



# Global Review of the Economics of Pastoralism

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## **Background to the Global Economic Review**

This review of the literature on pastoralist economics is a contribution to the global learning on the importance of mobile pastoralism as a form of productive and sustainable land management. The review is intended to highlight 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 initial desk review consisted of eight regional desk studies: 1) South Africa and the Horn; 2) West Africa; 3) Eastern Africa; 4) Northern Africa; 5) South America; 6) Asia; 7) Middle East; 8) Europe (see Annexe 1 for details of the countries included in each regional study). The studies were carried out by eight consultants with the brief of identifying the contribution of pastoralism to domestic and global markets, gathering productivity indicators and market behaviour, identifying indirect values and methodologies for analysing indirect values. These findings will inform a series of follow-up Knowledge Management projects in which national valuations of pastoralism will be conducted.

## **The World Initiative for Sustainable Pastoralism**

Pastoralists are the best custodians of drylands environments, but their stewardship is undermined by inappropriate policies and strong competition over their natural resources. The World Initiative for Sustainable Pastoralism (WISP) is an advocacy and capacity building project that seeks a greater recognition of the importance of sustainable pastoral development for both poverty reduction and environmental management. WISP empowers pastoralists to sustainably manage drylands resources and to demonstrate that their land use and production system is an effective and efficient way of harnessing the natural resources of the world's drylands.

WISP is a three year GEF-funded project, implemented by UNDP and executed by IUCN (The World Conservation Union). Through consultative global, regional and national partnerships, WISP ensures that appropriate policies, legal mechanisms and support systems are established to enhance the economic, social and ecological sustainability of the pastoral livelihood system. WISP provides the social, economic and environmental arguments for pastoralism to improve perceptions of pastoralism as a viable and sustainable resource management system.

For more information visit the web site at [www.iucn.org/wisp](http://www.iucn.org/wisp) or contact the global coordinator at [jonathan.davies@iucn.org](mailto:jonathan.davies@iucn.org)

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## ***Executive summary***

Pastoralism is an adaptation to marginal environments, characterized by climatic uncertainty and low-grade resources. It has considerable economic value and latent potential in the drylands, and is central to the livelihoods and wellbeing of millions of the worlds poor, but the state of knowledge regarding this sector of the economy is weak. Pastoralism is not something to be tolerated until a 'modern' alternative can be found to replace it: it is a sophisticated system of production and land management that has itself been modernized in many countries, and is irreplaceable in extensive environments.

Yet, despite overwhelming evidence to the contrary, many policy makers consider pastoralism to be archaic and economically irrational, and in need of modernisation or replacement. Such conclusions are based on a narrow view of what constitutes value in pastoral systems. The policies that emanate from this thinking continue to devalue pastoralism, often at significant cost to national economies and to the natural environment.

This review has two broad objectives: reviewing the state of knowledge on pastoral economics around the world and; using a framework for Total Economic Valuation to identify important knowledge gaps. Using the findings, the report discusses trends in pastoral economies and policy options that can support drylands economies more effectively.

### ***Holistically valuing a complex system***

Pastoral systems are more than simply a mode of livestock production. They are also consumption systems that support 100-200 million mobile pastoralists globally: many more if extensive ago-pastoralists are included. They are natural resource management systems that provide a wide range of services and products that are nationally and globally valued, such as biodiversity, tourism and raw materials.

Appropriate policy decisions that affect pastoralists and drylands cannot be made without recognition of and information about their existing value. However, there is a multiple and extensive set of values associated with pastoralism: some are tangible but many are not; some can be measured but many cannot; and those that can be measured are often underestimated.

Two broad categories of value are emphasised in this report:

- **Direct values** consist of measurable products and outputs such as livestock sales, meat, milk, hair and hides. They also include less easily measured values such as employment, transport, knowledge and skills;
- **Indirect values** associated with pastoralism include tangibles such as inputs into agriculture (manure, traction, transport) and complementary products such as gum arabic, honey, medicinal plants, wildlife and tourism. They also include less tangible values including financial services (investment, insurance, credit and risk management), ecosystem services (such as biodiversity, nutrient cycling and energy flow) and a range of social and cultural values

### ***Pastoral economies***

#### **Direct values**

Pastoral production yields a wide range of livestock products depending on the context and the demands of the producer, and depending on the mix of livestock species that are herded. This range of products and species contributes to making customary pastoral systems significantly more cost-effective and productive than the meat-focussed ranching models that have been promoted in their place, with the potential to supply lower-cost products into markets. Even in terms of direct products alone, pastoralism has been shown to be from 2 to 10 times more productive than commercial ranching under the same conditions.

Despite gross underinvestment and neglect, both in the production system and the people themselves, most pastoralists routinely engage in marketing of livestock and livestock products, whether internationally, nationally, locally or at household level. Pastoralists thus make significant contributions to national economies and export earnings, particularly in developing countries, yet in many countries there remains a dearth of even this basic





## ***Economics and values of pastoral systems***

Pastoralists constitute the majority of drylands inhabitants and, despite many efforts to change it, mobile pastoralism persists. Indeed, in Europe and Asia, policy makers are encouraging investment in pastoralism in the understanding that it is essential for sustainable environmental management in the rangelands. This flies in the face of 'conventional wisdom', yet a closer look at desertification indicates that it often occurs where policies have, deliberately or inadvertently, undermined the pastoralist system, for example where settlement and irrigation schemes place an inordinate pressure on the environment. Where pastoralism has been enabled and supported by appropriate policies, ecosystem integrity and biodiversity have in fact been enhanced.

