

Participatory Mapping and Herders' Local Knowledge on Mongolia's Socio-ecological Boundaries and Landscapes

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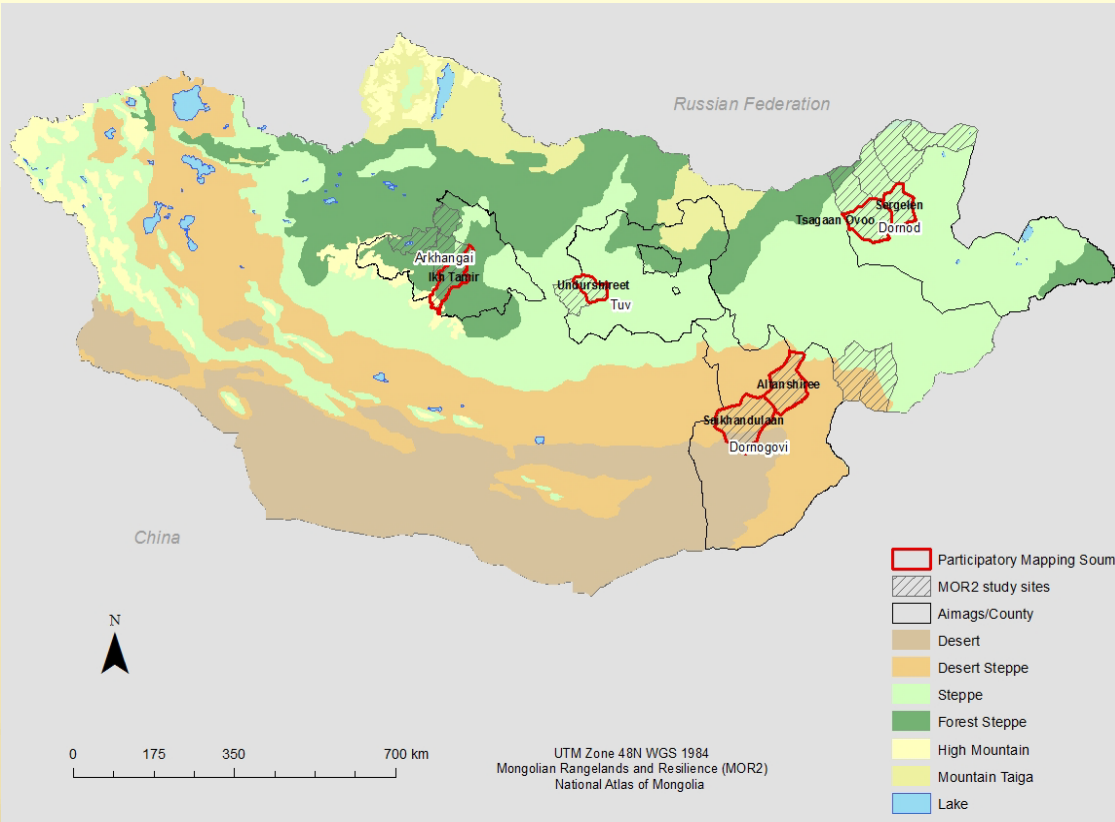
INTRODUCTION

Livelihoods and adaptive practices are shaped by the intersection of boundaries, institutions, and access to natural resources (Ostrom, 2009). Socio-ecological boundaries delineate landscapes containing natural resources differentially accessed and managed by diverse stakeholders. These boundaries may be human-demarcated and biophysical serving as tangible and intangible features delineating landscapes. Investigating how socio-ecological boundaries are perceived, managed, and transformed by stakeholders livelihoods and conservation (Buzinde and Manuel-Navarrete, 2013).

Research Questions

We apply participatory mapping to examine **1) what boundaries are depicted on herders' participatory maps? and 2) how are boundaries discussed through herders' participatory mapping narratives?**

STUDY SITES



We selected sites within MOR2 research locations. We focus on Mongolian traditional and community-based rangeland management (CBRM) herder groups examined by the Mongolian Rangelands and Resilience (MOR2) project

METHODS

We combine PAR mapping with the *Nutag* approach and framework to explore herder's view of their pastures. *Nutag* depicts

- indigenous worldviews about hometown, territory, pasture resources, common knowledge and ties to nature (Baival, 2012).
- a conceptual space signified by a physical central point, such as a campsite, dictating practices, norms, and mobility (Murphy, 2011)



