

# Panel 2.1

## Investing in adaptation technologies with mitigation co-benefits

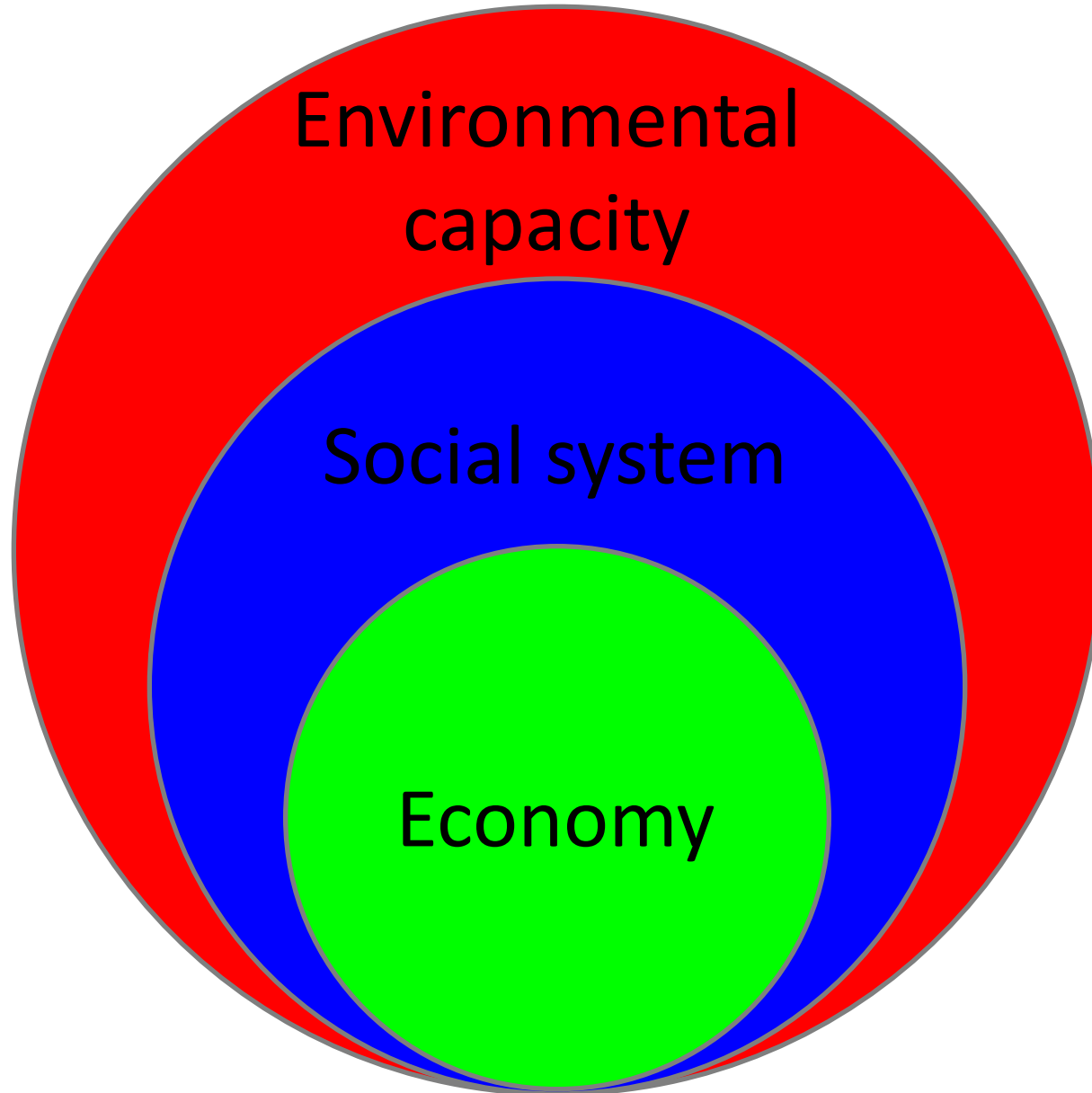
Masataka WATANABE: Moderator, Keio University  
Yoshitomo Mori, Ministry of the Environment, Japan  
Chuluun Togtokh, Ministry of Environment and Green  
Development, Mongolia

Rafaela Delfino, World Agroforestry Center, Philippines  
Yukichi Usui, Japan International Cooperation Agency  
Ryuzo Sugimoto, Asian Development Bank, Japan

# Key points

- Expand co-benefits not only “mitigation” but to “global/ local benefits such as ecosystem services to reduce vulnerability ”
- Good demonstration cases and lessons learned?
- How to evaluate value of co-benefits?
- How to evaluate adaptation effects?
- Adaptation under green development constraint, not trade-off.