The policy of sedenterisation in the drylands has been shown time and again to result in increased environmental degradation, reduced economic potential and eroded social and cultural systems. Rainfall in the drylands is low and unpredictable, both in terms of when it comes and where it lands, so the only practicable management system is an opportunistic one: to go where the resources are, when they are available. Most dryland ecosystems are ecologically grazing-dependent, and a reduction of mobility of graziers or exclusion of such graziers can result in a significant drop in biological diversity and reduced ecosystem health and stability.

The assumption that mobile pastoralism is archaic and economically irrational has long been part of the motivation behind the policy of sedenterisation. This belief has persisted and still influences policies in the drylands, despite evidence to the contrary. Yet evidence has been available for some time showing that pastoralism out-performs other land use systems in the drylands and that it is the most economically rational way to sustainably manage the drylands. Rather than exerting huge efforts to increase incomes through investment in alternative production systems, development planners would be well advised to first explore the options for enhancing this existing value. However, this needs a more thorough look at the factors that are currently constraining the system, and a greater recognition of the aspirations of the producers themselves.

### **Pastoral poverty in the marketplace**

In countries where drylands predominate, poverty is particularly widespread. Key 'poverty factors', such as gender biases, high maternal mortality rates and low emphasis on child health care, are particularly poorly addressed in drylands areas. Governance failures are often deeper in drylands areas, due to geographic marginalisation and often compounded by ethnic differences between those governing and those governed.

Perceptions of pastoral economics are often swayed by the visible suffering that occurs during prolonged drought in some pastoralist areas, especially in Africa, yet insufficient effort is made to analyse the causes of famine. The doctrine that famine results from failure in food supply is too simplistic: famine results from entitlement failure. In pastoral areas, asset wealth is often high, if volatile, but markets do not enable pastoralists to convert that wealth at times of stress. Food entitlement failure in this case can also be considered market failure: high transaction costs

In drylands areas, even where livestock wealth is relatively high and incomes from livestock are substantial, people may still engage in small scale, un-remunerative cultivation to ensure a supply of grain at certain times of the year. The labour expenditure is high and inefficient and may reflect the failure of markets to allow adequate compensation for similar labour



## Defining pastoralism

Numerous economic definitions of pastoralism exist, and most refer to Swift's (1988) definition that pastoral production systems are those "in which at least 50% of the gross incomes from households (i.e. the value of market production and the estimated value of subsistence production consumed by households) come from pastoralism or its related activities, or else, where more than 15% of households' food energy consumption involves the milk or dairy products they produce". Some countries have adopted their own definitions, such as Morocco where pastoralism is defined as a livestock system where rangelands account for more than 50% of animal feeding time (Benlekhal, 2004).

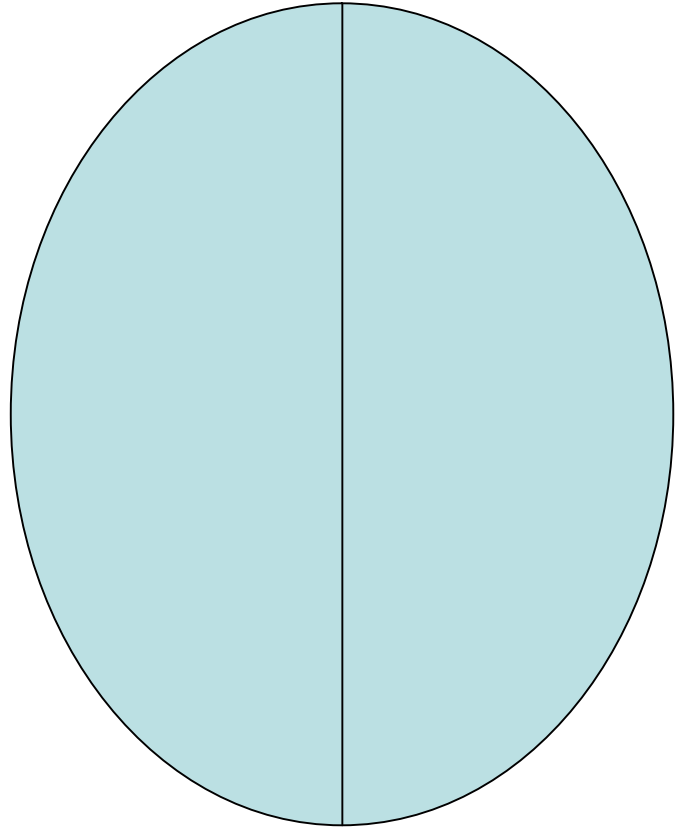
Definitions such as this provide a very useful rule of thumb, although exceptions can always be found. Stakeholders in the pastoralist system may not always fulfil such criteria, yet still consider themselves pastoralists. Others may shift, from year to year, between varying degrees of cultivation or ofg Tw ( 23e8 0 TD -00034 Tc 0.0 Tc 1.2006(.12 0 TD -0.0313 Tc 0.684 est2

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“misleading to assume that this is simply a process of monetising all aspects of economic life. Rather it proves as useful tool to explore the full range of costs and benefits emanating from an activity, which can also be used for lobbying in support of pastoralism” (MacGregor and Hesse, 2006).

