



# Overview on Degradation of Land Due to Over Grazing in Ethiopia

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# Summary

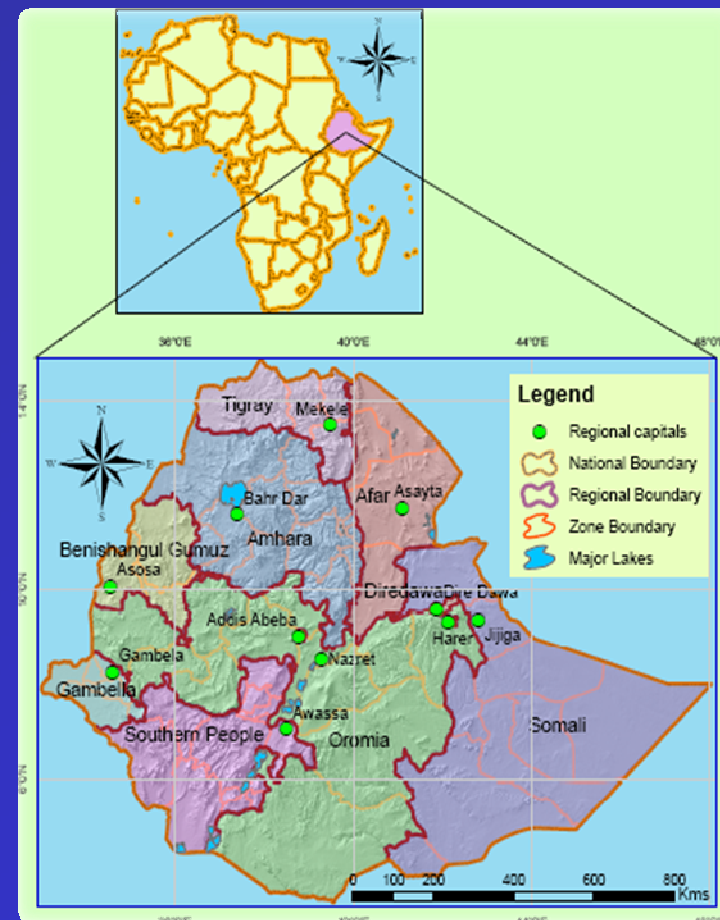
- ✓ Background
- ✓ Land degradation and its impacts
- ✓ Overgrazing
- ✓ Recommendations
  - ✓ Occurrence of pathogenic species of *Enterobacteriaceae*, *Listeria monocytogenes*, *Staphylococcus aureus* and *Brucella* in raw bulk tank milk in the selected milk sheds Asella Dairy Union and Ada Dairy Cooperatives, Ethiopia



# Background

# Background

- Ethiopia is located in the Eastern Horn of Africa with a total area of 1,126,829 km<sup>2</sup>.
- Estimated population is 89 million; about 85% of the population lives in rural areas.



## Background

- Pastoral and agro-pastoral communities in Ethiopia constitute 10 to 12 % of the total population.
- The highlands important in Ethiopia, where they comprise 45% of the land area and about 80% of Ethiopia's population live in the highlands
- While in Kenya over half of the population resides in highland areas



## Background

- Highland areas are characterized by high population, high rainfall and sloppy and fragile ecology.
- Large proportion of the Ethiopian highlands is under agriculture and cultivation in particular



Amhara region

## Background

- Agriculture is the dominant sector of Ethiopian economy, accounts for more than 45% of GDP, 80% of exports, and 80% of total employment



Farming in the highlands of Ethiopia

## Background

- Livestock is the integral component of the agriculture on which 80% of the population depends.



Land degradation on grazing lands, Dembecha, west Gojjam located





# Land degradation and its impacts



## Land Degradation

- Degradation of arable lands became the major constraint of production in East African highlands.
- Burundi and Rwanda face a serious threat of land degradation followed by Eritrea, Uganda, Kenya and Ethiopia; respectively
- Ethiopia, with high-intensity rainstorms and extensive steep slopes, is highly susceptible to soil erosion, especially in the highlands.

