

Resource Tenure Models for Rangeland Improvements



Cover Photo: Fencing of spring pasture at the village-level (*Camille Richard*)

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Discussion Paper for Working Group on 'Appropriate Institutional Arrangements and Policies for Community-based Rangeland Management'

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Resource tenure as a basis for rangeland management

Given the rapidly changing socioeconomic context in which pastoral communities find themselves, there is certainly a need for improved rangeland management to meet the growing demand for forage in an increasingly commercial livestock economy. However, rangeland improvement schemes rely on continued capital investment and maintenance by livestock owners; which is only possible with secure access to various resources, such as pasture, water, credit, and labour. Thus, resource tenure becomes a fundamental aspect of effective rangeland management. Given this, a basic understanding of the types of tenure is necessary for the sake of this discussion.

Table 1 summarises the types of tenure that might exist in a given rangeland area. 'Tenure' at its most basic level simply means a bundle of rights to control and access a particular resource or set of resources (Gilmour and Fisher 1991). Tenure is not merely ownership, as is commonly believed. Tenure can be legal or informal (and therefore sometimes technically illegal), public or private, common or individual. It involves those entities who make decisions and those who get the benefits from the resources, and thus implies a dynamic process of negotiation. There are two points we wish to make from this comparison. First, use of a particular rangeland pasture by a group of herders does not imply open access (or uncontrolled grazing). Many indigenous systems of communal management exist and operate effectively throughout the region. Second, many types of tenure can operate simultaneously in the same area. If newly introduced rangeland management schemes do not compliment tenure systems previously in place – for example, state-driven policies that individualise control of pastureland in an area previously managed communally – they are very likely to fail.

Table 1: The types of tenure* that might exist in rangeland areas of the Tibetan Plateau (Richard 2002)

Formal (de jure or legal)	Informal (de facto – may or may not be sanctioned by the State)
State – land 'owned' by the government	(State control may not be recognised locally)
Individual – legal control by individual through lease or ownership	Individual – access by customary norm or rule
Common property – formalised through committees or cooperatives and sanctioned by the State	Common property – informal group norms and rules for control and access which may or may not be governed by local committees
(Open access not recognised legally by the State)	Open access – no rules or norms for access

* tenure = rights to control and access resources

Case study: the eastern Tibetan plateau

With this brief framework on the complexities of resource tenure, the question is raised as to whether fencing is the answer for improving rangelands of the Tibetan Plateau. As previously discussed elsewhere in this workshop (Richard, Volume 1, Chapter 1), Tibetan Plateau landscapes are heterogeneous in terms of water and forage availability, they are naturally low in productivity, and the vast majority of the local population still depends on diverse subsistence livelihood strategies.

The government of China, citing the success of Deng Xiao Peng's reforms of the early 1980s (specifically the Individual Household Responsibility System in cropping areas), formulated the Grassland Law in the mid-1980s and has since been implementing it throughout western China (Thwaites et al. 1998, Williams 1996, Wu 1997, Richard 2002, Banks et al. 2003). However, implementation is proving to be difficult in non-arable lands (Schwarzwalder et al. this volume), especially in remote, socially and environmentally marginal landscapes such as the Tibetan Plateau.

The Chinese government offers sound rationale to justify these policies, such as difficulty in providing nomads with social services like education and health care, and heavy snowfalls that have historically led to livestock losses (Wu and Richard 1999). The Chinese government felt that fencing could help provide reserve pastures during these critical periods. However, underlying this theory is the belief that pastoral migratory practices are destructive, despite overwhelming evidence to the contrary. Those locally mandated to implement such standardised policies are often at the mercy of higher-level decision-makers; thus, there is poor local representation in the grassland allocation process (Yan et al, 2003). There are also issues related to spatial and temporal heterogeneity of pasture resources and the unsuitability of allocation, in regards to fair distribution of resources to individual households. These factors become significantly more pronounced as the environment becomes more marginal, rendering such policies ineffective at the local level.

Hypothetical resource tenure-management models

Figure 1 shows three simplified models of land allocation and management to illustrate how the Grassland Law could conceivably be implemented, and the current and potential impacts given three scenarios: local autonomous control, strict enforcement of Individual Household Responsibility, and a co-management model that brings together indigenous and scientific strategies and allows for more flexible policy interpretations and adjustments. These representations reflect actual situations and are based on research conducted by partner organisations of the International Centre for Integrated Mountain Development (ICIMOD). The models are simplified for the sake of this discussion.

