



# **POLICY BRIEF CLIMATE CHANGE AND LIVESTOCK PRODUCTION IN TANZANIA**



2014

## 1 Background

Tanzania ranks third in terms of number of livestock in Africa, and the sector has a good contribution to the national economy. It is estimated to have about 19.2 million cattle, 13.7 million goats, 3.6 million sheep, 1.9 million pigs and 36 million local chickens and 23 million improved chickens (URT, 2010). The livestock industry contributed 4.6 % of the National Gross Domestic product in 2012. Given the large number of livestock and the abundant land and forage resources the country is endowed with, the contribution of the livestock sector to the growth of the national economy, food security and poverty reduction can be substantial.

Approximately 95% of ruminant livestock in Tanzania are kept under traditional production systems depending mostly on pastures and crop residues as the main feed sources. Therefore, at the household level, livestock keeping is an important and integral part of agriculture based livelihoods for a significant proportion of the Tanzania population.

*Climate Change is change in the state of the climate that can be identified (i.e. by statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period typically decades or longer*

Tanzania, like other countries of which many economic sectors are climate dependent, has been impacted significantly by climate change. In this regard, efforts must be done to address adapt to the impacts associated by climate change in pastoral and agro-pastoral lands.

## 2 Climate Change Impacts and Vulnerability on the Livestock Sector

The magnitude of the impact of climate change is contingent upon the vulnerability and adaptive capacity of the affected people and economic sectors. The livestock sector is one of the sectors of the economy which is highly vulnerable to the impacts of climate change. Climate change impacts in the livestock sector include:

### 2.1 Impacts on quantity and quality of range land

With the current climate variability, livestock productivity, survival and distribution will be affected by the reduced quantity and quality of range-land. (IPCC, 2001; URT, 2003). Deaths of large numbers of livestock due to lack of water and pasture has been of repeated occurrence in Tanzania in

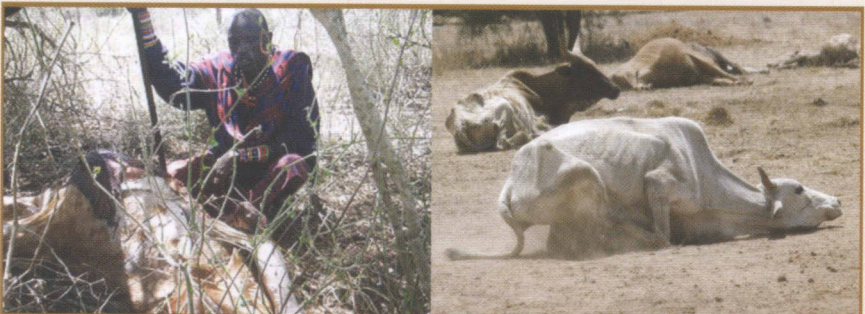


recent years threatening the livelihood of pastoralists in the country. It is estimated that the drought of 2008/2009 caused 735,929 livestock deaths in Longido, Monduli and Ngorongoro Districts alone.

**Table 1: Livestock deaths in Longido, Monduli and Ngorongoro Districts as a result of 2008/2009 drought.**

District	Type of livestock	Livestock deaths	Estimated value TSh
<b>Longido</b>	Cattle	231,832	69,549,600,000
	Goats	171,435	6,857,400,000
	Sheep	92,235	3,689,400,000
<b>Monduli</b>	Cattle	56,555	16,966,500,000
	Goats	39,766	1,590,640,000
	Sheep	28,883	1,155,320,000
<b>Ngorongoro</b>	Cattle	115,223	46,089,200,000
<b>Total</b>		<b>735,929</b>	<b>145,898,060,000</b>

Source: Modified from URT, MLFD (2009)



*Devastating impacts of 2008/2009 drought on livestock in Longido, Monduli and Ngorongoro Districts*

Assessment on the vulnerability of grassland and livestock to climate change impacts in Tanzania reveals changes in foliage associations and a shift in foliage species composition with the most palatable and nutritious species having been grazed out. These foliage species will continuously be replaced by more climate tolerant species and the overall carrying capacity of the rangeland would be lower due to variations in rainfall, temperature and evaporation

Climate change in Tanzania is also linked to increasing problem of plant toxicity to livestock and potentially to man. In the recent past, significant losses of livestock during dry episodes were linked to plant toxicity (Ngomuo, *et al.*, 2001). Studies in other parts of the world also indicate that the problem of plant poisoning is worsened and/or triggered by climate change.

