

# Livestock and Climate Change



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# A Problem of Significance

~3.6 billion ruminants on the planet produce considerable amount of greenhouse gas and occupy huge fractions of land

**Therefore**, we should eat less meat and raise fewer animals to mitigate climate change

**But**, animal agriculture is the cornerstone of food and income security for many people



# Two Sides of the Coin

Livestock systems contribute to climate change



Livestock systems are threatened by climate change



# How Does CC Threaten Livestock Systems?

- Extreme weather (temperature, drought, flooding) directly increases livestock morbidity and mortality
- Landscape degradation
- Decreased forage availability and quality
- Increased and changing patterns of livestock disease



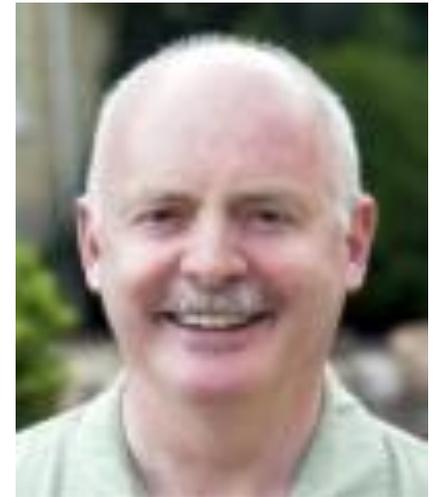
# Approaches

- Better understanding of the near and far term impacts of climate change on livestock systems
- Increased livestock production efficiency
- Fostering climate resilience in livestock systems
- Mitigating climate-related diseases



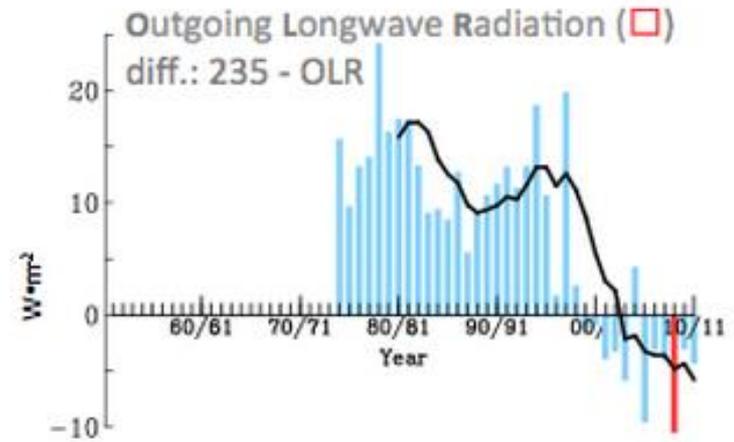
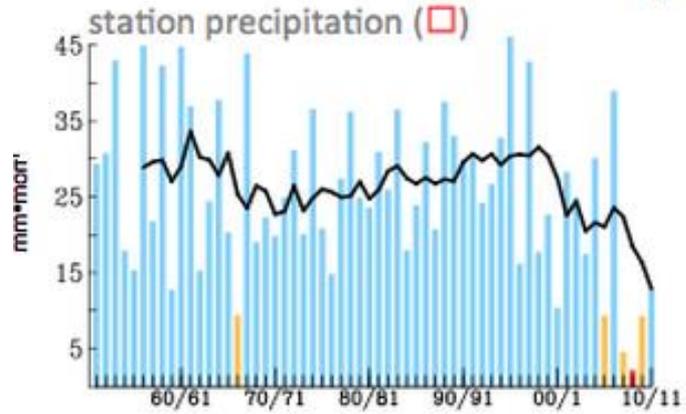
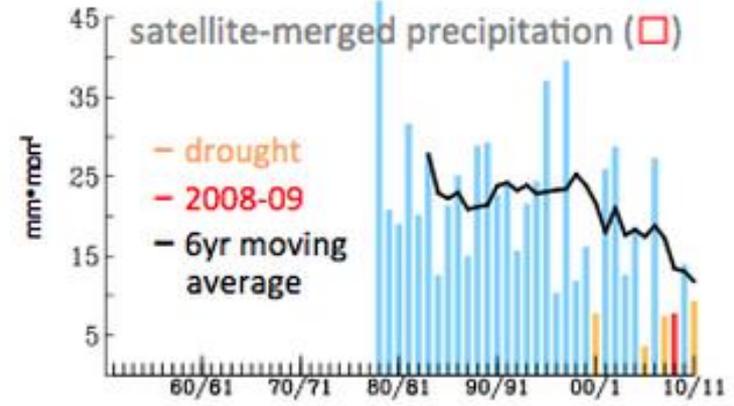
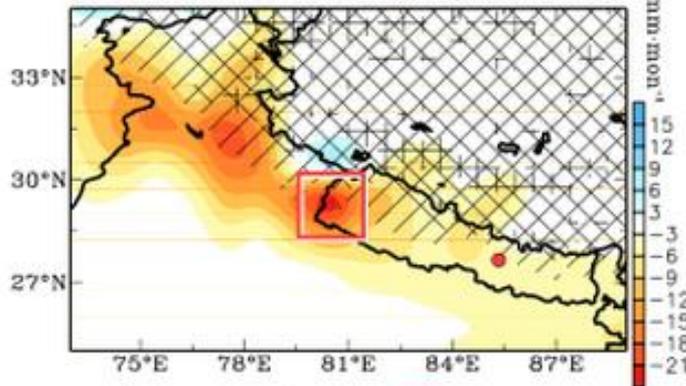
# Climate Science in Nepal

- Nepal is among the countries most likely to face severe effects from climate change



# Climate Change: Western Nepal

15-yr difference in Nov-Feb precipitation (1996/2010 – 1981/1995)



# Increasing Efficiency in Livestock Production

- Buffalo in Nepal
- Forage management
- Reproductive management
- Disease control (e.g. ticks)

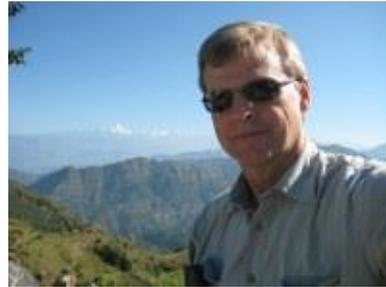


# Buffalo Management Efforts



# Fostering Resilience

- Chickens!
- East Africa
  - Drought and overgrazing
  - Brush encroachment
  - Grasslands recede
  - Flooding leads to erosion and gully formation



# Brush Clearing, Kalos and Gully Remediation



# Climate Resilient Livestock



# Climate Resilient Livestock



# Climate-Related Disease

- Nepal scholars program
  - Tick-borne disease
  - Blutongue virus
  - Infectious abortion disease
  - Swine parasites
  - Brucellosis
  - Nepah virus



# Concluding Comment

“Climate change is likely to be the biggest challenge facing livestock keepers globally living on less than \$1/day.”



# Concluding Question

“Climate change is likely to be the biggest challenge facing livestock keepers globally living on less than \$1/day.”

- Conflict
- Land use
- Human population increases
- Migration
- Disease



