

## Community-based Natural Resource Management: State of the Science—Global Perspectives

María E. Fernández-Giménez  
Dept. of Forest, Rangeland &  
Watershed Stewardship  
Colorado State University, USA

### Overview

- Introduction & definitions
- Legacy of research on longstanding CPRs
- State of the science on CBNRM
- CBNRM in rangeland ecosystems
- Linking CBNRM and resilience thinking
- Challenges for CBNRM research
- Opportunities for CBNRM research in Mongolia

### Introduction

- Central question driving research:  
How can communities of resource users effectively organize themselves to self-regulate their use of shared resources?



### Common pool resources

- Resources:
  - from which it is difficult to exclude potential users (*excludability*), and
  - where use by one individual leaves less remaining for others (*subtractability*)

### Open access

- Absence of property rights or rules
- Can lead to overuse and degradation
- No incentive for individuals to conserve, because
- What one person does not use will be harvested and used by someone else.

### Property regime

- A set of formal or informal rules
- That define the rights and obligations of specific individuals or groups with respect to access, use or management of a resource (e.g. grass, water, trees, wildlife)

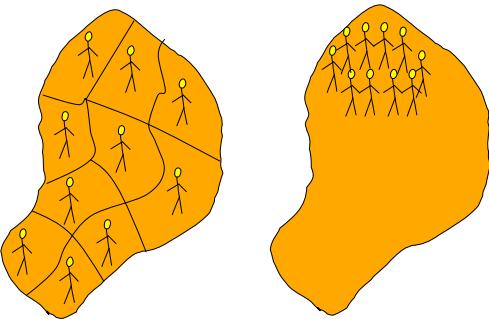
## Typology of property rights

<b>Access</b>	Enter & enjoy non-subtractive benefits (e.g. wildlife watching)
<b>Use (Withdrawal)</b>	Obtain resource units (e.g. hunt wildlife, graze grass, divert water for irrigation, cut trees)
<b>Management</b>	Regulate internal use and transform resource via improvements (e.g. set aside reserve pasture, regulate seasonal movements, limit stocking rates to within carrying capacity)
<b>Exclusion</b>	Determine who has access and how rights are transferred
<b>Alienation</b>	Right to sell or lease

## Property rights

Property Regime & Rights Holder	Property Rights				
	Access	Use (Withdrawal)	Management	Exclusion	Alienation
Private property (individual, corporation)	✓	✓	✓	✓	✓
Common property (group of resource users)	✓	✓	✓	✓	
State property (government on behalf of citizens)	✓	✓?	✓?	✓?	
Open access (none)	No rights or rules, individuals capture as much as possible				

## Private property vs. common property



## Community-based Natural Resource Management

▫ “A process by which landholders gain access and use rights to, or ownership of, natural resources; collaboratively and transparently plan and participate in the management of resource use; and achieve financial and other benefits from their stewardship.”

B. Child & M.W. Lyman. 2005. Natural Resources as Community Assets, Lessons from Two Continents. Madison, WI: The Sand County Foundation.

## Community-based Conservation

- involves people who directly affect and are affected by conservation decisions in conservation planning and stewardship
- provides direct economic and social benefits to resource users while improving or maintaining biodiversity and land health

Western, D. & M. Wright. 1994. Natural Connections. Washington, D.C.: Island Pres..

## Co-management

- Institutional arrangement for natural resource management in which decision-making authority is shared between local people and local, regional, or national government.

Pinkerton, E., ed. 1989. Cooperative Management of Local Fisheries: New Directions for Improved Management and Community Development. Vancouver: University of British Columbia Press.

## 10 Proposed Benefits of CBNRM

- ▣ Increased social legitimacy and likelihood of implementation of management decisions
- ▣ Application of diverse knowledge sources to management--local knowledge and science
- ▣ Improved on-the-ground resource management
- ▣ Increased monitoring and adaptive management
- ▣ Decreased conflict over resources

## 10 Proposed Benefits of CBNRM (cont'd.)

- ▣ Increased trust and strengthened relationships within the community
- ▣ Improved livelihoods
- ▣ Greater community capacity
- ▣ Improved environmental conditions
- ▣ More resilient social-ecological systems

## Additional Research Questions

- Does CBNRM live up to its promise?
- How should "success" be defined and who should define it?
- What factors influence the process and outcomes of CBNRM?
- Are the outcomes of CBNRM really different or better than other alternatives or existing management regimes?

