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# APPROACHES AND PRACTICES OF RESTORATION



# ZOOM ETIQUETTE



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Mute your microphone every time you are not contributing.



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Raise your hand when you want to speak



Ask questions or comment in the chatbox

# Theme: Pastoral Rangeland System Restoration

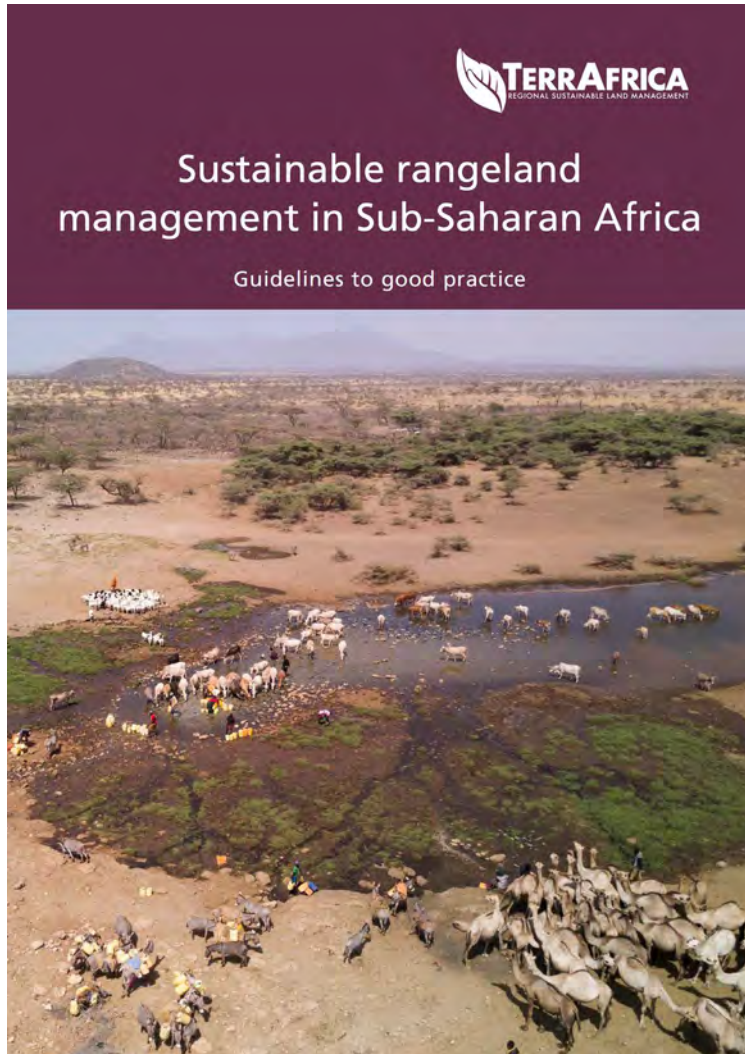


# Out scaling Successful Restoration Approaches and Practices from Sub-Saharan Africa

Presenter: Hanspeter Liniger, WOCAT, Bern  
Switzerland



# Outscaling Successful Restoration Approaches and Practices from SSA



Hanspeter Liniger, WOCAT, Bern Switzerland



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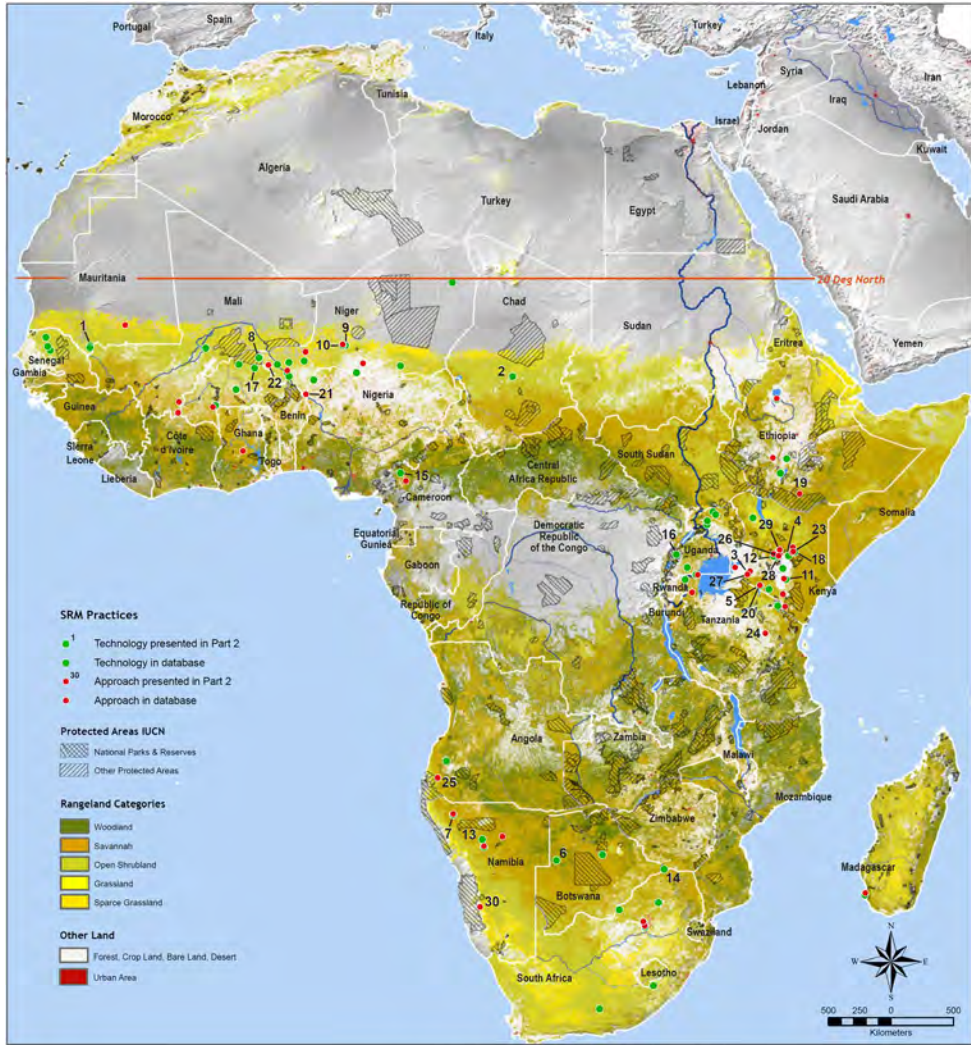