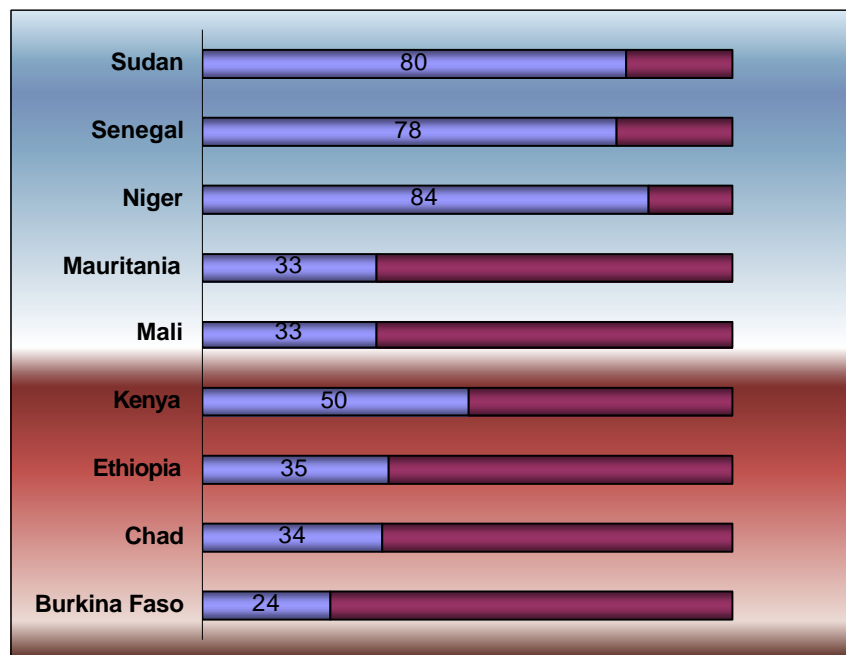
**Figure 1 – Conceptual representation of the contribution of pastoralism (adapted from MacGregor and Hesse, 2006)**



## Direct values of pastoralism

Few countries have official agricultural data that is disaggregated to show the contribution of pastoralism, although in some countries the contribution of pastoralism is very significant. In Kazakhstan, despite 15 years of political and economic turmoil, the livestock sector, which is predominantly found in the drylands, provides 42% of agricultural GDP, down from 60% in the Soviet era when the agricultural sector as a whole made up 31% of Net Material Production (a Soviet measure of output) (World Bank, 2005). In Mongolia, pastoral livestock are responsible for around one third of GDP and are the second largest source of export earnings (32%) (UNDP, 2003). In Morocco, some estimates put the contribution of rangelands to agricultural GDP at 25% (Berkat, 1995). Figure 2 illustrates the estimated contribution of pastoralism to agricultural GDP in a range of African countries.

**Figure 2 – Pastoralism as a percentage of agricultural GDP<sup>1</sup>**



In countries with a dominant agricultural sector, pastoralism can be a significant contributor to national GDP. Uganda's pastoralist and small holder livestock producers contribute 8.5% of total GDP, providing the country's fourth biggest foreign exchange earner (Muhereza and Ossiya, 2004). Ethiopia's pastoral dominated livestock sector contributes more than 20% of Ethiopia's total GDP, probably much more if other intermediate values of livestock are properly assessed (Aklilu, 2002). The leather industry is Ethiopia's second largest source of foreign exchange after coffee and, in 1998 alone, it exported US\$41 million of leather and leather goods, primarily to Europe, Asia and the Middle East (STAT-USA, no date).

## Products and productivity

The great strength and appeal of traditional pastoralism as a land use form is its tremendous versatility: it has the ability to continuously adapt to varying economic, environmental, social and political conditions and is inherently self-sufficient when necessary. This flexibility explains the great variation of production and marketing scenarios both between and within countries. Nevertheless, although pastoralism is context-specific, some generalisations can be drawn.

In many countries, pastoral production is carried out to provide multiple products rather than a single product. The most common products are milk, meat, and hides. In some countries, pastoralists also produce wool, leather, and other products. The diversity of products allows pastoralists to adapt to changing market conditions and to provide a range of goods for their communities.



## Additional livestock products and market niches

The majority of pastoralists consume milk and produce a range of dairy products, yet marketing of those goods is often limited or restricted. In Rajasthan, India, camel milk is a by-product of camel breeding which is traditionally consumed by herdsmen (especially on migration) and by their families. Pastoralist institutions in India recently mounted a successful legal challenge to the prohibition of camel milk sales (Agrawal et al., 2003). With increasing commoditisation of camel milk, and weakening of cultural taboos on the selling of camel milk, the income generated from milk sales can exceed the returns from selling the young male offspring.

Cultural taboos against the sale of dairy products have hampered market integration for a number of pastoral communities, but proscriptions are often seen to weaken in the face of marketing opportunities. This is the case in the Pashtun areas of Afghanistan, where surplus dairy products like milk, yoghurt or buttermilk have customarily been distributed freely to relatives or other needy people and sale of such products represents a threat to such social institutions. Pashtun dairy products are increasingly sought after in Afghanistan's markets and cultural restrictions on their sale are fading (Halbach and Ahmad, 2005).

Hides and skins are an important by product for most pastoralists, as in the case of the Astrakhan pelt, produced from Karakul sheep in the arid rangeland zones of Afghanistan, Uzbekistan, Kyrgyzstan and Turkmenistan. For the production of astrakhan pelts Karakul lambs have to be slaughtered before the second day after birth, and owners therefore remain with their flocks during the lambing period to decide whether to rear or to pelt a lamb. In the 1950s Afghanistan controlled the major astrakhan markets and, although market share was later lost due to lack of proper marketing and management and breeding of the Karakul flocks, during the years 2003 and 2004 the industry rebounded strongly. Investment opportunities exist in skin processing and in emerging leather manufacturing. Despite a shortfall in the skills and expertise to develop these industries, export performance indicates that the raw products are produced at internationally competitive prices (Halbach and Ahmad, 2005).

Wool is an important by-product for many pastoralists, particularly those in colder climates. In South America, pastoralists tap important niche markets for the sale of wool from their camelid species: Alpaca, Llama, Guanaco and Vicuña. Alpacas, for example, thrive in the harsh climates of the Peruvian, Bolivian, Chilean and Argentinean highlands, providing food, fuel, clothing, and transportation. They produce coloured wool that is much stronger than Merino sheep wool and is highly sought after in Europe, and Japan: in particular the 'cria' (young alpaca) fibre which commands a higher price. Globalization and the depression of meat and wool prices have imposed constraints on marketing from the pastoralist sector: some speciality commodities, such as Pashmina goat wool, and specialised breeds such as the Awassi sheep (from the Near East), are increasingly produced in Australia for international markets.

