Policy analysis

Development in drylands is not only affected by national policy but also by regional policy. Regional bodies such as the East African Community(EAC), Intergovernmental Authority on Development (IGAD) and the African Union(AU) develop policy frameworks that, when adopted by national governments, open up drylands for development. Policies include the East African Protocol on Environment and Natural Resource Management, the IGAD Livestock Policy Initiative, the AU Policy Framework for Pastoralism in Africa, The AU Framework and Guidelines on Land Policy in Africa and the African Convention on Conservation of Nature and Natural Resources.

Thus regional policies strongly promote drylands development, pastoralism and conservation. It is also notable that most of the regional frameworks have been developed through intensive consultative processes. The threat however, is that many of these policy frameworks may be met with non-implementation. Worrying is that the protocols, agreements and frameworks lack a pathway with resources allocated to implement.

The regional nature and the provisions in these frameworks mean that their implementation will require comprehensive legislative, institutional and operational measures at national level to achieve coordinated, decentralized, transparent, efficient and cost effective delivery of services in biodiversity conservation and drylands development.

Adopting regional policies thus has far reaching implications at national level. It calls for implementation but also for improved governance by reviewing and restructuring existing institutional settings. It also calls for creation of entirely new institutional arrangements at local, national, regional and global levels.

There is a need for harmonization of the current policy environment. This is because current national policies relevant to drylands have been developed from sectoral perspectives, with conflicting regulation as a result. Implementing supra national policies requires further review and policy harmonization.

Main findings and recommendations

1. There is need to recognise the full value of drylands – including the direct and indirect, market and non-market values. It is advisable to ensure improved national accounting for all dryland goods and services to inform national planning processes.
2. Biodiversity values – including ecosystem services – are high but ignored and therefore are not used sustainably.
3. Investment in the pastoralism-biodiversity sector is necessary. This particularly involves enabling people to harness existing and locally-known opportunities.
4. It is necessary to domesticate regional policy frameworks at national level and harmonise national policies to ensure broad-based support for the pastoralism-biodiversity sector.
5. There is need to invest in research to generate knowledge and policy options on models suitable for development of the pastoralism-biodiversity sector.
6. There is need to create institutional frameworks for better coordination to enable the mutual benefits of pastoralism and biodiversity.
7. Development options for drylands need to be based on long-term and sustainable activities which integrate economic, social and environmentally sound practices.
8. Action strategies in drylands should incorporate a combination of development based factors, taking into consideration ecological conditions, population density, and ease of market access to have a truly integrated approach.
9. Regional policy needs to take into account the cross-border activities which take place in drylands. If ecosystem management is to be effective, ecosystem boundaries, as oppose to political ones need to be considered in policy.
10. Enabling and maintaining mobility of dryland communities, through land tenure revisions and participatory approaches, is a key factor in facilitating adaptive coping strategies when facing climate uncertainties, biodiversity losses and other eventualities.
11. Access to basic needs such as education, health, financial services, and infrastructure need to be improved in drylands areas, taking in consideration marginalized groups. The costs of improved social services will be off-set by the improved benefits received from ecosystem services.
12. Increased participation and representation from the government is needed in drylands during capacity building events and meetings, to improve understanding of dryland issues and communication between stakeholders.

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Profile of the Project

This research was support by Association for the Strengthening of Agricultural Research in Eastern and Central Africa (ASARECA) and conducted the International Union for Conservation of Nature (IUCN), International Livestock Research Institute (ILRI), the Resource Conflict Institute (RECONCILE), and Egerton University as the lead institution.

The research goal was to make a significant contribution to understanding high priority regional policy issues and potential reforms that will favor improved and sustainable biodiversity conservation, while enhancing livelihoods in pastoral areas of the Eastern and Central African region. Specifically, the research endeavoured to:

i) inform policy harmonization in sustainable management of dryland and pastoral areas biodiversity;

ii) develop tools that will guide sustainable investment options in dryland and pastoral areas; and iii) promote a regional approach to drylands and pastoral areas conservation and use.

This brief Drylands Development, Pastoralism and Biodiversity Conservation in Eastern Africa is the first in a series of policy and information briefs that explores issues related to the sustainable development of drylands. It explores drylands issues in the East African region.

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ASARECA
Transforming Agriculture for Improved Livelihoods

Drylands Development, Pastoralism and Biodiversity Conservation in Eastern Africa

ABCD series Policy brief no. 1

Summary - Drylands are areas with low and highly unpredictable rainfall yet they are productive environments contributing to national economies in Eastern Africa. When utilised effectively, for the diverse range of environmental and economic benefits, they contribute significantly to economic development and food security. This briefing note introduces a regional research programme funded by ASARECA and implemented by Egerton University, ILRI, IUCN and Reconcile. The note introduces the inter-related economic values of pastoralism and dryland biodiversity, the policies that enable or constrain investments in this relationship, and the proposed development domains for more nuanced and effective investment and policy for sustainable drylands development.

