

Chapter 11

Pastoral Tenure in Central Asia: Theme and Variation in the Five Former Soviet Republics

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Abstract Since 1991, both *de facto* and *de jure* pastoral tenure regimes diverged significantly in the five former soviet Central Asian republics (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan). Four of the five republics are currently considering the introduction of pasture codes with both individual and common forms of tenure under discussion. In the light of these debates this chapter examines the evolution of pastoral land tenure and user rights in each of the five republics over the 20 years since independence. Different choices were made by policy makers that have affected two key outcomes: firstly, livestock mobility and secondly, pasture access. The situation in each of the republics is reviewed and some case studies are presented.

Keywords Landlessness • Poverty • User rights • Livestock ownership • Access • Water • Infrastructure • Transhumance • Migration • Lease agreements • Speculation

Key Points

- In the immediate aftermath of independence, a number of common patterns emerged across the region: the proportion of private animals increased, costs of inputs such as winter feed and transport rose sharply, and livestock mobility

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decreased. Abandonment of remote pastures was accompanied by a concentration of livestock around settlements.

- Following the crisis, traditional collective herding systems quickly became re-established amongst non-state livestock owners; many pastures were used informally at first, and access was determined by former state farm boundaries, customary memory, and purchase or construction of infrastructure such as barns. But as livestock inventories recovered, attention turned to formal tenure of pasture systems.
- In Central Asia, the importance of formal legislation to pasture management was understood late in the land reform process. Attention initially focused on increasing the productivity of arable land and land codes did not distinguish between this type of farmland and pastures – thus forms of individual tenure were initially pursued in every case examined here except that of Kyrgyzstan. This republic formed separate provisions for pasture early on and recently passed a pasture code designating pasture as common property.
- In the other republics, pasture is either still allocated to large state structures or is subject to general land codes which emphasize individual forms of land use or ownership. Thus annexation of pasture areas by individuals is now commonplace in Kazakhstan and Tajikistan. In Turkmenistan and Uzbekistan legislation also favours individual management of land, but has not yet been applied to pastures, the use of which by non-state livestock often occurs in a legal gray zone.
- Barriers to livestock mobility and to use of remote pastures by smaller livestock owners are both administrative and economic, factors which are not easily disentangled. However, there is evidence from a number of the republics considered here, and from global literature on pastoral tenure, that individualized modes of pasture use may reduce livestock mobility and pasture access, in particular where average household stock ownership is low and collective herding concerns a large proportion of rural households.
- Today, Uzbekistan, Tajikistan, Kazakhstan and Turkmenistan are all considering the introduction of pasture codes, with provisions for common pasture management under debate. This is then a key moment for policy makers in those countries to reflect on the lessons of the first 20 years of pastoral tenure reform in Central Asia.

1 Global Trends in Pastoral Tenure

Property rights, the ways in which pastoralists access land, are a key factor determining the impact of pastoralism on the environment. Such rights may be determined by formal legislation, traditional rules, or more usually, a mixture of both. In some cases, as in Soviet-era Central Asia, grazing patterns may be planned directly by state institutions, down to the individual migratory movements of each herd.

The recent history of pastoral tenure in developing countries has been influenced by the evolution of property rights theory in the developed world. A key point in this debate was the concern about environment degradation raised in Hardin's "tragedy of the commons." This scenario suggested that, where pasture is open to all, users will strive to increase their herd sizes as each receives immediate benefit from the resource while bearing only a share of the (delayed) costs of overgrazing as animal

numbers increase (Hardin 1968). Associated with this was the idea of carrying capacity: that the maximum number of livestock which could be kept on discrete spatial area over a given time could be calculated with precision and that the resulting figures could be used to improve pasture management. Until the end of the 1980s, these ideas were very influential, leading governments and agencies such as USAID and the World Bank to promote and finance pasture privatization,¹ with an emphasis on commercial ranching and the allocation of discrete parcels to individuals or households (Behnke 2008; Rohde et al. 2006; de Hann 1993).

Hardin's predictions assumed conditions of open access (where the resource has no defined boundaries or user groups). Instead, many of the pastures subject to privatization were managed as common property by user groups; they were therefore to some extent spatially bounded and subject to various internal controls on grazing (Bromley and Cernea 1989; Ostrom 1990). On privatization, such common resources often become fragmented into discrete parcels, restricting access by livestock to different seasonal pasture and water resources and affecting both animal productivity and pasture condition (Coughenour 2008). Sneath (1998) demonstrated that privatization and fencing of pasture in former Soviet Inner Asia and Chinese Inner Mongolia led to severe pasture degradation compared with neighboring Mongolia, where livestock husbandry had remained commonly managed and mobile (see also Li et al. 2007). In eastern Africa, the much-studied conversion of the Masai Mara to group ranches and then to individual sections led to a reduction in livestock mobility and a reduced range of vegetation types available to grazing households over the years (BurnSilver et al. 2008). In several countries in southern Africa, creation of fenced ranches led to unsustainable stocking rates on the remaining common land (Rohde et al. 2006).

Such examples are now common across the developing world because, although organizations such as the World Bank no longer actively promote privatization of commonly used arid rangelands (de Hann 1993), governments continue to pass tenure reforms favoring individual land title regardless of environmental conditions (Reid et al. 2008; International Land Coalition 2007). Population growth, the need to access markets and infrastructure, and desires of wealthier herders to commercialize all reinforce this trend (Behnke 2008). Yet, as the environmental impacts of these policies become apparent, there is now increasing support among the scientific community for the idea that, in poorly productive and heterogeneous environments, livestock mobility may be a more useful metric for assessing the sustainability of pasture management than carrying capacity and pasture fragmentation as much of a threat to the environment as overstocking (see discussion in Galvin et al. 2008; Li et al. 2007).