A TerrAfrica Partnership Publication, 2019

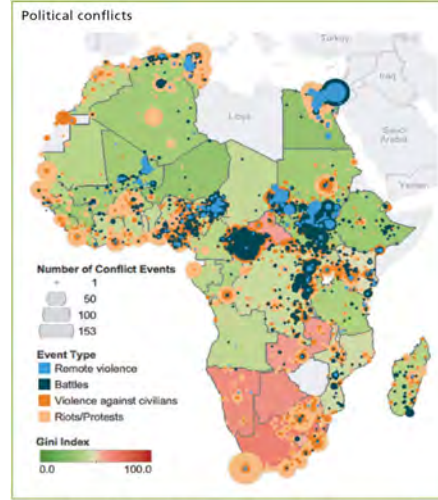
<https://www.wocat.net/library/media/174/>

Authors: Hanspeter Liniger and Rima Mekdaschi-Studer, 2019  
and 14 contributing authors (Part 1) 43 compilers of case studies (Part 2)

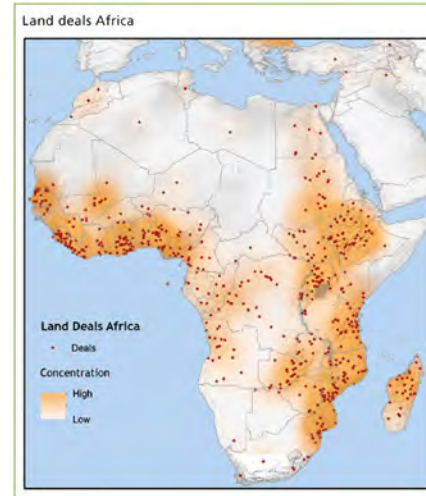
# Mapping and recognizing spatial differences in Africa ... and Kenya



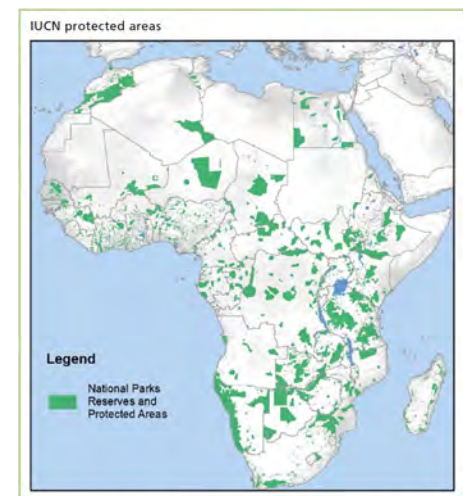
Rangeland Distribution



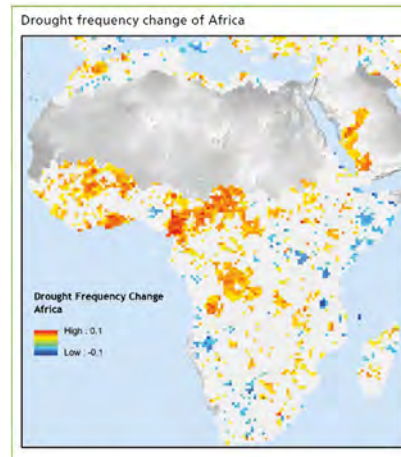
Conflicts



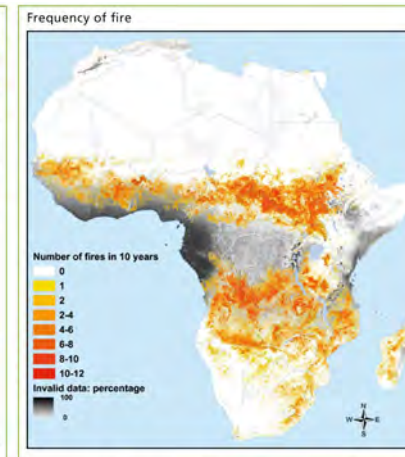
Land deals



Protected areas



Drought



Fire, ...

