Mongolia - Nationally Appropriate Mitigation Actions for Grassland and Livestock Management

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Climate change impacts in Mongolia

- From 1940 to 2007, the annual mean air temperature in Mongolia increased by approximately $2.14^\circ C$
- Warming is projected to further incline by $5^\circ C$ by the end of the 21st century
- The highest annual and seasonal temperature changes mostly occurred in the forest-mountain region in the north of the country

Climate change impact:

- Decrease in grassland production
- Increase in soil surface temperature
- Changes in plant community
- Decrease in summer precipitation
- Riparian areas will be more affected by drought
Grazing – contributor to land & water degradation

- Livestock numbers far outweigh range capacity
- Overgrazing accelerates desertification and pasture vulnerabilities: Flooding, run-off, erosion, degradation of wetland and riparian vegetation

Livestock Number (in millions)

- 1992: 25
- 1999: 33
- 2013: 45
Framework for NAMA development

Key elements in grassland & agriculture sector

- Adaptation benefits
- Mitigation potential
- Costs & benefits
- GHG measurement
- Barriers to adoption
- Policies & measures
- Finance needs

National level

- Institutional arrangements for coordination
- Domestic approval procedures
- National MRV arrangements
- Securing & managing climate finance

Policy

- Policy alignment
- Setting NAMA priorities & targets
- Legal and policy framework
Framework for NAMA development

Key elements in grassland & agriculture sector

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National level

Institutional arrangements for coordination

Domestic approval procedures

National MRV arrangements

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Policy alignment

NAMAs should support achievement of national development objectives

- **MDG-based National Development Strategy (2008):** Strategic objective 1: Animal disease control, livestock production, protect & restore grasslands)
- **Mongolia National Action Program on Climate Change (2011):** Priority Area 5: Ecological balance, vulnerability, GHG mitigation, ‘Green Growth’
- **Mongolia NAMAs submitted to the UNFCCC Secretariat (2010):** Agriculture NAMA: increase livestock productivity and efficiency.
- **State policy on Food Security (2009-2016):** Institutions and policies for productivity and competitiveness, livestock productivity, market access.
- **National Livestock Program (2008-2021):** Five priority areas (enabling environment, animal breeding, animal health, climate adaptation & grassland management, livestock product marketing).

Result: The National Livestock Program (NLP) was identified as the institutional mechanism to implement a grassland and agriculture NAMA.
Mitigation potential of the National Livestock Programme

Estimates of technical mitigation potential were made for:
(a) NLP national herd size goals
(b) selected productivity interventions
(c) grassland carbon sequestration.

Note: Technical potential assumes no barriers to adoption. NAMA design may focus on specific activities or regions only, and actual adoption rates may be lower.
Climate benefits of the National Livestock Programme

The NLP target for national herd size in 2021 is 36.4* million animals

Emissions and emission reductions from changes in herd size and structure

If implemented, emission reductions total 3.2 MtCO$_2$e by 2021, or average of 227,000 tCO$_2$e p.a. But dzuds are likely to have a larger impact on national livestock numbers than policy.

*In 2008 herd size was 19% higher
Mitigation potential of improved grassland Mgmt

Estimates were made for grassland management nationwide:

National technical mitigation potential is 29 MtCO$_2$e p.a. This is 1/3 of energy sector technical potential and 18 times larger than industry sector potential, but there are more barriers to adoption in grassland management.
Cost & benefit analysis

Estimates were made for sheep & beef breeding programs and for dairy breed improvement with artificial insemination:

Some breeding programs have significant net benefits, so the abatement costs ($/tCO₂e) are negative, and lower than in other sectors. Profitability of breeding programs depends on feed costs, livestock product prices and the number of years required until there is a positive return to investment.
Grassland carbon monitoring

Activity data on livestock types and grazing movements can be reported by herders and cross-checked by soum technicians.

Monitoring unit in soum
Aggregation, reconciliation of data

Track 1
95 ± 15 survey

By soum AHBU

Grazing management data
Livestock types & numbers
Leakage (grazing outside soum)

Track 2
100% census reported by herders

By herder groups

The cost of collecting and verifying improved data can be high, but would also contribute to better local and national decision-making.
NAMA implementation actions

‘Quick-wins’

- Results-based M&E system for NLP
- Assess barriers to adoption & best practice solutions
- Stakeholder consultation
- Submit NAMA to UNFCCC Registry
- Pilot GHG MRV methods

‘Fast-tracked actions’

- Systematic assessment of NLP activity lines
- Prioritize actions for NAMA support
- Establish climate finance mechanism
- Agree on NAMA institutional implementation arrangements
- Pilot implementation of NLP interventions with GHG MRV
- Pilot implementation of grassland carbon sequestration project
Acknowledgement

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