It is also important to consider the social costs and benefits of privatization of erratically productive rangelands. The privatization model is well adapted to a commercial economy, whereby individual ranchers raise large numbers of livestock primarily for sale to urban populations.² In regions of relatively high rainfall, equitable

¹ Here we use the term "privatization" loosely to mean formal individualized and exclusive user rights.

² Note that in many developed economies, extensive livestock operations frequently depend on state-owned grazing land for at least part of the year (Huntsinger et al. 2010); ranchers with individual tenure may benefit from state protection as a buffer against drought and other extreme climatic events.

privatization programs may lead to agricultural development and rising living standards as livestock raising can be intensified and pasture turned over to cropping (Behnke 2008), but in poorly developed arid parts of the world, the markets, services, and infrastructures required for intensification are poor, and investments are risky due to fluctuating environmental conditions (BurnSilver et al. 2008). For many households in these environments, the primary reason for holding livestock is for subsistence purposes and as a form of savings. During privatization, tenure rights are typically secured by households with larger herds, who can cover costs of herding individually. This has led to a loss of areas for common grazing by smaller stock owners and an increase in wealth inequalities in many areas of the world (Behnke 2008; Rohde et al. 2006; Yan et al. 2005; Wu and Du 2009). Key resources such as water sources, hay fields, and winter or dry season grazing are often privatized first or unevenly allocated, leaving some households vulnerable at certain times of the year.

However, a black and white distinction between individualized and common property-based pasture rights cannot always be made: within common pasture management regimes, individual households may hold *de facto* claims over specific wells or pasture areas for generations. Forms of individualized tenure may vary widely in the extent to which they enable users to access pastures in multiple ecological zones. The actual implementation of official privatization policies may also display a high level of variability on the ground.³ These factors must be considered when evaluating current systems of pastoral tenure in Central Asia.

2 Pastoral Systems in Central Asia: Common Themes

Today, Uzbekistan, Tajikistan, Kazakhstan and Turkmenistan are all considering the introduction of pasture codes, with provisions for common pasture management under debate. This is then a key moment for policy makers in those countries to reflect on the lessons of the first 20 years of pastoral tenure reform in Central Asia. Since 1991, both *de facto* and *de jure* pastoral tenure regimes diverged significantly in the five Central Asian republics; and it is interesting to compare how choices made by policy makers have affected the two key outcomes which interest us here: firstly, livestock mobility – *the extent to which livestock are able to move between seasonal pastures* – and secondly, pasture access – *the ability of rural households across all wealth categories to graze their animals on seasonal pastures*. In this section, we present some of the physical and economic characteristics common to the Central Asian republics which both underlie the ways in which pasture has historically been managed and help us to assess the consequences of current tenure policies.

A major feature of Central Asia is its aridity: rainfed agriculture is marginal at best and thus, outside northern Kazakhstan, high and consistent yields may be

³ In response to pasture privatization and fencing policies in Tibet, some pastoralists fenced only key areas around dwellings while continuing to manage other pastures in groups; many minor livestock owners were marginalized by the reforms, but others benefited by leasing pasture to those with more animals (Yan et al. 2005; Goldstein 2012; Richard et al. 2006).

achieved only through irrigation; development of new lands requires large investments in canal infrastructure. For this reason, conversion of pasturelands to agricultural land is unlikely to be an economic driver of privatization as it has been in some regions of the world (Behnke 2008); intensification and commercialization of the livestock sector are likely to be more important.⁴

In contrast to non-temperate arid zones, interannual variation in rainfall in Central Asian rangelands is not extreme; rather than experiencing density-dependent crashes in drought years, numbers were historically limited by severe winters and extreme snowfall events (Robinson and Milner-Gulland 2003b).

In contrast, seasonal and spatial variation in productivity is very high and explains why historically pastoralists in Central Asia tended to follow the same broad transhumant or migratory patterns from year to year.⁵ The Soviet system built on and formalized some of these migratory systems. Each state or collective farm (*sovkhos* or *kolkhos*)⁶ had a central village plus satellite settlements or isolated barns in seasonal pastures (Vanselow, Chap. 4). Each was allocated grazing land in various parcels, sometimes located in another *raion*, *oblast*, or even republic and linked by designated migration routes. In all republics, there was a distinction between land permanently allocated to state farms and land in the “state reserve” or “land fund,” which was allocated to farms on a “long-term use” or other type of temporary arrangement. Lastly, large areas of pasture were also under the jurisdiction of the state forestry department (*leskhoz*). These distinctions persisted in the land codes formulated after independence.

In mountainous republics such as Tajikistan and Kyrgyzstan, summer pastures were located in the high mountain valleys, and winter pastures were found in areas with low precipitation or on south facing slopes. In steppe- and desert-dominated republics such as Turkmenistan and Kazakhstan, within each pastoral system, summer pastures tended to be those areas with highest rainfall or access to water sources, while winter pastures were typically located on sandy areas dominated by shrubs, which could be browsed by animals in the winter despite heavy snowfall (Alimaev 2003; Kanchaev et al. 2003). Decisions about where animals should go were made by government bodies and the farm administration; salaried shepherds moved the mostly state-owned livestock (together with some private animals) to each location and were provided with transport, provisions, and logistics to this end. While some movements were based on traditional grazing patterns existing in pre-Soviet times, the provision of large quantities of winter feed, traditionally the major factor limiting livestock populations, meant that migrations could be less extensive than before and allowed livestock numbers to reach historical highs (Robinson and Milner-Gulland 2003b).

⁴In some regions, such as lower mountain areas of Tajikistan, large areas of former rainfed pastureland have in fact been planted since the end of the Soviet Union, often for subsistence purposes. The land may be officially converted to arable land, and incentives to privatize are likely to be higher than on land remaining as pasture. However, it remains to be seen whether such conversion has been widespread enough to seriously impact pasture availability for the livestock sector.

⁵Although within broad seasonal grazing zones, stock movements could be variable from year to year, driven by snowfall and disease (Alimaev and Behnke 2007).