More:  
Global rangeland Atlas:  
<https://www.rangelandsdata.org/atlas/>

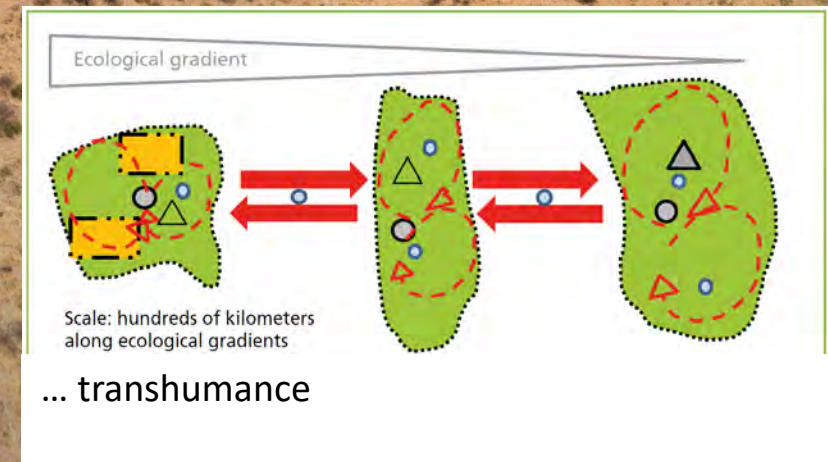
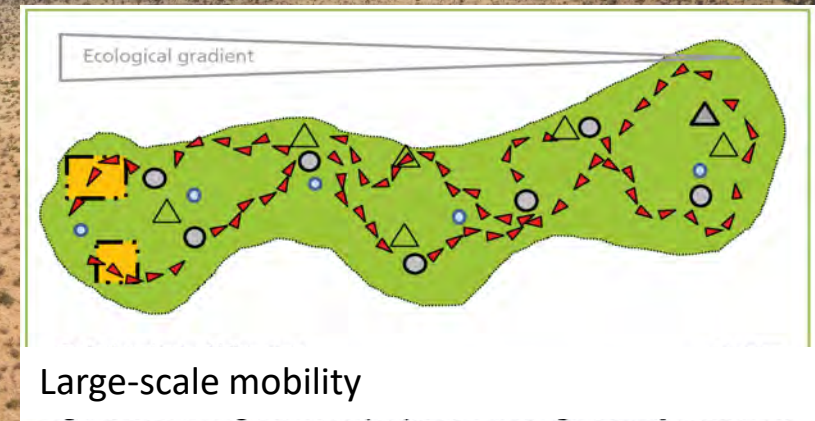
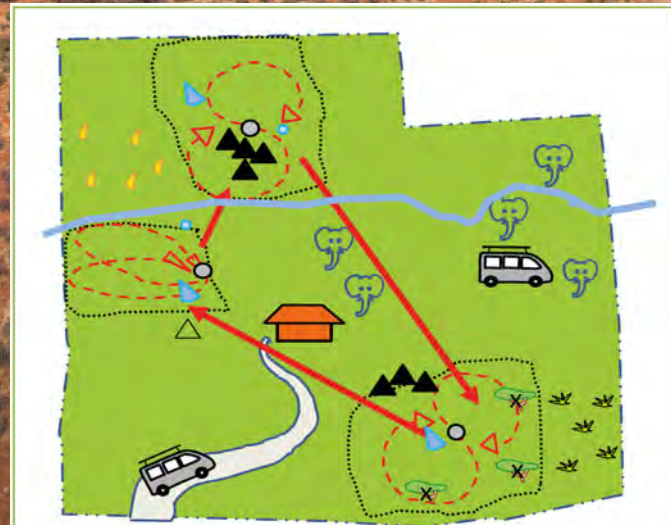
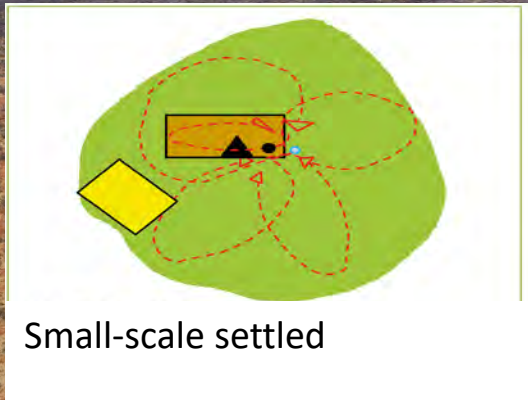
...

How to boost rangeland restoration and spread SLM widely?

**Differentiate solution per rangeland use system ...**

**Mountains**

**Plains**



# Differentiate groups of practices and combinations



Participatory resource mapping under solar panels in Meri (Caroline King Okuma).

## Participatory mapping, database building, and monitoring of rangeland resources (Kenya)

### Resource Mapping

#### DESCRIPTION

Participatory mapping and monitoring of vegetation types and other natural resources in the rangelands. This involves convening stakeholder groups, reviewing conditions of rangeland, water and other resources under changing climatic conditions.

Participatory digital mapping using satellite imagery and digital earth and other open source Geographic Information Systems (GIS) is a practical tool that can bridge knowledge and communication gaps between pastoral communities and county government planners. It offers an effective 'tool' for participatory planning and decision-making in support of climate change adaptation efforts in the drylands of Kenya. The use of participatory mapping is not new in seeking to capture communities' understanding and use of natural resources. These maps are typically drawn on the ground using stones, sticks and other locally available materials to depict key features such as schools, water points,



Location: Pastoralist areas, Isiolo, Kenya



Pastoralists undergoing Index Based Livestock Insurance (IBLI) training in Loylangani, Marsabit County (Credits to ILRI).

## Northern Rangelands Trust - Livestock to Markets (Kenya)

### DESCRIPTION

Northern Rangelands Trust works across the rangelands of northern Kenya to improve market access to pastoral communities across 20,000 km<sup>2</sup>. The program improves local revenue generation, incentives to reduce herd size, and channels funding into improved rangeland management across the conservancies.

The Northern Rangelands Trust (NRT) is a non profit organisation established in 2004. It works with communities to develop community conservancies, to transform peoples lives, secure peace and conserves natural resources in northern Kenya. NRT works across 20,000 km<sup>2</sup>, with 33 conservancies.

NRT established NRT Trading to identify, incubate, and pilot, and scale sustainable business across the NRT conservancies. The help to incubate and run business that encourages conservation ethics, while improving livelihoods.

The Livestock to Market Program (LTM) was established in 2006 as a partnership between NRT, NRT affiliated conservancies, and two private conservancies - Ol Pejeta and Lewa. The program was funded by Flora and Fauna International and The Nature Conservancy.



Location: Baringo, Garissa, Isiolo, Laikipia, Meru, Samburu, Turkana and Lamu Counties, Kenya



Boran livestock in a wet season grazing area (Ibrahim Jarso).

## Dedha grazing system as a natural resource management technology (Kenya)

### Jars Dedha

#### DESCRIPTION

The Dedha grazing system is an ancient, traditional governance system for land and its resources practiced by Boran pastoralists. It carefully balances how pastoralists use rangeland resources. The basis of the technology is three grazing rangeland governance zones: wet season grazing, dry season grazing, and drought reserves. There is also water governance based on a traditional hierarchy of rights. Through this system, Boran pastoralists adapt to severe and recurrent droughts.

This grazing system is applied in Isiolo County, Northern Kenya. The Waso rangelands are inhabited by Boran pastoralists with Somali, Samburu, Rendile and Turkana herders sharing cross-border resources through negotiation. The technology is based on the maintenance of a delicate balance between livestock numbers, the supply of water, and the amount/ quality of standing pasture within the vast grazing area which is water scarce and prone to extreme seasonal variations. Through its main tenet of governing grazing patterns (wet, dry season grazing area and drought reserve) planned use of pasture is



Location: Kinna town, Kinna Ward, Isiolo County, Isiolo, Kenya



Delfino plow digging micro basins (Lindo Grandi).

## Vallerani System (Burkina Faso)

### DESCRIPTION

A special tractor-pulled plow that constructs micro-catchment basins for rainwater harvesting with scale land rehabilitation.

