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Arid waste? Reassessing the value of dryland pastoralism

East Africa has a huge hidden asset – but risks throwing it away in the quest for economic development. This is its millions-strong herds of dryland livestock managed by pastoralists. New findings show that pastoralism has immense potential value for reducing poverty, managing the environment, promoting sustainable development and building climate resilience. In Kenya alone, the sector is worth an estimated three-quarters of a billion dollars a year. Yet pastoralism is seen by many as archaic, economically inefficient, chaotic and environmentally destructive – perceptions that are not evidence-based, yet drive much regional policy. Inadequate, inaccurate national statistics on pastoralism do little to alter this view. Persistent undervaluation has effectively trapped up to 20 million dryland pastoralists in a cycle of poverty, conflict and environmental degradation. Now, with climate change biting, the time is ripe for a conceptual framework that captures the total economic benefits of this livelihood.

Policy pointers

- **Over 90 per cent of meat** consumed in East Africa comes from pastoral herds.
- **The pastoralism sector** is estimated to be worth US$800 million in Kenya alone. Yet existing national statistics fail to capture the total economic value (TEV) of pastoralism to national economies.
- **Valuing pastoralism** using the TEV framework is not about creating a dollar value, but instead demonstrating the range of values that need to be considered when designing policies for sustainable and peaceful drylands development.
- **Climate change will amplify** differences in land use efficiency, with ranching becoming even less competitive than pastoralism in drylands.

How pastoralism is chronically undervalued

For a substantial slice of East Africa's population — up to 20 million people — pastoralism remains a way of life and an essential livelihood. Yet many policymakers in East African countries have a blind spot regarding pastoralism, and particularly its contribution to economic growth. The problem is partly down to inadequate information on the comparative advantages of pastoralism over alternative land uses.

As a sector, pastoralism is estimated to be worth US$800 million a year in Kenya alone.[1] But critically, statistics on nationally produced goods and services do not reflect pastoralism's true value. They focus instead only on direct, easily measurable values and fail to incorporate the many indirect values.

A relatively new framework, known as total economic value or TEV, brings together direct and indirect values. TEV has already been used in a number of contexts: to value European council services, mountain ranching in the United States, Amazonian deforestation, accident reduction in California, Canadian livestock breeding, and Borana cattle in Ethiopia.

Applying TEV to pastoralism would show its efficiency and environmental benefits as well as the support it provides to rural and urban communities as demand for meat and dairy products rises. Only by investigating the overall contribution of pastoralism to society can its real potential be realised and valued, and relevant policies be targeted more effectively.

What is missing from the data on pastoralism and its contribution to East African economies? An example of the type of information currently available can be seen in Table 1 overleaf, which brings together some of the statistics collected by government ministries, NGOs and other bodies for the livestock sector in East Africa.

The data in this table are limited in a number of ways, reflecting significant gaps in the way information on pastoralism is gathered in the region.

- They have not been not broken down to reflect the relative contributions of different livestock production systems, such as dairying, ranching, agro-pastoralism and pastoralism.
- Indigenous cattle herds are significant in all these countries. Given that these animals are traditionally reared by pastoralist and agro-pastoralist communities,

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Table 1. Pastoralism's estimated contribution to selected East African national economies in 2004

Factor	Kenya	Tanzania	Uganda
Contribution of agriculture sector to GDP	16%	45%	32%
Contribution of livestock to agricultural GDP	50%	30%	19%
Percentage of pastoralists as livestock owners	n/a	n/a	90%
Percentage of indigenous cattle in national herd	75%	97%	95%
Percentage of total national milk production originating from pastoralism	24%	n/a	85%