⁶Henceforth, we will refer to both entities as “state farms” for brevity.

In the immediate aftermath of independence, a number of common patterns emerged across the region, albeit to widely differing extents: the proportion of private animals increased, costs of inputs such as winter feed and transport rose sharply, and livestock mobility decreased (Kerven et al. 2004). Deprived of grain from the USSR, food security quickly became an issue. Scarce arable land was turned over to crops for human consumption,⁷ and supplementary feed has once again become the single most important factor limiting development of the livestock sector (e.g., see Sedik 2010, and Sedik, Chap. 9). This also means that winter grazing areas and associated shelters now constitute key resources for herders (Milner-Gulland et al. 2006). The collapse of the state and collective farm system led to a sharp drop in livestock numbers in Kazakhstan, Tajikistan, and Kyrgyzstan, while the state continued to play an important role in livestock production in Turkmenistan and Uzbekistan, where livestock numbers were less affected.

Private livestock ownership distributions became quickly characterized by a small number of households with very large herds and a large number of households with a small number of animals (see Table 11.1). These latter cannot afford the labor to watch over their tiny herds and thus rely on collective herding systems. The pooling of animals into herds totaling hundreds of head creates the economy of scale required to cover the costs of using remote seasonal pastures such as transport and shepherding. As we will see in the sections below, a fundamental issue with some of the recent reforms is that they do not take into consideration these systems.

A second and related characteristic of livestock husbandry in rural Central Asia is that, for many, it is a subsistence activity or complement to household revenue. For smaller livestock owners in Turkmenistan, “*the subsistence value of meat is greater than the cash value of small stock sales,*” (Soyunova 2003) while in Kyrgyzstan, “*animals are sold when cash is needed – to cover school fees, social obligations, food purchases, or health care needs*” (World Bank 2007). This is a factor to be considered when assessing transaction costs associated with pasture privatization.

Today, many rural areas of Central Asia are overpopulated in relation to cultivable land and water resources, and, outside Kazakhstan, urban growth has done little to relieve this pressure.⁸ Livestock numbers are growing, despite adequate feed availability for winter, and animal productivity is extremely low. In such a context, pressure on pastures can only increase and animal mobility will become still more important for sustainable pasture management.

⁷This was often a response of individual land holders to cover subsistence needs, or in the case of Turkmenistan and Uzbekistan, a government policy aimed at reaching self-sufficiency in key staples (Hodjakov and Wright 2003; Lerman 2008).

⁸Four of the five republics are designated as low-income food-deficit nations (Babu and Tashmatov 2000); see Cariou (2002) for discussion of rural overpopulation in Uzbekistan.

Table 11.1 Data on rural livestock ownership distributions in the five republics

Country	Region and sample	Measure	Reference
Tajikistan	GBAO 2008; 1,000 hh	Average livestock ownership was nine head of small stock and two head of cattle	Mountain Societies Development Support Program (2009)
	Khatlon <i>oblast</i> 2004; 1,000 hh	10% of the sample had over ten small stock; 2% had over 20. Not one family had over 50 small stock while only three households had over ten head of cattle	Mountain Societies Development Support Program. (2004b)
	Rasht Valley 2004; 1,000 hh	76% of households had cattle, but only 3% had more than five head; 11% owned more than ten small stock	Mountain Societies Development Support Program (2004a)
Kyrgyzstan	Nationwide 2001; 3,000 hh	90% of rural households had fewer than 60 head of small stock; 22% had more than one cow.	World Bank (2003)
	Nationwide 2003; Census	Average sheep herd size estimated at 15 over all holdings declaring ownership; equivalent figure for goats was seven head	National Statistical Committee of the Kyrgyz Republic (2004)
	Chong Alai and Alai <i>raion</i> , Osh <i>oblast</i> 2005; 1,000 hh	Taking owners of small stock alone, the average herd size was 23 in the most pastoral <i>raion</i> . 10% of the sample households had over 25 head of small stock	Mountain Societies Development Support Program (2005)
Turkmenistan	Rukhabat <i>raion</i> , Ahal <i>oblast</i> 1999; 44 hh	Sample included stock owners only, of which over 80% had fewer than 100 private animals (although in Turkmenistan income is earned from herding state animals also)	Soyunova (2003)
	Rukhabat <i>raion</i> , Ahal <i>oblast</i> 2009; 13 hh	Sample of interest comprises individuals without access to state animals. In this group, small stock numbers ranged from five to 40, only one household had no stock	Jumardurdyev (2010)

(continued)

Table 11.1 (continued)

Country	Region and sample	Measure	Reference
Kazakhstan	Dzhambul <i>raion</i> , Almaty <i>oblast</i> and Moyynkum <i>raion</i> , Dzhambul <i>oblast</i> ; 2003; 46 hh	Sample included stock owners only. Owners of non-mobile livestock had on average 46 small stock but made up 40% of the sample. Mobile herders owning over 300 head of small stock made up 10%	Kerven et al. (2004)
Uzbekistan	Twenty <i>raion</i> in eight <i>oblast</i> 2007; 1,600 hh	Sample stratified by <i>dehkan</i> households and peasant farms ^a . 71% of the former owned cattle (average four head); 30% owned sheep (average nine head). Among those peasant farmers specializing in livestock raising, almost all held cattle (55 head on average) and half held an average of 70 head of sheep	Yusupov et al. (2010) and Lerman (2008)

Notes: All households in the cited studies were randomly sampled, although in some cases sample frames were stratified by specific socioeconomic subgroups (e.g., stock owners only). Where samples come from very limited geographical areas, these tend to be located in predominantly pastoral areas
GBAO Gorno-Badakhshan Autonomous *Oblast*, *hh* households

^aSee section on Uzbekistan below. Private farmers also have household animals, which were counted in the *dehkan* statistics

3 Variation: Tenure Reform in the Five Republics

There are a number of differences between the republics which may explain divergence in land tenure policy. In the two mountainous republics, most of the rural population are engaged in both agriculture and livestock raising to varying extents, while in Kazakhstan around five million people live in areas where agricultural activities other than livestock raising are marginal or impossible (Thornton et al. 2002). The pace of economic development has also influenced the size and orientation of emerging livestock raising entities – oil wealth and associated purchasing power in Kazakhstan have perhaps favored development of larger commercial operations. Politically, the republics range from an unstable form of democracy in Kyrgyzstan to an autocratic regime in Turkmenistan, differences which underlie the diverging tenure regimes examined here.

