

*Amaranth Institute - ECHO - World Vision*

# **SYMPOSIUM ON IMPROVING NUTRITION IN DRYLAND AREAS**

Naura Springs Hotel, Arusha, Tanzania

7<sup>th</sup> - 9<sup>th</sup> August 2018

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Honorary Maasai Traditional Leader

Maasai Emergency President

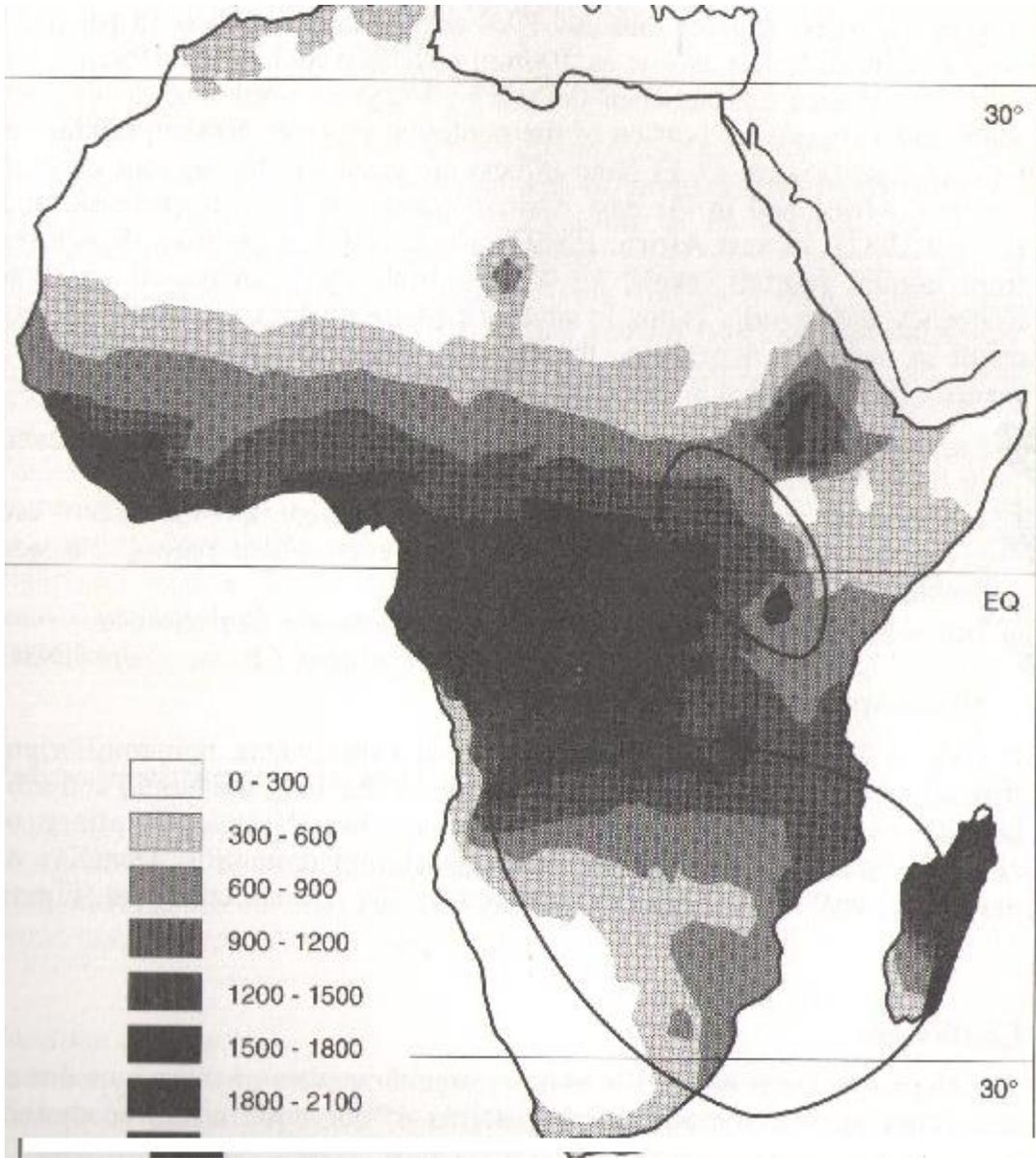