Cashmere is a niche pastoralist product worthy of mention, since World demand and prices for cashmere have risen sharply in the last few years. This has been driven by the entry of Chinese companies into the market, manufacturing low quality mass market garments, and fomenting domestic competition which has driven up prices for cashmere (Westhuysen, 2005). Most of the cashmere goats are raised in the western and northern pastoral zones of Inner Mongolia, Xinjiang and the Tibetan plateau, where they thrive on the shrubby, sparse and low output vegetation. China has 78 million cashmere goats that annually yield 12,000 tonnes of raw cashmere and produces 65-75% of the world's cashmere fibre (China Chamber of

s













Such expenses translate into significant 'transaction costs' associated with marketing, and represent a real opportunity for government investment in order to increase the efficiency of markets and raise the returns to producers.

### ***Government involvement in pastoral marketing***

Achieving the economic potential of pastoralist regions requires the provision of enabling incentives, including land and resource rights, access to credit and banking services, relevant research and extension and improved access to government, providing these rights and services are adapted to the pastoral context (Mortimore, 2005). The solution to pastoral marketing problems is not a simple one: it requires an overhaul of a wide range of policies to support pro-pastoralist development in the drylands.

Information is widely cited as a major constraint to trade, or a driver of the low returns that are often captured by producers. However, in many pastoralist societies, access to information is not enough on its own, but producers need to also develop the capacity to use that information (McPeak and Little, 2006). Even with information and the capacity to use it, pastoralists are unlikely to be inclined towards sales when desirable goods and services are either not available, or are costly or unreliable. Government may be well advised to consider what it is that pastoralists wish to purchase as much as they worry about how they generate income.

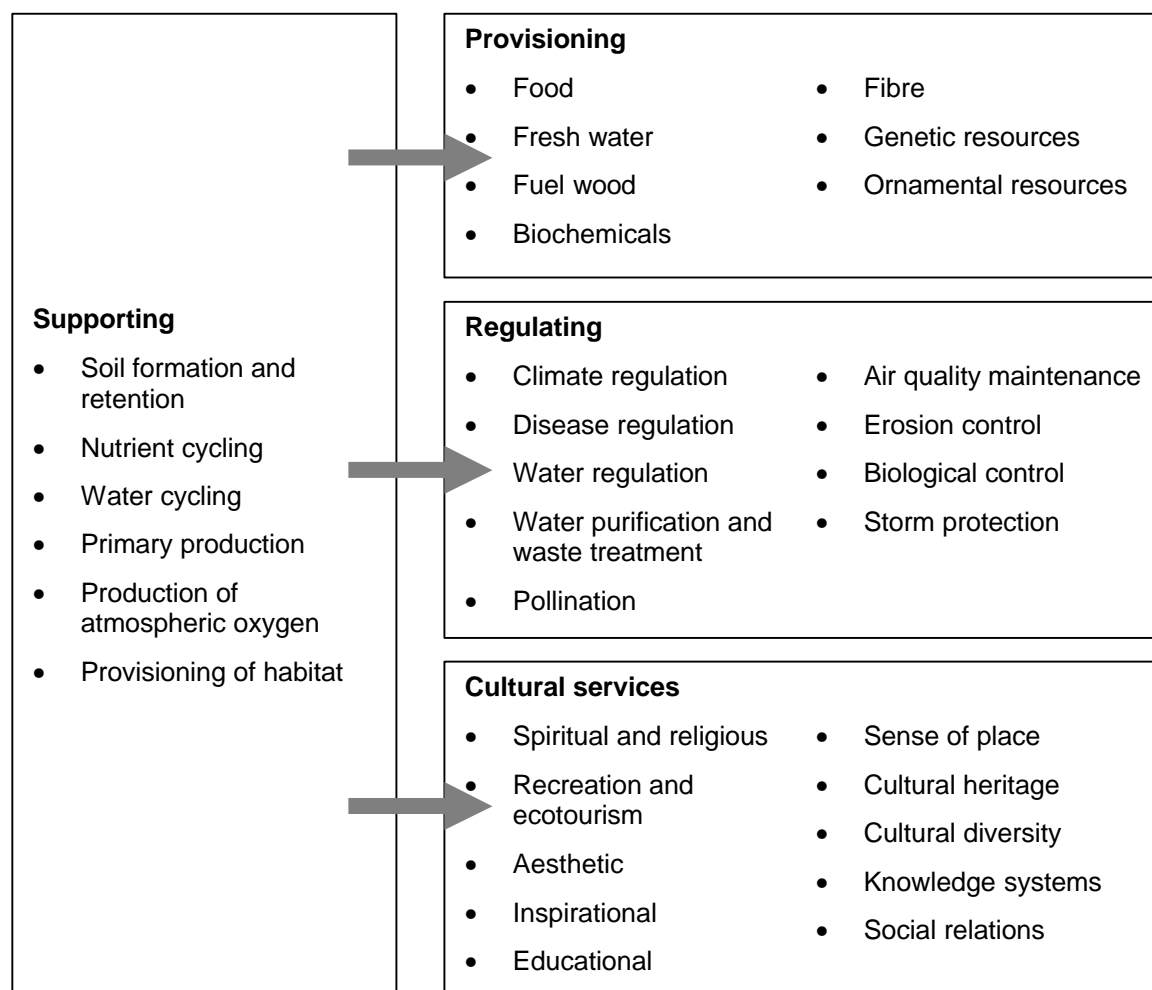
Unfortunately, the perception that pastoralism does not produce significant economic gain means that many governments fail to make the necessary public investments in market infrastructure, roads, security, education and human and institutional capacity building (McPeak and Little, 2006). Sometimes markets are also lost due to government action that terminates access to markets (through higher prices) or raises costs. In the ex-Soviet rangelands, for example, erosion of the Soviet-era markets was experienced after the withdrawal of government services, particularly veterinary services and supplemental fodder supply (FAO, 2001).