The Technology mechanizes the traditional technique of zai and ter harvesting using a modified plow named Delfino3 pulled by plow on flat land excavates a symmetrical, continuous furrow, on both sides of the furrow. The Delfino3 plow has a single reverse angled furrow and piles up the excavated soil in half moon downhill side. The plowing must be done along the contour to catch off water as it flows downhill. The plow's blade moves in and out basins about 5 meters long, 50 cm deep, 50 cm wide and spaced before the plow cracks up the soil to a depth of 70 cm facilitate



## Approach groups

- AG1 Community based NRM
- AG2 Land & water use planning
- AG3 Marketing & alternative income
- AG4 Wildlife & nature tourism

## Technology groups

- TG1 Enabled mobility
- TG2 Controlled grazing
- TG3 Range improvement
- TG4 Supplementary feeding
- TG5 Infrastructure improvement

Documented:

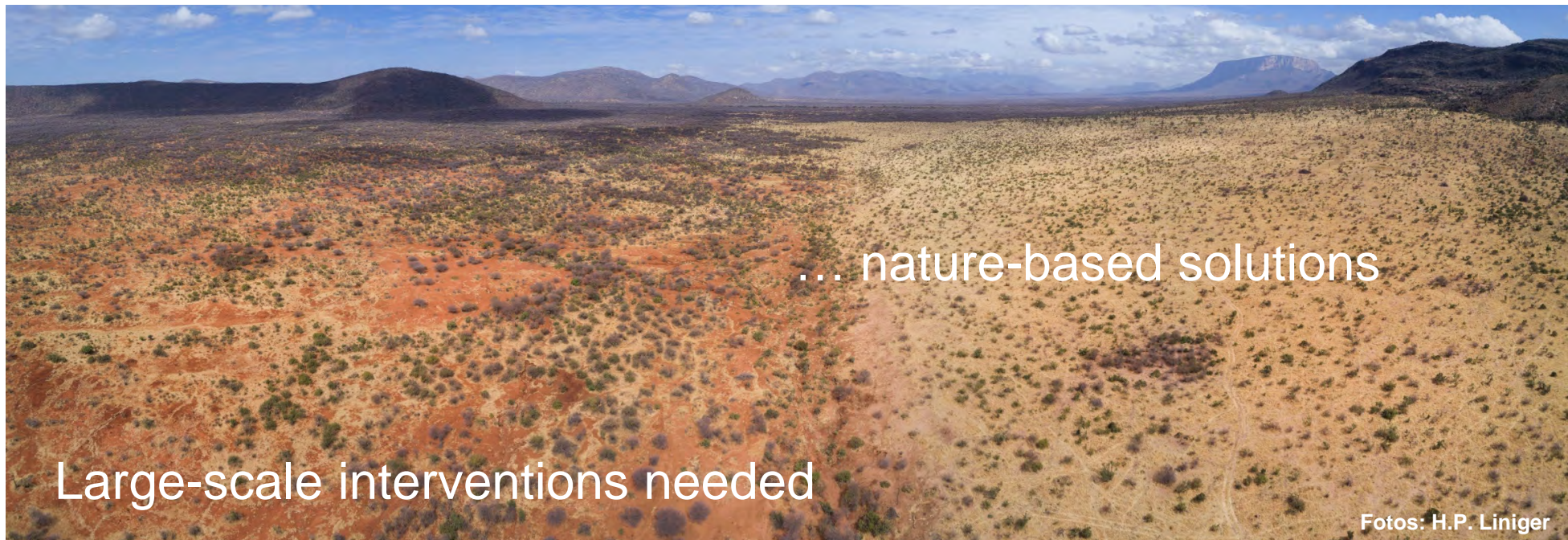
12/30  
from Kenya

Source:  
<https://www.wocat.net/library/media/174/>



# Spread vast and fast

.... Small green spots are invaded...



... nature-based solutions

Large-scale interventions needed

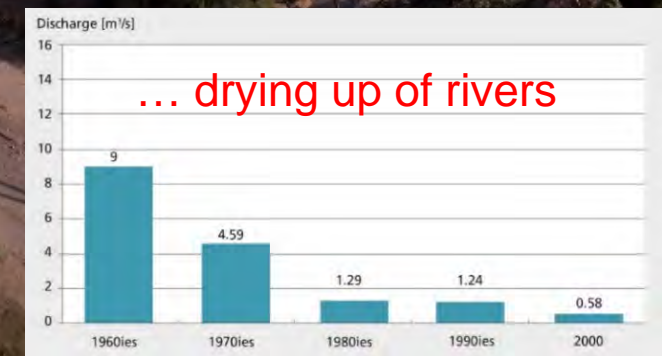
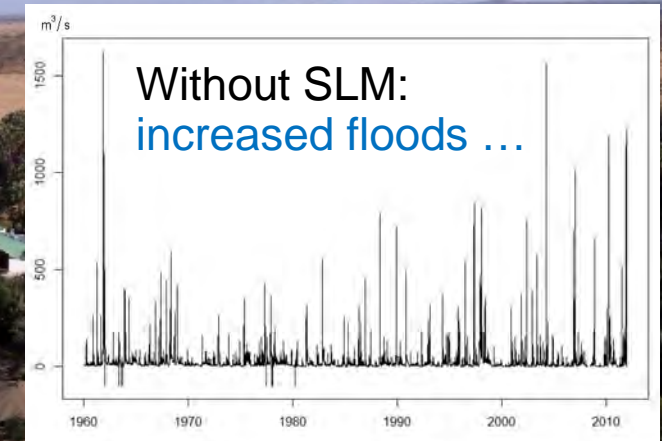
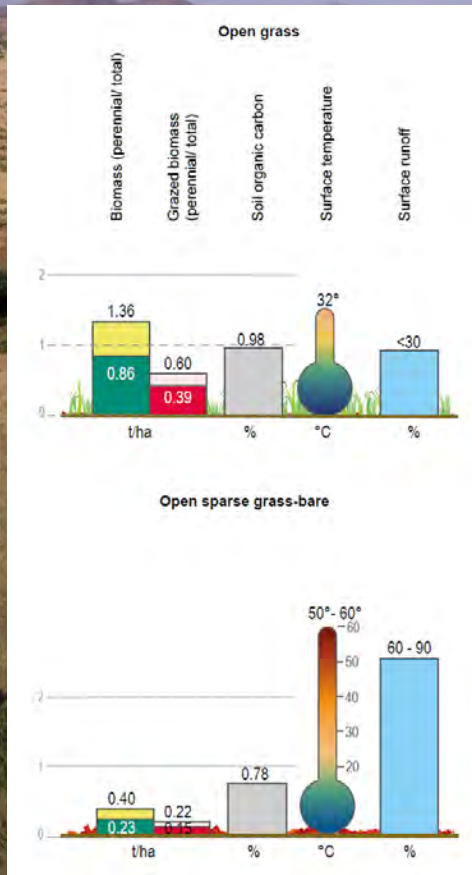
# Monitor impacts of land management on- and offsite

## Onsite

- Production
- Biodiversity / tourism
- Livelihood
- Conflict, ...