## **2.2 Prevalence of Pests and Diseases**

Predictions have shown that the distribution of disease vectors particularly tsetse flies is likely to shift into North East Tanzania and thus reduce land for human settlements, grazing ranges and other developments (IPCC, 2001). It is in this part of the country where there are many pastoralist communities in the country (URT, 2007), hence such shift could have catastrophic effect on the livestock sector. There is a possibility for eruption of new pests for example ticks, snails and other pests in areas where they never existed before. As a result, diseases are also linked to expanded frontiers as new habitats for the disease vectors become favourable due to climate change. Diseases like Rift Valley Fever and Trypanosomiasis have particularly been linked with climate change.

## **2.3 Reduced Livestock Productivity**

Other effects on livestock include reduced productivity (draught power, milk and meat) as increased carbon dioxide reduces protein available from vegetation. Studies show that milk and meat production will be reduced following the stress on the grazing lands (URT, 2003, 2007, IPCC, 2001). High temperatures also have physiological effects on livestock which in turn reduce productivity.

## **2.4 Resource Use Conflicts**

The increased livestock population already overwhelms the carrying capacity of many grazing grounds in central and north-west Tanzania where droughts are common. As a result, pastoralists are forced to relocate to places where pasture and water are available (Shayo, 2006, URT, 2007). This migration causes frequent conflicts among the pastoralist societies and between pastoralists and farmers. Recently there has been a report in Morogoro region where pastoralists and farmers have clashed over the land use rights.

The ongoing conflicts between pastoralists and farming communities are already escalating and with climate change, they can only get worse



in the future if proper adaptation measures are not put in place and implemented. The conflict spills over into the conservation area as there are reported conflicts between livestock and wildlife where pastoralists have invaded the National Parks and other protected areas in search of pasture and water.

### **3 On-going Adaptation Measures in the Livestock Sector**

The Government has put in place and developed a number of measures and strategies to contribute to the livestock sector development in Tanzania. Climate change impacts are also addressed in these measures and strategies. Some of the actions include;

- ◆ Promoting indigenous knowledge in livestock keeping (sustaining improved traditional livestock keeping systems);
- ◆ Enhancing research and development of drought tolerant pasture seeds, fodder trees and shrubs;
- ◆ Determining livestock carrying capacities in villages and districts to ensure that the number of livestock corresponds to the carrying capacity of the land;
- ◆ Implementing environmental conservation programmes and participatory land use plans in villages and districts. As of 2011 the Government has demarcated about 2.8 million hectares of land for grazing livestock in 266 villages of 15 regions in mainland;
- ◆ Breeding animal breeds that can tolerate adverse weather conditions and diseases;
- ◆ Promoting better animal husbandry practices to optimize livestock production;
- ◆ Strengthening the capacity of institutions dealing with forecasting natural calamities/hazards resulting from climate change;
- ◆ Strengthening of diseases and disease vector (tick and tsetse) control programmes;
- ◆ Strengthening of livestock extension services;
- ◆ Improving livestock marketing infrastructure; and
- ◆ Providing water to pastoral communities through construction of Chaco and dams.

The government has also given livestock to livestock keepers in Longido, Ngorongoro and Monduli districts in effort to restock and compensate for livestock losses that occurred due to 2008/2009 drought.

