

A GOOD PRACTICE GUIDE

PASTORALISM, NATURE CONSERVATION AND DEVELOPMENT



Convention on
Biological Diversity



The Convention on Biological Diversity (CBD) is a global agreement that addresses biodiversity, and has 192 Parties today. It was established in 1992, with three main objectives:

1. the conservation of biodiversity;
2. the sustainable use of its components; and
3. fair and equitable sharing of benefits arising out of the utilization of genetic resources.

The Secretariat of the CBD (SCBD) was established to support the goals of the Convention. Its principle functions are to prepare and service meetings of the Conferences of the Parties (COP) and other subsidiary bodies of the Convention, support Parties as appropriate, and coordinate with other relevant international bodies. The SCBD established the Biodiversity for Development Unit in 2008 with the support of the French and German governments. The goal of the Unit is to promote the integration of biodiversity conservation and poverty alleviation objectives in both conservation planning (e.g. National Biodiversity Strategies and Action Plans) and development planning (e.g. Poverty Reduction Strategy Papers or Sustainable Development Strategies).

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Foreword to the series



The conservation and sustainable use of biological diversity, and the eradication of extreme poverty are two of the main global challenges of our time. It has been recognized by the international community that these two challenges are intimately connected, and require a coordinated response. The protection of biodiversity is essential in the fight to reduce poverty and achieve sustainable development. 70% of the world's poor live in rural areas and depend directly on biodiversity for their survival and well-being. The impact of environmental degradation is most severe for people living in poverty, because they have few livelihood options to fall back on.

The Millennium Development Goals (MDGs) were established by the United Nations in 2000 to combat poverty, hunger, disease, illiteracy, gender inequality and environmental degradation. They integrate the 2010 Biodiversity Target set in 2002 by the Convention on Biological Diversity to achieve, by 2010, a significant reduction in the rate of biodiversity loss. Biodiversity is key to the achievement of all MDG goals, and the fulfillment of this international commitment by 2015.

Building bridges between biodiversity, poverty reduction and development is a crucial task. It involves strengthening the rights of the poor over resources, and developing financial incentive measures whereby the poor who are living in biodiversity-rich regions would receive payment from those who benefit from those services. It also includes strengthening partnerships and collaboration between biodiversity and development sectors.

This series of guides aims to compile good practices that support biodiversity conservation and poverty reduction in a number of different development sectors. It is our hope that these guides provide practical direction for governments, development agencies, businesses, and non-governmental organisations working to ensure that biodiversity conservation and poverty reduction activities go hand in hand.

Ahmed Djoghlaoui
Executive Secretary
Convention on Biological Diversity

Foreword from the publication steering committee

There are many different perspectives on biodiversity and its conservation and sustainable use. Often times, however, we overlook the importance of human use and management in the maintenance of biodiversity.

Pastoralism represents one example of an area for investment in which dual objectives of development and biodiversity conservation can be achieved recognizing the important role of pastoralism in cultures, traditions, livelihoods and the provision of ecosystem services. For example, maintaining vegetative cover through sustainable pastoralism can contribute to the provision of many ecosystem services both for pastoral people and their livestock and for surrounding land users. Furthermore, despite the common misconception that development is not compatible with pastoralism, there are many developed pastoral systems that are excluded from common understandings of pastoralism precisely because they are developed.

Actions that shift pastoralism from a sustainable to an unsustainable land use option, such as the conversion of pastoral lands to sedentary agriculture or the replacement of traditional livestock breeds with exotic stock, can cause the degradation of ecosystem services. For example, degradation of vegetative cover can undermine water cycling leading to both increased flooding and increased drought threatening both development and biodiversity objectives.

In order to achieve benefits from pastoralism, however, the value of pastoralism needs to be recognized. Some progress has already been made - in Europe, for example, countries such as Spain, France and Switzerland are investing in pastoralism in order to protect biodiversity. In fact, projects to promote pastoralism can be found in all regions of the world however efforts still need to be stepped up.

Jonathon Davies
Regional Drylands Coordinator, Eastern and Southern Africa
International Union for Conservation of Nature



Purpose and scope of the guide

Pastoralism is an important economic and cultural way of life for between 100 and 200 million people throughout the world. Many pastoralists can be found in Africa, however pastoralism is also practiced in the Middle East, South and East Asia and Europe. In fact, in some places, such as marginal drylands, pastoralism is the only economically viable activity.

Pastoralism is often characterized by low population densities, high mobility and dynamism, complex information systems and a high dependency on local knowledge. However, it is important to recognize the diversity in pastoral systems, especially when discussing poverty reduction. It is also important to consider how pastoralism fits into national economies. In sub-Saharan Africa, for example, about 16% of the population rely on pastoralism, however in some countries, such as Somalia and Mauritania, pastoralists represent a majority of the population.

Biodiversity can be described as the diversity of life on Earth. Simply put, biodiversity is the variety of all living things, the places they inhabit, and the interaction between the two. Interactions between the components of biodiversity make the Earth inhabitable for all species, including humans. Biodiversity is directly responsible for around 40% of the world's economy, particularly in sectors such as agriculture and forestry, and for ecosystem services such as clean water and soil fertility. 70% of the world's poor live in rural areas and depend directly on biodiversity for their survival and well-being.

This guide addresses the linkages between **pastoralism**, **biodiversity**, and **development / poverty reduction**. It aims to raise awareness of the suite of tools relevant to the pastoralism sector, which have been tested globally and have demonstrated benefits to biodiversity as well as development. Readers can make use of the tools by consulting the supplementary references and sources (see References page 35).



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The guide will:

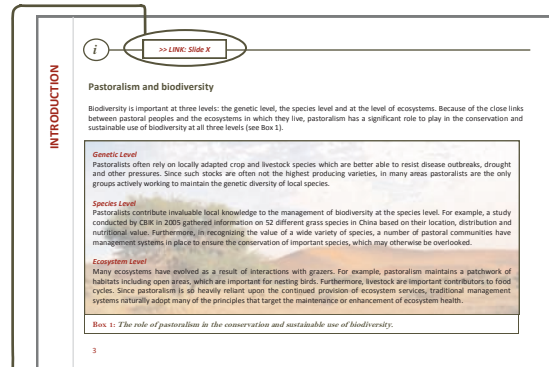
- Outline the status and trends of biodiversity in areas impacted by pastoralism;
- Introduce public decision-makers to some techniques, technologies and procedures that optimize the social and environmental outcomes of pastoralism and minimize negative impacts;
- Present good practice examples on the interface between pastoralism, poverty reduction and biodiversity;
- Assist Parties to the CBD in establishing national and sub-national pastoralism development policies, strategies, plans and projects that consider poverty reduction and biodiversity conservation;
- Provide sources and references for more detailed information.

Guide components:

1. Booklet: *Pastoralism, Nature Conservation and Development: A Good Practice Guide*

2. CD ROM (contained in Booklet sleeve). The CD ROM includes PDF versions of the booklet, key reference materials, and a summary slide presentation, which has been included as a tool for planners in the pastoralism sector to share this information in training sessions, workshops, strategic planning meetings, etc. Users can prepare their own presentation by selecting and/or editing each slide.