Government-driven model

As an example of a government-driven situation, a pilot programme has been established by the Sichuan Animal Husbandry Bureau in Hongyuan County, Sichuan Province, as a demonstration site for livestock and pasture development programmes. Here, families have been forced to settle on individual allotments for year-round use and household management (Yan et al. 2003). Although some positive outcomes have arisen from this strict implementation of the Grassland Law (where contracts are allocated to individual households and management is conducted by the household), such as reduced overall labour demand for households and increased survivability of

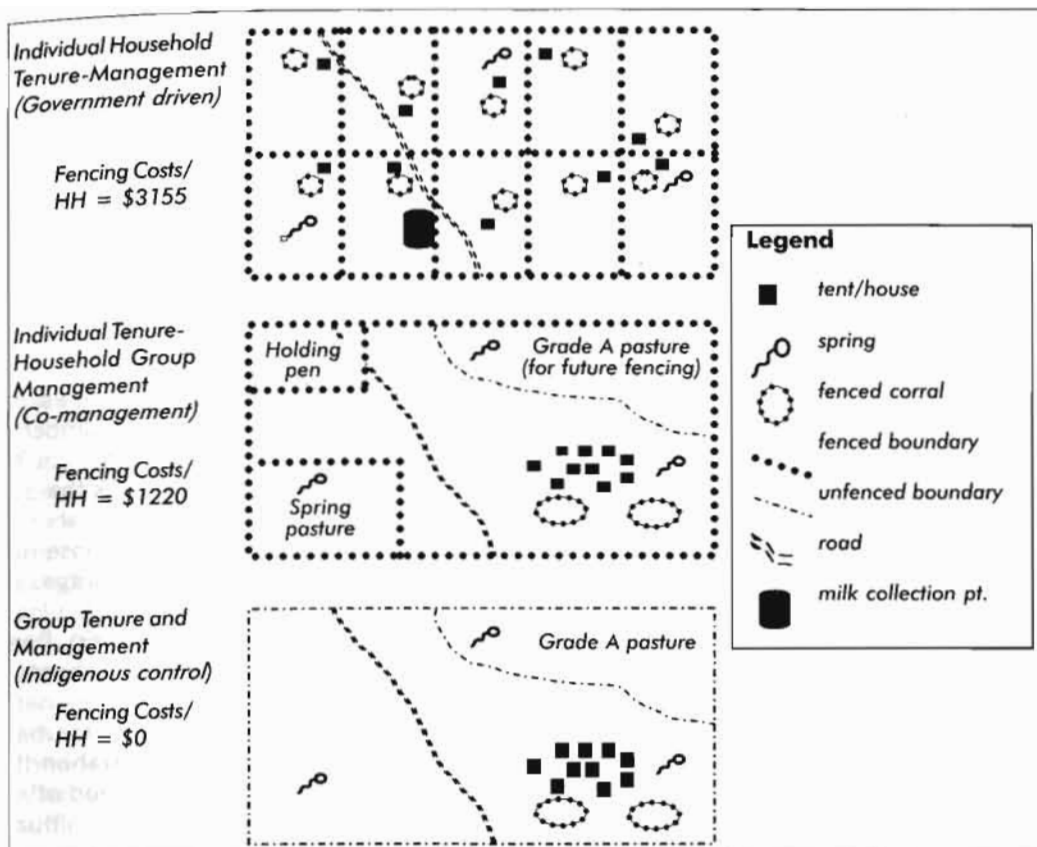


Figure 1: Hypothetical comparisons of tenure and management arrangements for the eastern Tibetan plateau. The area of each large box represents the total pasture area (ha) required for ten households (HH), each with 300 sheep equivalent units (SEU)¹, on a total of 1600 ha of land. Fencing costs are calculated based on the price of 7 RMB/metre (just under US\$1) for fence. Adapted from Richard (2003).

