

# The potential of Carbon crediting for restoring degraded grazing systems

*Considerations from project preparation in Qinghai, China  
Three Rivers Project proposal*



Pierre Gerber and Leslie Lipper (FAO), with contribution  
from Andreas Wilkes (ICRAF)

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# Outline

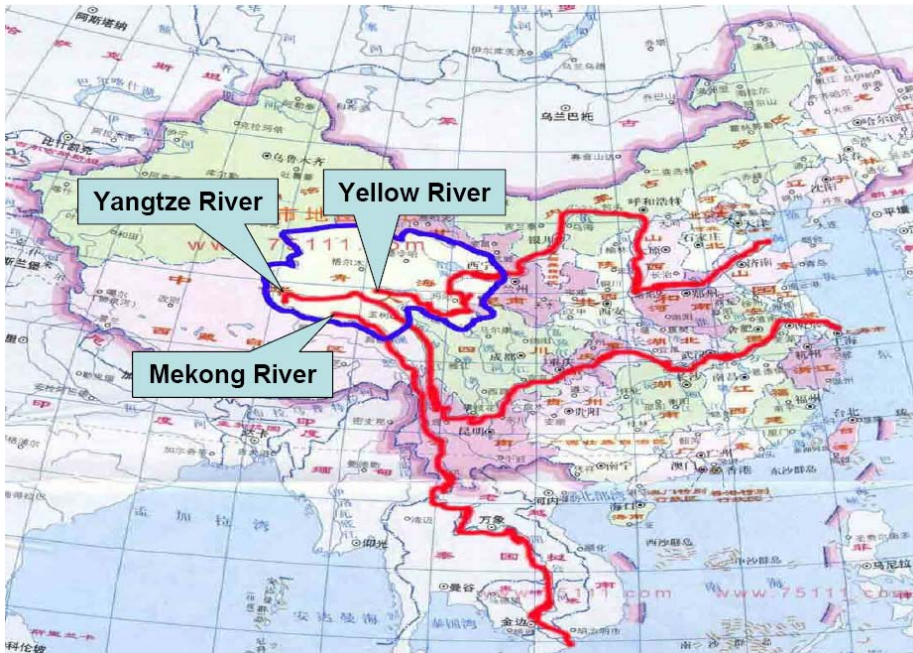
- Rationale
- The issue
- Project overview
- Questions arising



# Rationale for engagement

- Rangelands have a large technical potential for C sequestration
- Sequestration can potentially offset emissions from animals and other sectors, i.e. generate C credits
- Synergies
  - climate change **adaptation** (productivity, water management, diversification)
  - **food security and rural development** (system productivity)
  - reduced methane **emissions** (feed digestibility)
  - **water and biodiversity** (Organic matter, range conditions)
- Limitations
  - **economic and institutional potential** supposed to be much lower than technical potential
  - only finite amounts of C can be sequestered - **saturation**
  - C will be sequestered only as long as improved management practices are continued - **permanence**
- FAO engagement in the development of pilot projects