Note: Links between the Booklet and CD ROM Power Point Presentation are indicated throughout the Booklet.





>> **LINK: Slide 3**

Pastoralism and biodiversity

Biodiversity is important at three levels: the genetic level, the species level and at the level of ecosystems. Because of the close links between pastoral peoples and the ecosystems in which they live, pastoralism has a significant role to play in the conservation and sustainable use of biodiversity at each level (see Box 1).

Genetic Level: Pastoralists often rely on locally adapted crop varieties and livestock breeds which are better able to resist disease outbreaks, drought and other pressures. Locally adapted livestock breeds are capable of walking long distances and surviving drought which enables effective management of systems that demand mobility and drought tolerance. In many areas, pastoralists are the only groups actively working to maintain the genetic diversity of local breeds.

Species Level: Pastoralists contribute invaluable local knowledge to the management of biodiversity at the species level. For example, a League for Pastoral Peoples and Endogenous Development study (LPPED and LPPS 2005) gathered information on 52 different grass species in China based on their location, distribution and nutritional value. Furthermore, in recognizing the value of a wide variety of species, a number of pastoral communities have management systems in place to ensure the conservation of important species, which may otherwise be overlooked. By retaining species and management practices that have evolved in parallel with the local environment, pastoralists retain important species interactions (e.g. herbivory, host-parasite, and nutrient cycling), which benefit many wild species of plants, birds and insects.

Ecosystem Level: Many ecosystems have evolved as a result of interactions with grazers. For example, pastoralism maintains a patchwork of habitats including open areas, which are important for nesting birds. Furthermore, livestock are important contributors to food cycles. Since pastoralism is so heavily reliant upon the continued provision of ecosystem services, traditional management systems naturally adopt many of the principles that target the maintenance or enhancement of ecosystem health.

Box 1: *The role of pastoralism in the conservation and sustainable use of biodiversity.*

Pastoralism makes an important contribution to livestock genetic diversity

Because pastoralism often takes place in marginal areas such as drylands, locally adapted livestock breeds are critical for productivity. Such breeds tend to have higher resistance to disease, drought and parasites since they have evolved in parallel to such pressures. As such, despite being viewed as having limited productive potential, drylands maintain 46% of global livestock diversity. In the Near East, 90% of livestock diversity can be attributed to dryland pastoral systems. By continuing to manage indigenous livestock breeds, pastoralists maintain not only genetic diversity but also important indigenous knowledge regarding the health, management and reproduction of livestock.



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When practiced sustainably, pastoralism also encourages plant and landscape diversity



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When pastoralism uses native livestock breeds and relies on mixed fodder types, a number of benefits are realized for plant and landscape diversity. Compared to large scale enclosed grazing practices, pastoralism can be much closer to the grazing patterns of wildlife, thereby mimicking natural ecosystem interactions and functional roles. For example, on the Island of Islay off the Scottish coast, traditional cattle herding makes use of bogs, heaths and grasslands without exerting too much pressure on any one landscape or attempting to convert this mosaic of landscapes into a single ecosystem type. When compared to many agricultural practices elsewhere that extensively drain wetlands in order to convert them to croplands, the contribution of pastoralism to plant and landscape diversity becomes clear.



>> *LINK: Slide 5*

Ecosystem goods and services in drylands

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Drylands occupy 41% of Earth's land area and are home to more than 2 billion people. Despite the characteristic low and highly variable precipitation in these regions, they can produce numerous ecosystem services, including food, fibre, forage, fuelwood, freshwater, regulation of water quality, pollination, and seed dispersal. Drylands also contribute to cultural services such as recreation, tourism, cultural identity, indigenous knowledge systems, and supporting services such as soil development, primary production and nutrient cycling. These services deliver the basic material needs for survival, and underlie many aspects of sustainable livelihoods, including health, security, good social relations and freedom of choice.

Pastoralists play an important role in the flow of ecosystem goods and services in drylands. Pastoralists depend on the provision of fodder as livestock feed, as well as ecosystem services such as water cycling in these water-scarce regions. At the same time, their activities contribute to the production and stability of ecosystem services. Livestock grazing, for example, influences the fertility, distribution and diversity of plants, as animals scarify seeds in their guts, transport them over large distances, and fertilize grounds where seeds are deposited. The vegetation maintained through grazing activities in turn captures carbon, reduces erosion, maintains soils, and facilitates water holding capacity. Most pastoral systems are steeped in cultural practices and indigenous knowledge, "cultural services" which are highly valued and often irreplaceable. Pastoralism produces a range of direct goods and services such as meat, milk, fibres, hides, income generation, transport, savings and insurance.

The Millennium Ecosystem Assessment (MEA), a scientific undertaking involving over 1300 experts working in 95 countries, examined the state of 24 services that make a direct contribution to human well-being (see Table 1). The MEA concluded that approximately 10–20% of drylands are already degraded. About 1–6% of the dryland people live in desertified areas, while a much larger number is under threat from further desertification. The MEA also warns that policies to replace pastoralism with sedentary cultivation in rangelands can contribute to desertification.

Table 1: Ecosystem goods and services

<p>Provisioning Services</p> <ul style="list-style-type: none"> ▪ Food, Fibre and Fuel ▪ Genetic Resources ▪ Biochemicals ▪ Fresh Water 	<p>Cultural Services</p> <ul style="list-style-type: none"> ▪ Spiritual and religious values ▪ Knowledge system ▪ Education / inspiration ▪ Recreation and aesthetic value
<p>Regulating Services</p> <ul style="list-style-type: none"> ▪ Invasion resistance ▪ Herbivory ▪ Pollination ▪ Seed dispersal ▪ Climate regulation ▪ Pest regulation ▪ Disease regulation ▪ Natural hazard protection ▪ Erosion regulation ▪ Water purification 	<p>Supporting Services</p> <ul style="list-style-type: none"> ▪ Primary production ▪ Provision of habitat ▪ Nutrient cycling ▪ Soil formation and retention ▪ Production of atmospheric oxygen ▪ Water cycling

Source: MEA 2005

In Focus > Drylands management (East Africa)

The traditional management systems in the drylands of Africa must be responsive to variability and uncertainty. Pastoralists’ knowledge of species, ecosystems and climate form the basis for sustainable land management. Management strategies include seasonal movement, use of tree leaves and pods during dry seasons, burning of old pastures, and feeding on crop residues. In many East African pastoral communities, selection of grazing sites is aided by scouts, who report on the condition of distant pastures, estimating how long the fodder and water will sustain a given number of livestock. In Sudan for example, herds are not grazed at random, but in sites selected to be the best available, while sites in poorer condition are left to regenerate (Barrow *et al.* 2007).



Flickr.com/Rita Willaert



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The Ecosystem Approach and pastoralism

The ecosystem approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. It recognizes that humans, with their cultural diversity, are an integral component of ecosystems. Through its twelve principles the ecosystem approach balances production and economic considerations with conservation and the maintenance of ecosystem services. The ecosystem approach also recognizes the importance of involving all stakeholders in decision-making and of decentralizing management to the lowest level possible (SCBD 2004^b).