Sources: Institute for Security Studies (ISS): www.iss.co.za/ISS; ISS Uganda economy page: www.issafrica.org/AF/profiles/uganda/Economy.html; International Livestock Research Institute (ILRI): www.ilri.org; Markakis, J. 2004. *Pastoralism on the Margin.* London, Minority Rights Group International; Official Gateway of the United Republic of Tanzania – Livestock: www.tanzania.go.tz/livestock.html; Republic of Uganda: www.statehouse.go.ug; Rugadya, M., Obaikol, E., and Kamusiime, H. 2005. *Critical Pastoral Issues and Policy Statements for the National Land Policy in Uganda: A policy brief.* Land Research Series No. 5. Kampala, Associates for Development: http://tinyurl.com/r35fse; Uganda Investment Authority: www.ugandainvest.com; World Bank. 2005. World Development Indicators 2005. Washington DC, World Bank.

it can be inferred from the high figures in the 'Percentage of indigenous cattle in national herd' column that pastoralism makes a major contribution to these countries' GDPs. But the data hide this.

- There is no clear information on the economic contribution of camels, sheep and goats.
- Traditional statistical compilations tend to be based on assumptions, estimates and best guesses by a range of people. Data collection also fails to distinguish gender or capture the economic contribution of women pastoralists through dairying, provision of labour and collection of non-timber forest products.

Difficulties in data collection

When properly collected and analysed, official data can reflect the true extent of economic activity in formal economic sectors, such as mining. But sectors with a significant informal dimension present a major challenge to official data collection methods. As a result, official data is inevitably skewed away from the informal sector and does not reflect the whole economy.

In pastoralism, for example, a significant proportion of economic activity does not pass through official markets but takes place within the community. Using 'shadow' or estimated prices to pin down the value of pastoral produce, such as milk or butter, can be complex because the relative scarcity of these products on local markets inflates their market value. Added to this, few pastoralists draw salaries or pay income tax, so the economic returns on pastoral labour are unknown.

The virtual absence of reliable data on pastoralism's contribution to the national economy helps to explain the lack of support for the sector, as well as the desire to shift land use away from pastoral management to methods that are apparently more economically productive and formal. Without data, alternatives appear more attractive — particularly those thought to deliver higher economic returns in the formal sector, such as export-oriented commercial farming, ranching or private hunting. But this rationale confuses direct, short-term financial returns with wider economic, social and environmental benefits that accrue to society as a whole.

These are the types of benefit pastoralism is more than able to provide. What is needed, then, is a dynamic economic model of pastoralism that incorporates properly collected official data and quantifies the full range of direct and indirect values that it provides.

How TEV uncovers hidden assets

So what are pastoralism's hidden assets? To identify the true national value of the goods and services from an informal sector like pastoralism, it is necessary to determine who values its goods and services and how best to measure them. This is not a straightforward process: goods and services not traded on commercial markets have no easily calculated market value, but still need to be measured and expressed in monetary terms so that they can be weighed on the same scale as commercially traded produce. As we have seen, total economic value or TEV is a useful tool for exploring the full range of costs and benefits emanating from an activity.

Table 2, opposite, uses the TEV approach to identify the range of direct and indirect values that can be attributed to pastoralism, as a first step in exploring its total value.

Direct values of pastoralism

Subsistence and livelihood values The key values here are products, stock accumulation, insurance and inheritance. The most obvious direct livelihood values are the production of milk, meat, collection of

forest products and so on, all highly visible even if not always easily quantified. The herd is the basic 'unit of production' which, when the age-sex structure and overall numbers are in balance with available natural resources, provides a range of sustainable benefits to individuals, families and the community as a whole.

The herd can be seen to provide a flow of returns through animal births, milk, blood, meat and fat, as well as the opportunity to earn cash by selling manure and renting out draught animals. Keeping the herd balanced demands essential management strategies, including livestock mobility, herd diversification and herd splitting, where herders take most of the animals to search for grazing but leave a group with lactating females behind.

A second less visible, but direct, value is that of the herd as the households' asset store or investment. Investment in the herd is the best and often only opportunity available to rural people without access to a reliable banking system. Livestock can be sold as 'stock' when the price is right and converted into other commodities, such as grain. Like monetary stock, value can go up as well as down, although a herd will appreciate over time through the births, growth and maturation of animals. In fact, returns on investments in the herd are often believed to be higher than bank returns, and pastoralists tend to recycle their earnings by purchasing more stock. Herd splitting and other pastoralist management strategies are used to avoid stock loss from drought and disease, and from the raids that form an important part of coming-of-age for young men in many East African communities.

