Principles and practices to integrate livestock into rainwater management: an example from the Blue Nile Basin

Amare Haileslassie, Alan Duncan, Don Peden, Teklu Erkossa, Bharat Sharma, Charlotte MacAlister

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Outline of the presentation

- **Livestock-rain water management integration :perspectives**

- **Opportunities and challenges**

- **Key messages**

Why integrating livestock?

Blue Nile : >90% is rainfed agriculture

Livestock is an important sources of livelihoods: but also major users of land & H_2O

This role is intensifying and putting pressure on already scarce water resources

Very high
High
Moderate
Low
Very low
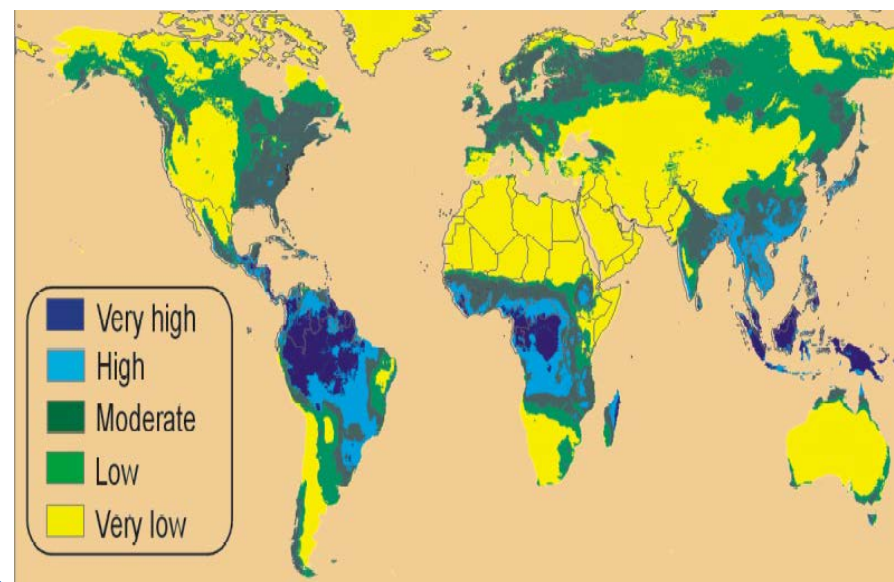
Potential of rainfed agriculture

Why integrating livestock?

High unproductive water losses : with all associated impacts

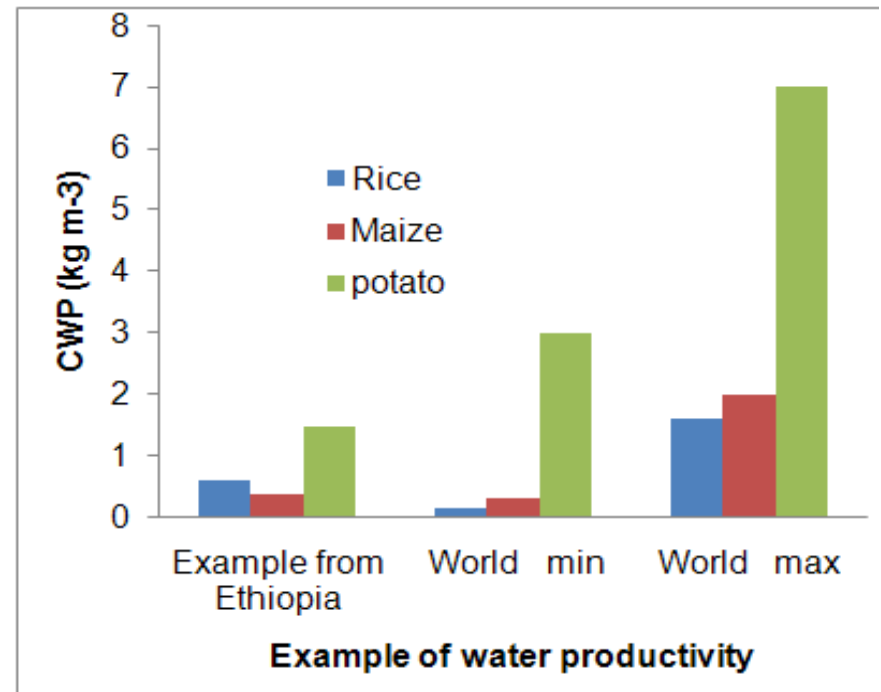**Grazing lands are important sources of unproductive water losses**