herds in the winter, researchers have noted several disadvantages to such an approach. One is that fencing costs per household are often prohibitive without heavy government subsidies. According to the model illustrated in Figure 1, each household must pay US\$3,155 to fence their 160 allotted hectares. In several documented cases, allotment to individuals has restricted access of many households to water sources, forcing them to travel long distances to riparian areas (Yan et al. 2003). This has led to increased bank erosion along water courses due to concentration of livestock at watering sites. In addition, Hongyuan County has been designated a milk production zone, and this has had a dramatic impact on herd distribution. As a result, most families wish to keep their lactating herds near the road and milk collection points, renting tent sites and pastures from those who were allocated roadside allotments for up to ten months per year, sending only unproductive animals to the more remote summer pastures. Here, impacts of overgrazing have become quite severe along the roadside (Yan et al. 2003). These studies have also noted significant social impacts, including increasing conflicts due to poor allocation of pastures,

¹ One adult sheep or goat equals one SEU; 10 sheep = one horse; 5 sheep = one yak.

widening gender gaps, and reduced access to schooling for children. These findings are more thoroughly summarised in Richard (2002).

Co-management model

In Maqu County, south-western Gansu Province, many families have also been legally allocated individual winter pastures and manage them at an individual level, and they express varying degrees of satisfaction with the allocation process and outcomes (Yan et al. 2003, Zhao et al. this volume). However, this county has allowed groups of up to ten households to pool their pastures and fence the outer boundary, an example of the co-management model seen in Figure 1 (individual tenure, household group management). Benefits, as perceived by the pastoralists themselves, include lower fencing costs, estimated in the illustrated model to be only \$1,220 per household. In addition, herders continue to realise economies of scale with respect to herding, as households take turns supplying labour for supervision of the joint herd. The number of livestock that each household can graze is calculated based primarily on the number of people in the household and secondarily on the number of livestock the household possesses. Households that graze fewer livestock than the hypothetical carrying capacities of their portions of the joint pasture are compensated by those households that graze more. Poor households are thus guaranteed access to forage equivalent to that produced by their share of pasture, and they can earn supplementary income in the form of resource access 'rents' (Banks et al. 2003). Due to production policy declaring Maqu County a meat and butter producing zone, herds are more evenly distributed across the landscape than in Hongyuan County, regardless of tenure arrangement, because butter and meat are more durable commercial livestock products than milk and do not require livestock concentration near product collection points. (These products can be carried to market instead of collected near the site of production.)

Many pastoral communities in these counties, and indeed throughout much of the Tibetan plateau, are currently managing pastures communally – with legal rights given to 'administrative villages', administrative units comprised of many smaller 'natural villages' or herding groups, but not officially contracted under current law. Naqu County in the northern Tibetan Autonomous Region (TAR) is an example of a co-management approach under this tenure-management scenario, in which resource rights are appropriated at the village level, and management is collective. Here, the government has established a number of fattening pastures that have been, or will be, formally contracted to the village (either administrative or natural). Feedlot locations were selected through consultation with communities at the natural and administrative village levels, and fences were constructed where they serve to protect wetland functions (particularly in marshlands) and facilitate rapid growth response. Rules for use of the collective pastures, including stocking rates and timing of grazing, have been set by village governments and vary among sites, with criteria including household labour contribution and number of livestock per household. Once the formal grassland contracting process begins, households may choose to take individual winter allotments or to combine land access rights at the group or natural village levels, provided that they decide to do this prior to the land division process. Use rights per family would be calculated depending upon household population (70%) and livestock number (30%). For these collective agreements, the county has established a use tax of 0.05 RMB/day for each SEU. This 'grazing fee' will be collected by the village or group leader and redistributed among member households within the village or group, based on the access rights formula above.

Local autonomous control

Despite claims of the government that the majority of grasslands have been contracted to households (Banks et al. 2003, Schwarzwald et al. this volume), the vast majority of pastoral communities on the Tibetan Plateau still access their pasture lands based on historic use rights. Most communities collectively herd animals and move as groups. They have simply chosen to retain autonomous control and have set their own rules for pasture access and management, using 'social fencing', or collective herding and border patrol, as means to enforce boundaries. Some county governments, such as Maqu, refuse to provide government subsidies to such groups if they fail to allocate grasslands according to policy. The obvious advantage to this approach is that fencing costs are nil (see indigenous model, Figure 1). However, disadvantages include higher labour requirements and greater potential for encroachment by outside communities without effective legal recourse.