The role of government in developing and protecting global markets differs from one country to the next. Somalia and Ethiopia are relatively poor economies and are technologically underdeveloped but they are firmly integrated into global markets with impressive results in terms of both value and volume. This is achieved despite very unsupportive government policies and regulations (BBC, 2001). In other cases (for example, Southern Africa) strong or benign governments occasionally subsidise livestock producers and have high-end export markets, yet traditional smaller-holder households remain excluded from routine market involvement (Behnke, 2006).

In China's case, the development of wool and cashmere markets has been actively supported

rarely remunerated for protecting these goods and services and mis-guided efforts to eradicate pastoralism run the serious risk of eradicating these goods and services too.

**Figure 3: Ecosystem services (Millennium Assessment 2003)**



There are significant complementary indirect goods and services associated with pastoral landscapes, and with pastoralism as a human activity, that stand to be lost or compromised by neglect, expropriation or conversion of rangelands. "To focus on commercial pastoralism, a human lifestyle of developed nations, is to further marginalize the 'people' issues of rangelands. More attention to other goods and services will help develop the flexibility needed for the proper use of the rangelands." (Grice and Hodgkinson, 2002 citing Box, 1986). The import of this statement is clear: rangelands and rangeland stakeholders will benefit from an approach based on recognition of the multiple roles and values of rangelands, beyond the narrow focus on commercial products.

Environmental services (such as carbon sequestration, biodiversity, combating desertification and erosion) are increasingly highly valued in the global context and their promotion could represent an important economic potential. In most of Europe, pastoralism takes place in areas of High Nature Value (HNV), and in many places it is pastoralism that has created this High Nature Value after hundreds or thousands of years of existence. Since this land often cannot be used for other, more intensive forms of agriculture, the abandonment of pastoralism results in total abandonment of the land, and thus in the loss its pastoralism-related HNV (often through the encroachment by shrub and eventually reforestation): the ecological importance of pastoralism is indisputable. This was recognised by the Third International Conference on "Biodiversity in Europe" and the 8<sup>th</sup> meeting of the Council of the Pan-European Biological and Landscape Diversity Strategy (PEBLDS) in 2004, Madrid, which recommends attention to the role of pastoralism using traditional practices that can maintain biological diversity in mountain ecosystems.



much in their exact value, as for the relative priority, direction and magnitudes of the values arrived at;

- 'Revealed preference' uses value proxies based on markets, for example, premiums paid for city housing according to the quality of the local environment. Whilst relatively objective and therefore accurate, this approach tends to be data intensive;
- 'Benefit transfer' simply refers to use of other studies to impute value, for example, studies valuing tourism from which a value of pastoralist-related tourism could be arrived at via credible assumptions. This method is the most cost-effective, although the applicability of the existing studies can be an issue for concern.

Table 3 illustrates an example of types of environmental values (in this case for forests) that could be typically derived from a mixture of the above methods (Box 1). There are similarities with pastoralist system value types. In this example, it can be seen that, while the annual contribution to GDP and export earnings to Kenya is US\$4.22 million, annual value to forest adjacent households stands at US\$94 million per year, with commercial value of US\$11 million, tourism value of US\$35million, and watershed protection service value of some US\$35 million annually. The values also indicate the opportunity cost of conserving forests in terms of farming income foregone, the values of which are substantial. This likely indicates that the watershed value was not computed at a national scale, given that these forests are the source of Kenya's water supply. It can also be noted that less tangible values, such as carbon sequestration, biodiversity, climate control, employment and other social and/or aesthetic values, are also not computed.

**Table 3: Estimates of economic values in Kenya's forests (Emerton et al., 1998)<sup>2</sup>**

THE ECONOMIC BENEFITS OF KENYA'S FORESTS	
<b>To the national economy:</b>	
Contribution to GDP	US\$ 4 million per year
Foreign exchange earnings	US\$ 0.22 million per year

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Timber	US\$ 23/ha/year
Saved chemical inputs	US\$ 9/ha/year
Dairy	US\$ 144/cow/year

exploit harvesting opportunities due to local knowledge and cost-sharing in terms of harvesting time over large areas.

### **Medicinal plants**

Medicinal and other high value plants provide important supplementary incomes to many pastoralists, as well as have importance for traditional remedies in areas that are typically poorly served with modern medical services. In Morocco, 48% of pastoralists collect medicinal plants and 70% wild mushroom and truffles (Steimann 1998). Iran recorded 39,000 tons of medicinal plant harvested (worth US\$77.7 million) 1989-93, and many range plants exist with significant medicinal and industrial value (e.g. galbanum, gum Arabic, aloes, Artemisia). Some companies and countries are now starting to experiment with cultivation of such plants and to explore the synergies of a silvo-pastoral production system. Soaring world energy prices are driving the interest in oil-bearing trees that produce bio-diesel, with organic manure as a by-product rich in NPK (nitrogen, potassium and phosphorous) – an example is the Indian *Jatropha curcase* L. species of the Euphorbia family. Apart from local knowledge, one of the important roles to be played by pastoralists is in ensuring sustainable harvest of plants since this sector is susceptible to unlicensed over-exploitation by outsiders.

### **Tourist services**

One of the greatest values associated with pastoral systems may be the tourism value. Three obvious aspects are wildlife tourism, cultural tourism, and aesthetic landscape value.