## Land Degradation

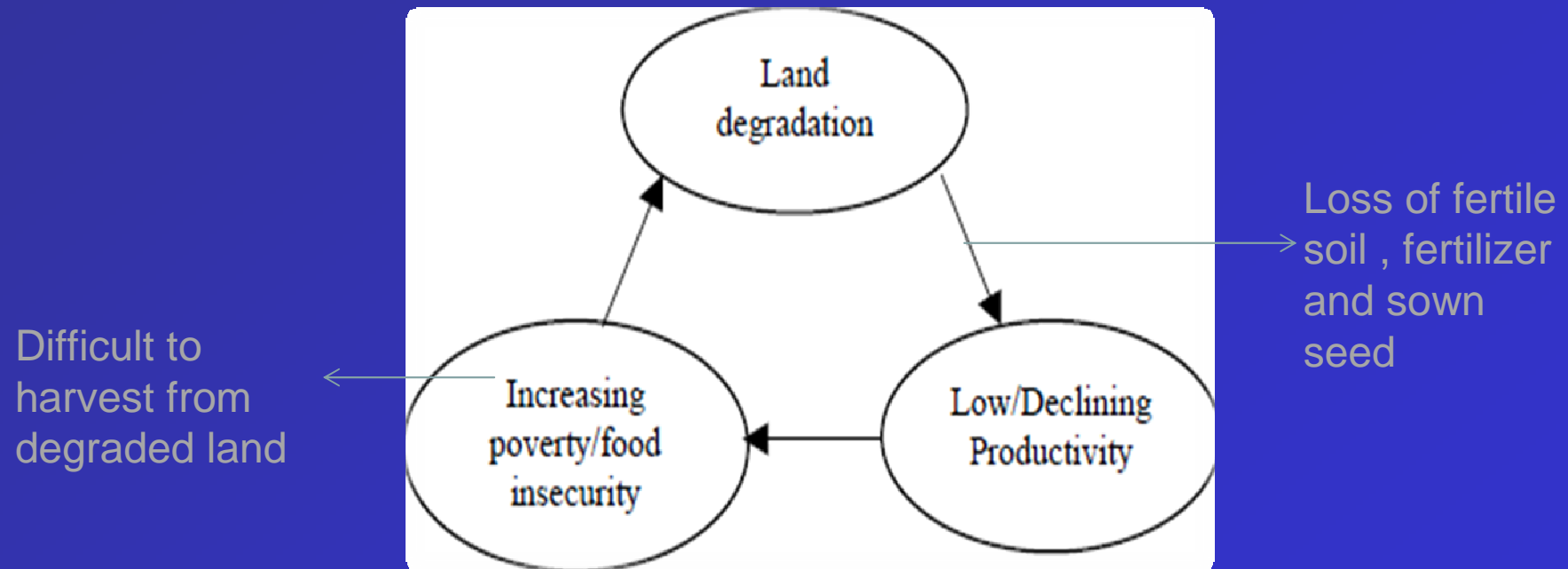
- 17% of the Ethiopian potential annual agricultural GDP is lost because of physical and biological soil degradation
- 27 million ha representing ~50% of the highlands are already significantly degraded and 2 million ha have reached at point of no return

Eroded farm at Gununo, located about 430 km from Addis Ababa in the Southern part of Ethiopia, is one of highlands



# Land Degradation

- Land degradation is one of the major causes:



## Land Degradation

- Approximately 30% of Kenya was affected by very severe to severe land degradation and
- An estimated of 12 million people (1/3) of the population, depended directly on this land



Severe soil erosion brought about by animals overgrazing and vegetation being cleared in Kenya



# Land Degradation

- Causes:
  - ❖ Human population growth – depend on unsustainable agricultural practices, need cropping land and livestock for perceived financial and social security
  - ❖ Overstocking and Overgrazing - Poor livestock management, mainly based on the free grazing system
  - ❖ Intrinsic characteristics of fragile soils in diverse agro ecological zones



# Over grazing



## Overgrazing

- In Ethiopia livestock density and unfettered grazing patterns lead to overgrazing
- Since animal yield is low due to genetic and managerial problems the natural reaction of farmers has been to increase their herds
- Ethiopia has the largest livestock population in Africa with cattle 50.8 mil, 25.9 mil sheep, 21.9 mil goat, 0.8 mil camel, 1.9 mil horses, 5 mil donkeys, 0.3 mil mules and 42 mil poultry