In the following sections, for each republic in turn, we will provide an outline of the formal land tenure legislation as it affects pastures and discuss the impacts of reform on the ground in terms of (i) livestock mobility and (ii) access to pastures by various category of livestock owner. We also assess current proposals for change, as the introduction of new pasture codes is now under discussion in four of the five republics. These sections are based on a review of current legislation on land, published research, and in the cases of Kyrgyzstan, Tajikistan, Kazakhstan, and Uzbekistan, drawn on field research by the authors. It should be noted that, while numerous studies have been undertaken across many regions of Kyrgyzstan (e.g. Steimann 2011, Undeland 2005, Farrington 2005, Dörre 2012), in-depth field-based studies on other republics are available only for a small number of geographic locations. This means that many of the patterns described here may be only regionally representative. In the case of Uzbekistan, we were unable to find published studies focusing on our two main themes, so we present a thus far unpublished case study in some detail.

3.1 *Kyrgyzstan: Common Property Made Law*

Kyrgyzstan has undergone two phases of pastoral tenure reform since independence. Here we describe the first phase of reform and its impacts, followed by a discussion of the 2009 pasture law.⁹

Agrarian reform in Kyrgyzstan was highly successful in the sense that the overwhelming majority of those eligible actually received a share of arable land (Asian Development Bank 2008).¹⁰ Pasture remained the property of the state and subject

⁹ Much of the information presented here is taken from unpublished consultancy reports written by the lead author and based on fieldwork in three *oblast* (Robinson et al. 2001; Robinson 2007). All these patterns are also described in detail in Steimann (2011) and (Undeland 2005) cited here in the text.

¹⁰ Parcels were initially allocated to users for 49 years, which was extended to 99 years and then finally transferred to them as private property in 1999.

to separate legislation. Up until 2009, the major law governing pasture management was Government Resolution 360 (4 June 2003), which built on a previous decree of 1999.¹¹ According to this legislation, pasture was split into three types, all of which were to be accessed by users through leasing arrangements:

- Village (*prisel'nye*) pastures leased from the lowest level of government, the *aiylokmotu*. These pastures comprise those directly adjacent to the village and are usually used in winter or for milking or sick animals in summer.
- “Intensive” (*intensivnye*) pastures leased from the *raion* administration. These pastures are usually located between those of the village and remote summer pastures and are envisaged for spring-autumn use, but are often used in summer (and even in winter) depending on stocking pressure and availability of remote pastures.
- Remote (*otgonnye*) pastures leased from the *oblast* administration; these are usually high-altitude summer pastures, but are not always fully used if they are very distant from settlements and where intensive pastures are deemed sufficient by users.

This system implied that herders attempting to formalize their rights to different seasonal pastures had to deal with three administrations and make three separate contracts. Leases were provided for a period of 5 years, which could be extended for another 10 and then 49 years. They were supposed to be awarded by public auction, but the costs of preparation of the requisite documents including a cadastral plan and estimates of fodder availability and optimal stocking rates usually fell upon the applicant, who was not always sure to win the bid. Thus, in reality, the formal bidding process was often replaced by a first-come-first-served approach. Once the parcel had been assigned to a user, the documentation process required a lease agreement, transfer act, and confirming certificate, all involving significant bureaucratic hurdles. Administrative capacity was poor and many local authorities lacked maps indicating boundaries between different pasture areas. These processes favored the better-off herders and rich absentee herders based in towns over local users with historical claims to the pasture (Undeland 2005).

Implicit in Resolution 360 was the assumption that pasture would be used by households in the same way as parcels of arable land distributed during the land reform process. But in Kyrgyzstan, most livestock owners form groups, each of which hires a shepherd to take livestock to seasonal pastures, usually in the summer. Most of these paid shepherds or *badachi*¹² have few animals of their own. In contrast, through the *kezu* system, group members¹³ take it in turns to herd animals according to a daily rota. This system is usually observed on village pastures in winter but may also occur in more distant pastures, with shepherds rotating every 3–4 days.

¹¹ Decree No. 640, November 29, 1999.

¹² *Badachi* is used for those herding collective cattle, *koichi* is used for shepherds (looking after flocks of sheep and goats), and *jilgachi* for herders of horses; however, the term *badachi* is often used generically to refer to paid herders of all types of livestock.

¹³ Often the basis for *kezu* group formation is residence in the same street (Steimann 2011).

Those owning several hundred animals usually herd their own (or pay a shepherd to herd them), and these animals are often referred to as “private livestock.”¹⁴

These *kezu* or *bada* herds probably comprise the animals of the majority of rural inhabitants, but livestock owners participating in these systems did not usually take out leasing contracts for two major reasons: firstly, both group membership and the identity of the *badachi* could change from year to year and secondly, the groups themselves were not legal entities. Most *badachi* were not well off and unlikely to make the investment in time and money required for a pasture bid themselves. Thus, the majority of leases were taken out by those herders who had large numbers of animals and did not participate in common herding systems.

Although the first law on leasing pastures came into force in 1999, by 2007, only about 14% of Kyrgyz pastures were formally leased, although many herders obtained rental contracts with the *aiyl okmotu* but no transfer act or confirmation document from the land registration department, and were thus not listed in the statistics. For some lessees, contracts were sought for fear of losing grazing rights to others, while in other cases, leasing was part of a longer term household strategy to increase livestock numbers. Everywhere the process was fraught with irregularities: some rented a small parcel of pasture around a barn or water point but actually used much more, while others registered leases but stopped paying rent as they knew that sanctions were unlikely to be forthcoming (Steimann 2011). State revenues from pastures were thus much lower than expected.