East African Drylands in brief

Drylands occupy around 2 million km^2 or respectively 90%, 75% and 67% of Kenya, Tanzania and Ethiopia (Fig. 1). The low level of precipitation and the high degree of variability limits the possibilities for rainfed crop production. More than 60 million people, or 40% of these countries' population, live in drylands. This figure is projected to increase to 90 million by 2025.

Livestock production is the economic mainstay of the livelihoods of most dryland residents in Eastern Africa. Regionally, most of the 139.2 million heads of cattle, sheep and goats reside in the drylands. Livestock contributes 50% to agriculture GDP in Kenya, 30% in Tanzania and (Hesse and MacGregor 2006) 45% in Ethiopia and (Behnke 2010).

In addition, drylands people benefit significantly from ecosystem goods and services through many ways besides livestock production. The contribution of biodiversity to households and national economies is poorly known and is not taken into account in development planning.

For example milk production by Ethiopia's pastoralists is estimated to represent about 65% of the national milk production, but the value assigned to this in official statistics is only US$284 million. IUCN (2008) report that more than three quarters of pastoralist milk output is not captured (IUCN, 2008).

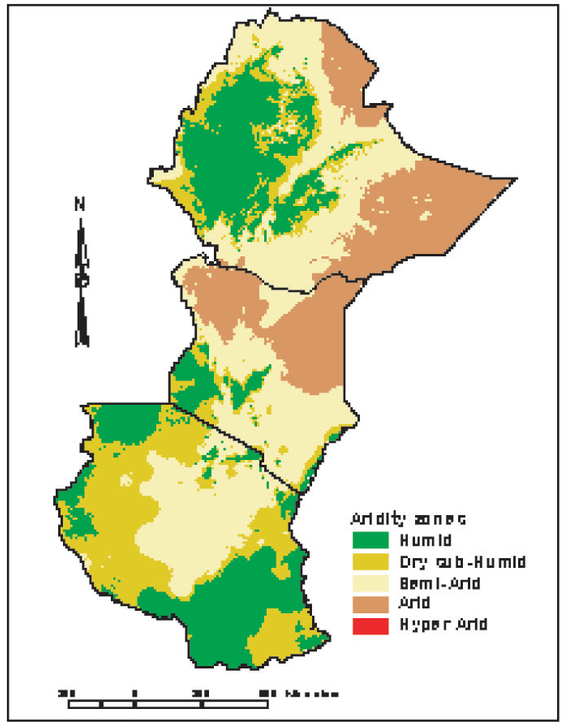

Figure 1. Aridity zones for Eastern Africa

Rationale for the study

The widespread and deeply rooted misconception that drylands are wastelands neglects the magnitude of existing economic activity and benefits. Contrary to this misconception, drylands are regions of high economic values. They support agriculture, livestock rearing, tourism and wild resource harvesting, they provide ecosystem services such as carbon sequestration and water cycling and regulation, and they play a critical role in ensuring national food sufficiency.

Drylands provide significant goods and services which are marketed nationally and regionally as well as consumed at the household level. For example, the bulk of the meat, milk and other livestock products consumed in the Horn of Africa originate from drylands. However, the value of these goods are poorly captured in national statistics and as a result, government planners frequently make poorly informed choices over investment and policy in the drylands.

ILRI INTERNATIONAL LIVESTOCK RESEARCH INSTITUTE
RECONCILE
USAID FROM THE AMERICAN PEOPLE
IUCN
EGERTON UNIVERSITY

Unlike more humid areas, people in drylands derive most of their production from natural ecosystems and associated biodiversity, particularly in pastoral systems. When the diverse values of these natural ecosystems are ignored, cost benefit analysis of different land use options is incomplete. As a result, planners often favour crop cultivation over the combined and mutually-supportive practices of livestock production and wildlife conservation. However, dryland vegetation and availability of freely accessible water form the basis of pastoral land uses, while abundant biodiversity provides opportunity for the development of alternative livelihoods such as those in wildlife based tourism (Box 1).

Although people are not generally aware of the benefits they enjoy from dryland systems, the loss of such benefits is felt as a real cost by people in drylands as well as beyond their borders. Countries with a significant proportion of drylands greatly underestimate the value of these important assets and miss many opportunities for sustainable investment and poverty reduction.

