

POLICY BRIEF SERIES



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Total Economic Valuation of Pastoralism in Uganda



INTRODUCTION

Rangeland in Uganda covers an estimated area of 84,000 Km². This is about 44 per cent of the country's land mass commonly known as the *cattle corridor*. It's stretching from the south through the central region to the north-eastern part of Uganda (Figure 1). Pastoral and agro-pastoral communities are inhabiting the cattle corridor.

Livestock accounts for 3.2 per cent of gross domestic product, 70 per cent of employment generated by the agricultural sector (IGAD, 2013) and accounts for one-third of the total value of agricultural output.



Figure 1: Map of Uganda and Cattle Corridor

Source: Adapted from Makuma-Massa et al. 2012¹

The pastoralists and agro-pastoralists depend on livestock for their livelihoods and other rangeland products and services. Livestock plays a big role in food security as well as downstream industries in food processing, hotels and restaurants. Rangelands too provide goods and services that support household and the nation economies.

For example, out of the ten Uganda national parks, four of them i.e. Murchison Falls National Park, Queen Elizabeth National Park, Bwindi Impenetrable National Park and Kidepo Valley National Park, are located in the pastoral and agro-pastoral rangelands. Additionally, the bulk of River Nile Basin in Uganda falls within the rangelands too. Commercially important plants such as Aloe vera and shea butter trees also grow in the rangeland. Oil and gas proven reserves are found in the Western Rift Valley dryland areas. The Karamoja region in the north-east already has operational exploitation of gold, marble and limestone.

Despite these great contributions, most of the time pastoral and agro-pastoral landscapes are only associated with livestock and livestock products, ignoring and understating the other resources.

¹ Makuma-Massa et al. 2012. African Crop Science Journal 20 (2): 533 – 543.



In order to avail information and evidence for policy makers, IGAD Centre for Pastoral Areas and Livestock Development (ICPALD) has conducted a study on the total economic valuation of pastoralism in Uganda.

APPROACH AND METHODS

Total economic valuation approach is increasingly being used as a framework for valuing pastoralism. The concept in previous studies has demonstrated that the economic benefits associated with pastoralism extend beyond the direct values of livestock and livestock products. The concept of pastoralism is an integral system comprising three components: i) livestock assets and flow of goods and services; (ii) flow of rangeland goods and services; and (iii) attributes of an ecosystem (Figure 2).

During the study, data was collected through review of relevant literature, publications, policy documents and household survey. National data was on the other hand collected from FAOSTAT, national reports, statistical abstracts, economic survey reports and peer-reviewed publications. Household surveys were conducted in three study sites—Karamoja (208), Mbarara (85), and Nakasongola (126) – to supplement data obtained from secondary sources. The study also carried out stakeholder consultations at district and national levels.

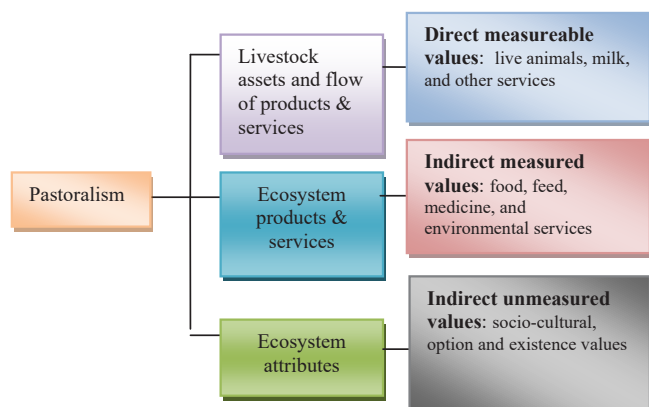


Figure 2: Total Economic Valuation of Pastoralism
Source: Adapted from Nyariki (2018)

LIVESTOCK OF PASTORAL AND AGRO-PASTORAL UGANDA

The accuracy of the estimated economic contribution of livestock and its products depends on accurate livestock numbers. In this study, livestock population by species was collected for the period between 2013 to 2017 from secondary sources. The five-year average value was used in this valuation.

Table 1: Livestock owned by Pastoralists and Agro-Pastoralists in Uganda, 2019

Livestock Species	System	Population	Per cent
Cattle	National	14,196,000	
	Pastoral & Agro-pastoral	13,287,000	94%
Sheep	National	1,990,000	
	Pastoral & Agro-pastoral	1,974,000	99%
Goats	National	14,721,000	
	Pastoral & Agro-pastoral	14,523,000	99%
Camels	National	40,000	
	Pastoral & Agro-pastoral	40,000	100%

Source: ICPALD, 2020

Pastoral and agro-pastoral livestock constitutes 94, 99, 99 and 100 per cents of the national cattle, sheep, goats and camels respectively.