As leasing became more common, conflicts emerged. These arose mostly between lessees, usually large livestock owners in their own right, and non-lessees and tended to be concentrated on village and intensive pasture where grazing pressure was highest. As the number of lessees increased, so the amount of pasture for common grazing decreased. Pasture allocated by *raion* or *oblast* was sometimes provided to applicants from outside the region or even from Bishkek, with no regard for previous local users of these pastures. Some even rented the land and then subleased it to villagers, although this was expressly prohibited in Resolution 360 (Undeland 2005). One household survey suggested that, of all conflicts over pasture, those linked directly to the new leasing legislation (unfair allocation, borders between plots, not allowing others to move livestock across a plot and allocation of land to those outside the community) made up about 45% (Undeland 2005).

In response to conflicts, some *aiyl okmotu* froze all new rents on village pasture or stopped providing the documents necessary for applications for intensive and remote pasture (Steimann 2011; Robinson 2007). Some even repealed existing contracts. A second reason given by some *aiyl okmotu* was that renting leads to poor pasture management, with renters staying too long on their leased parcels rather than changing area. Some local authorities, who still had to raise rent from the pasture, then simply divided the total sum due by the head of animals in the village so that each household paid its share according to livestock ownership, while others simply levied a “poll tax” regardless of head owned (Steimann 2011).

¹⁴These systems are all quite fluid; for example, some *badachi* are large owners themselves but will also take the animals of members of their extended families to distant pastures.

3.1.1 The New Law “On Pastures” No. 30 of January 2009

The pasture leasing system was highly criticized due to its negative impact on pasture access by the poor, the high administrative burdens which it imposed on lessees and on an underfunded administration, and for its inability to raise revenue. It also manifestly did not improve livestock mobility, but instead represented a barrier to flexible grazing patterns, imposing additional costs to movement in the form of a pasture rent charged on a hectare basis. Pressure for change came both from certain parliamentarians and international organizations such as the World Bank, which led to the development of the new law.

According to this law, land is still the property of the state, but all three types of pasture listed above have now been placed under the administration of the *aiyl okmotu*, thus removing the previous three-tier system of pasture administration. Pastures will no longer be rented out on a long-term basis and instead will be allocated to Pasture Users Associations (PUA), formed at the level of each *aiyl okmotu*. All pasture users should join the relevant PUA and obtain access rights to pasture by purchase of tickets, sold on an annual basis. The executive body of the PUA, the Pasture Committee, should develop and enforce pasture management plans,¹⁵ monitor pasture condition, set and collect fees, issue grazing tickets, and manage revenue from pastures to invest in pasture improvement such as bridges and access roads. It should also resolve disputes involving users of the pastures under its management authority. The Pasture Committee should include representatives of pasture and both elected and executive members of local government. Existing lessees will be permitted to exchange their lease for a pasture ticket covering the maximum number of animals within the carrying capacity of the pasture area covered by their lease.

Concerns about the new law include the administrative capacity of pasture committees to make the requisite plans and to manage funds, pricing of pasture tickets, conflicts with former disgruntled lessees, and the status and borders of forestland in relation to pastureland (Bussler 2011). While allocation of pastures among groups is certainly anchored in Kyrgyz custom and practice, the building and maintenance of commonly managed infrastructure are not. Some livestock owners have already consolidated their claim to pasture through the construction of private barns; they will want to maintain pasture rights adjacent to these considerable investments, which may cause conflict if they are located on key pasture resources (Steimann 2011).

Crewett (2011) has reported some initial observations concerning the implementation of the new law: the formation of PUAs and pasture committees was supposed to be facilitated by a government-mandated agency along participatory lines, but many PUAs were formed spontaneously by pasture users or by local municipalities

¹⁵ Pasture management plans should include maps, carrying capacity estimations, development plans, and detailed annual grazing plans to be updated every year. Annual plans should include the list of all pasture users holding a pasture ticket for that year, an inventory of all livestock for which pasture tickets have been issued, and information on livestock movement and seasonal pasture allocation.

and were usually dominated by older and wealthier herders. The facilitating organization had difficulties imposing its own rules – the process of PUA establishment proceeded to very tight deadlines and initial observations suggested that many stakeholders were away or not informed during key meetings, while local authorities themselves found the law lacked the detail required for implementation. Some amendments to the law have already been passed since 2009 in an effort to clarify outstanding issues and ensure compatibility with the constitution.¹⁶ The law will also not solve the economic factors affecting livestock mobility: vast areas of pasture in the south and east of the country are still abandoned and the infrastructure needed to use it in disrepair (Farrington 2005; Robinson 2007).¹⁷

On the positive side, the 2009 law is the first in Central Asia to enshrine the principle of common property for pastures; it introduces a system by which payment for pastures is based on the number of head of livestock per user rather than on a hectare basis, thus removing penalties for using larger or more areas of pasture for grazing; it encourages mobility by designating a single management body to oversee grazing systems which include many geographically separated areas. It will be an important test case for other countries to observe.

3.2 *Tajikistan: The New Pastoral Landlords?*

In Tajikistan there is no distinction between pasture and other types of farmland; all are subject to the same legislation. For this reason, we present the broader legislative context which was designed for arable land reform and is now being applied to pastures.

According to the Land Code of Tajikistan, all land is owned by the state, but three tenure arrangements are available to users: permanent heritable land use, fixed-term use, and leasing. The law “On *Dehkan* Farms”¹⁸ sets out institutional frameworks for permanent land use rights. According to this law, membership in a state farm confers the right to a land share equal in size to the total farm area divided by the number of eligible shareholders. However, shareholders must initiate a complex and expensive certification process to obtain full permanent title to their land in the form of a registered *dehkan* farm.¹⁹ These reforms resulted in two main

¹⁶“On the introduction of changes and additions to the Law of the Kyrgyz Republic, ‘On Pastures’,” 2011.