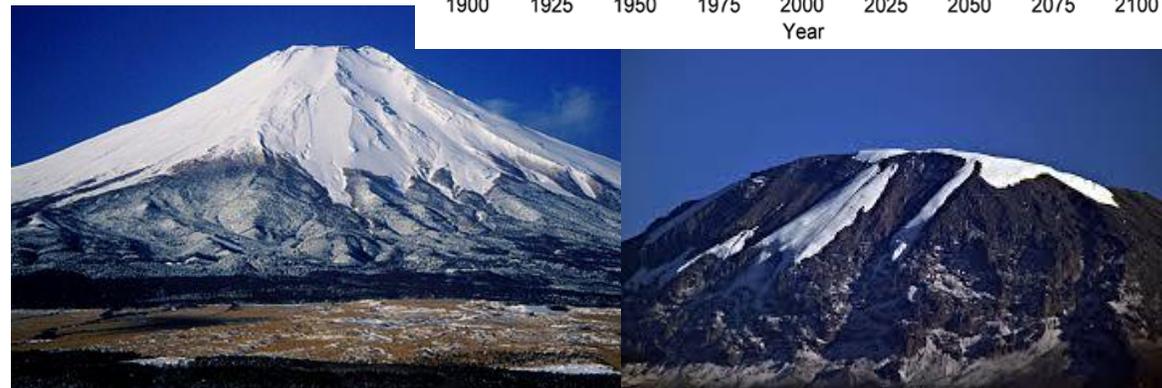
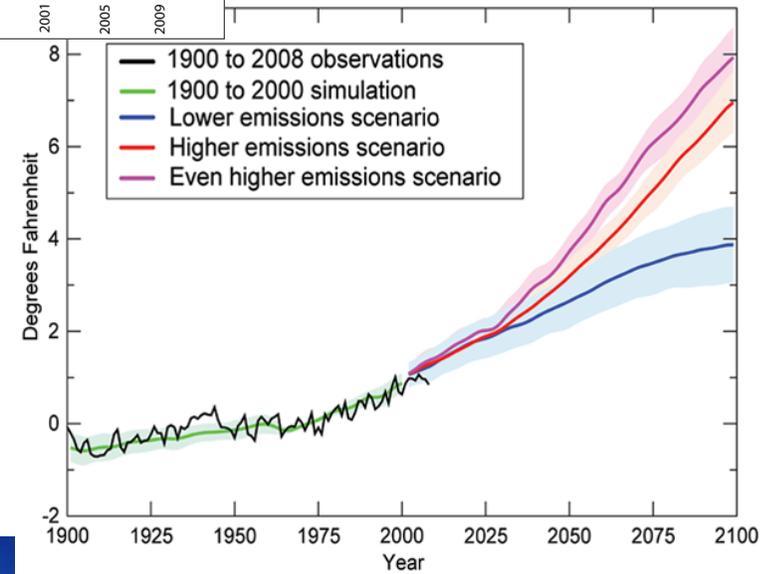
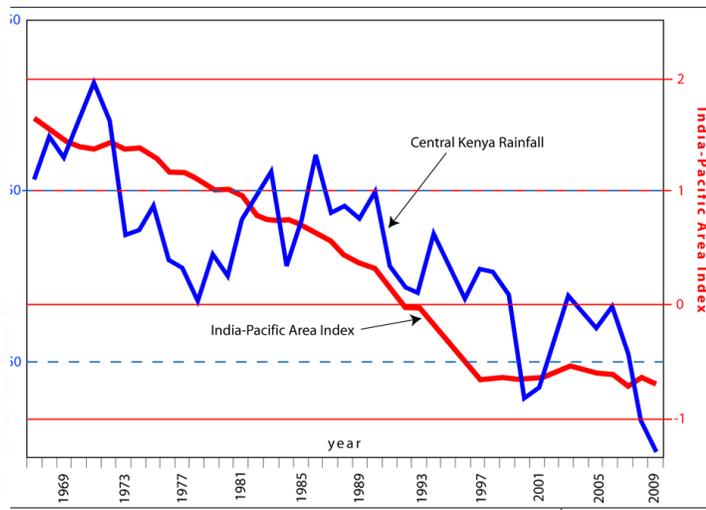


Figure 4. African rainfall zones. Source: ILRAD, UNEP/GRID. Regions of ENSO influence from Ropelewski and Halpert (1987); indicated by bounded regions in eastern and southern Africa.