## Offsite

- Floods
- Drying up of rivers and springs
- Conflict, ...



# Use knowledge and monitored impacts for awareness raising and evidence-based decision making and capacity building (youth/women)



Participatory resource mapping under solar panels in Merti (Caroline King Okumu).

Participatory mapping, database building, and monitoring of rangeland resources

www.wocat.net  
hanspeter.liniger@cde.unibe.ch  
<https://www.wocat.net/library/media/174/>

\_video: <https://www.wocat.net/library/media/226/>

\_video: <https://www.wocat.net/library/media/245/>

# Pastoral/Rangeland Restoration

Presenter: Dr Kieran Avery BVSc, MRCVS, MKVB,  
Director of Natural Resource Management,  
The Northern Rangelands Trust



# What is pastoral / rangeland restoration?

A **key question** to answer...

1. Rangeland rehabilitation?
2. Improved governance / management?
3. Landscape level planning?
4. All the above...?



# Rangeland rehabilitation

Looks great on paper but **is it worth it...**?

Many forms:

- Invasive species management / gully healing / grass re-seeding / etc

Important to consider:

- Short term VS long term benefits
- Sustainability / cost
- Symptom rather than the cause
- Possible “scapegoat” ....
- Can cause more damage than good



# Improved governance / management

The **most important** aspect – the “cause”

Multiple levels:

- Local – awareness / education
- Regional – cluster / leadership meetings

Challenges:

- Land tenure / “ownership”
- Conflict / weapons
- Extensive livestock movements
- Culture / traditions



# Landscape level planning

**Must happen** if there is any future

- Livestock movement cannot be stopped
- It has to be coordinated movement

Big concerns:

- Human population growth
- Settlement growth
- Uncontrolled infrastructure development

Solution?

- National and county government policies on land-use planning and rangelands management – enforced at that level





# NRT COMMUNITY CONSERVANCIES- LIVESTOCK MOVEMENT

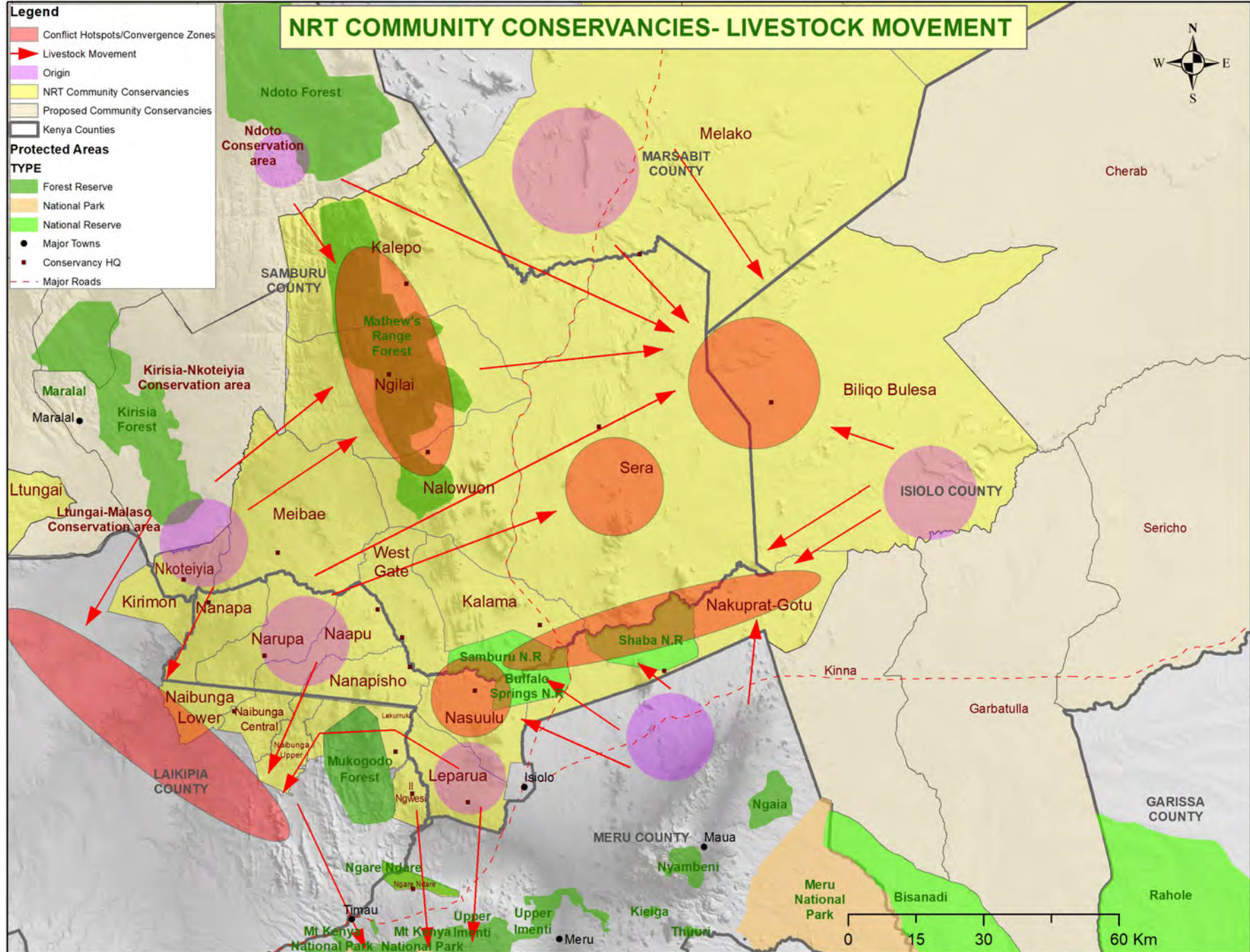
**Legend**

- Conflict Hotspots/Convergence Zones
- Livestock Movement
- Origin
- NRT Community Conservancies
- Proposed Community Conservancies
- Kenya Counties

**Protected Areas**

**TYPE**

- Forest Reserve
- National Park
- National Reserve
- Major Towns
- Conservancy HQ
- Major Roads



0 15 30 60 Km

# What NRT has learnt over many years...

Effective pastoral rangeland restoration is a **slow process**:

1. Landscape approach to planning – must be led by county / national governments – policies important
2. Strong governance at **all** levels – village / conservancy / county – enforcement critical!
3. Rangeland rehabilitation is only applicable if it will be well managed **long-term**
4. Incentives are useful...