¹⁷ Livestock numbers may also be an issue here: official statistics suggested that, in 2007 total livestock numbers (in livestock units) were 34% lower than their 1990 level, although veterinary statistics indicated much high numbers (Robinson 2007). More recent official statistics suggest that livestock numbers are now close to 20% of 1990 levels (National Statistical Committee of the Kyrgyz Republic 2011).

¹⁸ The law of May 2009 “On *Dehkan* Farms” (State Land Committee of the Government of Tajikistan 2009) is the latest incarnation of a set of laws first published in 1992.

¹⁹ This may be literally translated as “peasant farm,” although the real meaning would be closer to “private farm.”

types of entity: “individual *dehkan* farms” mostly consisted of single households and their members who had successfully negotiated this certification process and “collective *dehkan* farms” in which farm managers held the full certificate and inhabitants were shareholders (Robinson et al. 2008; Lerman and Sedik 2008). In some cases, these shareholders had access to physical parcels for individual use; in others, they remained salaried workers on their own land. On some farms, during the initial chaotic years of reform, all arable land was fully converted to individual *dehkan* farms by a small number of enterprising farmers on a first-come-first-served basis, while the majority of households missed out (Robinson et al. 2008).

Until recently, the scenarios described above concerned only arable land; pasture within the boundaries of collective *dehkan* farms should also be distributed in equal shares to members, but in some regions, such as GBAO, it remained under collective management for many years due to the practice of common herding that makes splitting of pasture into shares an impractical proposition. More recently, with the intention of improving security of tenure to land, selected collective *dehkan* farms have been dissolved and all member households issued with full certification. These collective *dehkan* farms will thus cease to exist and pasture within their boundaries must be distributed in equal shares to members in the same way as arable land parcels.²⁰ This process of allocating equal pasture shares to households has proved highly problematic as herding systems are collective; households have widely varying numbers of animals; and pasture and water availability is spatially heterogeneous. While collective *dehkan* farms sometimes deprived members of full rights to arable land, they did play a role in pasture allocation and management; in GBAO discussions and disputes surrounding pasture distribution have delayed the certification process for arable land, the original aim of the reform (Robinson et al. 2010). In other parts of the country, as occurred with arable land, some farm members obtained pasture shares far larger than their theoretical shares under conditions of equal distribution, leaving little left for other members. Today about half of all pastures are found in *dehkan* farms,²¹ but it is not clear what proportion of this area comprises collective *dehkan* farms having pastures under *de facto* collective management and what proportion is held in individual *dehkan* farms (Halimova, Chap. 13).

Large areas of pastureland are not found within the boundaries of former state and collective farms and thus not subject to equal distribution to members; indeed, some farms had no permanently allocated pastureland at all. Instead, they used State Reserve lands.²² During the Soviet period, this pasture was allocated to each state or collective farm in large blocks for “long-term use,” and in the first years of reform,

²⁰ It should be noted that individual households commonly secede from collectives and form their own *dehkan* farms; in some cases, they certify only arable land, continuing to use pasture in common with collective *dehkan* farm members. Such an option is not possible when collectives are *completely dissolved*, because these entities organize tax payments for pastures from all users. On closure of the collective, local officials must ensure that tax payments continue, so pasture *must* be recorded on the certificates of individual *dehkan* farms emerging from the dissolution.

²¹ Land statistics for 01.01.2012 provided by Z. Lerman.

²² About 11% of pastures are in State Reserve and another 11% are managed by the Forestry Department (official land statistics for 01.01.12 provided by Z. Lerman).

these areas continued to be used as common pasture. Today they are subject to fixed-term use agreements, annual lease, or permanent use arrangements. In parts of Khatlon *oblast* and the *Raion* of Republican Subordination (RRS),²³ individuals took out fixed-term use agreements on large areas of pasture on a speculative basis and then rented them back to communities and smaller *dehkan* farms (Halimova 2012), but national level statistics concerning the frequency of this type of arrangement are not available.

The law “On *Dehkan* Farms” allows applicants (theoretically any Tajik citizen) to obtain pasture on State Reserve land for permanent use on a first-come-first-served basis.²⁴ As with fixed-term agreements, some areas of pasture may be annexed and rented back to users; in other cases, former users may simply be excluded; Box 11. 1 provides some examples of patterns observed in GBAO.

Box 11.1 Privatization of State Reserve Lands: Examples from GBAO (Robinson et al. 2010)

In 2009 in GBAO, about 55% of pastures were located inside the boundaries of former state or collective farms and were thus eligible for division to former members, although such a distribution had not yet occurred at that time. A further 30% of pasture was allocated to collective *dehkan* farms for fixed-term use and 14% remained as unallocated State Reserve land. Of the latter two categories, some areas of pasture had already been incorporated into individual *dehkan* farms, while many applications were pending. Some applicants were shepherds of village livestock, who owned few animals themselves and continued to take to common herds to the pasture for which they had applied; others owned large herds themselves and excluded other users. In a few cases, groups of users formed multi-household *dehkan* farms using pasture in common. Some areas of State Reserve land were rented annually by collective *dehkan* farms and their shepherds, but these areas may shrink as livestock numbers grow and land is annexed by individuals into *dehkan* farms. Fear of losing pastures for common grazing prompted some *raion* such as Murghab to impose a moratorium on pasture privatization,²⁵ but the current transformation of collective *dehkan* farms to individual entities begs the question of how common pasture currently under collective fixed-term use agreements will be accessed, if the organizations to which these pastures were allocated disappear.

²³ A group of seven *raion* in the Rasht valley subordinate directly to Dushanbe rather than to an *oblast* administration.

