

Overall Total Economic Value of Pastoralism in Kenya (direct and indirect values)

Pastoral products	Value in Kshs (billion)	Value in \$ (billion)	Proportion of total value (%)
Traditional pastoral products			
Livestock offtake	18.90	0.189	19.90
meat (kg)	38.70	0.387	40.80
Milk	28.29	0.2829	29.80
Sub-total	85.89	0.8589	90.5
Non-traditional pastoral products			
Honey	3.44	0.0344	3.60
Wax	1.03	0.0103	1.10
Tourism	2.91	0.0291	3.10
Fish	1.65	0.0165	1.70
Sub-total	9.03	0.0903	9.50
<b>Total</b>	<b>94.92</b>	<b>0.9492</b>	<b>100.00</b>

4. CONCLUSION

In conclusion, the overall value of pastoralism at national level is illustrated in the above table. Whereas, for the four selected counties: Turkana, Mandera, Marsabit and Wajir it is estimated at Kshs 54.25 billion (\$0.543 billion). The value of pastoralism in Turkana is estimated at Kshs 21.97 billion (\$0.220 billion) followed by Wajir, Mandera, and Marsabit in descending order. The direct value of pastoralism for the four counties ranged between 55.97% and 97.37%. In Turkana County, the value was estimated at Kshs 16.02 billion (\$0.160 billion), followed by Wajir at Kshs 14.65 billion (\$0.1465 billion), then Mandera and Marsabit Counties in descending order.

Among the limitations of this study it ignored valuation of other important livestock species such as donkeys and horses particularly at County level. There is also the challenge of getting data on some important complimentary products in pastoral areas.

5. POLICY RECOMMENDATIONS

- Recognize pastoralism as a viable and sustainable economic system and address systemic bottle necks retarding the development and efficiency of the system;
- TEV of pastoralism should be used as an advocacy tool to lobby for budgetary allocations and relevant policies to strengthen pastoralism in the drylands
- The TEV has used to be a powerful training methodology for raising awareness about pastoralism among all actors who deal with it including the pastoral communities, government officials, non-state actors among others.
- Strengthening of existing linkages with development partners, regional bodies and governments in order to invest more in appropriate development initiatives that integrate climate change adaptation and build resilience in pastoral areas.
- Strengthening of traditional and indigenous institutions as avenues for community dialogue and reconciliation especially on issues of resource use conflicts.
- Enhancing government commitment to multi-year contribution to critical pastoral aspects such as generation of data and information based on sound science for decision making. These would include investment in practical action research and information dissemination



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IGAD Centre for pastoral Areas and Livestock Development



TOTAL ECONOMIC VALUATION OF PASTORALISM IN KENYA'S ARID AND SEMI-ARID LANDS



1. INTRODUCTION

Pastoralism remains central to providing a means of livelihoods in the arid and semi-arid lands of the world. However, it is usually undervalued due to limited information on its economic values resulting in very sceptic attitude and inadequate policy and institutional support to its development. It has, therefore been important to generate adequate information to demonstrate the Total Economic Value of this production system. To this effect, conventional measures of national income such as Gross Domestic Product (GDP), Gross National Product (GNP) and Net National Product (NNP) which have been used in decision making and development planning. But these indicators have limitations in terms of for their ability to measure wealth and societal welfare.

They focus on production of marketable goods and services only, thus missed out the benefits derived from the use of both tangible and intangible goods and services that are not marketable but crucial for livelihoods and

environmental sustainability. These largely include value of livestock for daily substance for millions of people and its environmental and ecosystem benefits in nutrient recycling. Within these shortcomings, the concept of total economic value (TEV) was born. It captures all the economic values for man-made capital assets and natural resources while incorporating non-marketed goods and services such as values of eco-systems in economic analysis. This approach enables a holistic assessment of all the critical values of eco-systems and could be an important tool for generating information for informed decision making by policy makers and development planners. Results of the study will further inform the design of comprehensive pastoral development strategies that will appreciate the social, ecological, environmental and economic values of the pastoral system and its resource base. The main objective of this policy brief, is therefore, to disseminate findings on the Total Economic Values of pastoralism in Kenya.

## 2. METHODOLOGY AND APPROACH

The study estimated the TEV of pastoralism in Kenya at national, County and Sub-County levels. A wide range of the available secondary data was collected from relevant government and non-governmental entities at national and county levels. At County and Sub-county levels, Turkana, Mandera, Wajir and Marsabit were purposively selected from the northern rangelands, as well as Loitokitok Sub-county was randomly selected from the southern rangelands to provide detailed information on the non-traditional values of pastoralism that were not captured from secondary data. We collected data on the number of livestock, slaughter and milk offtakes, and herd structure. Further, monetary valuation of livestock and livestock products was done from available data including valuation of slaughter, milk, and blood and manure offtakes. In addition, data were collected on non-traditional pastoral values such as honey, bees wax, herbs, firewood, fishing and tourism.