A third direct value lies in the 'insurance policy' aspect of the herd. Much value is placed on a herd's total size: the greater the number of animals a family owns, the greater their chances of addressing risks and surviving adversity. During drought, pastoralists with larger (and more age and species diverse) herds will recover faster.

A fourth direct value lies in the herd as a currency for long-term security. The inheritance of livestock within families is critical for new families to establish and for the survival of societies as a whole. The strategy of managing grazing resources through constant negotiation of use rights also builds the huge social capital needed for communities to exist in high-risk, weather-dependent environments.

Wider economic values The key values here are goods marketed and inputs to other supply chains. Along with the direct subsistence value of goods produced through pastoral production is the substantial economic value of these goods in the formal market through the sale and export of milk, livestock, hides and leather. Other marketed goods include timber and non-timber forest products such as fruits and medicines harvested from the bush, which are key sources of income for women and poorer people.

Pastoralism clearly provides inputs to a wide range of formal industries such as the meat and restaurant trade, and is very significant in informal industry, including the *nyama choma* or roast meat trade. A 2005 study in Arusha, Tanzania, identified over 600 *nyama choma* businesses employing 5600 people with an estimated 25,000 dependents.[2] When ancillary businesses such as butchers' outlets are included, the annual turnover of the industry in Arusha is now estimated at US$22 million.

Human capital values The key values here are employment and indigenous knowledge. The direct value of pastoralism as an 'employer' is often overlooked. Estimates of the pastoralist population vary from 9 to 20 million, and with potential part-time involvement could be considerably higher, but in East Africa it remains substantial. Some 60 per cent are adults of working age gainfully employed in raising livestock and subsidiary activities such as livestock trading.

In arid and semi-arid rural areas, pastoralism and agro-pastoralism are often the only form of employment. Pastoralism's input to other supply chains also provides employment to urban people such as traders and transporters. Pastoralists who lose their cattle face unemployment and urban drift, and often create a very tangible cost to the national economy.

Table 2: Direct and indirect values of pastoralism

Direct values	Indirect values
Subsistence and livelihood values: ■ milk, meat, blood, firewood, honey, fruits, medicine ■ the herd as a form of insurance, savings and risk management ■ sociocultural values and the development of social capital (absence of conflict) **Economic values:** ■ marketed products: sales and exports of milk, livestock, hides, leather and non-timber forest products ■ raw material production: inputs to supply chains involving informal or quasi-formal economic activity – butchers, traders, transporters **Human capital values:** ■ employment of 9 to 20 million East Africans ■ skill development and indigenous knowledge	**Economic input values:** ■ added value to agricultural production ■ benefits to tourists and the tourism industry **Environmental values:** ■ nutrient recycling ■ maintenance of pasture productivity and biodiversity ■ tree regeneration ■ maintenance of natural ponds and water cycling ■ building environmental resilience to climate change

Pastoralists are highly specialised livestock herders and breeders and have skills and indigenous knowledge of direct national value. They rely on scarce natural resources under shifting conditions, demanding considerable knowledge of animal husbandry, sustainable rangeland management and informal livestock markets. Pastoralists also possess a sophisticated understanding of livestock genetic selection processes. As climate change brings greater environmental, social and economic uncertainty, harnessing pastoral knowledge and experience on livestock management in an environmentally sustainable manner will prove invaluable in the overall management of Africa's drylands.

Indirect values of pastoralism

Economic input values Agriculture is a key beneficiary of pastoralism. It helps raise agricultural productivity by providing manure, animals for agriculture and transport, seasonal labour, and technical knowledge for the rising number of farmers now investing in livestock. Farmers also help pastoralists by providing crop residues as fodder – potentially crucial in drought years. These reciprocal exchanges help reduce conflict and promote peaceful relations. In tourism, a vital input from pastoralism is the maintenance of grazing reserves, which provides critical dry season habitats for wildlife. Northern tour operators also market trips using images of pastoralists, while pastoralists' cultural performances and handicrafts have clearly helped spark interest in the region.