### **Wildlife tourism**

Wildlife value is particularly significant in Africa, but extends to Asia, to a lesser extent South America and is relevant in Europe, particularly Eastern Europe. Significant data exists in the African context on the value of tourism on a per country basis, whilst in general, most of the wildlife attractions are savannah-based. It is also acknowledged that these wildlife populations are not viable if confined to protected areas and that in fact they utilise and rely on pastoral lands as an integral part of their existence (AWF, 2006). The value that can be assigned to pastoralism in the context of wildlife tourism is very significant. In addition, there is now substantial literature that shows that livestock grazing confers significant benefits to wildlife in terms of maintaining or enhancing biodiversity, and the ecosystem services that support such biodiversity, including water and nutrient cycles. This aspect is addressed in more detail later in this report.

### **Cultural tourism**

Cultural tourism is an increasingly important aspect of the tourist industry. Traditional cultures evoke significant interest globally, as attested by the appreciation for and knowledge of the Maasai of Kenya and Tanzania, the Dinka of Sudan, the Tuareg of West Africa, the Bedouin of North Africa and the Middle East, Mongolian herders and the Pashtan of Afghanistan, for example. The significance of this value is illustrated by the amount of advertising for wildlife safaris in Kenya and Tanzania that utilises Maasai images and citations, where the image of the traditional pastoralist has become an icon.

### **Aesthetic landscape value**

As with wildlife, aesthetically valued landscapes are of great value to the tourist industry and can be enhanced and protected by pastoralism. The previously cited examples from Europe illustrate that the managers of such landscapes are increasingly inclined to actively recruit pastoralists to graze their herds in order to effectively manage such lands. In such cases the market may directly determine the value of this services, although in most countries the service is not remunerated and the role played by grazers is entirely ignored.

### **Ecosystem services**

It is becoming increasingly apparent that livestock productivity and conservation can be mutually reinforcing, and a number of diverse examples of such practices are emerging. A range of examples are given below of the use of livestock in managing ecosystems.

### **Animal maintenance of grasslands**

African landscapes evolved with enormous herds of wild ungulates and like many rangelands are grazing dependent (Frank 1998). Research has shown that standard concepts of carrying



capacity are inappropriate in non-equilibrium environments such as the semi-arid to arid rangelands, and opportunistic pastoral systems, involving mobility and fluctuation in herd size, are more sustainable than constant stocking rates (Behnke and Abel, 1996; Dijkman, 1998; Breman and de Wit, 1983; Turner, 2003; Savory, 1999). A huge body of literature now exists showing that, under proper management, livestock are beneficial to rangeland productivity and biodiversity. Indeed, this is a logical conclusion when one considers the widely accepted concept of co-evolution – in this case, grazers and grasses – where grass plants reflect such symbiosis through ground-level growth points that can withstand severe ‘harvesting’ of plants from passing herds, particularly bulk grazers such as buffalo, cattle, zebra, hippo and white rhino. Other things being equal, animal-maintained grasslands would appear to support greater species numbers and richness than alternatives such as fire-maintained or bush-encroached grasslands, not only from the viewpoint of available food biomass, but also in terms of contribution to well-functioning water cycles, mineral cycles, and energy flow at system level.

### **Water cycling**

This approach recognizes that grazing pressure can be timed to maximize plant productivity and overall biodiversity (Voison, 1998; Savory 1999). Taking into account that time rather than numbers of animals is what is to be managed, this method captures the benefits of grazing species and livestock mobility to dramatically increase grazing land cover. With increased soil cover, there is increased infiltration (decreased losses of water from runoff and evaporation) and subsequently there is more water available to recharge streams, bore holes and springs to support livestock and wildlife. This approach is being increasingly used by ranchers across the ‘developed drylands’ of the USA, Australia, Canada, Mexico and South Africa. Results from the US have been impressive with a 300% increase in the types of perennial species and an increase in beef productivity from 66kg/ha to 171 kg/ha (Stinner et al, 1997). Similarly an Australian wool producer used this approach to increase stock numbers while increasing the groundcover, enhancing species diversity, improving water quality in the rivers and dams, and building the diversity of birds for pest control, whilst setting

institutional mechanisms and the legal setting as well as the current socio

Policies are overwhelmingly stacked in favour of the alternatives to pastoralism in the drylands, with services provided for sedentary people, in particular cultivators, and extensive

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Indirect opportunity costs associated with alternatives to pastoralism include the loss of social security mechanisms, which could be measured by the cost of providing food aid to pastoralists whose livelihoods have been undermined or the cost of soil erosion from dryland cultivation (e.g. barley production in Algeria; wheat production in Kenya). Indirect opportunity costs also need to examine the loss of people-supporting capacity of the rangelands as pastoralism is replaced with less productive alternatives, such as ranching. This cost occurs in the form of unemployment and migration to settlements and urban slums.

However, the opportunity costs do not necessarily have to preclude investment in alternative economic practices in the drylands. If the value of pastoralism is recognised it may encourage planners to look at synergies between pastoralism and cultivation. For example, irrigation of key resource pockets could benefit pastoralism if part of the land were used for fodder cultivation and crop residues were made available.

Nevertheless, irrigated crop production has often proven to be unsustainable: soils become degraded by salinity and ground water resources are exhausted. In India, the government has supported irrigated agriculture in the Thar desert, by subsidizing power, fertilizer and high-yielding crops. As a result a tribe of "tubewell nomads" has arisen: farmers who pump up groundwater to grow crops such as mustard and wheat. As irrigation allows the growth of more than one crop per year, there has been a reduction in fallow periods, when pastoralists can graze their herds after harvest. The irrigated cropping commonly goes on for a few years, during which farmers deepen their wells with dynamite from time to time, until the groundwater level sinks below the reach of their pumps. Farmers then move on to the next spot, leaving behind barren, salty ground in place of the previous drought-resistant vegetation (Mathias, 2005). Pastoralism, on the contrary, has proven to be sustainable over the long term, having adapted to, and to some extent shaped, its environment.