# NRT rangelands strategy – a pastoral restoration approach

[https://static1.squarespace.com/static/5af1629f12b13f5ce97ca0b5/t/5dcbd1c49b612d4aef7c5dbb/1573638639987/NRT\\_Rangelands\\_Strategy\\_D2\\_HR.pdf](https://static1.squarespace.com/static/5af1629f12b13f5ce97ca0b5/t/5dcbd1c49b612d4aef7c5dbb/1573638639987/NRT_Rangelands_Strategy_D2_HR.pdf)



# Questions / comments welcome



# Pastoral System Restoration

Presenter: Lavenda Alwaka Ondere, Technical specialist Natural Resource Management, World Vision Kenya



## BACKGROUND INFORMATION



- ❑ World Vision Kenya is working in the most fragile Counties in Kenya, with focus shift to the Northern Kenya Counties where the effects of climate change have been adversely felt
- ❑ Pastoral systems are characterized by increasingly frequent and severe droughts and floods, more erratic rainfall, and higher average temperatures affecting food production and water availability ,high soil degradation and high poverty rates
- ❑ They form the biggest productive landscapes in Kenya, are rangelands and support a huge dynamic population/ they are ASAL.
- ❑ World Vision Kenya uses an integrated approach to Restoration-FMNR approach-which ensures key indigenous tree species adaptive to the areas and that define specific vegetation types can thus provide a natural support system for maintaining a multi-functional landscape status in such zones are maintained.
- ❑ This trees are also able to provide key and valuable ecosystem services to the indigenous communities
- ❑ WVK is implementing in 15 Asal Counties. This demonstrates that FMNR can be scaled across the country and help achieve massive rangeland restoration and climate change mitigation
- ❑ Natural regeneration has proven to be more effective as compared to tree planting in arid and semi-arid areas especially in areas with existing stock of seeds and stumps in the soil
- ❑ UN decade ecosystem restoration,AFRI00, SDGs

# Approaches to restoration is Pastoral systems by World Vision in Kenya

1. Reseeding and soil and water conservation initiatives
2. Invasive species management and control
3. Integrated Management and use of Natural Resources through diversification of livelihoods
4. Public private partnerships
5. Gender Mainstreaming and social inclusion
6. Peace and conflict resolution and governance strengthening Programming

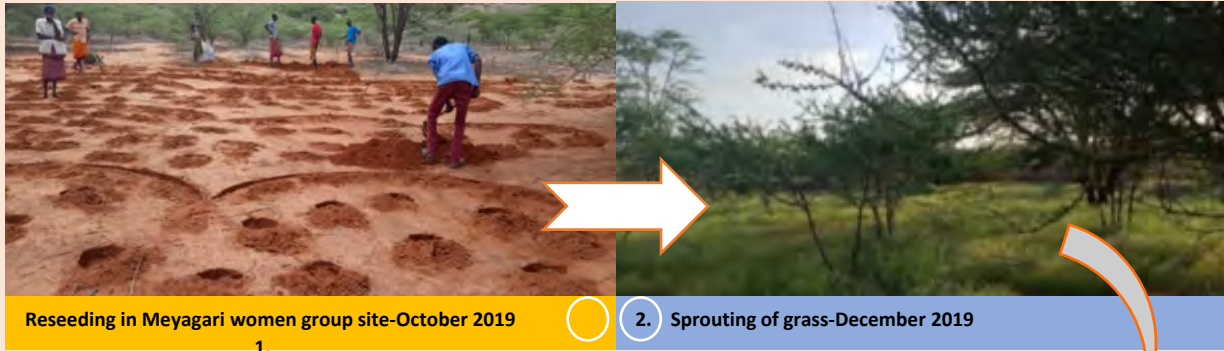


Farmer/Community managed natural regeneration and or/ aided regeneration- over 250,000 of land is under restoration



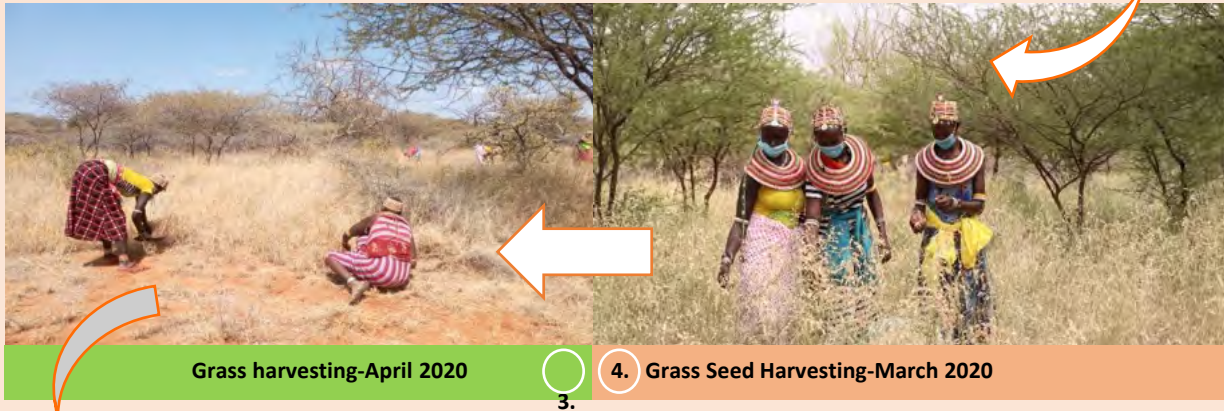


# EVIDENCE OF LAND RESTORATION THROUGH INTERGRATED FMNR, SOIL AND WATER CONSERVATION MEASURES AND RESEEDING



1. Reseeding in Meyagari women group site-October 2019

2. Sprouting of grass-December 2019



3. Grass harvesting-April 2020

4. Grass Seed Harvesting-March 2020



5. Bulking of the grass -April 2020

6. Storage for Utilization in the dry period



# BEE KEEPING AS AN ALTERNATIVE AND INCENTIVE TO RESTORATION



# Gums and Resins value chain- Driving Conservation Of The Acacia Tree Species In Northern Kenya





## Challenges

- Land ownership issues /User rights especially for Women in ASAL areas where land ownership is communal
- Monitoring of the restoration efforts
- Lack of an enabling legislative environment
- Socio-Cultural barriers
- Livestock