Figure 2 summarises the comparative strengths and weaknesses of the above three resource tenure-management models. Table 2 expands on Figure 2 and presents a more detailed description of costs and benefits associated with rangeland improvements under these various tenure regimes. These actual and hypothetical examples show that when communities are given the choice, they will often choose collective arrangements, because they are in keeping with customary practice, and they are more affordable. Even in cases where allotments have legally been granted, actual use and management practice follows a more customary pattern of group tenure and management, functioning in a 'de facto' manner. Given these comparative advantages, herders will continue to engage in common property arrangements until the socioeconomic environment is such that household members can engage in alternative forms of livelihood, and those remaining can access capital and pasture sufficient to maintain economically viable herds (Richard 2002).

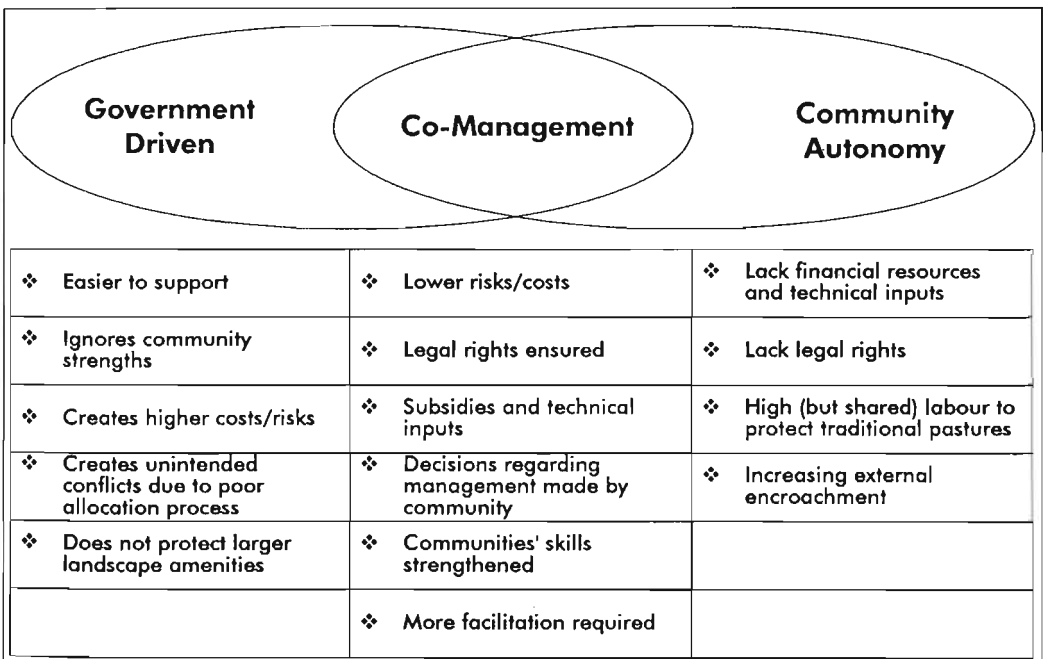


Figure 2: A comparison of hypothetical policy implementation models for resource tenure-management arrangements and their relative strengths and weaknesses

Table 2: Rangeland improvements under different tenure systems

Common Property	Individual
Advantages	Advantages
<ul style="list-style-type: none"> • Can maintain mobility for pasture/grazing • Equity/potentially sustainable • Lower risks and labour sharing • Easy management • Reduced cost per household • Spreads risk among community through collective action 	<ul style="list-style-type: none"> • Easier to acquire credit for improvements • Easier to deliver services (such as veterinary, marketing, and seed) • Tenure more secure under situations of conflict and instability
Disadvantages	Disadvantages
<ul style="list-style-type: none"> • More difficult to get credit • Potential conflicts without strong leadership • Possibly lead to open access without cohesive community • More negotiations and conflict management required • More difficult with high population • Requires more facilitation 	<ul style="list-style-type: none"> • High cost to individual household • Can lead to potential conflicts when land not adequate for existing herds • Reduces flexibility during dry years • Can lead to reduced plant diversity • Potentially not economically viable

Potential tenure-management arrangements under new policies

Recent revisions of legislation affecting pasture allocation in China inherently allow flexibility in interpretation, although this is not apparent when one speaks to those mandated to implement them, reflecting a lack of understanding of policy (Yan et al. 2003). Although vague, China's newly revised Rural Land Contracting Law (adopted 2002) allows for some degree of collective tenure and management. Specifically, "Contracting parties may voluntarily join their land contracting and operation rights as stock shares for the purpose of engaging in cooperative agricultural production." This is illustrated by Naqu County's future plan for contracting to groups of herding households. This gives households the security to access resources but also allows them to engage in collective management arrangements.