A more holistic approach is required to value all uses of the drylands, to allow more balanced comparison between pastoralism and alternative land uses, and to provide the arguments for reducing opportunity costs of alternative development plans.

- Data on the pastoralist sector is not disaggregated from the wider livestock or agricultural sectors;
- The cost of collecting data from pastoralist areas is prohibitive, given distances, conditions and movement;
- Backward and forward linkages to the wider economy are often o



#### 4. Social policies

### **Pastoral production policies**

#### ***Support pastoralist's priorities***

Most policy dialogue is skewed towards production concerns, rather than system concerns. Policies remain focused on production-related interventions, even as national livestock policy is being reviewed to incorporate modern conditions, as in the 2005 Tanzania Livestock Policy Review Process (IIED 2006) and the Kenya Livestock Policy Review process (FAO-SARD 2006).

Whilst improvement in production and commercialisation remain important goals, livestock policy needs to concentrate more on pastoralist needs, which are not always market centred, and certainly not always oriented towards maximising off take. Policies should not be framed on the assumption that any change in the production system will automatically benefit pastoralism.

Policies and interventions should not remain externally driven, designed by non-pastoralists whose intentions may be noble, but who rarely understand pastoral systems, dynamics and needs. Greater consultation and input from pastoralists would serve to rectify many of policy design flaws and the use of multi-stakeholder policy analysis should become routine.

#### ***Support communal tenure***

Demarcation and titling of land and elimination of mobility still remains the central pillar of most land policies in pastoralist regions. Aside from the serious negative economic repercussions for livestock production (see Table 1), and its highly damaging effect on drylands environments, privatisation of land is likely to penalise poorer members of the community since they will be denied access to resources that are currently accessible to all (IIED 2006).

Mobility is crucial to the economic viability of pastoralism and the environmental sustainability of rangelands, and customary tenure systems are vital to mobility. Some pastoral systems around the world benefit from dual tenure arrangements, for example with seasonal buffer zones privately titled and communal rights to larger and more extensive pastures. However, this is by no means uniform, and systems of communal tenure are an integral, almost defining, feature of pastoralism worldwide.

#### ***Enhance mobility***

The assumption that mobile pastoralism is archaic and economically irrational has long been one of the driving forces behind the policy of sedentarisation. This belief has persisted and still heavily influences dryland policy, despite overwhelming evidence to the contrary. Sedenterisation policies have also been influenced by the desire to control pastoralists, who are often considered as a political threat (Forni, 2003). Sedenterisation has itself had all the impacts that it was supposedly designed to mitigate: namely ecological destruction and economic irrationality. It has also led to the devaluation of socio-cultural norms and customary decision making structures.

This report clearly illustrates the superiority of mobile pastoral systems over ranching systems in the drylands. It also amply demonstrates that mobile pastoralism makes a great contribution to the national economies of developing countries. This is even evident when

#### ***Box 4: Key elements of appropriate pastoral land tenure systems:***

- *Protect mobility both within and between countries*
  - *Access to agricultural areas*
  - *Access to drought refuge zones*
- *Secure pastoral control over key resources in their "home areas"*
  - *Regulate the use of livestock watering points*
  - *Develop and enforce local agreements for resource access*
- *Enable negotiated and reciprocal access to resources between groups to accommodate variable and dispersed resources from year to year*
- *Facilitate multiple land use and overlapping rights of access to resources*

data is incomplete, and there is certainly a much greater value than this, which is yet to be measured. Mobility may undergo changes, and there may be ways to enhance mobility or ways to regulate it, particularly based on customary systems of regulation. Mobility of the herd may not always demand mobility of the household, although in some labour intensive systems the two are hard to separate. However, policies that constrain mobility are economically and environmentally irrational and must be replaced with policies that actively enable mobility.

***Provide legal support for pastoral policies***

Whilst some national policies exist that advocate for the protection of pastoralists' rights to land and water through clearly demarcated areas, many such policies lack legal force, whilst competing activities, such as wildlife conservation and agricultural conversion, are given legal force (IIED 2006).

Developing economically and environmentally sound policies in the drylands is not enough and attention must be given to implementation of those policies. This therefore demands attention not only to legal frameworks, but also access to, and understanding of, the law. This is addressed in a subsequent section.

***Invest government resources in e21-58ond***



inclusion of pastoralists is ensured then such codes, or pastoral policies, may enable pastoralism to become a cross-cutting issue, influencing much more than just production and marketing policies.

## **Pastoral Marketing**

### ***Recognise the non-market value of diverse pastoral products***

Policies for increasing or otherwise improving pastoralist markets must take into account the extensive, and highly valuable, non-market uses of pastoral goods. Livestock and livestock products have great value in most pastoral societies in cementing social relationships and reinforcing the complex customary institutions that make the system viable. Often the monetary value of goods is of secondary importance to their value in internal exchanges, and this not only influences the decision to participate in markets, but also indicates a significant opportunity cost of market involvement.

Pastoral marketing policies need to consider what constitutes an improvement in pastoral marketing, and should not only focus on increasing the off take of goods. Improving returns to livestock production, and reducing transaction costs, will confer important benefits on pastoralists. Such improvements may raise the total volume of trade, but more importantly will enable pastoralists to manage risk more effectively and build more resilient livelihoods.