# Location of project site: China, Qinghai Province, Zeku county



Zeku county



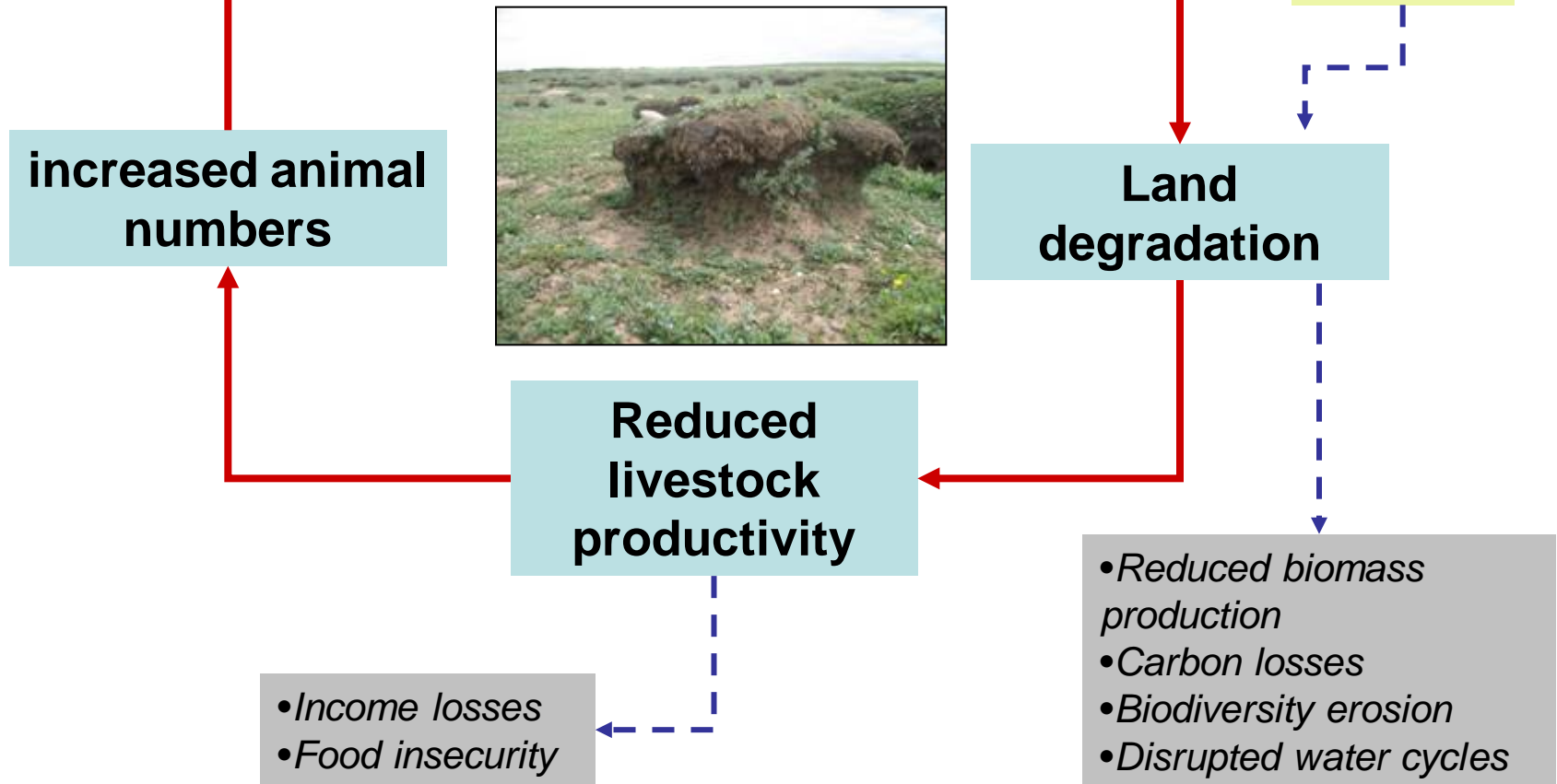
## Favorable context

- institutions (land tenure, administration, herders organizations)
- science and knowledge (baseline information, technical packages, strength of national institutes)

# The issue

- *Population increase*
- *Reduced animal movements*

- *Climate change*



- *Income losses*
- *Food insecurity*

- *Reduced biomass production*
- *Carbon losses*
- *Biodiversity erosion*
- *Disrupted water cycles*



# The issue- production constraints

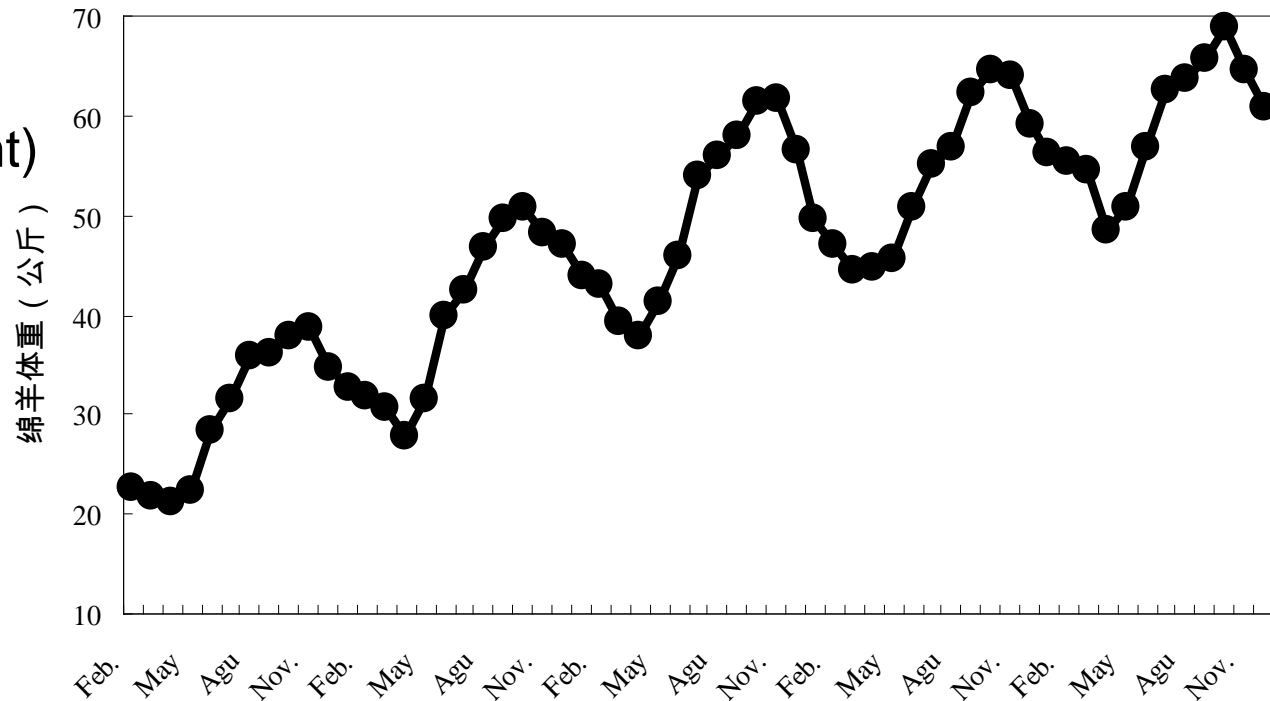
## Fodder availability:

- 140 days growing season
- 2000 kg DM / ha grass production (non-degraded).
- Limited cultivated and stored forage

## Cold:

- yaks and sheep lose a body weight over each winter season

Monthly weight gain (kg live weight) - sheep



# Project rationale

**Goal** - Improve the delivery of food and ecosystem services in the project area.

## Specific objectives

- increase food security through sustainable livestock production and marketing
- deliver carbon credits to the voluntary market (500,000 tCO<sub>2</sub>eq. over 10 years)
- improve water and biodiversity resources through the restoration of degraded grassland.

## Approach

Through the payment for carbon credits (PES) finance an equilibrium shift: from a “degraded equilibrium” with low food and environmental services to a “restored equilibrium” with increased agricultural productivity and environmental services



# Project Activities

## Household tailored measures to restore grasslands:

- Heavily degraded areas
- Moderately degraded grassland
- Lightly degraded grassland:
  - *Average de-stocking rate: 33%*

## Improve animal husbandry

- Feeding
- Housing

## Establish livestock product market association



# Project Benefits

## Income benefits to herders

- higher value from livestock market (higher performance and better marketing)
- higher milk yield

## Grassland rehabilitation

- controlled land degradation
- water cycles and biodiversity preserved

*Even with less animals, herder can increase their income and improve the resilience of their grassland in the long run.*



# Carbon sequestration

Indicative sequestration rates per management activity (20 years)

	<b>Restore black beach by enclosure</b>	<b>Restore moderate degraded land by enclosure</b>	<b>Sustainable grazing on moderate degraded grassland</b>	<b>Sustainable grazing on lightly degraded grassland</b>	<b>Cultivate forage grass on black beach</b>
<b>tCO<sub>2</sub>e / ha / yr</b>	14	13	3	3.67	10.2
<b>Total area (ha)</b>	2200	1400	1400	6000	830

Total land area: 22,260 ha; Total pop: ca. 593 households.  
of which we expect *at least* 11,830 ha (ca. 150 hh) to join

# Standard and methodology

- Targeting voluntary market
- Activity based certification
- Finding the right balance between modeling and direct measurement.
  - Tradeoff between uncertainty and costs
  - Need for upfront payment

# What makes this project special

- Link between food security and climate change mitigation (ecosystem services)
- Novel financial mechanism
- Strong replication potential in China and elsewhere
- Public-private partnership
- Interdepartmental work at FAO

# Timeline

- April 2009, preliminary contacts
- July 2009, project identification mission
- Fall – winter 2009, household survey, drafting of the methodology
- 1, 2 July 2010 consultation and formulation workshops in Beijing
- Field activities onset: spring 2010 (part of restoration activities) and spring 2011



# Arising questions

- Can payments for C credits make a difference in the area of degraded ranging systems rehabilitation?
- What is an acceptable level of uncertainty in terms of C credit certification?
- How to reward the co-benefits associated with C credits generated by agriculture?
- How to overcome transaction costs on a wider scale (move from pilot to programmatic approach)?



**Contact:**

[pierre.gerber@fao.org](mailto:pierre.gerber@fao.org)

[leslie.lipper@fao.org](mailto:leslie.lipper@fao.org)