²⁴ Although Article 17 seems to suggest that the area received should be proportional to the number of livestock owned by the *dehkan* farm members.

²⁵ This *raion* has rather different pastoral tenure arrangements than those recorded in other parts of the country (Kraudzun 2012), again underlining a high geographical variability in land reform outcomes.

The issue of livestock mobility is of course intimately bound up with the above discussion about access; the system of migration across administrative boundaries in Tajikistan more or less collapsed in the 1990s but has seen some recovery in recent years. Land statistics show that some pastures are formally allocated to livestock from other *raion* and *oblast*. These are often assigned to state livestock breeding enterprises which maintain large and highly mobile flocks.²⁶ As in Turkmenistan, such arrangements may also facilitate the migrations of private animals belonging to state enterprise workers. Livestock of individual or collective *dehkan* farms face greater barriers to access of pastures outside their *raion* of residence as they lack the negotiating power and organization of the state entities (Robinson et al. 2008). However, such movements may be increasing and have been observed both within Khatlon *oblast* and between Khatlon and RRS; in GBAO long-distance migrations by both common village herds and individual *dehkan* farms are widespread *within* individual *raion*. Such movements rely on access to remote State Reserve and fixed-term use pasture which, in the case of commonly owned herds, cannot be guaranteed under current laws. Where long-distance migration does not occur, forms of local transhumance may usually be observed, but according to Halimova (2011), in some *raion* close to Dushanbe, access to all pasture outside the immediate village environs has been lost, and household animals graze all year round on the same pastures.

To summarize, in some areas of the country, Tajik pastoral tenure reform can be described as a “*transfer of pastures to a few large-scale individual dehkan farms and state enterprises, which have few shareholders, whilst those dehkan farms that have large number of shareholders have access to smaller areas of pasture*” (Halimova 2012). While current legislation is in force, there is a risk that this pattern may become generalized throughout the country. Recognition of these issues is now widespread in Tajikistan and as a result, no fewer than four new pasture laws have now been drafted.²⁷ The present draft under consideration has clearly taken some inspiration from the Kyrgyz 2009 law “On Pastures” and includes establishment of Pasture User Associations.

However, conversion of pasture within former state farm boundaries to common land would be in direct conflict with both the current Land Code and law On *Dehkan* Farms, which specify that this land may be split into shares. Arable and pastureland are both listed on *dehkan* farm certificates, implying a theoretical reregistration of all *dehkan* farms if pasture tenure rules were to change. These problems could perhaps be circumvented by obligatory leasing of *dehkan* farm pastureland to PUA and

²⁶ In 2008, those sheep and goats belonging to state-owned enterprises comprised 10% of the national total (State Statistical Committee of Tajikistan 2009); herd sizes were the same as those in Soviet times, at 700–800 head of small stock.

²⁷ Two of the versions have been sponsored by international organizations; one was drafted by the Ministry of Agriculture and one by the “working group” on pasture reform, which includes various stakeholders.

nonrenewal of expiring lease agreements. But the current insistence by members of parliament that pasture already under individual tenure should not be converted in this way, and that both individuals and PUAs may apply for pasture, will reduce the likelihood that a new pasture law would guarantee seasonal pasture access to the rural population.

3.3 *Kazakhstan: Agribusiness and the Family Ranch*

3.3.1 **The Process of Reform: National Trends**

As in Tajikistan, Kazakhstan has not developed separate legislation for pastures and arable land. Reform started early: individuals were able to establish family farms²⁸ in 1990, although initially, senior staff of state farms were the main beneficiaries of this reform (USAID 2005b). Paper land shares convertible to physical plots (known as conditional land shares or CLS) were first made available to all farm employees and their families for “permanent use” in the 1995 Presidential Decree “On Land.”²⁹ This law also introduced true private land ownership for household plots.³⁰ In addition to the receipt of shares through farm restructuring, land could also be incorporated into family farms through applications for State Reserve land or through purchase from other land users. The law “On Peasant Farms” of 1998, the main legal framework for family farms, allowed both temporary (leasehold) and permanent use arrangements.³¹

Family farms were not the only structure envisaged in the reform process; a number of non-state collective farm structures also emerged, including joint-stock companies, production cooperatives, and small enterprises, all of which closely resembled the structure of a state farm and which we will refer to here as “agricultural corporations.” In theory, the farm management was supposed to establish a consensus on the structure of the new type of farming entity, but in reality, farm members were not presented with much of a choice; CLS were rarely redeemed for physical shares but pooled so that the former state entity could be reincorporated into an agricultural corporation (Behnke 2003). Workers wishing to leave the agricultural corporation and form family farms had the legal right to redeem their CLS certificates for demarcated land plots, but this process was bureaucratically difficult and often thwarted by corporation managers. Many lacked the machinery, inputs, and labor to farm individually. Thus, the reform process initially resulted in “destatization” rather than the creation of large numbers of family farms (Behnke 2003). In some cases,

²⁸ These independent units are designated as *kristianski khozyaistvo* (peasant farms), but they will be referred to here as family farms to distinguish them from the large “agricultural corporations” described in this section.

²⁹ Article 79.

³⁰ Articles 33 and 34.

³¹ Originally the length of leasehold contracts was 99 years, which was later reduced to 49; the permanent use category was later converted to private ownership to reflect the 2003 Land Code (see the Law on Peasant Farms with 2003 amendments, Article 6).

farm managers persuaded the new shareholders to sell their shares, resulting in mass transfers of land to a small elite (Lerman et al. 2002). Others leased their CLS back to corporate farms or larger family farms which had managed to obtain machinery and other assets needed to work the land early on. By 2002, 18% of CLS had been transferred as the base capital for agricultural corporations, 29% into physical plots for family farms, 7% were sold, 28% were leased out, and 18% were unclaimed (Dudwick et al. 2005). In terms of area, just under 40% of agricultural land was held in family farms and the rest held by agricultural corporations. Yet the total area of agricultural land registered by farms of any type at that time was about 80 million ha – a huge drop from the 180 million ha registered as agricultural land held by state farms in 1990 (Dudwick et al. 2005).