# The three basic concerns in much of Africa are

1. Population growth (it is doubling by year 2050)

*Is the Industrial and/or Services Revolution coming?*

2. Agricultural performance

3. Environmental degradation

**Only in Africa?** And Climate Change, Pollution, etc?

Modern discussions on the ability of the land to support its people probably started in the late 18th century when Thomas Malthus published *An Essay on the Principle of Population*.

The **notion of desertification** was probably first introduced by Aubreville (1949) who evaluated the **alarming degradation of land** through **erosion** and other processes resulting from **mismanagement** .....resulting frequently from a mismatch between land quality and land use (Beinroth *et al.*, 1994).

Land degradation, due to the large area and number of people affected by it,  
is clearly human induced

When populations were low, shifting cultivation and transhumance pastorals  
were appropriate to *circumvent declining productivity*

Due to **land availability** and **national regulations**, these are no longer options

# Has our future already been decided <sup>(1)</sup>?

It looks like so! Who did it?

*The Unknown is a*

- Multi- stakeholder
- Multi-tiered regional policy research
- Advocacy network

consisting of a regional secretariat ..... and more than

670 member organizations organized into national nodes in 17 African countries

.....operations are informed by major continental and regional policy frameworks and processes in Africa such as the African Union's Agenda 2063 .....

For 2016-2063 period, *the Unknown* is focusing to deliver its vision of:

“Resilient African agriculture and food systems, securing prosperity and health for all”

and focusing on three strategic goals:

- (i) Transform agriculture and food systems through the development and implementation of evidence-based  
policy
- (ii) Ensure adequate, safe and nutritious food
- (iii) Promote climate change resilient and resource sustainable food systems

These strategic goals are achieved through two themes

1. Climatic Smart Agriculture
2. Nutrition-Sensitive Agriculture

and, of course.....Supported by institutional capacity strengthening

**The themes address issues of:**

1. Adaptation
2. Mitigation
3. Resilience
4. Production and income
5. Behavioral changes
6. Women and youth empowerment and financing
7. Communities of practice.

# Has our future already been decided <sup>(2)</sup>?

It looks like so! Who did it?

Us, actually you! Because, this is the only Livestock presentation!

- The AU through the Malabo 2014 Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods  
(Agenda 2064)
- New Partnership for Agricultural Development through the Comprehensive Africa Agriculture Development Programme

## The Tanzanian Livestock Modernization Initiative <sup>(2015)</sup>

(read the below slide very carefully, we will come back to it)

*“.... the immediate future of African economies ...hinges...around agriculture as the main force in the social and economic transformation of the continent. Evidences about that bulk of improvements in food supply in Africa must come from the irrigation agriculture and from changes in small holders' production system considering the dominant roles they play in the sector”.*

*“... In spite of the high potential of livestock resource available in the country, the sector is constrained by low genetic potential leading to low production efficiencies, high mortalities, dependency on natural vegetation for grazing ... making this... livestock sector inefficient and thus not contributing to its potential in the development of the sector”.*

# The Tanzanian Livestock Modernization Initiative (2015) (read now and when I will tell you)

Of 88.6 million hectares of land resources in the country, 60 million hectares are deemed suitable for grazing. Despite these resources, the livestock sector is performing well below its potential

The livestock activities contribute 7.4% to the country's GDP.

The annualized growth rate of the sector is low at 2.2%

The growth for the large part reflects increase in livestock numbers rather than productivity gains

The sector is severely constrained by low livestock reproductive rates, high mortality and high disease prevalence

# Who we, Tanzanian pastoralists, have to thank for the modernization initiative?

National institutions including the universities, private sector and the **livestock farmers**

International Institutions and experts, including the:

International Livestock Research Institute, [International Conservation Caucus Foundation](#), Bill and Melinda Gates Foundation, [International Fund for Agricultural, Food and Agricultural Organization](#)

and

**Business communities** for their tireless contributions .....

and

Various development partners interested in the livestock sector development including the [World Bank](#) and the [African Development Bank](#).