As a form of land use, pastoralism has also helped protect the many national parks that East African tourism depends on. Unlike agriculture, pastoralism is one of the few land uses able to coexist with wildlife, as domesticated and wild animals exploit different ecological niches. Maasai pastoralists also directly protect the Ngorongoro black rhino from poachers.

Environmental values A number of studies[3] have shown that when livestock mobility is assured, pastoralism benefits rangeland management. Grazing animals eat dead grasses and other biomass at the dry season's end, paving the way for new growth in the rains and preventing bush fires and the spread of unpalatable grasses and shrubs. Grazing livestock disperse plant seeds that stick to their bodies, and aid the germination of others by eating and excreting them. Herds break up hard soil crusts, allowing water to filter through and seeds to sprout. Livestock also provide plant nutrients through their manure.

More significantly, the shared management of pooled resources practised by pastoralists prevents the need for costly fencing, surveillance and land clearance. Research[4] suggests, too, that pastoralism damages the environment less than ranching: pastures in ranches become dominated by palatable but graze-sensitive grasses that are less resilient to drought and related degradation.

Pastoralists are in a better position to accommodate climate change than those tied to sedentary land uses. Through mobility and the maintenance of reciprocal and negotiated forms of access to natural resources, pastoralists are able to exploit increasing variability in natural resources. Unpredictability and the variable distribution in time and space of nutritious pastures become positive factors of high livestock productivity when mobility is secured. Pastoralists' capacity to adapt to climate change is thus dependent on a favourable policy environment that secures livestock mobility and protects pastoralists' land rights.

Room to move: the future of pastoralism

TEV can give pastoralism room to thrive by capturing conventional economic data on livestock productivity (milk, meat, hides), and extending understanding of pastoralism's additional direct and indirect values and benefits. Globally, livestock is growing faster than any other agricultural sector; and in East Africa, the demand for meat and related products is rising along with urban populations. To meet that demand and boost foreign exchange, the region's governments are focusing on the export trade. Through this they are effectively ignoring, if not actually harming, a hugely valuable asset. Pastoralism, properly valued and supported using the TEV framework and backed by informed policy, could go some way towards meeting both domestic and regional demand.

Pastoralism is a rational economic land-use system. It is also able to generate significant returns. As we have seen, widespread misunderstanding about pastoralism has left it often under-protected, undervalued and an unintended victim of uninformed policy. But this traditional livelihood, designed as an adaptive strategy for thriving in some of the world's harshest regions, is ideally suited to the climatic and economic uncertainties of our turbulent century. With informed policy, its tremendous potential could be realised.

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Further reading & websites

Hatfield, R. and Davies, J. 2007. *Global Review of the Economics of Pastoralism*. IUCN, Kenya. See http://liveassets.iucn.getunik.net/downloads/global_review_ofthe_economicsof_pastoralism_en.pdf. ■ Hesse, C. and MacGregor, J. 2006. *Pastoralism: Drylands' Invisible Asset?* Drylands Issue Paper 142. IIED, London. See www.iied.org/pubs/pdfs/12534IIED.pdf.

Notes

■ [1] PACE-OAU/IBAR. 2001. *The Livestock Revolution and Opportunities for Africa.* Policy Briefing Paper no. 2. OAU/IBAR, Nairobi. ■ [2] Letara, J., MacGregor, J., and Hesse, C. 2006. *The Economics of the Nyama Choma Business in the City Of Arusha, Tanzania.* RECONCILE/IIED, Nakuru/London. ■ [3] For example, Thébaud, B. 2004. *Le pastoralisme au Sahel. Module d'animation et de formation.* ARED/IIED, Dakar/London. ■ [4] Walker, B. *et al*. 1981. Stability of semi-arid savanna grazing systems. *Journal of Ecology* 69, 473-498.

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