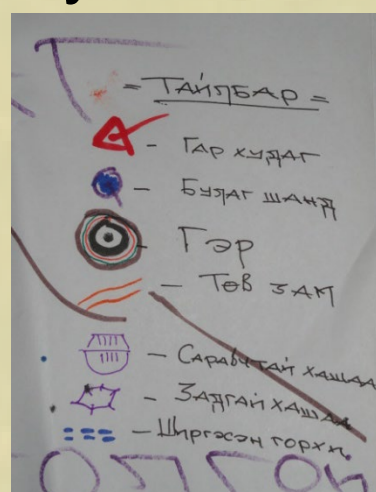
"This is a land that we have, our winter campsite (uvuljuu) is our nutag, our summer camp is our nutag, and this is a place where we were born, and where our livestock was raised. If my ancestors lived there from far old times, this inevitably becomes my nutag ..."

PAR Mapping Process

We requested the herders to draw places of significance ,natural and human made features on their *nutag* after gaining permission from herder. We purposely gave very little instruction to avoid our western conceptions of boundaries and integrate participant's own ways of thinking.

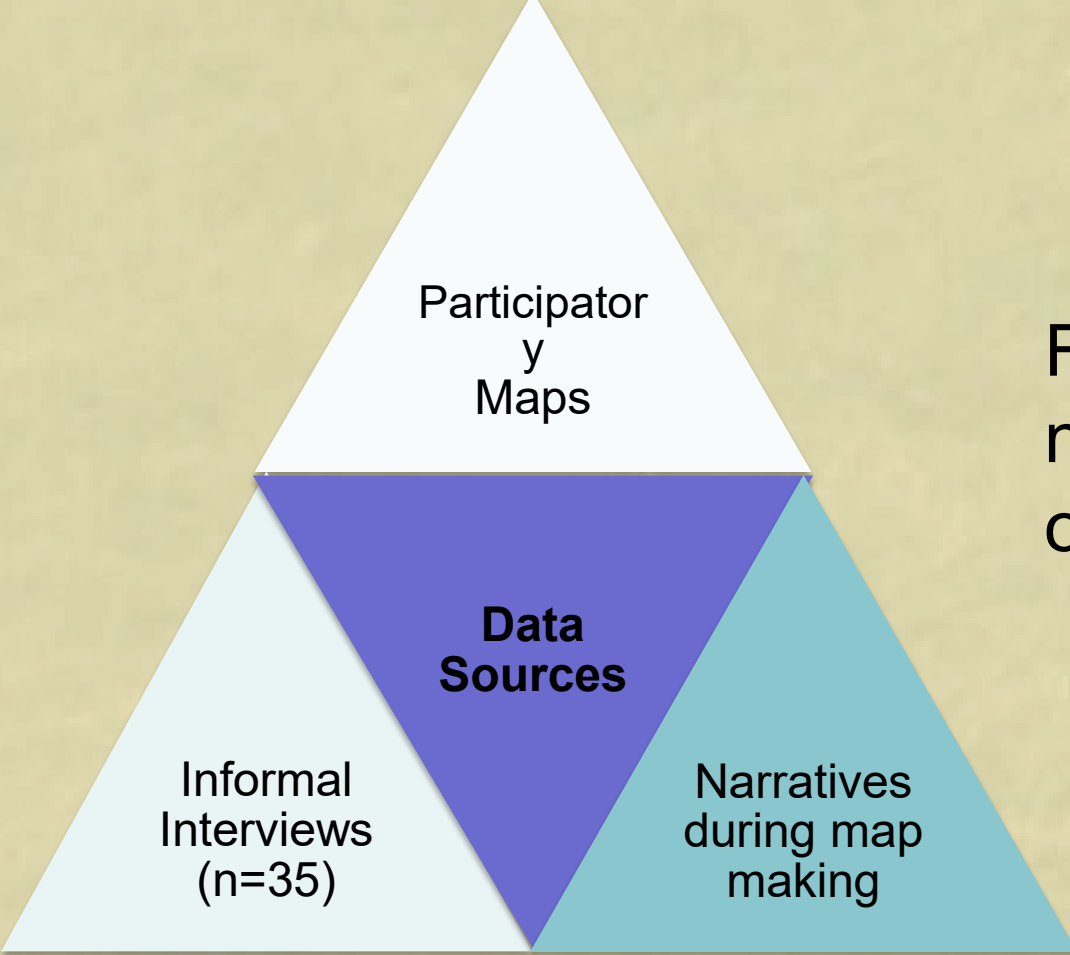
Participants create map

- Tell a story about your nutag
- Determine symbols
- Language of map
- Area and extent of map