## Legacy of Research on Longstanding CPRs



## Learning from Long-standing CPRs

- Case studies of long-term common property regimes
  - Ostrom, E. 1990. Governing the Commons
    - ▣ 8 design principles
  - Bromley, D. ed. 1992. Making the Commons Work
  - Baland, J.M. & J.P. Plateau. 1996. Halting Degradation of Natural Resources; Is there a Role for Rural Communities?
  - Acheson, J. and B. McCay. 1987. The Question of the Commons.
  - Many others...
- Mostly qualitative, 1 or few cases

## Findings from Longstanding CPRs

(Synthesis by A. Agrawal. 2002. Ch 2 in Drama of the Commons)

- Resource characteristics
  - Small, well-bounded, predictable supply, low mobility, storable
- Group characteristics
  - Small, well-bounded, shared norms, interdependence, leadership, low poverty
- Resource-group relationships
  - Users live near and depend on resource, benefits allocated fairly, low demand
  - Users have clear rights to use and manage the resource
- Rules
  - Simple & easy to understand
  - Locally devised
  - Easy to monitor & enforce
  - Monitors and officials accountable to users

## State of the Science on Contemporary CBNRM Institutions



## Research on Contemporary CBNRM

- Initially, mostly positive “success stories”
- Recently, more critical perspectives
- Important to avoid oversimplification of “community” and to attend to implications of differences in gender, ethnicity, poverty/wealth and power within communities
- Critiques of the role and motivations of facilitating donors and NGOs

## CBNRM in Rangeland Ecosystems

- Difficult to define spatial boundaries in semi-arid and arid ecosystems
- Difficult to identify group members in mobile societies where social organization is fluid
- Yet, many examples of historically well-functioning CPRs in rangeland systems

## CBNRM in Rangeland Ecosystems

Today: Challenges due to:

- Land conversion & intensification of use,
- Privatization of communal lands,
- Land appropriation by the state for other purposes
- Political conflict and lack of security

## Linking CBNRM & Resilience Thinking: Why might CBNRM build resilience?

1. Locally-adaptive practices based on local ecological knowledge
2. Large, centralized bureaucracies make large mistakes—small, local institutions make smaller mistakes and learn & adapt faster
3. Diversity of CBNRM institutions, increases likelihood of learning what works

## Linking CBNRM & Resilience Thinking: Why might CBNRM build resilience?

4. CBNRM strengthens *social capital*, which is important for adaptive capacity
5. CBNRM promotes *social learning* through monitoring and adaptive management, which strengthen feedbacks between social and ecological systems

### Challenges in CBNRM Research

- Defining and measuring "success"
- Measuring environmental outcomes:
  - Often slow to appear
  - Many confounding factors, including those beyond community's control
  - Variability among cases limits comparisons and generalizations
- Measuring social outcomes:
  - Difficult to measure "intangibles" such as trust and hope
  - Appropriate scale for measuring social outcomes?

### Challenges in CBNRM Research

- Determining causal relationships between CBNRM and social and ecological outcomes
- Comparing CBNRM cases to "status quo"—similar locations without CBNRM
- Need for research that combines the richness of case studies with the rigor and inferential power of large samples quantitatively analyzed.

### Opportunities for CBNRM Research in Mongolia

- Relatively homogeneous environment within each ecological zone
- Relatively homogeneous social and cultural context in most of the country
- Over 2000 potential CBNRM cases, most started within the past 5-10 years.
- Cases vary in "design", with multiple examples of each design approach.

### Opportunities for CBNRM Research in Mongolia

- "case-control" studies comparing sites with and without CBNRM
- large sample studies as well as in-depth case studies.
- involve project managers and community members in the research design and implementation
- reflect, learn and apply learning to improve practice
- understand role of CBNRM in resilience to climate and economic change

### Conclusions

- Strong theoretical basis for CBNRM
- Vast empirical research, but mostly based on individual case studies or limited comparative case studies
- Gaps in knowledge and research about ecological and social outcomes
- Lack of empirical research on social-ecological resilience and the potential role of CBNRM in resilience-building

### Conclusions

- Opportunity for research to help document and understand the social and ecological outcomes of community-based conservation in Mongolia.

**Thank You!**