# The Great Transition to an EverGreen Earth

## *Pastoralist-Managed Natural Regeneration*

**Dennis Garrity**

Board Chair, Global EverGreening Alliance

Fmr Director General, World Agroforestry



# **Pastoralist-Managed Natural Regeneration at Scale in Turkana: Legacy the Elders of Lorugum**

***A Story of Success in Very Dry Conditions***



# The community conservancies movement in Kenya – now 114





## Shinyanga Tanzania

**Community-Based Regeneration of woodlands and  
grazing lands covering about 500,000 ha in 934 villages**

*Awarded the UNDP Equator Prize*



A photograph showing a man standing in a field of young, green trees. The man is wearing a grey jacket, a blue cap, and khaki pants. He is holding a small plant in his hands. The background features a hillside with sparse vegetation and a cloudy sky. The text "Assisted Natural Regeneration on grazing land in Ethiopia" is overlaid in yellow at the bottom of the image.

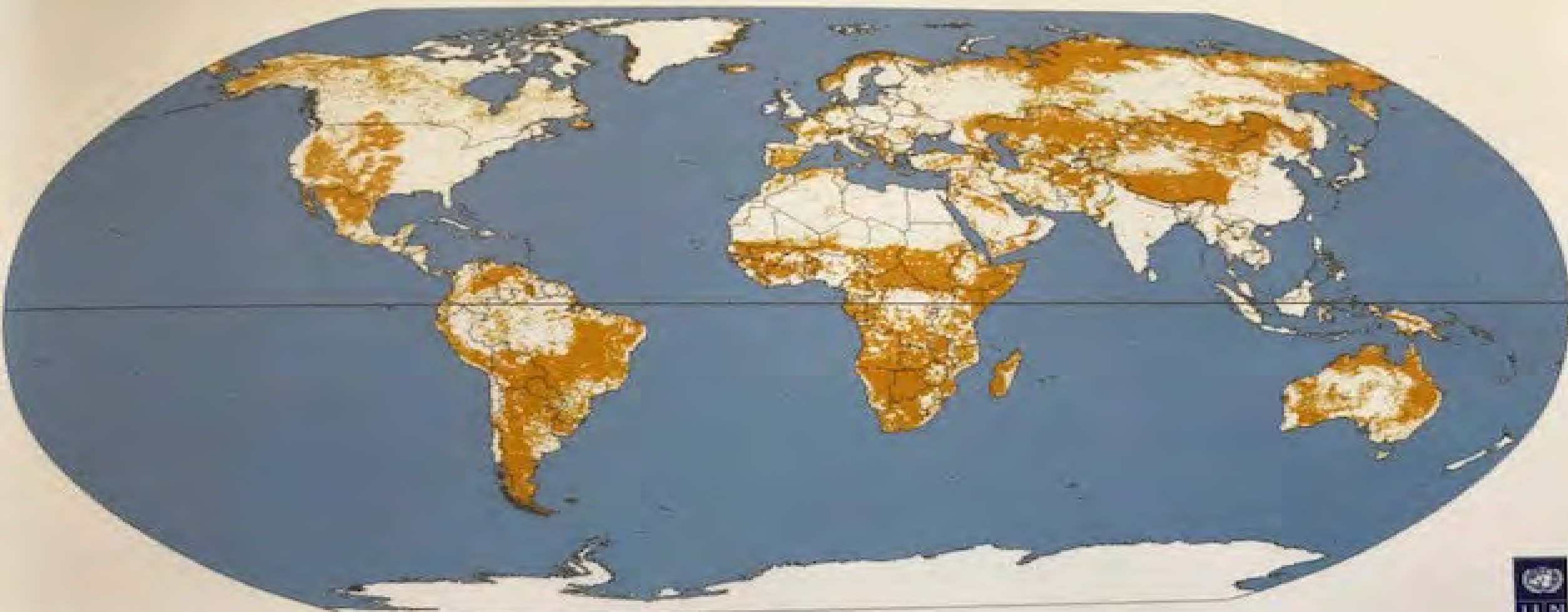
**Assisted Natural Regeneration on  
grazing land in Ethiopia**



# Watershed Closures in Ethiopia

15 million hectares



## Global distribution of areas where pastoralism is practiced



 Pastoralists regions  
 National boundaries

0 2,500 5,000 km  
Robinson Projection



## EverGreening the Degraded Pasturelands

**Regenerate a healthy grass-tree balance on 650 m ha of degraded pasturelands by 2050.**

**This will be done by regenerative grazing systems and pasturelands managed natural regeneration to store an additional 3.60 billion tons of CO<sub>2</sub> per year.**



# The EverGreening the Earth Campaign

**White Paper:** [http://www.evergreening.org/wp-content/uploads/2019/11/EverGreening\\_CampaignPaper.pdf](http://www.evergreening.org/wp-content/uploads/2019/11/EverGreening_CampaignPaper.pdf)