What is Kenya doing to meet the AU requirements in ASAL, a part from ..... ?



- Shifts from traditional pastoralism with greater reliance on crops
- Increasing pressure on grazing lands
- Changing patterns of demand for meat and milk
- Increasing complexity of milk and meat value changes

# Agriculture Vs Livestock

## Pros and Cons

(Slides do be discussed at the end)

An Interactive and Entertaining Historical and Scientific Review



## Let us play a little bit!

Who arrived – developed first?

- The livestock or the H. sapiens?
- Livestock or Agriculture?
- Who needs the other more?

**Who** has more “impact” on the environment?

**Who** can survive better without the other?

**Who** can survive more without water and food?

**Who** can move if there are no rains?

**Who** need less work, inputs and is more resilience .....?







## Is it right or wrong?

FAO (1991) reported that only 22% of the African suitable land for agriculture was in production, against 92% of South-East Asia.

Africa has extensive tracts of impoverished soils derived from ancient land surfaces.

Most of the African soil are difficult to plough

Sorghum and millet were domesticated in Africa. However, it is a staple food for millions in arid India.

Sorghum sown and tended manually produces 14times more energy than went into it. The energy value of a crop produced with oxen help fall short of its cost.

The “new relationship” between livestock herding and agriculture replaced hunting and gathering

The domestication of indigenous plants in Africa was a relatively late development

# Is it right or wrong?

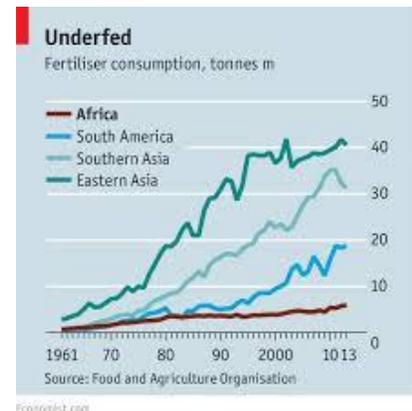
Maize requires fertile soil and high rainfall. The humid decades of the years in 1700 incited farmers to break new ground, and plant new crops where only millet and sorghum could have yielded.....

Droughts peaked in the 1820s and 1830s, and appears to signaled a general trend toward increasing aridity that can be traced through the continent.

Israel for the next 3 years will pump desalinated water in the Galilee sea.

Abu Dhabi. The water table went down by 15 m. The wells are pumping saline water

Results from a study in Botswana show that, due to the increased need to pump groundwater to supply livestock, an increase of 23 percent in the cost of water supply is expected due to climate change



Limited effective soil depth is a problem in more than 50% of the soils and this reduces the potential of the soil for crop production



## Is it right or wrong? For evidences look at the prairie project (USA)

In marginal areas livestock is the only reliable source of proteins

Savanna plants and livestock have evolved together and former growth is stimulated by grazing. **1.** Some savanna plants are “obligated grazophils” and their survival totally depends upon regular cropping-grazing. In its absence they disappear. **2.** *Kyllima nervosa* clipped daily produces 11.6g of fresh growth per m(2) . In a temperate environment this would be called over-grazing!

Climatic and ecological reconstruction of ancient landscape, combined with actual livestock stocking levels, show that during (6,500-4,500 BC), around 3 million Km(2) od Sahara region could have supported a standing population f nearly 21 M cattle (they could have supported millions people)

Combining existing pressures with natural, and climate-change-induced, variability in precipitation and temperature increases makes pastoralism one of the most vulnerable sectors to climate change. The latter can impact livestock in three key areas: water availability, heat stress, and the quality and quantity of feed.

Please go on the web and enjoy the prairie project (USA)

## Is it right or wrong?

Quantify the impacts of CC on water resources in livestock systems in developing countries are highly uncertain, particularly where groundwater accounts for a substantial portion of the supply of water to livestock, which is the case in many grazing systems; thus, there is a need for further research in this area

An idle-abandoned agricultural field reverts to a grazing area.

During drought our cattle reduce their metabolism by 30%.

The carrying capacity of “pastoralist grazing” cannot be estimated.

Overgrazing is common in ranching systems and it has been not reported in pastoral environment

Pastoral system produces double that the ranching one and employees-sustains many thousands people.