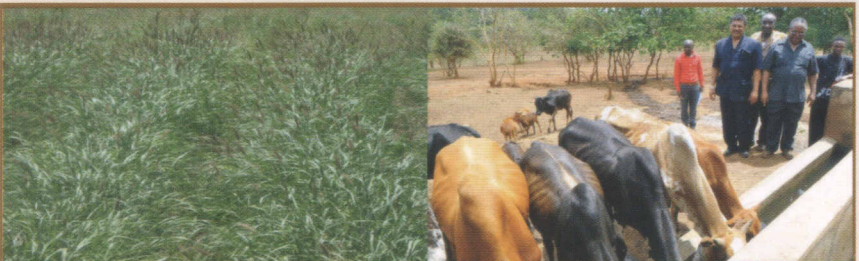


*His Excellency President Jakaya Kikwete witnessed the handing over of cattle to pastoralists who lost their livestock during the drought of 2008/2009*

Communities also have their own traditional adaptation measures. These include;

- ◆ Herd management through herd diversity, maintenance of female dominated herds as well as herd splitting.
- ◆ Management of diseases through preventive measures such as avoiding areas known to be particularly susceptible to diseases;
- ◆ Collective action through labour sharing between pastoral families during periods of stress; and
- ◆ Movement and migration depending on the availability of rangeland resources including water and pasture.

In recent years, Morogoro region has witnessed a huge influx of pastoralists with large livestock herds from the northern part of Tanzania. However as stated before if this is not properly done will result to resources use conflicts among different users.



*Planting drought tolerant pastures species (left) and provisions of water infrastructure in pastoral lands (right) are some of the adaptation measures*

#### **4 Benefits of Investing on Adaptation Measures**

Putting in place adaptation measures in the livestock sector offers an



opportunity of reducing the impacts associated with climate change and variability. Some of the benefits associated with investment on climate change adaptation in the livestock sector include:

- ◆ Addressing the root causes of food security (food of animal origin) as adapting climate change measures in livestock sector ensures sufficient supply of food and improved nutritional status;
- ◆ Reducing rural poverty through preventing the loss of livestock of rural livestock farmers due to drought as it happened in Longido, Monduli and Ngorongoro in 2009;
- ◆ Reducing over exploitation of natural resources such as pasture, forests for firewood and natural soil fertility due to planting of fodder trees and possible use of animal dung to promote organic farming;
- ◆ Improving livestock productivity; and
- ◆ Reducing pests and disease challenges to livestock.

*Addressing climate change is one thing Tanzania must do. Any successful breakthrough in poverty alleviation in the country will have to include climate change adaptation by the Government and its institutions, private sector and the general community at various levels*

## **5 Policy Recommendations**

Livestock sector has been hard hit by the impacts of climate change. In order to reduce these impacts, the following policy recommendations need to be considered:

- ◆ Formulation of supportive microeconomic and sectoral policies to enable livestock keepers to adjust and cope with the impacts of climate change;
- ◆ Establishment of a functional national livestock early warning system to enable pastoral and agro-pastoral communities to take necessary steps especially during drought and disease outbreaks;
- ◆ Promotion of modern and traditional fodder production conservation strategies for livestock feeding;
- ◆ Establishment livestock insurance scheme to cover livestock loses during extreme drought;
- ◆ Development of water harvesting infrastructure such as chaco and dams to supply water for livestock and pastoral communities in the drought stricken areas;
- ◆ Promotion of land use planning to facilitate allocation of land for grazing;

- ◆ Continuation of efforts to educate livestock keepers to reduce the number of livestock by keeping a few productive numbers, and enhance intensive agro-pastoral activities such as zero grazing where possible; and
- ◆ Promotion of investment in modern livestock keeping, marketing infrastructure, processing and value addition of livestock products;

*Climate change poses a serious challenge to the livestock sector in social and economic development terms of many countries and more so to developing ones like Tanzania. It is therefore imperative to undertake policies and measures that facilitate adaptation to the impacts of climate change. Mainstreaming climate change in sectoral policies, plans, programmes, projects and strategies is crucial in enhancing adaptation in the livestock sector.*

## 6 Further Reading

1. United Republic of Tanzania. 2010. Ministry of Livestock and Fisheries Development -Annual Reports .
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5. Ngomuo, A. J. 2001. Common Poisonous Plants of Tanzania: Sokoine University of Agriculture. Compendium.

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