**Alliance Website:** [evergreening.org](http://evergreening.org)

**dennis.garrity@evergreening.org**

# Indigenous Pasture using Road Water Harvesting in Africa Drylands

Presenter: Theophilus M. Kioko, Green Roads for Water



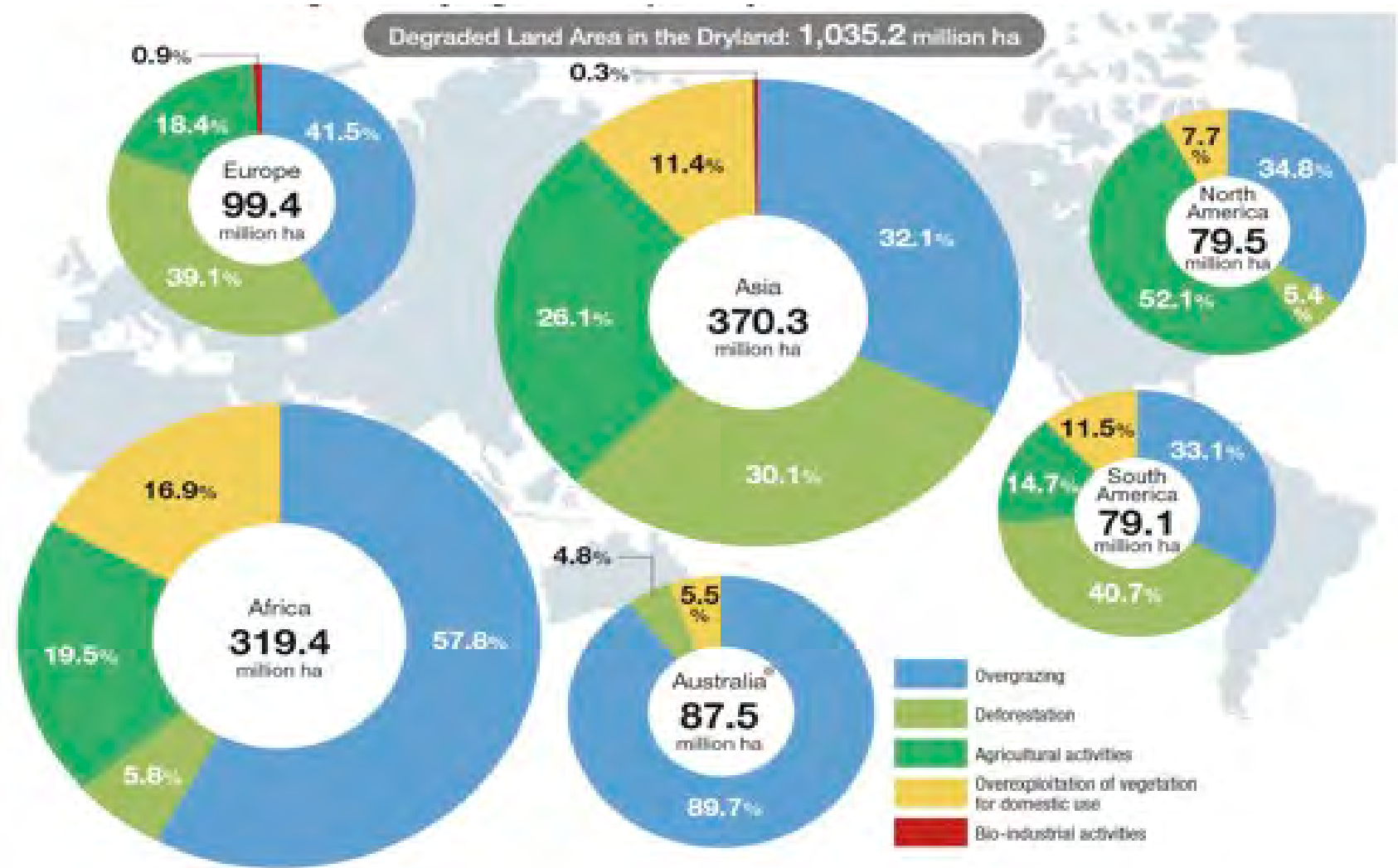
Flood-Based Livelihoods  
Network Foundation



Netherlands Organisation  
for Scientific Research

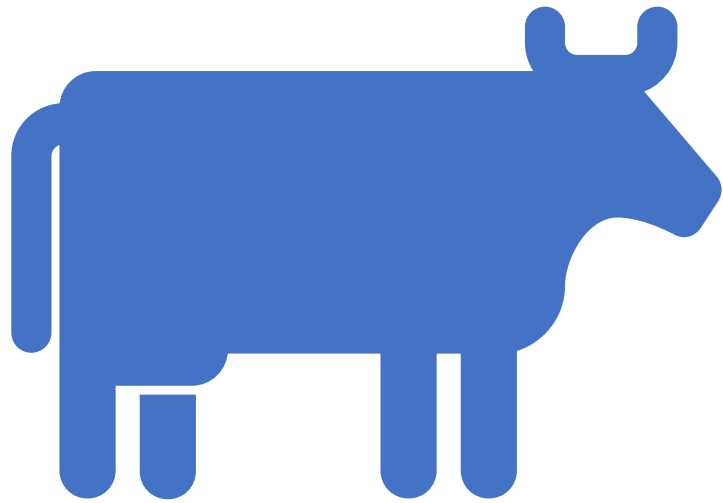


# Causes of Land Degradation in the Drylands



Source: World atlas of land degradation, 2<sup>nd</sup> Edition (UNEP)

# Pasture Production: Why do I need to Produce Pasture in my dryland farm?



- Livestock production is one of the most important economic activities for farmers in ASALs.
- The availability of fodder is one of the limiting factors in animal production
- If farm animals are to be productive (milk, eggs, meat etc.), it is important that they get suitable food in sufficient quantities.
- Planting of grass is also one of the ways or rehabilitating degraded land





Enteropogon  
macrostachyus  
(Bush rye grass)



Cenchrus ciliaris  
(African foxtail)



Eragrostis superba (Maasai love grass)

## Why the Indigenous grass species

- drought resistant ,easy to manage, easy establishment, high nutrient content and marketable
- Supply enough forage for livestock
- Contribute to food security and healthier diet
- Increase household income
- improve and protect the environment
- Healthy livestock i.e forage quality and moisture content



# Soil Conservation and Rainwater Harvesting



# Indigenous Grass Reseeding Technology



*Eragrostis superba*



*Cenchrus ciliaris*



*Enteropogon macrostachyus*



# Combining sustainable land management strategies

## Grass reseeding

- Examples of grass species used



*Cenchrus ciliaris*  
(African foxtail grass)



*Enteropogon macrostachyus*  
(Bush rye grass)



- Drought tolerant
- Indigenous grasses
- Perennial species
- Livestock feed

## Rainwater harvesting



Trench bunds



# Results after 1 year



Before

- Reseeding + road water harvesting -

After



# THANK YOU! ASANTE!

## LEARN MORE:

[www.regreeningafrica.org](http://www.regreeningafrica.org)

Email: [regreeningafrica@cgiar.org](mailto:regreeningafrica@cgiar.org)

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GREEN ROADS  
FOR WATER