As pastoralism is often based on local management systems for the sustainable use of wild and domesticated species, many pastoral systems are good examples of the application of the ecosystem approach. Grazing land management, especially in marginal areas, is a complex process requiring a balance between the use of water, food, fodder, fuel, etc.. As users of grazing lands who are reliant upon the continued provision of such ecosystem services, pastoralists have a unique knowledge of how a balance between conservation and sustainable use can be achieved and maintained. In addition to seasonal and annual changes in use patterns, pastoralists are also able to quickly respond to perturbations.

Because of their close historical connections with biodiversity, pastoralists also benefit from the cultural services provided by the ecosystems in which they live. This is often reflected in local management practices which largely emphasize long time horizons in decision-making in order to maintain culturally important elements of the ecosystem. For example, in Rajasthan India, Raika and Rabari pastoral people use local decision-making processes to sustainably manage mixed livestock herds to produce meat and milk (Blench 2000). Where traditional pastoral livelihoods are replaced or restricted, however, the degradation of critical ecosystem services often follows.

As a result of changing policies, continuing biodiversity loss, and accelerating climate change, the future of pastoralism and the role that it will play in biodiversity conservation and sustainable use remains unclear. Existing constraints to pastoralism, including exposure to droughts, and pest and disease outbreaks, are unlikely to diminish and may, in many cases, increase due to climate change (see Box 2).

Box 2: *Observed and Projected Impacts of Climate Change on Pastoralist*

Pastoralism is facing a number of threats, not the least of which is from climate change. For example, CBD Technical Series No. 41 highlights diseases affecting livestock which are projected to increase in scope and scale as a result of climate change, including, trypanosomiasis. Furthermore, increased frequency of extreme weather events including floods and droughts may overwhelm the existing resilience of pastoral systems. Additionally, as a result of changing precipitation patterns, wildfire frequency is expected to increase in areas such as the Mediterranean basin with possible negative consequences for pastoral livelihoods.



There remains, however, a great deal of uncertainty with regard to the impacts of climate change on pastoral livelihoods. For example, projected decreases in precipitation may increase exposure to drought however, projected increases in grassland production as a result of the CO₂ fertilization effect may offset this. There is also a need for climate models that are scaled down to a point where they are meaningful to pastoral livelihoods.

As such, there is a need for increased and continued monitoring of the observed and projected impacts of climate change on pastoralism. In applying the precautionary approach, there is also a need to examine existing policies and practices in order to ensure that the natural adaptive capacity of pastoral systems is maintained or restored through, for example, conserving indigenous livestock breeds and fodder varieties, maintaining freedom of movement, and identifying and supporting traditional coping mechanisms such as water capture and management, and market access.



>> *LINK: Slide 8*

Environmental impacts of pastoralism: A snapshot

Pastoralism has historically been a sustainable livelihood option. However increased environmental stresses and changes in policies and practices, including restricting access to land and water, have increased the environmental impacts of pastoralism.



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Overuse of water resources

Since many pastoral systems operate in drylands, access to water is a limiting factor when determining herd sizes for many individuals and communities. As such, there is a high risk that competition for water may lead to overuse. This is especially true when considering the additional water needs of wildlife. In some drought prone areas of Kenya, for example, 58% of the water demand is met from groundwater in a district in which only 20% of the area has good groundwater potential. As such, in times of drought, there is insufficient supply to meet demand resulting in the drying of natural waterholes, the disruption of natural flows, and siltation of pans.

Overgrazing

As a result of increased population and herd sizes and reduced land access due to factors such as degradation and conversion to other land uses, overgrazing has increasingly become an issue for pastoralists. The impacts of overgrazing include loss of vegetative cover and associated soil erosion in the most extreme cases, with negative impacts on wild grassland species as well as inland waterways, which can suffer from sedimentation. In less severe cases, overgrazing can lead to a shift in the composition of grassland species with high nutritional value species becoming less predominant while less palatable plants increase in number. A study of pastoral systems in northern Nigeria, for example, revealed that while overgrazing was not reducing biodiversity, it was changing the composition of the ecosystem.

Livestock – Wildlife conflicts

There are two main types of livestock–wildlife conflicts to consider in pastoral systems. The first is competition with other grazers for water and fodder, and the second is conflict with predators who feed on livestock. Conflict with other grazers tends to be most noticeable during periods of stress such as drought. During such periods it is common for pastoralists to move herds into protected areas in search of water and fodder. In doing so, pastoralism comes into direct competition with wildlife. It is worth noting, however, that access to protected areas during times of drought, can be an important component of drought management strategies for pastoralists when combined with other measures.



Flickr.com/Vsnthuk

Maasai cattle, Tanzania

With regards to interactions with predators, a study in the Mara region of Kenya revealed that hyena density was 1.3 times higher on pastoral ranches compared to other areas, whereas lion density was 8 times lower on pastoral ranches. The proposed explanation for the higher density of hyenas is linked to higher prey density in pastoral ranches, whereas the significantly lower lion density is attributed, at least in part, to conflicts with pastoralism (Ogutu *et al.* 2005). Additional conflict can arise from the transmission of disease from pastoral communities to wildlife. For example, an outbreak of rinderpest in Kenya resulted in its transmission to wild grazers with death rates, in the mid-1990s reaching 60% of buffalo and 90% of kudu in some areas (Osofsky *et al.* 2005).

Positive environmental impacts

In addition to negative pressures on the environment, pastoralism delivers a number of positive benefits. For example, in many cases, sustainable grazing practices actually increase species diversity and maintain ecosystem structures. Pastoralism can also contribute positively to the reduction of disasters such as fires, drought and flooding through the active management of vegetative cover.



>> *LINK: Slide 9*

Pastoralism, poverty reduction and development

Despite commonly held views that pastoralism fails to maximize the productive potential of livestock production, the value of pastoralism should not be underestimated. In fact, pastoralism contributes significantly to the Gross Domestic Product (GDP) of many developing country economies: for example, approximately 8.5% in Uganda, 9% in Ethiopia and 10% in Mali. These proportions are lower than the estimated contribution of pastoralism to the economy of Central Asian countries like Kyrgyzstan, where pastoralism represents about 20% of GDP (WISP 2008).

However, the contribution of pastoralism to poverty reduction and development should not only be seen as a question of economics or market values. In fact the very nature of pastoral systems means that they are slow to react to market conditions such as changing prices and often operate beyond the bounds of market economies. Rather, supporting pastoralism offers a unique opportunity to ensure the continued survival of the cultural relationships between people and land as development continues. Furthermore, given the relationship between pastoralism and the sustainable use of biodiversity, many non-valued benefits can be attributed to pastoralism such as the continued provision of ecosystem services including nutrient and water cycling.