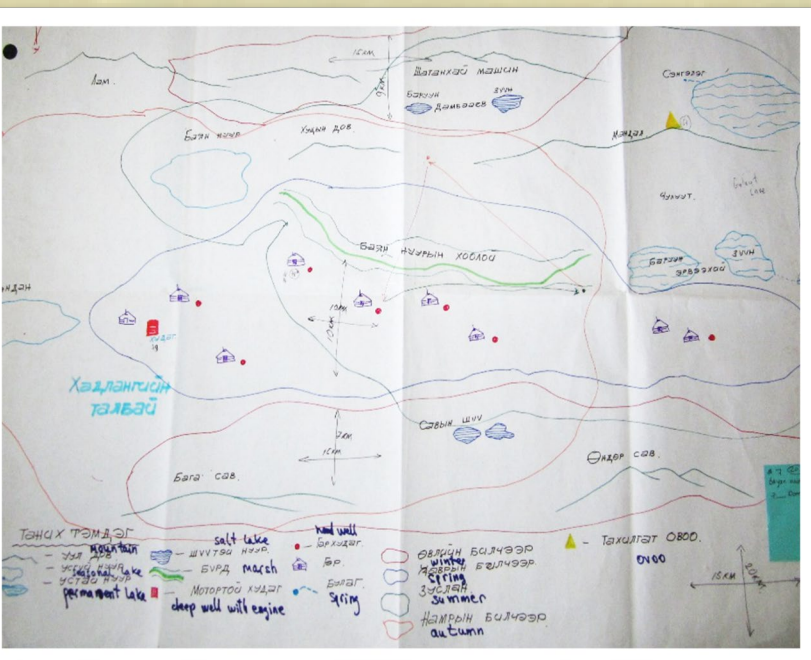


Herders and researchers engaged in conversations about their pastures.

Data Sources



Field notes documented translated narratives, interviews, and personal observations.



Analyses

We qualitatively coded maps and narratives using **grounded theory and visual grounded theory** respectively These generate codes from qualitative data where recurring patterns, themes, codes, and a general theory emerge. Visual grounded theory concentrates on slices of visual data (i.e., maps) and analyzes images for validating relationships significant for research questions (Konecki, 2011; Strauss & Corbin, 2007).

RESULTS

Box 1.1 Common Material/Physical Boundaries in PAR Maps*

Economic: seasonal shelters, *otor* reserves, roads (paved, unpaved, mining), wells, gers

Ecological: vegetation communities, grass species (palatable and unpalatable species)

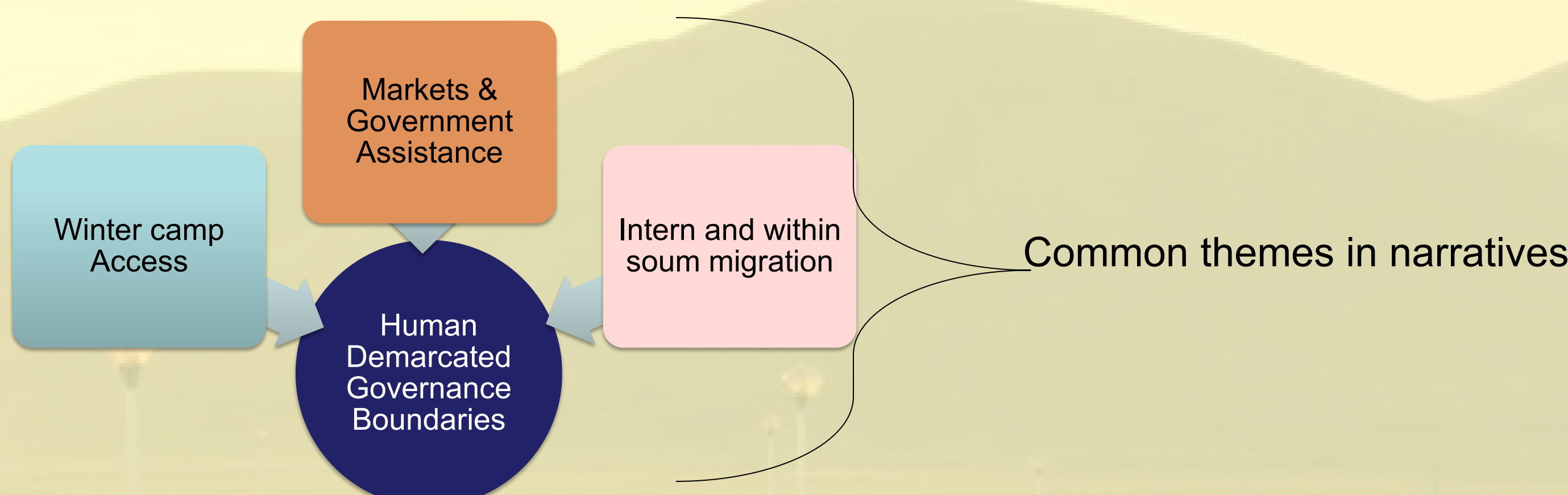
Hydroclimatic: precipitation, rivers (ephemeral and permanent), springs, lakes