### 3. TOTAL VALUE OF PASTORALISM

#### A. Direct values of pastoralism

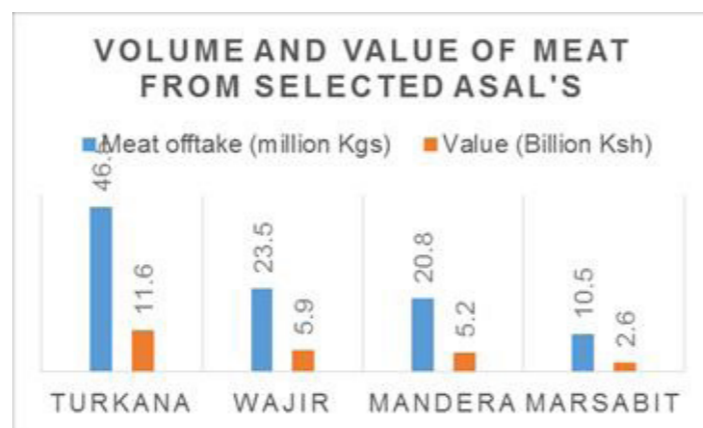
##### i. Economic values

Using the TEV approach, an estimated annual average of pastoral live animals is estimated at Ksh 233.7 billion (\$2.337 billion). The rate of livestock offtake from pastoral herds in Kenya has been estimated at 10 per cent per annum valued at Kshs 18.9 billion (\$0.189 billion) and annual meat production is estimated at 154,968 tons and valued at Kshs 38.9 billion (\$0.389 billion).

Of this meat, camel meat constitutes 9,872 tons valued at Kshs 2.47 billion (US\$0.0247 billion), mutton 1,609 tons valued at Kshs 0.4 billion (US\$0.004 billion) and chevon 33,614 tons with a value of Kshs 8.4 billion (US\$0.084 billion). Further, at the national level, the amount of meat consumed annually is about 553,200 tones, of which pastoral meat contributes 154,968 tones or 28% of the total national consumption. The rest comes from ranches and/or 'large farms' and smallholders. The pastoral population is estimated to consume 110,640 tons of meat which is 71.7 per cent of their production. At present, the national milk production is estimated at 58,708 tonnes, out of which pastoral milk from cattle, sheep, goats and camels constitute about 21 per cent of the total milk produced in the country, valued at Kshs 28.3 billion (US\$ 0.28 billion).

The main types of livestock species considered in the four counties include cattle, sheep, goats and camels. These four Counties constitute about 64.4% of the pastoral livestock in Kenya, with Turkana being the richest in terms of livestock wealth while Marsabit had the lowest. **Value of livestock Offtake in the selected four ASAL Counties**

The total meat offtake for the four counties is estimated at 101.25 million Kgs valued at Kshs 25.32 billion (\$0.253 billion). The four counties studied contribute about 37.7% of the national livestock offtake.



#### The value of milk production

In the selected four counties, milk is obtained from cattle, sheep, goats and camels. The value of milk in the four counties is estimated at 531 million litres valued at Kshs 10.4 billion (\$0.104 billion).

##### ii. Human capital values

The key values in terms of human capital include employment and indigenous knowledge. In the arid and semi-arid areas of Kenya pastoralism and agro-pastoralism provide direct employment to up to 2.2 million people. Generally, it provides 90% of employment and more than 95% of household incomes. Indirect employment that is difficult to quantify is in ranching, trade in livestock, transport services, leather industry, slaughter houses, butcheries, and eating houses. A huge proportion of people employed in these areas depend to a large extent on pastoral livestock.

#### B. Indirect Values of Pastoralism

These include tangible benefits such as inputs into agriculture (manure, traction, transport, breeding stock, etc.) and complementary products such as gum arabic, honey, medicinal plants, wildlife and tourism. They also include less tangible values including financial services (investment, insurance, and credit and risk management), ecosystem services (such as biodiversity, nutrient cycling and energy flow) and a range of social and cultural values.

##### i. Economic input values:

As input to crop farming, pastoralism helps increase crop productivity by provision of manure, animals for ploughing and transport. It also provides seasonal labour as well farmers also invest in raising livestock as source of income.

Using manure for farming helps store carbon in the soil and prevents it from being released into the atmosphere, and in this way, communities contribute to reducing climate-changing emissions.