### ***Promote market value chains***

Enhancing pastoralist's engagement in markets requires considerable market analysis in their country of origin as well as internationally. It cannot be assumed that market share exists, or that demand for a new pastoralist product can be automatically generated, and identifying existing opportunities to exploit is important. Recommendations from Afghanistan, adapted to the pastoral context, may be relevant in most pastoral contexts (Halbach and Ahmad, 2005):

- Determine opportunities and constraints in adding value and marketing meat and other livestock products, for instance wool, karakul, cashmere, handicrafts (rugs, carpets), hides and skins, and milk products.
- Determine opportunities for improving traditional technologies (e.g.) for milk processing, wool spinning and cashmere harvesting, and mechanisms through which international quality standards can be met and production can be increased. wool spinning and ndrtunitimilk pe chains

### ***Commercialisation of the livestock sector for export markets***

Many countries already benefit greatly from export of livestock products, even though it is rarely acknowledged. There are opportunities to therefore invest in pastoralism to enhance this source of foreign exchange earnings. However, questions have been raised over whether it is prudent to invest disproportionately in export markets, given their high standards and associated costs, and the risks that come in this highly competitive arena (Scoones and Woolmer 2006). Nevertheless, domestic consumers in developing countries may also begin

since overgrazing is the re-grazing of a plant that has not yet recovered from being grazed (Voisin 1955; Savory 1988).

Evidence increasingly shows that animals play an integral role in maintaining fundamental biological processes in the drylands, such as water and mineral cycling (Savory 1988). Furthermore, it is now widely accepted that the notion of carrying capacity is based on 'equilibrium' landscapes whilst drylands are predominantly 'non-equilibrium' and the fixing of static stocking rates is inappropriate. What is needed is acceptance in policy and law that mobility is absolutely essential for the environment and for the economies of drylands. Policies across the board must be designed to enable mobility, and specific laws are required for the protection of migration routes and for regulation of transhumance.

***Protect key resource patches***



environment and a less prejudicial attitude towards mobile pastoralists would be an important starting point in overcoming service delivery failures.

Sustainable pastoralism requires the provision of appropriate services – efficient, culturally sensitive and (often) mobile – which requires a significant investment in education and training to ensure a supply of service providers. Effective service delivery also requires better understanding of pastoralist household dynamics and the increasingly sedentary nature of many pastoralist women, children and the infirm: mobility should not remain a convenient excuse for failure to get basic services and messages to pastoralists.

Similar arguments apply to armed conflict – particularly in a number of African pastoral settings. Although the roots of conflict may be complex and diverse, in all cases the conflict is marked by failure of government to provide adequate law enforcement and security, and in some cases military presence actively contributes to the conflict. Under such circumstances it is hardly surprising that pastoralists seek to provide their own security or that individuals exploit the ensuing breakdown in law and order for their own gain. Economic development of the drylands demands adequate security to protect and enhance mobility and communal tenure systems.

### ***Create an enabling environment for policy change***

Pastoral development requires the creation of a favourable institutional environment and the policy process “should be less concerned with what technical options should be applied than with how technical and institutional reforms should be brought about” (Mearns 1996, Thebaud at al. 1995). There is need for new “professionalism among government officials and others responsible for implementing policies, programmes and projects” (Chambers 1996, Pimbert and Pretty 1995).

“There is a fundamental need to recast the relationship between ‘research’ and ‘policy-making’, in order to make explicit the ‘plural rationalities’ of all stakeholders” (Thompson, 1993, quoted in Leach and Mearns, 1996). Much is now known about how to facilitate a genuinely participatory development process, but this urgently needs operational application”. Echoing this is the sentiment expressed by a Maasai pastoralist attending a recent meeting of the Kenya Livestock Working Group (an FAO-SARD initiative to connect stakeholders to scientists and policy-makers): “Is it possible to get researchers and institutions interested or involved in our pastoralist reality?” (SARD, 2006).

### ***Promote women’s voice***

The role of women in pastoralist societies is usually quite distinct from that of men, and pastoralist women often have limited decision making power, particularly when it comes to external dealings. Nevertheless, the gendered distribution of labour roles ensures that women play a vital role in the use of certain natural resources and in sustainable rangelands management. Pastoralist women have crucial roles in reinforcing the social institutions that provide the resilience of pastoralism, based on the power they have to use and distribute a range of resources.

In recent years, gender roles have shifted in many pastoral communities and the division of labour between men and women is not static. Economic interventions have sometimes led men to wrest control over important household activities when the activity assumes a greater market value. Women’s customary institutions, for decision making as well as for environmental management, are often overlooked by simplistic and non-inclusive approaches to ‘participation’. Participation is frequently applied in a haphazard and incomplete way that consults only a select few and confers power on those un-democratically elected decision makers. Women have been penalised by this approach above all.

Unless there is a specific emphasis on empowering women in pastoralist societies, participatory approaches risk further marginalising them from decision making processes. This has implications for their social development and their capacity to sustainably manage the natural resource base. This rationale applies equally to other marginal groups, such as youths, artisans and ethnic minorities within pastoralist areas.





continue with policies that undermine pastoralism, or attitudes that alienate pastoralists, is to sow the seeds of failure of conservation. Several examples can be found in Easti



Commercialization of livestock production may be facilitated by, or may be a driver of, settlement of at least part of the pastoral household. This could have negative consequences for livestock production in countries with a high proportion of drylands and greater efforts are required to ensure that sedenterisation of the household does not come at the cost of sedentary herding. Policy makers must realise that sedenterisation of herds in the drylands is economically irrational and environmentally catastrophic.

Stronger economic appreciation of pastoralism in its current form will help to convince policy makers of the comparative advantage of drylands in livestock production. Such valuation will

developing means of absorbing labour in alternative sectors. Such changes are likely to not only relieve some of the population pressures currently facing the pastoral system, but will also generate benefits of household livelihood diversity, reduced risk, alternative sources of investment into pastoralism and influx of new ideas and technologies. Ultimately, successful economic development as well as sustainable land management in the drylands depends on pastoralist men and women being enabled to make informed choices and demand appropriate policies to support and enhance their production system.

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## ***Annexe***

### **List of countries studied by region**