Pastoralism and the Millennium Development Goals

Pastoralism is, in many areas, the only economically viable development option and yet many countries see the achievement of the Millennium Development Goals (MDGs) as being linked to the restriction of mobility of pastoral peoples. In fact, the achievement of the MDGs is compatible with pastoralism. In Russia, for example, mobile schools for reindeer herders have contributed to the achievement of MDG 2 on universal education. A similar arrangement has been put in place for pastoralists in Sudan. Likewise the unique indigenous knowledge regarding medicinal plants held by pastoral peoples can contribute to the achievements of MDGs 4 and 5 on health. Finally, maintaining and enhancing adaptable and flexible pastoral systems in the face of increasing environmental and global economic challenges is necessary if MDG 1 to end extreme poverty and hunger is to be realized.

Economics and values of pastoralism

The value of pastoralism has often been undermined. Studies have shown that desertification often occurs where policies undermine the pastoralist system, while where pastoralism has been supported by appropriate policies, biodiversity and ecosystem integrity have usually been enhanced (Hatfield and Davies 2006). Multiple values are associated with pastoralism: direct values, for example livestock sales, products such as meat and milk, employment, transport, and knowledge; and indirect values such as inputs into agriculture, wildlife and tourism. They also include ecosystem services (such as biodiversity, nutrient cycling and energy flow) and a range of social and cultural values.

The economic value of pastoralist production can be greatly underestimated since a large percentage of trade passes outside of official channels, but pastoralists usually make significant contributions to national economies and export earnings. Indirect values of pastoralism also often go unmeasured and taken for granted. For example, the ecosystem services provided by healthy rangelands benefit many more stakeholders than pastoralists.

The Global Review of the Economics of Pastoralism, by the World Initiative for Sustainable Pastoralism (Hatfield and Davies 2006), highlighted existing knowledge on the value of pastoralism, the gaps in this knowledge, trends in pastoral economies and policy options that can support drylands economies most effectively. The report drew attention to the different values of pastoralism so that more informed decisions can be made by all stakeholders, and that pastoralists can make informed choices and demand appropriate policies to support and enhance their production system.



Andreas Wilkes

The Yak is important for livelihoods of residents of the Tibetan Plateau in China.



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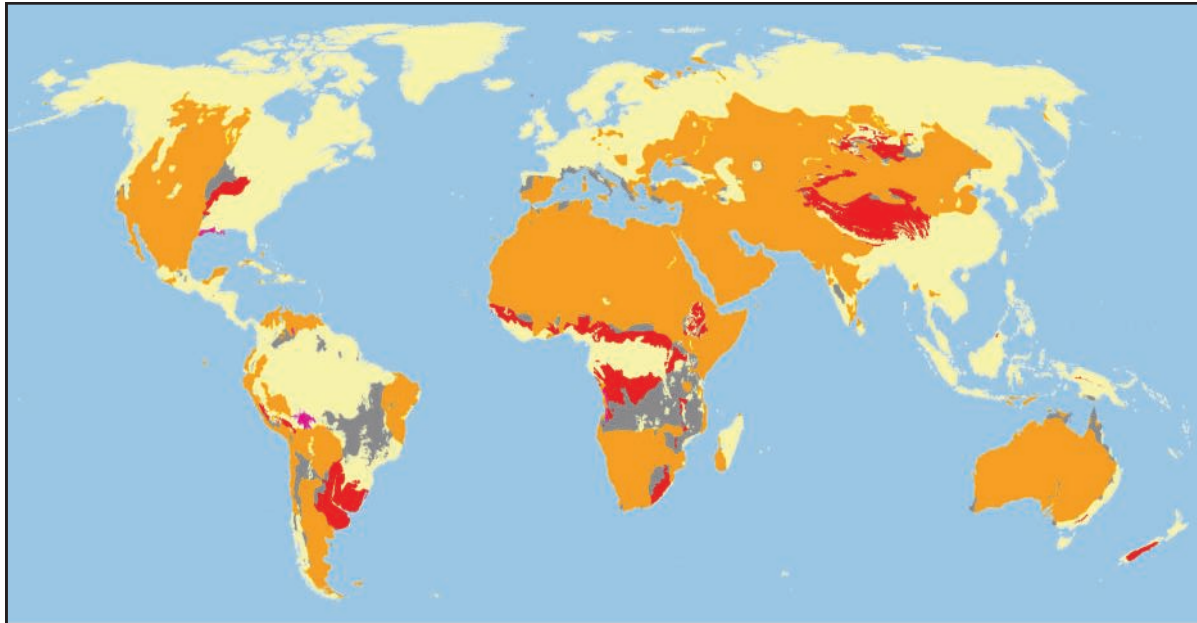
Some current global trends relevant to pastoralism, biodiversity and development

Ecosystem services

- A lack of global data has made the assessment of the status and trends of grasslands difficult. However some trends have been identified. Overall, grasslands account for about 40% of the Earth's terrestrial surface (see Figure 1), however, approximately half of this area is subject to some degree of degradation.
- Future impacts on the provision of ecosystem services in pastoral areas will be affected by the conversion of grasslands to croplands as a result of increased population pressure and higher demands for food. For example, tropical savannas and temperate grasslands account for about 25% of the global terrestrial carbon stocks most of which is stored below-ground in the soil. However, when these soils are converted to agricultural use, up to 70% of the soil carbon content can be lost.
- Invasive alien species are presenting an increasing threat through both competition for grazing or through the replacement of plants with high nutritional value with species with a lower nutritional value. The introduction of high water demand invasive alien tree species is also disrupting water availability in some areas.
- Climate change is expected to decrease water availability especially in sub-Saharan Africa and the Central Asian drylands. Changes in the seasonality of precipitation is also expected to increase flood and drought cycles thereby placing additional pressure on pastoral systems and associated biodiversity.
- Between 10% and 20% of drylands are currently subject to some degree of land degradation. Desertification is a continuing threat in many pastoral areas with between 1 and 6% of the population of drylands already living in areas subject to desertification.



UNEP-WCMC 2007



Delineation of areas in relation to the CBD PoW on Dry and Subhumid Lands

- included by definition, $P/PET < 0.65$
- presumed included: dryland features, but $P/PET \geq 0.65$
- to review: some dryland features, $P/PET \geq 0.65$
- presumed excluded: no dryland features, $P/PET \geq 0.65$



Source: ESRI, 1993; UNEP/GRID, 1991
 CRU/UEA; WWF-US, 2004
 Scale: 1:100 million
 Projection: Robinson
 © UNEP-WCMC, 2007

Figure 1: Under the CBD Programme of Work, Dry and Sub-humid Lands include arid and semi-arid lands, grasslands and savannahs, and Mediterranean landscapes.



Some current global trends relevant to pastoralism, biodiversity and development

Pastoral production and economics

- Extensive pastoral production covers 25% of the Earth's terrestrial surface
- Pastoralism currently produces about 10% of meat used for human consumption and supports 20 million households
- Current pastoral livelihoods tend to be more connected to cash economies and are more diversified than before
- The real price for livestock products has not increased significantly in recent years and is unlikely to increase significantly in the future
- The gap between rich and poor pastoralists is widening as a result of market access and international trade policies
- Although, in many pastoral areas, there is no evidence of decreased precipitation, losses from drought have been increasing.