Geomorphological: valleys, peaks, ridges, hills, slope, aspect.

Political: *bagh* (subdistrict), *soum*, and *aimag* boundaries, Pasture User Group (PUG) territories

* Spiritual objects and boundaries such as an ovoo were occasionally marked in maps.

Narratives of Non-Material Human Demarcated Boundaries and Governance



Narratives of human-demarcated boundaries include processes and contracts influencing how pasture resources or assets are accessed, allocated, and utilized (Murphy, 2014), hence serving as *governance boundaries*. These boundaries separate grazing territories, and guide movement for accessing pasture resources and markets.

Winter Camp Access

In this area, [a herder] who wants to possess a winter camp first needs to make application to soum land officer. Then, this application is delivered to officer of government who makes the order and the citizen will possess 1 ha of land during 15 years.

The process of accessing winter camps involves *traditional arrangements* among kin and *bureaucratic arrangements* among PUGs, Association of PUGs (APUG), soum land officers responsible for developing their pasture management plans. Herding families may have exclusive ownership and secure access to their winter shelters, but do not have legal ownership over the pasture surrounding their winter shelters. Despite this issue, it is customary for herders to respect winter camp boundaries. These intangible human-demarcated boundaries are determined by norms, local knowledge, and herder conceptions of their pastures or nutag.

Markets and Government Assistance

The capacity for accessing goods and government services may create *governance boundaries between donor- funded cooperatives or groups and traditional herder groups* (Baival, 2012; Upton, 2008). Significant goods and services in herder's narratives included acquiring government loans and donor aid for *cashmere processing, haymaking capacity, well maintenance, and transportation services*.

We are five families that herd animals together, so there is government demand to become a cooperative. If we refuse this condition [becoming a cooperative], we won't take the wool and cashmere cash giveaway. The government gives money to herders for their animal wool and cashmere

Soum migration

When pasture is bad, local herders moving "Saviin ar" [place name]. They can't reject another soum herder arrive in their pasture. A lot of herders coming in this area from another aimag and Ulaanbaatar... A herding family may come from another aimag and their family members (husband, wife) have registration of different soum. Therefore, it is possible for this herding family to move anywhere...