The Tanzanian Livestock Modernization Initiative  
is right and is giving us the way forward.  
However, it is somehow confusing

*“... In spite of the high potential of livestock resource available in the country, the sector is constrained by low genetic potential leading to low production efficiencies, high mortalities, dependency on natural vegetation for grazing ... making this... livestock sector inefficient and thus not contributing to its potential in the development of the sector”.*



# Rethinking range ecology-Some implications

## The *equilibrium* and *non-equilibrium* environments

- EE are typically found in wetter areas with predictable rainfall patterns and ranches type livestock breeding.
- **NEE** production potentials of both grassland and livestock are so dominated by rainfall (or other external variables) that the livestock population are kept low through the impact of drought or other episodic events.

### 59% of all ruminant livestock in Africa

are reported to be found in ASAL and flexible movements are of paramount importance. The costs of abandoning pastoral areas are potentially enormous.

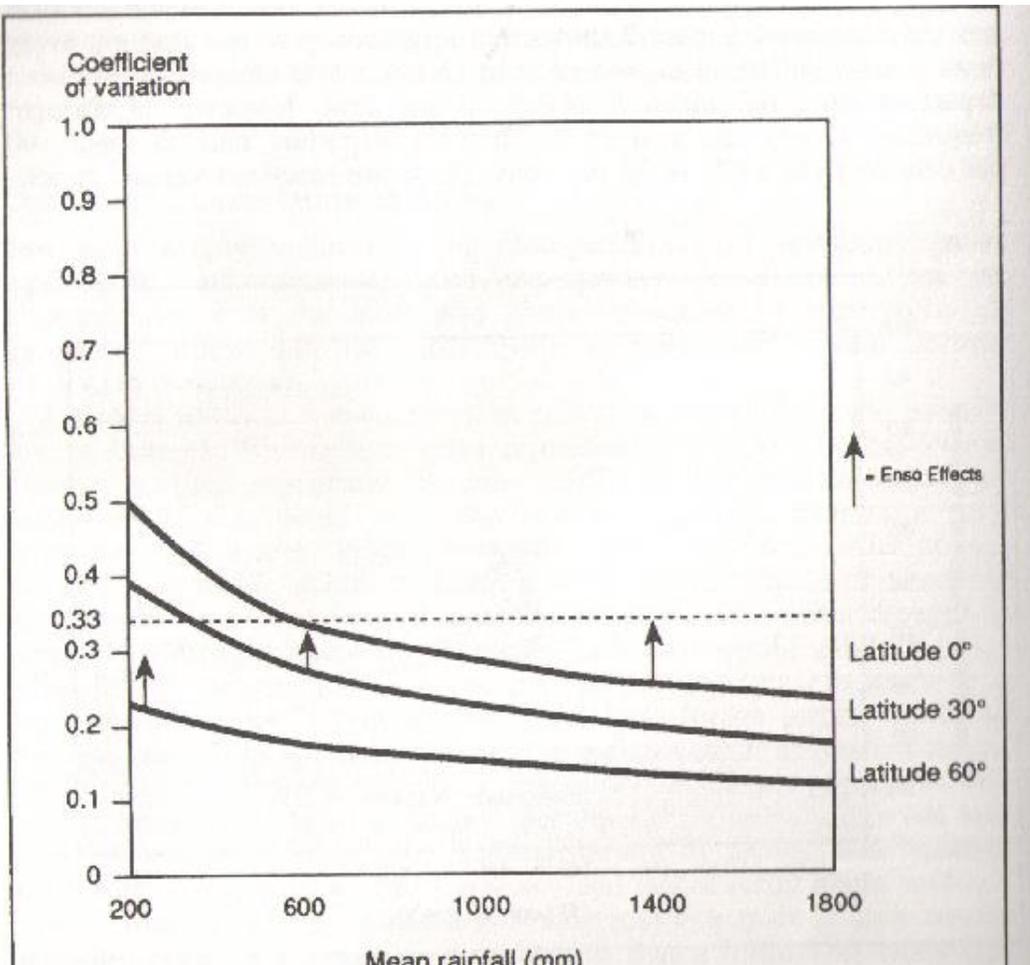


Figure 3. Empirically derived relationships between coefficient of interannual rainfall variation (CV) and total rainfall, latitude and ENSO effects. Modified from Nicholls and Wong (1990). Dotted horizontal line = CV of 33 per cent; hypothetical threshold for non-equilibrium dynamics.