THE VALUE OF LIVESTOCK ASSET

Livestock is the main capital stock for pastoralists and agro-pastoralists. The monetary value of livestock asset (cattle, camels, goats and sheep) was estimated at UGX 9.578 Trillion (US\$ 2.573 Billion) in 2019 market prices. Using the livestock herd structure, the Uganda pastoral herd was converted into Tropical Livestock Unit (TLU) to standardise the livestock species into a common unit. To estimate the value, the total TLU per species was multiplied by UGX 800,000 (US\$ 216), which is the average market price for an animal weighing 250Kg.

Table 2: Monetary Value of Pastoralist and Agro-Pastoralist Livestock Asset by Species, 2019

Livestock species	TLU Equivalent	Value, in Billions		Percent
		UGX	US\$	
Cattle	9,969,467	7,975.57	2.1527	83.27%
Sheep	197,367	157.89	0.0426	1.65%
Goats	1,452,999	1,162.40	0.3137	12.14%
Camels	56,000	44.80	0.0121	0.47%
Total	1,675,825	9,578	2.573	

NB: Exchange rate 1 US\$ to 3705 UGX in November 2019. The conversion factors for TLU: a bull 1, cows and heifers 0.7, steers 0.8, calves 0.3, sheep and goats 0.1, Camel 1.4

Source: ICPALD, 2020

In terms of monetary value contribution per species, cattle account for 83 per cent followed by goats standing at 12.5 per cent and sheep at 1.7 per cent of pastoral and agro-pastoral livestock assets in 2019. The livestock assets as capital stock support household investment, saving and cushioning households' risks and financial emergency needs.

VOLUME OF LIVESTOCK PRODUCTS

Pastoral and agro-pastoral in Uganda supply large numbers of live animals for subsistence slaughter and market annually. It is estimated that in a year, live animal offtake from the rangelands is 1.5 Million cattle, 2.6 Million goats, 228,944 sheep and 740 camels. This translates to about 208,050 tonnes of meat or 84.2 per cent of the total national meat consumption currently projected to be 246,999 tonnes.

Annually, milk produced by pastoral and agro-pastoral livestock is estimated at 1,287,440 tonnes. Cattle milk contributed 1,206,864 tonnes (94.5 per cent) followed by goats 62,828 tonnes (4.1 per cent) and camel 17,748 tonnes (1.4 per cent). In total, pastoralists and agro-pastoralists contributed about 72.5 per cent of the national milk consumption.

The annual manure produced by pastoral and agro-pastoral livestock is valued at 13 Million tonnes, a huge potential source of natural fertilizer and biogas production for energy.

ANNUAL VALUE ADDITION FROM FLOW OF LIVESTOCK PRODUCTS

The annual value addition by agro-pastoral and pastoral livestock due to live animal off-take for subsistence slaughter and market was estimated at UGX 1.46 Trillion (US\$ 395.6 Million) in 2019 market prices. In terms of the livestock species considered, cattle, goats, sheep and camels accounted for 82.7, 15, 2 and 0.05 per cents, respectively.

The total annual value addition due to milk off-take for subsistence use and market from pastoral and agro-pastoral livestock was valued at UGX 1.53 Trillion (US\$ 412.6 Million) in 2019 market prices. Cattle, camels and goats accounted for 94.5, 4.1 and 1.4 per cents, respectively. Only about 15 per cent of the manure produced in the pastoral and agro-pastoral areas is used as fertilizer. The annual economic value addition due to manure is estimated at UGX 51.4 Billion (US\$ 13.89 Million).

In general, the total annual value addition due to flow of livestock products (milk, meat and manure) is estimate at

UGX 3.04 Trillion (US\$ 0.822 Billion). The above economic value estimation of livestock and livestock products was based on farm gate prices and does not include value addition along the value chain.

VOLUME AND VALUE OF RANGELAND PRODUCTS AND SERVICES

There are non-livestock products and services generated by the pastoral and agro-pastoral range-land that complement livestock production. They include Fish, honey, wood for household use, me-dicinal plants, crop farming and tourism among others. The bulk of the River Nile basin in Uganda falls within the rangelands. The rangeland rivers are annually supplying 4.6 Million tonnes of fish valued at UGX 82 Billion (US\$ 22.1 Million), annually. Four major national parks in Uganda are located in the pastoral and agro-pastoral rangelands. They constitute 77% of the national income from tourists. The annual income of the parks and reserves from tourists in the rangelands is estimated at US\$ 967 Million.