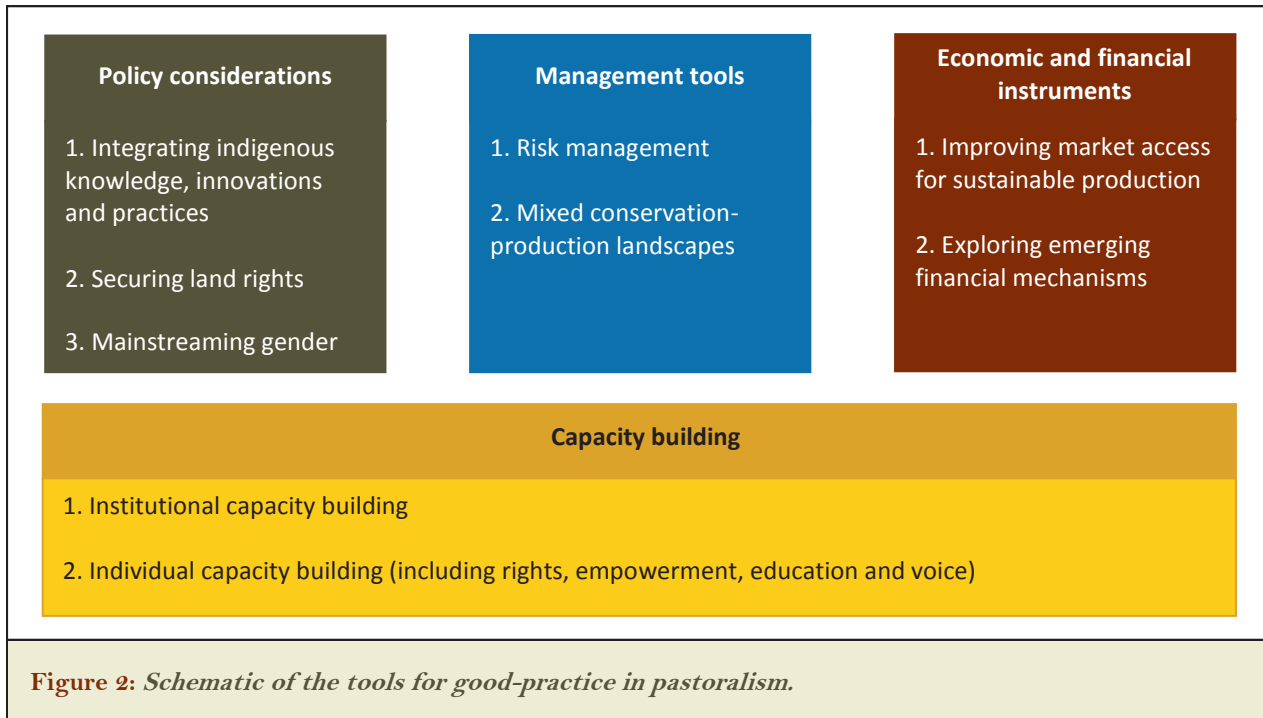
Flickr.com/Terrri O'Sullivan

Pastoral livelihoods

- Urbanism is advancing in some pastoral regions with implications for security, cultural values and access to services
- Some pastoral regions, such as sub-Saharan Africa are experiencing an important population growth, while depopulation occurs in others
- Increasingly sedentary lifestyles are causing a shift in population dynamics within many pastoral communities towards higher populations and decreased herd sizes
- Although access to political processes remains difficult for pastoralists, over recent years, national governments have been devoting increasing attention to involving pastoralists in development processes
- Pastoral communities are being pushed further into marginal areas as a result of the expansion of sedentary agriculture
- The provision of food aid to pastoralists has increased over recent years. (Sources: ODI 2009, FAO 2001, UN OCHA 2008)

The elements of good pastoralism practice

Pastoral livelihoods are complex and diverse—they have the potential to be sustainable in marginal areas in which few other livelihood options exist. However, in order to achieve sustainable development objectives, pastoralism must be based in a number of good practices, as illustrated in Figure 2.





>> **LINK: Slide 12**

Policy Considerations— Integrating indigenous and local knowledge, innovations and practices

Many pastoral systems are steeped in traditional management and practices. However, pastoralism is not just a traditional form of raising livestock, it is a livelihood system tied to ecosystem services with complex systems of social, political and economic organization. Centralized decision-makers are often unaware of the challenges pastoral communities face in making their farming systems profitable and sustainable as there are few mechanisms for local communities to transmit their knowledge to outside decision makers. In fact the erosion of indigenous and local knowledge, innovations and practices can reduce both the environmental and economic sustainability of pastoralism. As such, when managing pastoralism for biodiversity conservation and poverty reduction, it is important to ensure that the appropriate policy framework is in place to support and preserve indigenous and local knowledge, innovations and practices.

Methods and tools to ensure that indigenous and local knowledge, innovations and practices related to pastoralism are not degraded or eroded by development projects or new policy approaches can be drawn from the CBD Akwé: Kon Voluntary Guidelines (pronounced *agway-goo*), and named for a Mohawk term meaning ‘everything in creation’. These include:

- a. Notification and public consultation of proposed development or policy;
- b. Identification of indigenous and local communities and stakeholders likely to be affected by the proposed development or policy;
- c. Establishment of mechanisms for indigenous and local community participation;
- d. Establishment of an agreed process for recording the views and concerns of the members of the indigenous or local community whose interests are likely to be impacted by a proposed development or policy;
- e. Identification and provision of sufficient human, financial, technical and legal resources for effective indigenous and local community participation in all phases of impact assessment procedures;
- f. Establishment of an environmental management or monitoring plan, including contingency plans regarding possible adverse cultural, environmental and social impacts resulting from a proposed development or policy;
- g. Identification of actors responsible for liability, redress, insurance and compensation;
- h. Conclusion of agreements or action plans on mutually agreed terms between the proponents of the proposed development or policy and the affected indigenous or local community;
- i. Establishment of a review or appeal process (SCBD 2004^a).

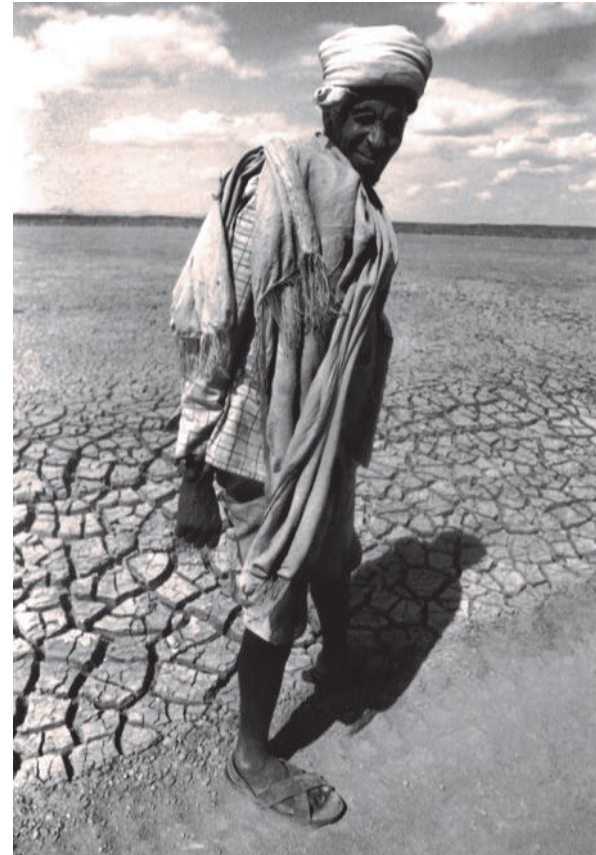
CASE STUDY / The benefits to biodiversity from locally governed pastoral systems (Kenya)

The Gabbra pastoralists of Northern Kenya practice a form of nomad pastoralism which contributes to biodiversity conservation of dry and sub-humid lands. The pastoralism strategies being used include herd splitting, species diversification, and traditional customary practices.