The pastoral ecosystem fits the “non-equilibrium paradigm”, where the effect erratic rains on plant biomass is much greater the livestock grazing effect.

Turkana livestock were estimate to remove only about 7% of the “*above-ground primary*” production annually. .... overgrazing by pastoralists are unlikely to be realized in a non-equilibrium ecosystems.

Cattle populations in southern Zimbabwe seldom reaches “equilibrium densities” due to droughts, destocking and diseases.

Grazing boundaries are very dynamic and livestock movements respond to annual rainfall variability.

# Wrong policies and ignorance impact in ASAL

- Is mixed farming system more efficient than.....?
- Is mixed farming increases feed diversity and decreases variability in feed production to livestock?
- Is mixed farming offers opportunities for stratification of production systems?

**Most of the above is very debatable and have more cons than pros!**

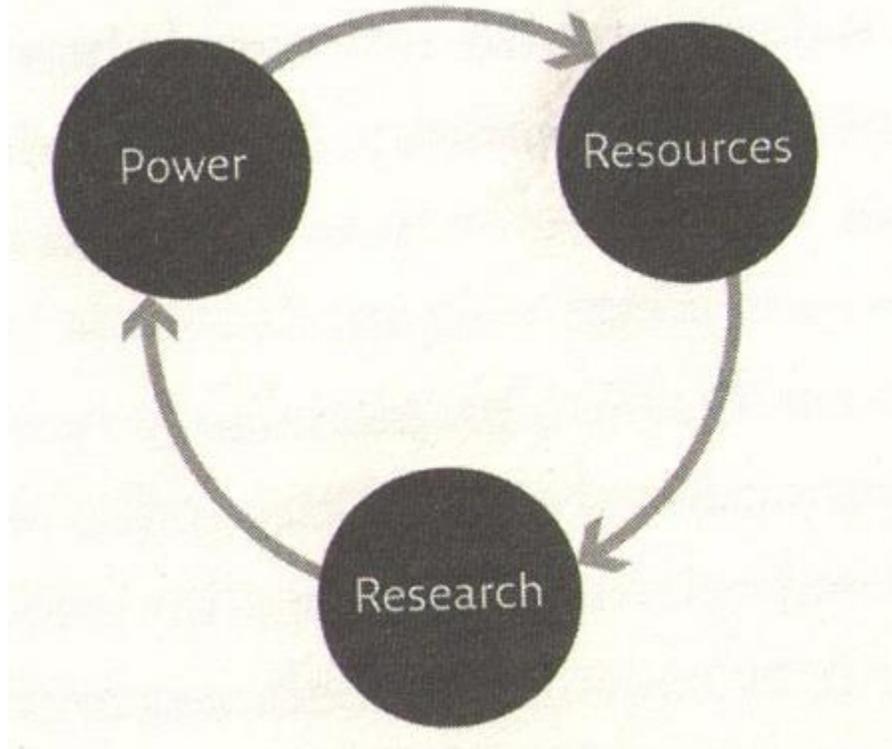
The production efficiency of individual animals may **decrease** in settled farming areas as compared to transhumant pastoral setting

The loss of pastoral livelihoods will result in more food insecurity - increased protein costs - food competition between people and livestock - more people migrating to towns - more destitution.

For sure we, *Homo Sapiens*, can do anything, from destroying us to our future generations, going to the moon and always “sort our other people problems....

He can forget his history, what was told and written.

Especially, scientists, doctors, donors, talkers, media, etc. are very good at manipulating us, our thinking, science .. Everything!



# The Scientific Revolution

Now, I have become death, the destroyer of the worlds



32. Alamogordo, 16 July 1945, 09:29:55. Eight seconds after the first atomic bomb was detonated. The nuclear physicist Robert Oppenheimer, upon seeing the explosion, quoted from the Udugavad Gita: 'Now I am become Death, the destroyer of worlds.'

**United the Nation**

2020 the Pastoralism and Pastoralists year