Table 3: Annual Value Addition of Pastoralism in Uganda, 2019

Categories	Annual Value Addition	
	UGX, Billion	US\$, Million
A. Livestock products		
Live animal off-take	1,466	395.65
Milk	1,529	412.63
Manure	51.4	13.89
Sub-total	3,046.4	822.2
b. Some Rangeland Products and Services		
Honey and wax	53.8	14.5
Tourism	7074	967
Firewood	143.6	38.8
Fishery	82	22
Crop farming	516.1	139.3
Medicinal use	4.5	1.2
Minerals	176	47.6
Sub-total	8,050	1,086
Total, annual	11,096.4	1,986.9

Source: ICPALD, 2020

Household firewood use by pastoralist and agro-pastoralists from the rangelands is estimated at 565,051 tonnes with monetary value of UGX 143.6 Billion (US\$ 38.77 Million). About 87 per cent of the 5000 tonnes of national honey comes from traditional beehives that are in the rangelands. They have the capacity to produce 543 tonnes of wax. Annually, the monetary value of honey and wax is estimated at UGX 53.83 Billion (US\$ 14.54 Million). Pastoralist and agro-pastoralists use natural products such as plants, animals and soil for medicinal

purpose, both for humans and their animals. The household medicinal use of rangelands is estimated at UGX 4.5 Billion (US\$ 1.21 Million).

Agro-pastoralists and some pastoralists also practice crop farming. The annual value of crop production in the rangelands is estimated to be UGX 516.1 Billion (US\$ 139.3 Million). Uganda rangelands generate an annual average income of UGX 176 Billion (US \$ 47.6 Million) from mineral mining.

In general, the total annual value addition by rangeland products and services (non-livestock) was estimated at UGX 8.05 Trillion (US\$ 1.08 Billion).

The total annual value addition of pastoral and agro-pastoral rangelands to the national economy is worth about UGX 11.09 Trillion (US\$ 1.99 Billion). The rangelands products and services contributes 72 per cent while annual flow of livestock products and services constitutes 28 per cent.

In general, the total economic value of pastoralism in Uganda stands at UGX 20.7 Trillion (US\$ 4.4 Billion). It has three components: livestock asset (US\$ 2.57 Billion), annual flow from livestock products (US\$ 0.822 Billion) and annual flow from rangeland products and services (US\$ 1.09 Billion).

CONCLUSION

Pastoralism remains an important land-use practice in the rangelands of Uganda. It contributes significantly to the livelihoods of Ugandans and socially benefits the local communities as well as contributing towards the national revenue.

Total Economic Valuation (TEV) approach provides a convenient framework for organising the different classes of value associated with pastoral and agro-pastoral landscape including the use and non-use values.

Therefore, rather than concentrating on only livestock products, it is important to focus on the emerging products from the pastoral landscape.

The landscape approach to valuation of pastoralism sheds light on the interconnectedness of different sectors in the pastoral and agro-pastoral rangelands including livestock production, crop production, tourism, water and natural resources.

Some of the challenges in conducting TEV of pastoralism analysis are inadequate data and information on all pastoral components.

POLICY RECOMMENDATIONS

- Development efforts in pastoral areas should be geared towards strengthening livestock production and its value chain, since livestock still remains the core livelihood in the rangelands. However, there is also need to explore the opportunities of non-livestock resources of value such as firewood, tourism, honey and wax which are increasingly becoming an integral part of the pastoral landscape.
- The livestock production by pastoralists and agro-pastoralists in Uganda generates tremendous wealth and income, to both the households and the national economy. The wise policy will be a strategic move to buffer livestock assets from natural calamities such as drought and animal disease epidemics through micro insurance and other risk transfer schemes.
- There is need to integrate TEV as a planning tool for sustainable management of pastoralism and investment decisions.
- The Government should commit to multi-year contribution to critical pastoral aspects such as generation of data and information for sound decision making, and encouraging private sector investment.
- It would be important to strengthen pastoral development that emphasises the landscape approach, taking into consideration livestock and non-livestock resources.

Further Reading

ICPALD (2020): Total Economic Valuation of Pastoralism in Uganda. Technical Report. IGAD Regional Pastoral Livelihoods Resilience Project (RPLRP). Nairobi, Kenya.

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