Grazing is managed based on traditional local structures and the definition of set grazing areas. Nomadism enables the Gabbra pastoralists to efficiently utilise the limited range of resources and water, as well as facilitating the dispersal of seeds and regeneration of arid lands vegetation.

Limiting access through local governance structures both contributes to the conservation and sustainable use of biodiversity and ensures that a comprehensive and respected conflict resolution mechanism is in place when needed. The Gabbra also institute taboos on the cutting of culturally important trees and conserve sacred areas where all extraction is forbidden. These practices have contributed to the conservation of biodiversity in the arid lands ecosystems.

(Source: Ganya *et al.* 2004)



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Gabbra pastoralist, Northern Kenya



>> [LINK: Slide 14](#)

Policy Considerations—Securing land and water rights

Many pastoral systems are based on transhumant livestock production. Such systems are dependent upon the maintenance of access to land and water resources. When access to land is blocked, or use rights are uncertain, over-use and degradation often occur.

Communal land tenure Most pastoral lands have traditionally been communal with local institutional structures and governance preventing a ‘tragedy of the commons’. Communal land tenure can, however, take a number of forms. In some systems communal ranches have been established in which a number of families are granted ownership over a single large plot of land. In other cases high value land (such as water sources) are managed communally within a landscape of individual land titles for lower value land. Such systems are not, however, always successful and must be developed in close consultation with stakeholders in order to avoid conflict and ensure the suitability of the land tenure arrangements. In other systems land or use rights are granted to a traditional governing body, which administers the land on behalf of the community. Each of these systems has advantages and disadvantages which should be weighed based on local conditions and traditional management structure.

Individual land tenure Even though most pastoral systems originated in communal lands, establishing clear individual land titles can still result in sustainable and productive pastoral systems although examples of successful shifts from communal to individual land tenure remain rare. However, when shifting from communal or undefined land tenure to individual land tenure the following elements of pastoralism should be put in place:

1. Provisions to facilitate herd mobility;
2. Equitable division of land (in terms of both quantity and quality) in order to avoid conflict;
3. Involvement of the local community in decisions concerning who is entitled to land;
4. Mechanisms to respect the rights of women;
5. Education and awareness raising campaigns for local communities to familiarize them with the new land cadastre system including corresponding laws concerning ownership, inheritance, etc.
6. Legal guidance for local communities to guide them through the process and inform them of their rights and responsibilities.

CASE STUDY / Pastoralism, land rights and adaption to climate change (Bolivia)

Pastoral communities typically inhabit areas characterised by scarce resources and extreme climatic conditions, making them vulnerable to climate change. However, pastoralists are also equipped to adapt to climate change, as pastoral livelihood strategies are designed to respond to such scarce and variable natural resources and climatic conditions.

In the case of pastoral environments, the vulnerability associated with climate change is due mostly to limitations in the accessibility of the resource rather than its availability or variability. For example, in highland Bolivia, land tenure, rules of entry to social groupings, collaborative practices, customary laws, and residence patterns are all regulated to ensure that the balance is kept between demographic constraints and the distribution of scarce resources. Securing access to resources makes it easier for pastoralists to adapt to climate change.

Therefore, enhancing and securing pastoralists' access to strategic resources is essential if they are to respond effectively to the impacts of climate change. Many now consider the rights of herding communities to land as one of the key factors for sustainable pastoral development and rangeland management. (Source: [Nori et al. 2008](#))



Flickr.com / revolution cycle

Llamas, Andes (Bolivia)



>> *LINK: Slide 16*

Policy Considerations— Mainstreaming gender



Many pastoral policies have ignored the important roles that women play in pastoralism including the decisions women make, and the labour they contribute to raising children, maintaining households, treating disease, animal care, managing water resources, and resources such as construction material and fuel wood. As such, the views, experiences and needs of women are often left out of decision-making processes.

Since women hold important local knowledge regarding biodiversity and make many decisions concerning the use of natural resources within pastoral households, mainstreaming gender within pastoralism can contribute positively to biodiversity conservation, sustainable use and poverty reduction.

As such the following activities have been proposed (Niamir-Fuller 1994):

1. encourage research into women livestock managers;
2. enhance women's participation in livestock projects;
3. support indigenous technical knowledge systems;
4. emphasize research into appropriate technologies for women in livestock production;
5. change national policies to reverse the causes and adverse effects of local, national and regional constraints;
6. make locally managed credit facilities available to women for livestock production activities;
7. improve market facilities and livestock prices to enhance women's involvement;
8. direct training and extension services at women involved in livestock production;
9. ensure that gender issues are reflected in all aspects of pastoral development programmes;
10. provide and encourage access to education for girls and promote the voice of women within customary institutions.

CASE STUDY / Gender and decision-making in pastoralist natural resource management (Mongolia)

The women of Mongolia's Gobi desert have been herding for many generations. Their traditional, semi-nomadic way of life aims at preventing overgrazing and protecting their fragile environment.

In 1993, the Mongolian government created the Gobi Gurvan Saikhan National Park in an effort to protect the Gobi ecosystem. The families who lived and herded within the territory feared that the Park would jeopardize their land and their way of life. However, the indigenous and local knowledge of the people and their expertise in livestock and grazing management was put to use in a sustainable resource management project. It also drew on the capacity of the women to take the lead in finding and implementing the most effective solutions to the new challenges. In fact, women soon emerged as leaders, feeling a strong need to participate in the decision-making process.

Through taking steps to preserve their traditional way of life, the women of the Gobi were empowered, and contributed to elevating the standard of living of their community, as well as protecting biodiversity. (Source: [UNCCD 2007](#))



Ilse Köhler-Rollefson

Bactrian camels of the Gobi Desert in Mongolia provide wool, transportation, milk and meat.



Management Tools — Risk management

Pastoralism is heavily influenced by natural perturbations and extreme events such as floods, drought, fire, pest infestations and disease epidemics. As such, pastoral systems actively manage risk and thus maintain a high degree of adaptive capacity. In cases in which risk management is not practiced and adaptive capacity is eroded through misdirected development efforts or maladaptation, perturbations can result in a cycle of unsustainable use, degradation and poverty. As such, establishing and supporting risk management measures is an important policy tool. There are a number of different methods for risk management such as:

South Pacific Regional Environment Programme Guide to Community Vulnerability and Adaptation Assessment

1. *Adaptation context phase:* Define the policy framework.
2. *Diagnostic phase:* Identify the risks.
3. *Assessment and evaluation phase:* Assess the causal relationships between risks.
4. *Development phase:* Develop possible measures to reduce risk.
5. *Implementation phase:* Actual 'action or undertaking' of risk reduction measures.
6. *Monitoring phase:* Ongoing monitoring and evaluation.

