

Simulating Grazing Dynamics of Ungulates for Climate Adaptation strategies in West Inner Mongolia (EU-FP6 ADAM Project)



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West Inner Mongolia belongs to inland aridzone with three deserts Ann. precip.: 40-200mm

River-water use

increase, Runoff reduce

Declining of rivers or rivulets, Lakes Shrink or dry out

Ground water drop

Eco-system

declines along rivers

Climate Change Impacts on Eco-system and Water Resources

Climate Warming

Decrease in

soil moisture

Frequent dry-events

Rangeland declines

Land degradation Soil desertification



Water

resources

Over-pumping

ground water

Ground water

drop, salt-water intrusion, Land

salinization

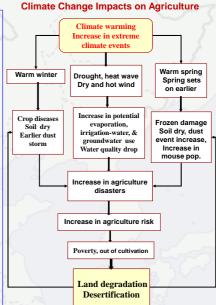
Green land

degradation

shortage

Adaptation and Mitigation

- Grazing-ban, periodic or rotation-grazing
- Control grazing; no goat-grazing Enclosure, stall-fed animals
- Grass-ring construction
- Forage grass base construction
- Transfer strategy
- Supply job other than relieving
- Develop industry and mineAerial seeding
- Artificial rainfall enhancement
- Grain for green
- Conservation zone
- Shelterbelt woodland - Birth-control
- Control emigrants outside Multi-family-organized free grazing
- Camel conservation zone
- Natural forest conservation
- -Hydro-engineering construction
- Updating irrigation system
- Greenhouse construction
- Plastic film mulching in farmland - Drop irrigation, ground pipe-line net
- No over-water-consumption crop
- No over-water-consumption facilities - Adaptation water price
- Water-use permission policy
- Recycling water use
- Heihe River water-reallocation project



Climate Policy Assessment--Participatory, Analysis & Modelling

ADAM Policy-option Appraisal Frame





Stakeholders Meeting

Animal grazing dynamics

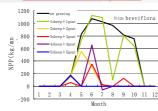


Fig.Simulated Stipa breviflora NPP under different grazing pressure coming from sheep and goat in west Inner Mongolia by use of FORSPACE model .

Result: Proper grazing is necessary for vegetation regeneration and reduction of fire risk in west Inner Mongolia grassland.







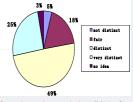




Improper human activity

- -Illegal land cultivation
- -Over-use ground water
- -stock ing goats - Urbanization
- -Illegally take medicine- plants
- -Illegally cut trees
- -Illegally use river flow
- —Over-grazing
- -improper afforestation

statistical analysis



Questionnaire statistics: 74% of 132 sheets agree with grazing-ban against land degradation in west Inner Mongolia (Dai et al. EU FP6 ADAM project final report, 2009)



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