Table 3 highlights a variety of tenure-management arrangements that are potentially possible, as long as future policy guidelines allow for local interpretations of policy that match site-specific conditions. Such arrangements range from individual household contracts where land is individually managed (well suited to cropping and hay-lands) to large-scale collective arrangements for the protection and management of landscape amenities such as riparian zones or watersheds. The latter case would involve formation of cooperatives of contract holders (individual, household group, or village level) that enter into management agreements for protection of ecosystem-level amenities, which to date has not been promoted in policy.

Conclusions

Across the globe, social capital in the form of common property regimes (CPRs) and collective management arrangements has been shown to be effective and sustainable, especially with the right supportive environment (Fisher 2002). Although not perfect, CPRs tend to be biodiversity friendly because resource demands are diverse. They reflect indigenous systems of management, and are thus more acceptable and

Table 3: A typology of potential tenure and management combinations for pastures and rangeland landscapes under the new rural land contracting and grassland policies. Adapted from Richard (2003)

		MANAGEMENT ARRANGEMENTS (de jure or de facto)		
		Household	Household group	Collective of contract holders
TENURE (legal contracts)	Household	<ul style="list-style-type: none"> ➤ Grassland contract with individual household ➤ Management by individual household ➤ Benefits accrued at household level <p><i>Example: Hongyuan County, Sichuan – see Figure 1</i></p>	<ul style="list-style-type: none"> ➤ Grassland contract with individual household ➤ Management by household group ➤ Benefits accrued at household level <p><i>Example: Maqu County – see Figure 1</i></p>	<ul style="list-style-type: none"> ➤ Grassland contract with individual household ➤ Cooperative of individual contract holders for pasture or landscape management ➤ Benefits accrued at household level
	Household group		<ul style="list-style-type: none"> ➤ Grassland contract with household group ➤ Management by group ➤ Benefits based on household and livestock numbers 	<ul style="list-style-type: none"> ➤ Grassland contract with household group ➤ Pasture or landscape management by cooperative of household groups ➤ Benefits based on household and livestock numbers
	Collective (village level or larger)			<ul style="list-style-type: none"> ➤ Grassland contract with village (no internal land division) ➤ Management by village or collective of villages ➤ Benefits based on household and livestock numbers <p><i>Example: Naqu County, TAR</i></p>

adaptable. Collective agreements help to foster coalitions for management of larger landscape values (biodiversity and watershed amenities). They tend to be more equitable than private tenure arrangements, and thus contribute more toward poverty alleviation. And in the long-term, they reduce the cost (in terms of both money and labour) for individual households, thus reducing socioeconomic risk. We are working in stressful environments where collective action has been the cultural norm for centuries as an adaptive response; we should build on these local strengths and enhance them through legitimate tenure and management arrangements that reflect local aspirations, skills, and environments. The fast disappearing knowledge base of pastoral communities can potentially be a valuable asset for developing technological and institutional innovations in pastoral development and rangeland conservation, provided that those who work with pastoral people know how to tap into this rich source of wisdom and promote it.

A co-management approach – an approach that embraces diversity and melding of knowledge systems to create sustainable and appropriate management models, and that promotes flexibility in programming – is needed to work in these diverse cultural and ecological landscapes. A long-term strategy is needed to improve the capabilities of relevant organisations to engage in a true process of collaboration, creating a supportive external environment that protects the rights of users, facilitates conflict resolution, and promotes timely financial and technical inputs in the face of uncertainty.

