Livestock, Climate and Natural Resources Use

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9 September 2019

9th Multi-Stakeholder Partnership Meeting

Global Agenda for Sustainable Livestock

Manhattan, Kansas, USA

Large interface

- Biomass appropriation
- Use of land, water and nutrients
- Diverse species and systems
- Complexity of interactions
- Growing Demand (LMICs)
- Trade and natural resource transfers
- Climate commitments

Extensive Systems

- Ruminants and grazing
- Role of methane
- Grazing in natural grasslands
- Pastures as a carbon sink
- Expansion of grazing into forests
- Biological diversity

Smallholders

- Importance of crop-livestock integration
- Nutrient cycling and energy
- Low productivity, small scales
- High potential areas
- Pastoralists

Intensive Systems

- Rapidly growing in LMIC
- Geographical separation
- Disruption of nutrient cycles, leading to depletion and pollution
- Optimization in modified environments
- Feed requirements and soy

Trade-offs and synergies

- Within domain:
  - C and N emissions change with intensification
  - Land sparing vs land sharing
- Between domains:
  - Increased supply (food security) vs higher environmental costs
  - Increasing scales promote efficiency but reduce employment

Innovations

- Efficiency – emission intensities
- Circular – better use of nutrients, water and energy
- Offsets – environmental benefits
- Alternatives – feed and food

Policy perspectives

- Recognize diversity of livestock systems
- Large scope for improvement
- Healthy diets
- Mix of regulations and incentives
- Large interface with local and global public goods
- Central role of innovation at all levels
- Quick climate gains