European Union ALARM Project Framework for Assessing Risk

1. *Hazard Identification:* Identify impacts.
2. *Risk Assessment:* Characterization of risk based on likelihood and consequences.
3. *Risk Management:* Identify risk mitigation options and evaluate these for efficacy, feasibility and impacts.
4. *Risk Communication:* Communicate findings in terms that are clear to all stakeholders.

Regardless of the methodology selected, risk management in a pastoral setting should (i) take advantage of traditional risk management practices, (ii) provide access to information on projected risks (including through early warning systems), (iii) view vulnerability not just as an economic issue but also as a social and cultural issue, (iv) evaluate risk within the framework of ecosystem resilience and resistance, and (v) consider risk as changing over time.

CASE STUDY / The Role of Risk Management in Preventing Degradation (Mongolia)

There are many sources of risk facing pastoralists in Mongolia including damaging snow conditions, extreme cold weather, drought, floods, fire, wildlife-livestock conflicts, animal theft and social conflicts, disease and market failures.

Between 1995 and 2003, two FAO / TCP projects in the region encouraged the geographic spread and institutionalization of pastoral risk management to make rural livelihoods more sustainable and ensure food security. The risk management projects addressed sustainable rangeland management, the development of local land management plans, developing ecological methods for rodent control, and participatory monitoring of vegetation conditions.

Results from the projects revealed that herd survival and herders' risk avoidance depends strongly on proper grazing management throughout the year, through, for example, traditional Mongolian grazing management techniques. There is also a need for dissemination of risk management knowledge and skills.

(Source: [FAO 2007](#) and [FAO n.d.](#))



Flickr.com/AverageJoe

Herders, Mongolia



>> *LINK: Slide 20*

Management Tools— Mixed conservation—production landscapes

Balancing poverty alleviation with biodiversity conservation and sustainable use in order to ensure sustainable development requires a combination of conservation measures and productive activities within pastoral landscapes. Ensuring that these two objectives act in synergy rather than producing disharmony and conflict requires consideration of the views of all stakeholders.

Key management strategies include:

1. Identifying causes of conflict:

- i. carry out studies on possible human-wildlife conflict
- ii. assess the impacts of different grazing densities on wildlife (including possible risks from excluding pastoralism from grazing-dependent ecosystems)
- iii. develop maps to identify areas where use may overlap
- iv. assess the extent to which conservation will impact risk faced by pastoralists.

2. Establishing conflict resolution mechanisms:

- i. enhance awareness of the importance of conservation
- ii. build local institutional capacity
- iii. ensure that all stakeholders have a voice (including women)
- iv. consider the role of traditional conflict resolution mechanisms.

3. Developing management solutions:

- i. consider regional migration needs
- ii. ensure a flexible management approach to account for changing needs during times of flood or drought
- iii. consider shared land-use options and buffer zones.

CASE STUDY / Building partnerships for conservation, development and conflict resolution (Sudan)

In Sudan, tensions have historically occurred along pastoral corridors over land and grazing rights between nomads and farmers. Conflict would be especially high in times of droughts when migrating livestock herders, in search of water and pasture for their animals, would sometimes graze on farmers' lands and use their water points.

The Reduction of Resource Based Conflict project was launched in 2004 with the objectives of improving pastoralists' livelihoods, mitigating natural resource based conflicts, and promoting conservation management strategies. Some of the project's achievements included the establishment of permanent water points, the rehabilitation of a degraded rangeland, and the organization of joint workshops / forums / training sessions for pastoralists and farmers on natural resources management and conflict resolution.



Flickr.com/Rita Willaert

Livestock herder, Sudan

In addition, in an effort to build partnerships between pastoralists and farmers, and between pastoralists and local government, joint field trips and awareness sessions were organized and local Pastoralists' and Farmers' Unions were established. A partnership with the Ministry of Agriculture and Forests on the issue of dry lands was also initiated. Overall, through partnerships and capacity building, the stakeholders improved the management of their natural resources, while also developing risk management and development strategies.

(Source: [UNDP Sudan n.d.](#))



>> *LINK: Slide 22*

Economic, Financial and Market-based Instruments — Improving market access



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One of the main challenges in reducing poverty in pastoral areas lies in ensuring market access for sustainably produced goods while simultaneously maintaining traditional practices and nomadic lifestyles. Market access is also one of the most prominent mechanisms through which incentives for sustainability can be delivered, and plays an important role in risk management for pastoral peoples.

Pastoralists produce a variety of goods including dairy products (milk, yoghurt, butter, etc), meat products, hides, skins and wool, and work animals (for riding, hauling, herding, etc.). The way these products are marketed depends on a number of factors including distance to markets, types of markets (cash versus barter), competition from other producers and demand for products. Income can also be generated through a range

of conservation-related activities including eco-tourism, and sale of medicinal plants, gums, and fruits.

International trade and tariff systems have been accused of depressing the price that pastoralists can expect from the market, thereby threatening the long-term financial sustainability of pastoralism. Market access for pastoral products has been negatively impacted by the globalization of markets and increased concerns over health and safety. In particular, trends towards tracking meat and milk products from the source to market require a formal monitoring system which is not compatible with most pastoral systems.

Market access for pastoralists can be supported through: (1) the marketing of specialty products, (2) the inclusion of sustainability considerations in purchasing decisions, (3) support to supply chain coordination, (4) facilitating access to credit, (5) capacity building for pastoral producer associations, and (6) providing veterinary services to maintain the quality of meat and milk products.

CASE STUDY / Marketing sustainable products (India and Pakistan)



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Thar Desert herder

In the Thar Desert that straddles the Indo-Pakistan border, camels have traditionally been indispensable for transportation and agricultural work. The local people have developed a sustainable system for managing camel breeding herds and making use of the desert without depleting groundwater resources. However, in recent years, the camel population has decreased significantly due to several reasons, including reduced demand for camels as work animals and reduction in grazing lands.

New ways of using camels are being developed however. The camel breeders of the Thar Desert are now focusing efforts on the marketing of camel milk as a health food and beauty product. Camel milk contains enzymes with anti-bacterial and anti-viral properties, and also contains an insulin-like substance that reduces blood sugar levels in diabetes patients. Awareness-raising and education of consumers about the beneficial effects of camel milk and low calorie ice cream has established demand for camel milk.

The promotion of camel milk as a health food item, combined with training of camel breeders and organisational support, have improved the livelihood of pastoralists, while facilitating the maintenance of their traditional way of living.

(Source: [Drynet. n.d.](#))



>> **LINK: Slide 24**

Economic, Financial and Market-based Instruments — Emerging financial mechanisms

In addition to traditional markets, ongoing international policy discussions may be yielding new opportunities for financial incentives for sustainable pastoralism. One such opportunity may arise from climate change mitigation, while ongoing programmes for payments for ecosystem services represent another possible financial mechanism.