Productive and unproductive water flows in crop livestock systems
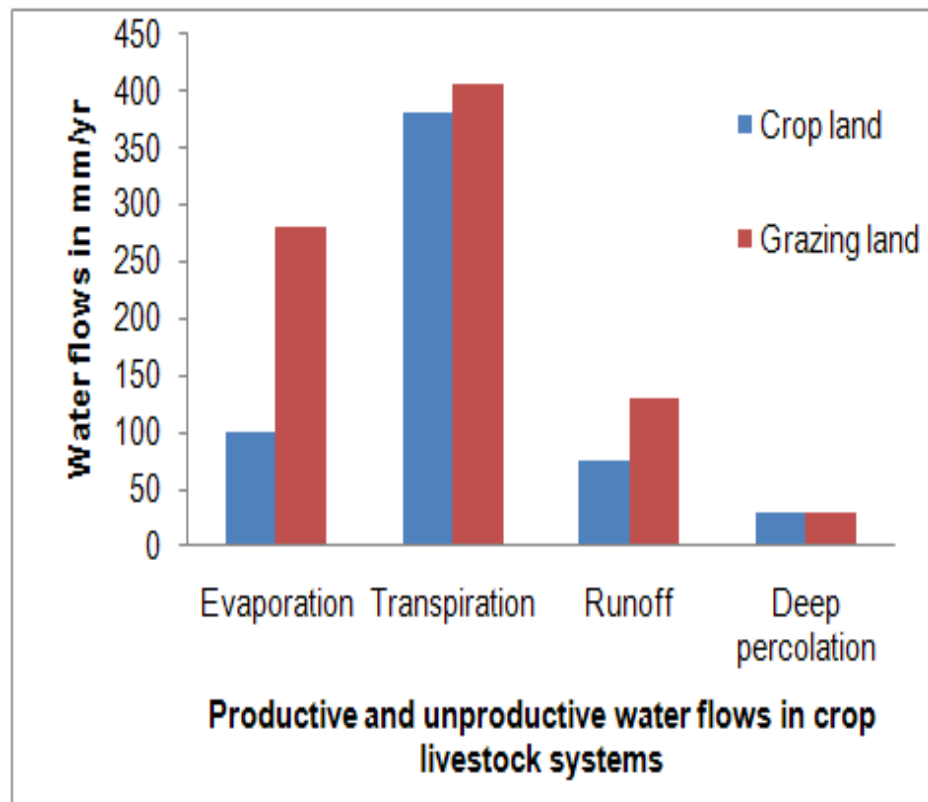
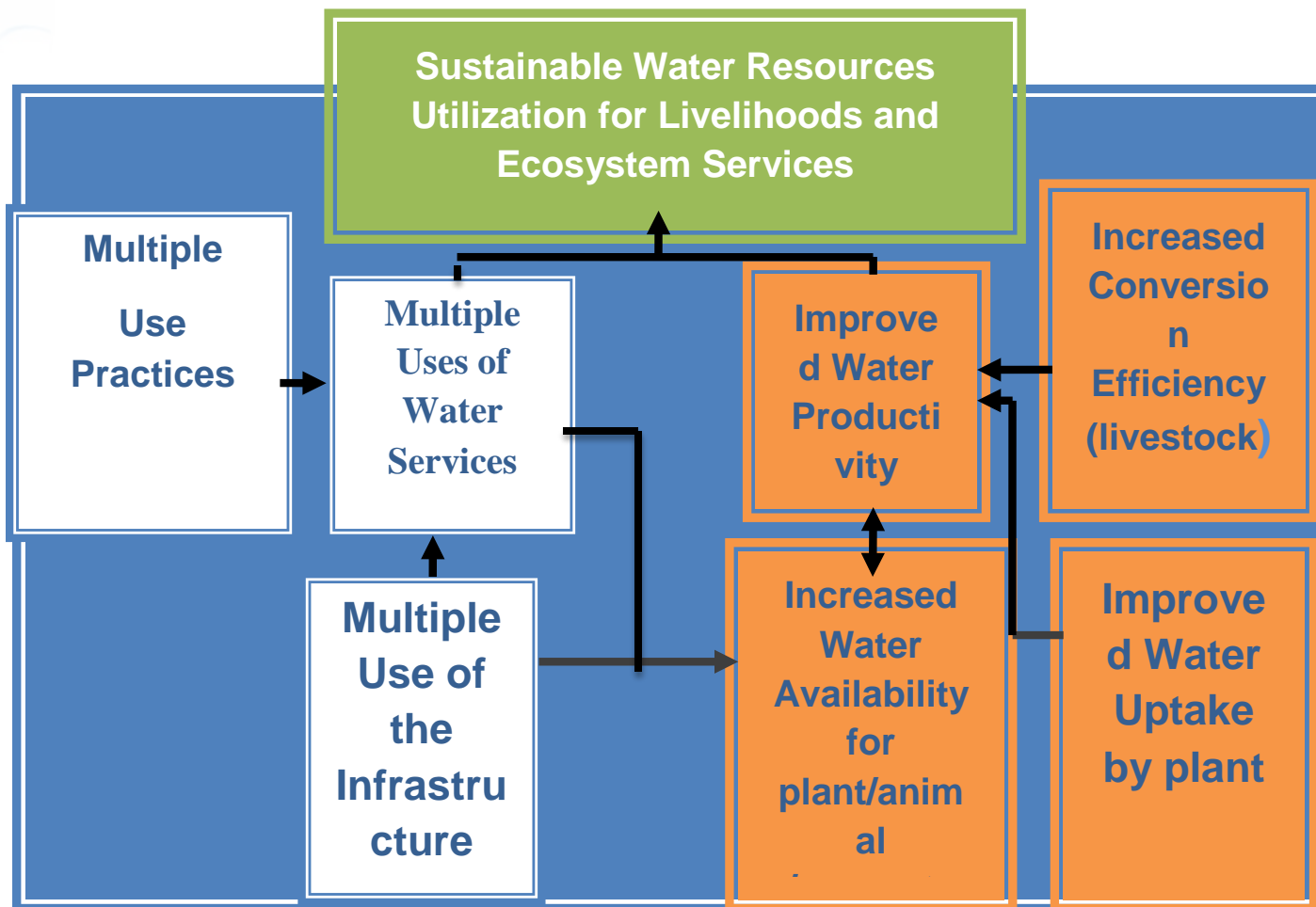# Why integrating livestock?

