resources away from the early settlements.

*"Mobility is inherently backward, unnecessary, chaotic and disruptive."* Pastoral mobility is a rational response to the scattered and uncertain distribution of natural resources. Most pastoral groups are found in environments with low and highly seasonal rainfall, where it is impossible to graze animals all year on the same pasture. Movement allows herders to use a variety of pastures, water points and other resources such as salt licks, and is a sophisticated adaptation to the problems of risky environments. Movement also has economic and social reasons: to take products to distant markets, join with kin for a seasonal festival, acquire or share information. Movement often follows precise patterns, and in most cases has developed clear rules about rights and duties. Until recently, pastoral movements were well synchronised with neighbouring herding and farming peoples, although many of these arrangements are now under stress, often as a result of inappropriate government action and agricultural population growth.

*"Most rangelands are degraded as a result of pastoral over-grazing."* Grazing, like other uses, may cause a change in the plant species composition of rangelands, but if rangeland degradation is defined as a long-lasting or permanent reduction in livestock production, the evidence of widespread rangeland degradation under pastoral grazing is shaky. Contemporary ecological research shows that dry savannas follow a different logic from wetter grasslands. In dry areas, vegetation growth is mainly determined by the rainfall that year, not by the grazing pressure of the previous year, as standard range management theory and practice suggest. Where rainfall is highly variable from year to year, vegetation production will vary also. In such situations, and especially where annual grasses dominate the sward, the definition of a precise carrying capacity becomes

impossible. Grazing pressure is a less important determinant of species composition and biomass production than the amount of rain and available soil moisture. (Snow plays a similar role in central Asian pastoral economies.) Although the danger of damage by concentrations of livestock to soil structure and vegetation must not be ignored, and often becomes apparent at places where livestock concentrate - such as wells, markets, or trekking routes - there is little evidence that dryland pastures as a whole are over-stocked and overgrazed. Indeed, in large areas of East Africa and the Horn the opposite is true: because of insecurity due to conflict, and in some cases a reduction in livestock numbers due to drought, formerly productive pastures have been invaded by unpalatable shrubs and trees, closing them to grazing.

*"Pastoralists do not take care of the land because of the Tragedy of the Commons."* The 'tragedy of the commons' supposes that land held in common will inevitably be overgrazed. The argument is that there will be no incentive for a herder to limit the number of animals he puts on the commons in situations where any other herder could increase his animals. But the tragedy of the commons rests on a misunderstanding. It supposes that all commons are open access, and that anyone can use them. In such circumstances competitive grazing leading to environmental damage could indeed occur. However most collectively grazed pastures are not open access, but are or have traditionally been collectively managed by identified groups of users. In this case it is entirely feasible for rights holders to agree to rules and enforce them. It has been government insistence that all pasture land belongs to the state, and that no group of users can make and enforce rules, that has undermined traditional collective action and created open access and overgrazing. This happened historically in southern Europe, Latin America, and large parts of Africa.

#### *Box 1. Corporate land tenure in highland Bolivia*

Until the 1970s, rights to pasture in highland Bolivia were corporately held by large clusters of communities traditionally known as *ayllus* with strict rules of entry and resource management. The Bolivian agricultural reform that had followed the nationalist revolution of the 1950s was the last in a series of blows to highland pastoral community structure. One of the reform's main goals was to provide peasants with individual title to land, a policy that herders had opposed for decades. Their advocacy to maintain corporate tenure of pastures was invariably read by the

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