The project

The ASARECA supported project "Natural Resource Management and Biodiversity Conservation in the Drylands of Eastern and Africa" was carried out to provide data on the mutual benefits of pastoralism and biodiversity conservation, and to recommend policy and investment options in support of the synergies.

Box 1. Benefits derived from Community based conservancies in the Mara region, Kenya

In 2006 Olare Orok Conservancy (OOC) in the Mara in Kenya brought together 147 Maasai landowners and 30,000 acres of land to conservation management. The successful establishment of Olare Orok Conservancy allowed the landowners to integrate livestock and wildlife by creating pasture reserves for livestock dry season grazing and development of wildlife based tourism that generated an extra US$ 30-40 per hectare of land under the conservancy. The conservancy became a template for other conservancies in the Mara.

Currently, 6 conservancies along the Mara River and the northern boundary of the Mara reserve has been established, securing an area of some 90,000Ha (350 sq. km) for conservation, annually generating some US$ 3million to about 1,000 Maasai households.

In Kenya there are more than 40 conservancies that benefit communities' projects. In a few cases like in the Mara, the payments are directly paid to landowners. The proposed Wildlife Bill needs to address conservation of biodiversity outside protected areas and needs to facilitate this through the new schemes such as the payment for wildlife conservation (see related ASARECA policy brief on Payment for Environmental Services).

Development domains

Development domains are areas with relatively homogeneous potential for development. Earlier development domain mapping for the ASARECA region as a whole focused on humid areas and did not delineate domains for drylands. This project developed an approach to map development domains for drylands, starting with three major biophysical and socio economic factors which offer opportunities or constraints for development:

1. Aridity, which determines agricultural potential
2. Market access, which is a major trigger for economic development
3. Human population density, tips pastoral systems above a certain thresholds to transform to agro-pastoral and crop based systems

The delineation of the final development domain map (Fig. 2) was based on maps reflecting these three layers.

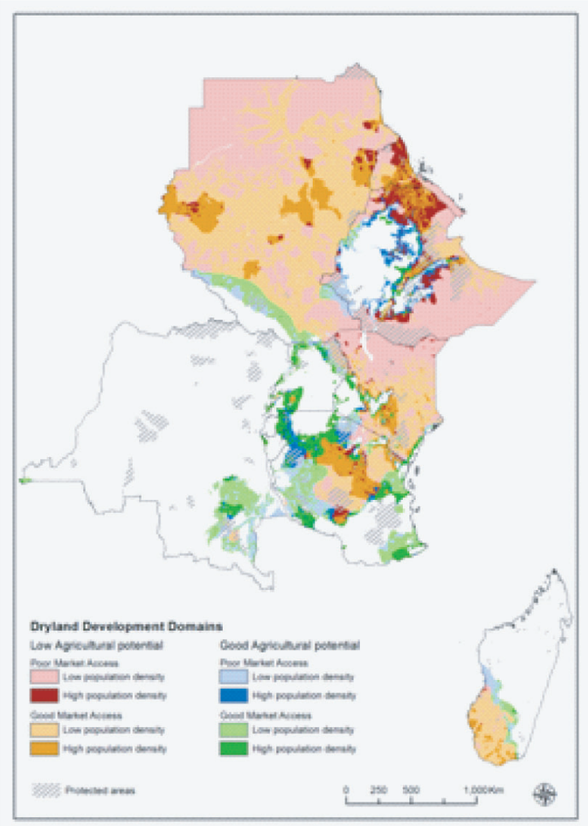

Figure 2. Development domains for the drylands in the ASARECA region.

The report defines investment opportunities along these three axes as indicated in the table. The development domains approach is only providing a first strategic filter defining overall priorities and challenges. When zooming in or planning specific interventions, other factors might have to be taken into account.

Dry sub-humid	Arid or semi-arid
• Protect access to communal resources (water and seasonal forage for wildlife and livestock)	• Enable livestock mobility to maintain livestock-biodiversity corridors
• Ensure effective regulation of transhumance	• Strengthen communal resource management
• Compensation for wildlife damage	• Focus on diversification to promote resilience
• Focus on diversification strategies to protect biodiversity	• Develop integrated pasture-water monitoring and management systems and institutions
• Promote crop-livestock systems	• Provide infrastructure for integrated rangeland-water management
• Promote crops that complement "pastoralism and biodiversity"	• Risk management and safety nets (e.g. insurance)

Low population density	High population density
• Strengthening of the pastoral economy	• Strengthen land rights and NR governance
• Social services (including security)	• Protect biodiversity
• Infrastructure	• Rangeland rehabilitation
• Diversify to include biodiversity-related investments	• Diversify the economy through greater commercialisation and non- NR investments
	• Urban investments