CWP gaps are generally enormous!

This has a negative implications for H$_2$O use efficiencies in the rainfed mixed crop-livestock systems

How to fill these gaps?

Example of water productivity

Opportunities and challenges

WP vis a vis MUS

Sustainable Water Resources Utilization for Livelihoods and Ecosystem Services

Multiple Use Practices

Multiple Uses of Water Services

Improved Water Productivity

Increased Conversion Efficiency (livestock)

Multiple Use of the Infrastructure

Increased Water Availability for plant/animal

Improved Water Uptake by plant

Schematic flow diagram showing the link of MUS, ecosystem services and water productivity

Opportunities and challenges

Principles for integration of livestock into RWMs

Improving the WP feeds: on crops, grazing and forest land

Enhancing efficient uses of feed resources produced under water productive environment

Opportunities and challenges

Practices to integrate livestock into RWMs

Practices	Potential impacts
Cut off drains in valley bottoms grazing lands, crop land on vertisols	Enhances species diversity, feed quality & productive use of water
Grazing management, enclosures, improved management of CPR	Reduces compaction; Increases infiltration; (Fogera biomass yield up 400% (IPMS))
Cut and carry system	Saves H2O >300m³/cow/year
Post harvest management	(e.g. feed quality and quantity)

Opportunities and challenges

Practices to integrate livestock into RWMs

Practices	Potential impacts
Selection of quality feed, urea treatment, chopping of course crop residues ; improved feed storage & weed control.	Higher quality feed saves water (~120m3/cow/year)which can be used for ecosystem services (CO2 sequestration) & enhances nutrient turnover
Institutional support and creation of incentive mechanisms for local initiatives of virtual water trading	Improves regional & systems water productivity Links upstream-downstream community
Animal management: Breeding, AI, Vet services, quality water supply	Increased benefits & resources use efficiency

Key messages

Integrating livestock into rainwater management is a means to increase system WP

Integration needs to be built on principles of improving H_2O productivity of feed & enhancing efficient uses of the H_2O productive feed

Research focus: linking LWP and MUS and targeting paractices
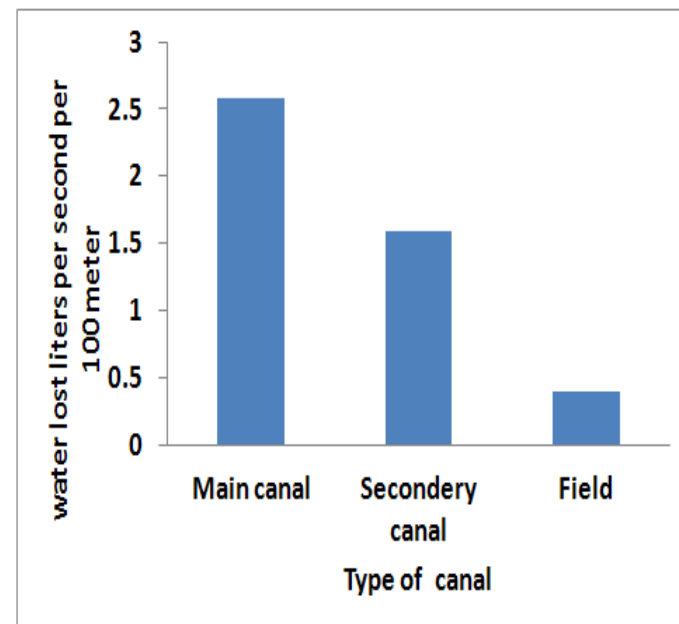
Water loss from irrigation canal

Thank
you