# Green Development and Adaptation



# Vulnerability

requires integrative approach of both physical and social dimensions

## SENSITIVITY

- Facility damaged by climate disaster
- Present condition of facilities
- Operating/functioning conditions of facilities
- Changes in natural environment
- Soil fertility
- Irrigation, water point
- Livelihood sources

+

**Vulnerability Index =  
(Exposure x Sensitivity)  
– Adaptive capacity**

## ADAPTIVE CAPACITY

-

## EXPOSURE

- Past and present climate trends and risks
- Future weather conditions, i.e., temperature, precipitation and its pattern, drought episodes and flooding events
- Socio-economic changes, development plan and land use plan

- Disaster resilience capability of regulatory agency
- Existence of research institutes
- Microcredit, rural finance
- Climate insurance, mutual aid system
- Information, Climate change knowledge

# Needs for Innovative Adaptation

Climate Change

Shift to market economy since 1990

Permafrost melting

Drought in summer

Water shortage

Grassland degradation

Extreme weather  
in winter



Zud increase

livestock number increase  
Goat fraction increase

Exceed Carrying  
Capacity

Grassland  
degradation

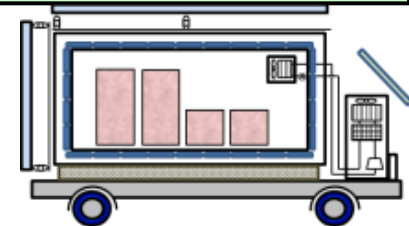
Food shortage in spring/summer, Impact to livestock industry

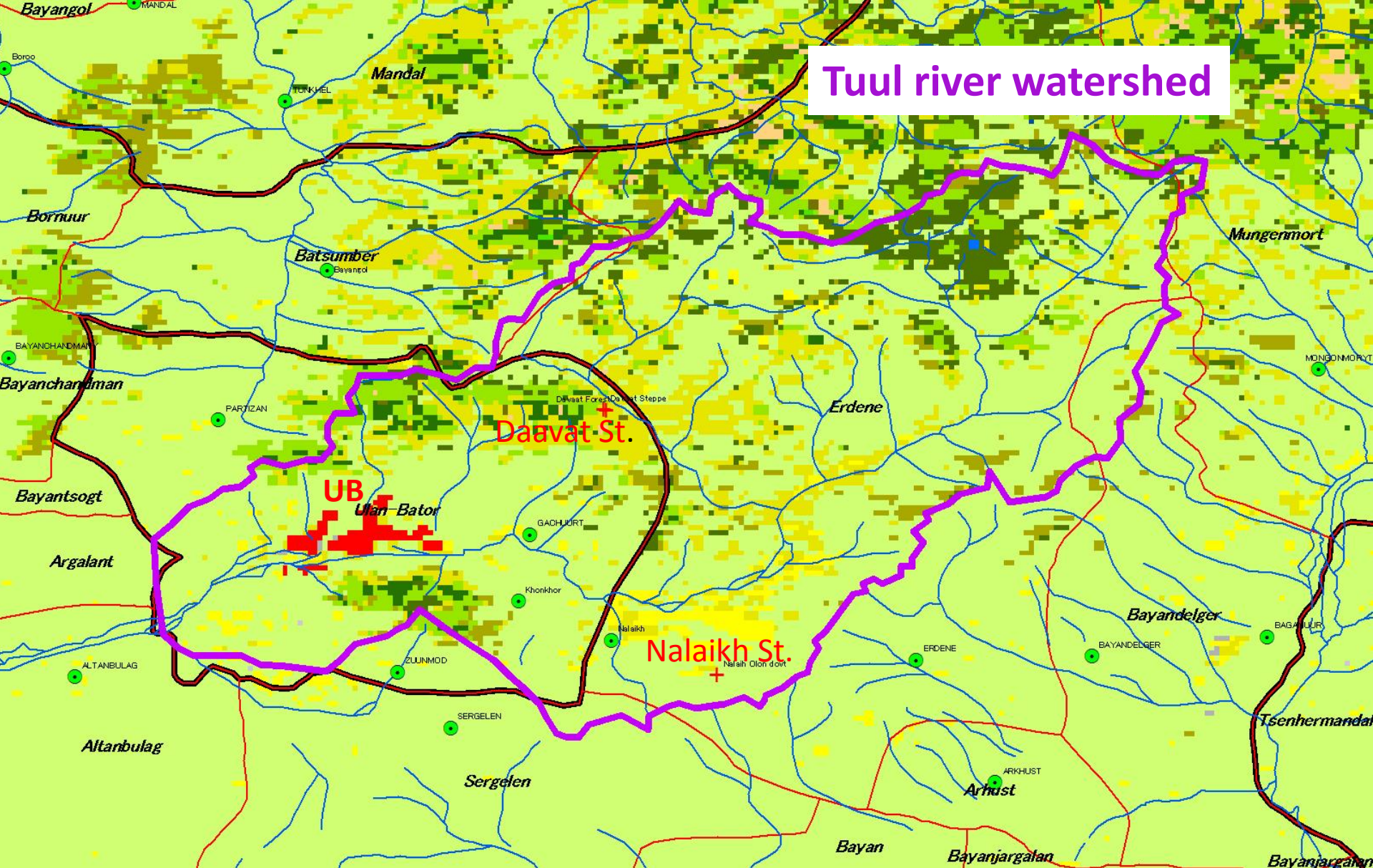
Poverty in rural area

Increase in migration from rural to UB

Policy of livestock number control within Env. Capacity

Innovation ; meat freezing system driven by renewable energy





- Co-benefits of forest and grassland conservation by innovative adaptation**
- 1. Prevention of permafrost melting and emission of GHG (global benefit)**
  - 2. Conservation of water resources (local benefit)**