References

- Banks, T.; Richard, C.E.; Li Ping; Yan Zhaoli (2003) 'Community-based Grassland Management in Western China: Rationale, Pilot Project Experience, and Policy Implications.' In *Mountain Research and Development*, 23(2):132-140
- Fisher, R.J. 2002. 'Common Property Regimes in Mountain Regions: Risks and the Governance of Biodiversity'. Paper presented at The Asia High Summit, Kathmandu, Nepal May 6-10, 2002, (CD-ROM). Kathmandu: ICIMOD
- Gilmour, D.A.; Fisher, R.J. (1991) *Villagers, Forests and Foresters: The Philosophy, Process, and Practice of Community Forestry in Nepal*. Kathmandu: Sahayogi Press
- Ngaido, T.; McCarthy, N.; Di Gregorio, M. (2002) *International Conference on Policy and Institutional Options for the Management of Rangelands in Dry Areas: Workshop Summary Paper*, CAPRI Working Paper No. 23. Washington: International Food Policy Research Center
- Richard, C.E. (2002) 'The Potential for Rangeland Management in Yak Rearing Areas of the Tibetan Plateau.' In Jianlin, H.; Richard, C.; Hanotte, O.; McVeigh, C.; Rege, J.E.O. (eds) *Yak Production in Central Asian Highlands: Proceedings of the Third International Congress on Yak held in Lhasa P.R. China, 4-9 September 2000*, p 11-20. Nairobi: ILRI (International Livestock Research Institute)
- Richard, C.E. (2003) 'Supporting Co-management Processes to Maintain Livestock Mobility and Biodiversity in the Alpine Rangelands of the Tibetan Plateau.' In Lemons, J.; Victor, R.; Schaffer, D. (eds) *Conserving Biodiversity in Arid Regions: Best Practices in Developing Nations*, p249-273. Dordrecht (The Netherlands): Kluwer Academic Publishers
- Richard, C.E.; Hoffman, K. (eds) (2004) *Strategic Innovations for Improving Pastoral Livelihoods in the Hindu Kush-Himalayan Highlands, Vol. I*, Chapter 1. Kathmandu: ICIMOD
- Schwarzwalder, B.; Zheng, B.; Li, P.; Su, Y.; Zhang, L. (2004) 'Tenure and Management Arrangements for China's Grassland Resources: Fieldwork Findings and Legal and Policy Recommendations.' In Richard, C.E.; Hoffman, K. (eds) *Strategic Innovations for Improving Pastoral Livelihoods in the Hindu Kush-Himalayan Highlands, Vol. II*, pp 15-36. Kathmandu: ICIMOD
- Thwaites, R.; De Lacy, T.; Li, Y.H.; Liu, X.H. (1998) 'Property Rights, Social Change, and Grassland Degradation in Xilingol Biosphere Reserve, Inner Mongolia, China.' In *Society and Natural Resources*, 11: 319-338
- Williams, D.M. (1996) 'Grassland Enclosures: Catalyst of Land Degradation in Inner Mongolia.' In *Human Organization*, 55:307-313
- Wu, N.; Richard, C.E. (1999) 'The Privatisation Process of Rangeland and its Impacts on the Pastoral Dynamics in the Hindu Kush Himalaya: The Case of Western Sichuan, China.' In Eldridge, D.; Freudenberger, D. (eds) *People and Rangelands: Building the Future. Proceedings of VI International Rangelands Congress, Townsville, Australia*, pp 14-21. Townsville: International Rangelands Congress Inc.
- Wu, N. (1997) *Ecological Situation of High-frigid Rangeland and its Sustainability - A Case Study on the Constraints and Approaches in Pastoral Western Sichuan*. Berlin: Dietrich Reimer Verlag
- Yan, Z.; Richard, C.E.; Du, G. (2003) *Striving for Equitable and Environmentally Sustainable Rangeland Management Strategies: Case Studies from the Eastern Tibetan Plateau, China*. Unpublished Report for ICIMOD, Kathmandu
- Zhao, Q.; Ma, J.; Niang, M. (2004) 'Integrated Application of Technical Skills and Participatory Approaches in Rangeland Improvement in Pastoral Areas.' In Richard, C.E.; Hoffman, K. (eds) *Strategic Innovations for Improving Pastoral Livelihoods in the Hindu Kush-Himalayan Highlands, Vol. I*, pp73-74. Kathmandu: ICIMOD