## Overgrazing

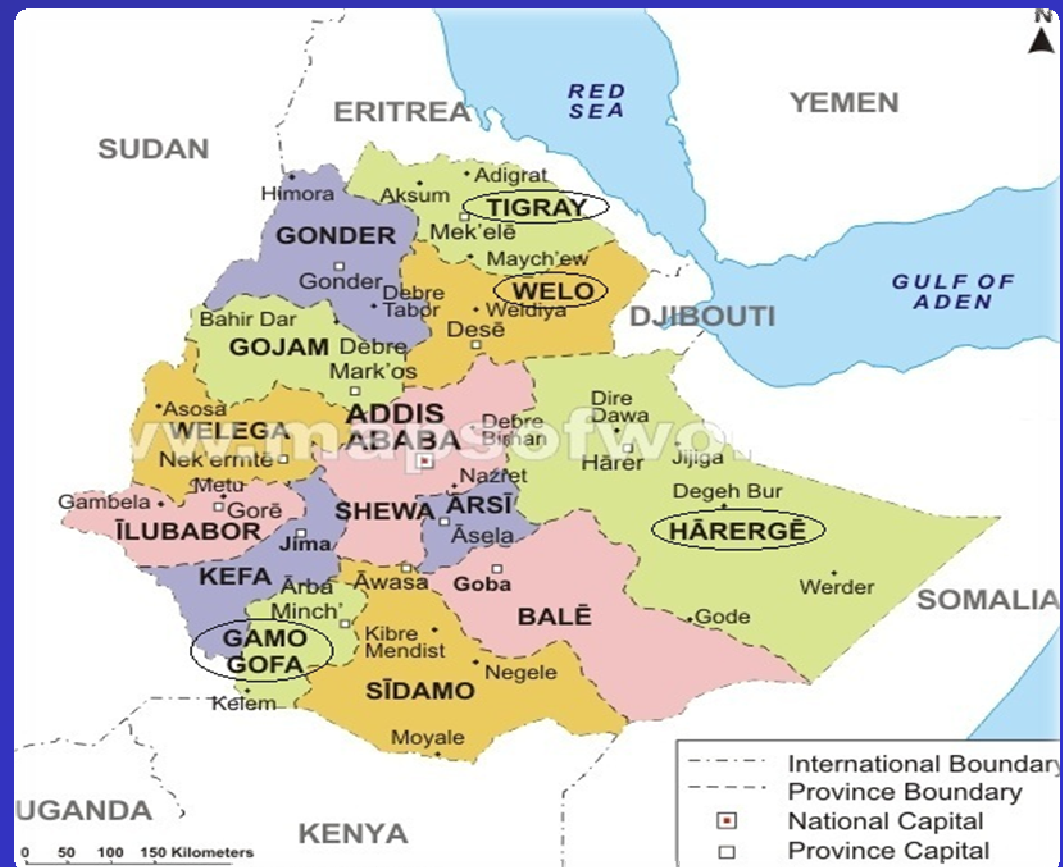
- 75% livestock population is concentrated and graze in the highlands. The remaining 25% graze in the rangelands
- Livestock feed sources in Ethiopia, ruminants and equines are mainly (80-85%) natural grazing.



Over grazing resulting in total loss of vegetative cover, Borena located

# Overgrazing

- The Hararghae highlands in Eastern, Tigrai, Wollo, and Semen/North Shoa highlands in the North and the Gamo-Gofa highlands are some of the seriously eroded land surfaces in Ethiopia.







# Recommendations

## Recommendations

The following recommendations are forwarded:

- » Control overstocking /Destocking/ to bring the number down to the carrying capacity of the grazing area
- » Improve genetic potential of indigenous livestock;
- Provide bull stations and artificial insemination (AI) eg. Milk yield of indigenous breeds ranged between 500-700 liters in 100 days of lactation period under average to good management condition while crossbreeds produce 1120-2500 liters in 279 days of lactation

## Recommendations

- » Adequate feed and animal nutrition;
- Crop residues - Wheat straw, Enset (false banana) residue, Sweet potato vines, Corn stover
- Concentrates - Oilseed cakes, cereals and cereal by-products

## Recommendations

- » Reduce livestock diseases and improve quality production;
- Provide and improve veterinary services and drug supplies

Occurrence of pathogenic species of *Enterobacteriaceae*, *Listeria monocytogenes*, *Staphylococcus aureus* and *Brucella* in raw bulk tank milk in the selected milk sheds Asella Dairy Union and Ada Dairy Cooperatives, Ethiopia

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Funded by Comune di Milano

# Recommendations

## Objective

- Determine the occurrences of pathogenic *Listeria monocytogenes*, *Enterobacteriaceae*, *Brucella* and *Staphylococcus aureus* in raw milk to determine the quality of milk in the selected milk sheds Asella Dairy Union in zone and Ada Dairy Cooperatives in Debre Zeit town
- Samples were collected from Smallholder producers and Cooperatives centers



## Recommendations

### Results

- Survey showed that main constraints are availability and costs of feeds 33.9%, poor veterinary services 13.8%, discouraging seasonal milk marketing systems 13.4%, poor artificial insemination service 12.9%, animal diseases 5.8%
- Lab analysis - 106 bulk milk samples analyzed 37% Enterobacteria species, 1.2% was *Listeria monocytogenes*, 16.7% *Staphylococcus*, 8% *Brucella* were recovered.

# Recommendations

## Conclusions

- Dairy producers should be supported through services related to feed supply, marketing systems, veterinary , AI
- Training on clean milk production and general husbandry practices should be given to the dairy producers.

## Recommendations

- » Introduce grazing land management systems eg.
  - Zero grazing - system that prevents livestock from grazing freely in open pasture (livestock is confined in a stall and fed with cut and carried fodder-forage plant or concentrate, wheat bran)
  - Controlled grazing- system to regulate the amount of time and the amount of grazing that should take place within a particular paddock or pasture



**THANK YOU FOR YOUR  
ATTENTION**