Far from markets	Close to markets
• Strengthen market chain connectivity	• Diversification of production (both in pastoralism and into non-pastoral activities)
• Collective marketing	• Private rather than collective market-enterprise
• Recognise opportunities for trans-boundary trade	• Legislation to promote competition (e.g. avoid cartels)
• Infrastructure	
• Market information	
• Exploit the economy of scale in marketing	
• Address asset liquidity and relate to banking services	
• Invest in processing or transport of perishable products (esp. milk)	

In all domains there must be emphasis on landscape-scale land use planning that transcends the domain and will vary within a country and across countries. The domain tool developed here assists us in tracking the issue along the three dimensional aridity, market access and population density continuum and shows there is a large variation in the drylands.

Total Economic Valuation (TEV)

The report presents a Total Economic Valuation (TEV) of the goods and services provided in four ecosystems in the three countries. The approach to Total Economic Valuation that was used aims to provide both direct and indirect economic values, including commercial values, subsistence and non-market values, ecological functions and non-use benefits. The four case studies placed particular emphasis on the direct and indirect use values. Other values of biodiversity and non-use values of drylands are not assessed in detail and therefore the calculation of Total Economic Value is unavoidably under-estimated.

Despite this under-valuation, the research demonstrates the high value and wide range of economic benefits derived from drylands. This finding is supported by a range of other literature reviewed from the region, which have employed the TEV approach in different ways, using different valuation methodologies.

Data presented in the case studies were collected from both primary and secondary sources. The methodologies included market pricing, travel cost, contingent valuation and benefit transfer. Three of the four studies were able to estimate a Total Economic Value (TEV) of the study area based on aggregation of the full range of the values and benefits associated with the ecosystem services.

Economic value of drylands

Case Studies

The range of values that can be found in dryland ecosystems is vast and in this study we explored a few key values ascertained by the local users in the 4 sites. The 4 sites were Isiolo, Mara (Kenya), Wegero and Ololusukwani villages (Tanzania) and Yabello (Ethiopia).

Livestock and livestock products - In all these sites livestock production was the economic mainstay but also non-livestock products and services were considered as crucial for the local communities.

In the Mara, livestock was valued at US$ 83 million, with 60% of household in the Mara depending on livestock and livestock products. It is also an important cultural and social value for dowry and marriage gifts. Data on pastoral herds in the study site in Ethiopia was not available.

However, the country is estimated to have 43 million cattle, 24 million sheep, 19 million goats and 4.5 million donkeys and 0.62 million camel (CSA 2007). Livestock contribute 30-35% of the agriculture GDP (ref) and pastoralism about 10% to the GDP (Rodriguez 2008).

It has also been established milk-oriented production in the rangelands as significantly more productive per hectare as meat-oriented systems. In Eastern Africa milk production is two - times greater than the value of meat.

Crops yields – Crop production takes place in many parts of the drylands. In the Mara, crop production is estimate at USD 78 million and in Isiolo at USD 207,465. In Isiolo crop production is mainly through irrigation.

Water – Dryland water source is important service in sustaining households, livestock production and wildlife across vast areas by providing water and forage. Globally the value of fresh water provision in wetlands has been estimated at $60/ha (Braat *et al.,* 2008). Using Benefit Transfer methodology the lower Ewaso N'giro ecosystem could be valued at USD 227.1 million per year. In the Mara 62% of the population depend on river for both domestic and livestock use.

Tourism

Wildlife tourism in the Mara accounts for over 18% of all tourists' visits in Kenya and comprises over 10% of all tourism revenue which amounts to USD31.0 million. About 1000 families in the conservancies benefit from the payment for wildlife conservation at an average of USD30 per ha (refer to Box 1).

Tourism in Ewaso N'giro amounted to about USD1.44 million/year (ECoNorthwest, 2010). Based on existence value for wildlife this revenue could be as high as USD19.35 million per year. Ethiopia has potential of capturing about USD 300 million from tourism. In all the three countries, the non-pastoralists capture most of the benefits of this tourism (IUCN-WISP, 2008).

Forest and rangelands products

In Ethiopia, other goods from pastoral areas such as firewood, gum, incense, and wild fruits have an estimated value at over US$390,000 per year (McGahey *et al.*, 2008).

As indicated in the case study there is potential to generate revenue but also information is lacking on many aspects. The lack of information of both direct (livestock numbers, trade in skins and milk) and indirect values have undervalued the drylands and its importance in the contribution of development in these countries.