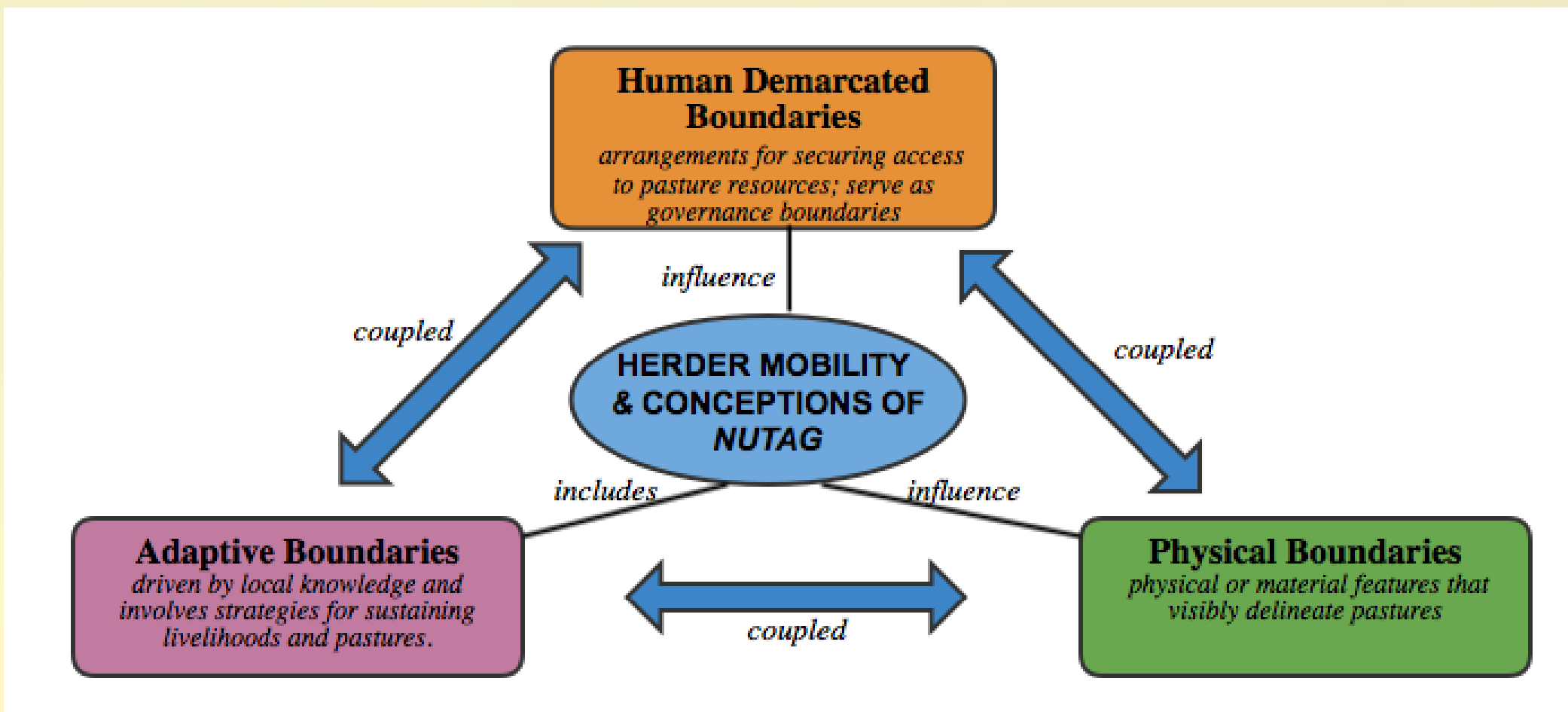
To regulate migration, herding families belonging to specific PUGs are formally registered within the soum and the APUG's pasture management plan. Conflict may occur when unregistered herding families graze their herds in pastures regulated by other soums and APUGs.



Photo credit: Alessandro, Grassani 2011

Differing views of nutag included the need of flexibility and security to access pasture resources across soum boundaries especially times of *dzud* (Fernandez-Gimenez, et al., 2012). Accessing resources involves **adaptive boundaries** driven by local knowledge, customary norms, and formal rules regulated by soum local government and APUGs.

IMPLICATIONS



Herder's narratives revealed diverse conceptions of nutag and mobility influenced by human-demarcated governance, physical, and adaptive boundaries. Decoupling these boundaries may result in myopic views of herding livelihoods and pasture condition.



Photo credit: Christian FerrierMSF

Role of Donors and Local Governments

Donors and local governments providing assistance to herder groups may focus on human-demarcated boundaries tied to accessing markets and pasture resources. Donors and local governments emphases on biophysical boundaries coupled with livelihood concerns are common approaches for managing sustaining rangelands. The integration of intangible human-demarcated boundaries allows donors to integrate herders' norms into policy for accessing pasture assets, markets, and facilitating herders' mobility.



Emphases on PAR Mapping Process, Narratives & Nutag Approach

Participatory mapping is a common donor strategy for integrating herders' local knowledge and perceptions of territories. However, the focus on the sole content of participatory maps may only highlight the tangible physical boundaries and neglect the intangible human-demarcated boundaries influential in herders' livelihoods. This poster highlights the significance of participatory mapping narratives in revealing intangible human-demarcated boundaries vital to herders' livelihoods and pastures. Participatory mapping may incorporate the nutag approach/framework and is a recommended process for local governments to use as a meaningful tool for linking herder's knowledge with expert knowledge for adaptive capacity building (Baival & Fernández-Giménez, 2012).

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