Carbon Markets Pastoralists are the custodians of more than 5000 million hectares of rangelands which currently account for about 30% of the world's soil carbon stocks. Improved rangeland management, as a carbon sequestration strategy, has the potential to store up to 2000 Mt of CO₂ equivalent by 2030. In order to participate in the international carbon market, pastoralists will need to develop appropriate institutions to aggregate carbon assets, and develop and demonstrate improved land management techniques. At the same time, international carbon markets will need to recognize the potential of carbon sequestration in rangelands and improve data and information on the carbon sequestration impacts of different land management techniques.

Payments for Ecosystem Services Sustainable pastoralism maintains a number of critical ecosystem services, however, these services are typically not valued or traded on markets. As such, tools such as economic valuation and payments for ecosystem services can internalize the value of biodiversity and ecosystem services, and provide a strong economic incentive for conserving biodiversity. Payments for ecosystem services involve financial payments in proportion to the approximate value of the ecosystem services to those who manage their lands in a way that maintains the service (e.g. water quality, carbon storage). In order to implement effective payments for ecosystem services it is necessary to implement pricing policies for natural resources that are appropriate at the national level and are sensitive to social needs, and to establish market mechanisms to reduce the loss of ecosystem services in the most cost-effective way.

Other Incentives A number of other market-based incentives for sustainable pastoralism exist including niche marketing for pastoral products and the development of labeling and certification schemes such as for organic products or goods produced using sustainable means.

CASE STUDY / Linking livestock marketing to pastoral livelihoods (Ethiopia)

Ethiopia is home to Africa’s largest livestock population, which is largely concentrated in pastoralist areas. Pastoralist communities, drawing upon their local knowledge of livestock rearing, subsist largely from the sale of livestock and livestock products. However, pastoral livelihoods are highly vulnerable to drought, animal disease outbreaks and other disturbances.

USAID’s Pastoralist Livelihoods Initiative (PLI) aimed to increase pastoralists’ food security and strengthen their resilience against drought. A livestock marketing component of the initiative was designed to assist pastoralists in creating access to more profitable markets, with the goal of sustainably improving pastoralist livelihoods and increasing their economic resilience.



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Bringing cattle to market, Ethiopia

Market-oriented interventions included a strategy to support drought-affected pastoralists and their livestock, by enabling pastoralists to sell livestock commercially to reduce the number of animals in advance of collapsing prices, and animal deterioration caused by drought. Other interventions included the organization of trader trips to drought-affected areas and the facilitation of direct marketing linkages among pastoralist groups and traders, cooperatives and exporters. These activities have resulted in an increase in pastoralists’ profits from livestock sales and improved market access, while increasing their economic and climatic resilience.

(Source: [ACDI-VOCA. n.d.](#))



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Capacity Building



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Building an appropriate enabling environment to address biodiversity and poverty reduction within pastoralism requires strong institutions, a broad knowledge base, and the active involvement of all relevant stakeholders. Realizing such an enabling environment, however, often requires targeted capacity building activities.

Institutional capacity building

Pastoralists have developed a number of complex institutional arrangements to manage pastoral lands. As laws, ecological conditions, and social structures have changed, however, these institutions have had to adapt. Such adaptation requires capacity building efforts at all levels. At the local level it is important to assess the extent to which traditional institutions continue to address needs and challenges. At the national level it is important to make provisions for the involvement of traditional institutions in decision-making processes, and to recognize the autonomy of pastoral institutions. Moreover, it is important to

recognize and legitimize the roles and responsibilities of existing local institutions.

Individual capacity building (Rights, empowerment, education and voice)

In addition to supporting community institutions, there is a need to extend capacity building to individual pastoralists. This is especially true when considering often marginalized groups such as women and youth. Individual capacity building can take the form of education, in a manner that respects the mobility of pastoral communities, awareness-raising on the rights and responsibilities of pastoralists, improved access to health care (while respecting the role of traditional health care), and improved access to veterinary services. Another important element of individual capacity building relates to access to credit which, when implemented in a way that respects traditions and community institutions, can serve as an important tool towards building the capacity of individuals to manage risk and expand livelihood options.

CASE STUDY / Sharing knowledge across pastoral communities (Kenya)

The Moyale Pastoralist Project is helping pastoralist communities to reduce their vulnerability to drought, food insecurity and extreme poverty through, for example, improving access to markets, small-scale credit, and to clean water.

Training is provided to community members on how to identify water sources and dig and protect shallow wells in order to ensure a consistent water supply under changing climatic conditions. Peer-to-peer training is also made available with regards to fodder production, bee keeping, and natural resource management.

In addition to peer-to-peer training on specific topics, members also participated in education tours to other districts to learn how pastoralists in other areas have improved their livestock marketing systems, and how they are coping with drought. The members have brought this knowledge back their own communities. This approach has been particularly effective as it allows communities to share information as equals and promotes collaborative problem solving.

(Source: [Farm Africa n.d.](#))



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Moyale District, Northern Kenya



CBD Programme of Work on Dry and Sub-humid Lands Biodiversity

At its fifth meeting, the Conference of the Parties (COP) to the Convention on Biological Diversity endorsed the programme of work on dry and sub-humid lands.

The programme is divided into two parts, "assessments" and "targeted actions in response to identified needs", to be implemented in parallel.

Under assessments, six activities are identified, all concerning assessments in dry and sub-humid lands:

1. Assessment of the status and trends of biological diversity
2. Identification of specific areas of value for biological diversity, with reference to the criteria in annex I to the Convention
3. Further development of indicators
4. Building knowledge on ecological, physical and social processes
5. Identification of local and global benefits derived from biological diversity
6. Identification and dissemination of best management practices, including knowledge, innovation and practices of indigenous and local communities.

These activities are to be carried out through: consolidation of information from existing sources; targeted research; multidisciplinary and interdisciplinary case-studies on management practices, carried out primarily by national and regional institutions; dissemination of information and capacity-building.



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Under targeted actions, three clusters of activities are identified:

1. Promotion of specific measures for the conservation and sustainable use of biological diversity, through for example, use and establishment of additional protected areas, appropriate management and sustainable use of water resources and management of invasive alien species;
2. Promotion of responsible resource management, at appropriate levels, applying the ecosystem approach, through an enabling policy environment;
3. Support for sustainable livelihoods, through diversifying sources of income, promotion of sustainable harvesting including of wildlife; exploring innovative sustainable use of biological diversity.

These activities are to be carried out through capacity-building, particularly at national and local levels, establishment of an international network of designated demonstration sites, case-studies on successful management, partnerships between relevant stakeholders and enhanced interaction between the work programmes of this Convention and the Convention to Combat Desertification.



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Contents of the CD Rom

Power Point Presentation:

This presentation summarises the content of this booklet and has been included as a tool for planners in the pastoralism sector to share this information in training sessions, workshops, strategic planning meetings, etc.. The slide show can be customized for presentation to a particular audience through the following steps: 1) On the Slide Show menu, click Custom Shows; 2) click New; 3) Add the slides that you wish to present.

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