*Studies in Kajiado-Kenya had shown that from a 40 head of cattle herd, a farmer collects 8 tonnes of manure every month, which is sold at Kshs 36,000 (\$360) and is used to fertilise 1.5 acres (0.6 hectares) of tea plantation in central Kenya.*

A tea plant normally yields about 1.5 kg of leaves a year, but when enriched with manure, it can produce as much as 3 kg. Therefore application of manure increases tea production by 100 per cent. There is enormous potential in manure sales in the pastoral areas, which is yet to be exploited. At present, manure contributes 7.54 per cent (Kshs 27.829 billion or \$0.278 billion) of the gross value of livestock, but these figures are likely to rise tremendously if marketing of manure is commercialized into an organized marketing system. For instance, if 40 head of cattle produce 8 tonnes of manure in a month, this translates to 96 tonnes of manure in a year valued at USD 4176. Using the 2009 livestock population census, where pastoral cattle population was estimated at 12,155,974 head. The total value of manure in a year, if marketed, could be USD 1.27 trillion (Kshs 127 trillion), a figure that can finance 50 times Kenya's national annual budget for 2017/2018 of Sh2.6 trillion.

##### ii. Tourism values

Pastoralism plays a number of roles in supporting the tourism industry, particularly through cultural and environmental services. It promotes peaceful co-existence with wildlife, and ensures land is conserved in its natural state. Kenya has 54 parks and reserves of which about 60 per cent are found in the pastoral areas. World Travel and Tourism Council (WTTC) estimates the direct contribution of tourism and travel sector to GDP at \$2.5 billion (3.7 per cent) in 2016. In addition, it directly employed 399,000 Kenyans, or 3.4 per cent of the total workforce that year. The value of tourism in pastoral Kenya, as an indirect contribution by pastoralism, was estimated through park entry fees by national and foreign residents as reported in the Statistical Abstract of 2016. In Kenya, the total value of tourism in pastoral areas is estimated at Kshs 2.91 billion (\$0.029 billion) of which Kshs 1.264 billion (\$0.013 billion) (43.5%) comes from Amboseli National Park.

##### iii. Values of complimentary products

Fishing is a growing livelihoods practice rapidly in pastoral areas especially from rivers, natural lakes and other artificial aquaculture systems such as ponds. However, this study only considers the value of fish obtained from natural water bodies existing in pastoral areas such as rivers and lakes. The average annual value of fish from the pastoral areas is estimated at Kshs 1.65 billion (\$0.0165 billion) with a minimum of Kshs 1.143 billion (\$0.01143 billion) in 2011 to a maximum of 2.15 billion (\$0.0215 billion) in 2015. These

figures exclude the value of fish through aquaculture and fish farming. The contribution of ASAL fish production to the total national fish production is estimated at between 8 and 11 per cent (on average 9 per cent)

Honey is another product from the pastoral areas in Kenya. According to the National Farmers Information Service (NAFIS), 80 per cent of honey comes from pastoral areas and specifically from the ASAL traditional log hives. The annual honey production in Kenya is estimated at 100,000 metric tonnes annually valued at Kshs 4.3 billion. The pastoral region contributes 80,000 tonnes of honey valued at Kshs 3.44 billion. From the national census carried out in 2009, Kenya had 2 million hives producing about 25,000 metric tonnes of honey, of which 20,000 tonnes (80 per cent) came from pastoral areas.

In terms of bee wax production, it is not documented how much wax comes from pastoral areas. However, for this study, it was logical to adopt a similar percentage (80 per cent) to estimate the value of wax from pastoral areas. The national average annual bees wax estimate from 2010-2015 is USD 12.8 million. Thus, pastoral bees wax is estimated at Kshs 1.03 billion.

##### iv. Other Indirect Values of Pastoralism

The pastoral communities derive several benefits from livestock keeping, including the provision of credit, insurance, and as a means of sharing risk. The credit benefits of livestock derive from the ability of livestock owners to 'cash in' their animals for particular purposes at a time that they choose. This additional financial benefit can be estimated as the opportunity cost of rural credit – what it would otherwise cost a livestock owner in rural areas to obtain funds comparable to those produced by liquidating a part of the herd. Employing this estimation, the additional finance value of a livestock holding is equivalent to the interest that the owners would be required to pay to obtain loans equal to the value of their livestock offtake. Interest rates in rural Kenya are currently running at about 25 per cent per annum in institutionalized channels, but about half of lending in rural Kenya is done privately by neighbours, friends and kin, resulting in low rural interest rates averaging 6.3 per cent per annum. In this case the financial value of livestock offtake is about Kshs 4.230 billion (\$0.0423).