Most of this decrease in registered land was attributable to an increase in unallocated State Reserve land, which made up 7% of land in the Soviet period and 44% in 2001 (Alimaev and Behnke 2007); many of the newly formed agricultural corporations returned land which they could not use to the state in order to avoid paying tax on it, and the majority of this land was pasture. As in other Central Asian republics, the 1995 decree “On Land” did not distinguish between pastureland and arable land; thus, those redeeming shares for physical plots were likely to receive both types of land automatically. However, in most cases, agricultural land was the premium resource sought by potential farmers. One of the major reasons for lack of interest in pasture, at least initially, was a crash in livestock numbers. During the 1990s, Kazakhstan suffered the loss of Soviet markets for livestock products, cessation of agricultural subsidies, hyperinflation in 1993–1994, and a liquidity crises as state farms were unable to pay wages (Behnke 2003). These factors led to the emergence of a barter economy in which farm wages, and indeed, most other transactions, were paid in sheep. As these were dumped on the market for cash, their value declined still further, leading to ever-increasing rates of loss. As a result, numbers of small stock in Kazakhstan dropped by 70% between 1993 and 1997 (Robinson and Milner-Gulland 2003a). As in other Central Asian countries, this was accompanied by a decline in the condition of infrastructure such as wells, barns, and roads, essential for pasture use. This reduction in stock numbers occurred at the same time as the reform process described above was progressing. While much arable land remained in large agricultural cooperatives, livestock ownership became more concentrated in households and family farms; by 2002 about 90% of animals were owned by these actors (Dudwick et al. 2005). Low stock numbers, small herd sizes, and the collapse of state support meant that livestock migration virtually ceased; vast areas of Central Kazakhstan, once used by hundreds of thousands of livestock in summer, fell out of use almost entirely (Robinson and Milner-Gulland 2003a).

The Land Code of 2003 ushered in a new phase of land reform, including true private ownership of agricultural land.³² However, it penalized those who had been

³² Articles 20–24 concern definitions and granting of private land, which must be purchased at set rates. Land already incorporated into family farms on a *permanent* use basis could be converted to private land at no extra charge (Article 170(3)).

leasing their CLS or subleasing physical plots held in leasehold family farms to others by forcing them to cancel these arrangements and either buy the land into private ownership; work directly on their own land share, registered as a family farm; or transfer their shares to the capital of agricultural corporations by 1 January 2005 (Dudwick et al. 2005). Non-compliance led to confiscation of shares by the state. The rationale for doing this was that these shareholders were not paying tax on this land, yet earning income on it through leasing or subleasing. As we have seen, these arrangements concerned at least 28% of all such shares nationwide. This process reduced the amount of land available to those family farms which had been leasing land from pensioners and others unable to use their shares themselves; some lost their rights through inaction or because of lack of information about the new law (Toleubayev et al. 2010; USAID 2005a). Of the formerly leased and subleased land, over half was transferred to agricultural corporations or returned to the state.³³ Few took up the opportunity to upgrade temporary use titles to full ownership because leasehold conditions were so attractive; thus, many family farms continue to hold leasehold contracts (USAID 2005a).

3.3.2 Land Reform and Pastoralism

During the 1990s, rangelands had become abundant relative to livestock inventories, and so few livestock owners actively leased pasture from the State Reserve or from the agricultural enterprises of which they were members. Rather, many used the land informally or registered leases on small areas of land for dwellings, wells, or barns and used the adjoining state or corporation rangeland for free (Alimaev and Behnke 2007). Infrastructure was variously given away as part of shares or had to be purchased depending on economic circumstances of the parent farm, but it was not always working and required large herd sizes to make its use viable, especially given high registration costs for titling (Behnke 2003). These were all reasons why members of poorer households tended to remain shareholders of agricultural corporations. In remote areas with poor access to water and winter feed, state farms had required particularly high levels of subsidy. Here, both agricultural corporations and many newly formed family farms quickly folded, resulting in out-migration and the virtual abandonment of some settlements (Robinson 2000; Behnke and Temirbekov 2003). From the beginning, three emerging types of livestock owner and mobility pattern were noted in field studies (Kerven et al. 2004; Robinson 2000):

1. Small numbers of households owning large numbers of animals who had obtained title to key infrastructure in multiple seasonal pastures and whose animals moved several times over the year.

³³ Of the leased land shares (representing 14.36 million ha) that remained after January 1, 2004, up to the deadline, about 5.8 million ha was transferred to family farms or similar structures, while 5.6 million ha was contributed to the capital of agricultural corporations, and 1.7 million was returned to the state. Thus, today CLS no longer exist. Of the subleased land plots, 65% was contributed to the share capital of agricultural corporations, and 24% went to smaller farms (USAID 2005b).

2. Those owning intermediate numbers of animals whose livestock were based outside the village at a barn and adjoining house, but did not move during the year.
3. Those owning small numbers of animals based in the village; usually livestock belonging to this category of owner were grazed around the village all year round, often herded in common herds on a rota basis known as *kyzyk*, similar to the *kezu* system in Kyrgyzstan (Behnke, personal communication).

The lack of mobility of village-based livestock has led to localized pasture degradation and low livestock productivity among this group, manifested as high levels of weight loss over the winter (Kerven et al. 2004).

Since the 2003 law, the registration of pasture areas into family farms accelerated, usually under 49-year leasehold arrangements. Most herds grazing outside village pastures are thus owned by single households holding individual title to pastureland. Collectively, these households may be significant employers in their local communities (Kerven, personal communication). However, as we have seen, many rural households returned their land shares back to the state or to agricultural corporations as they were unable to use them or were not successful in converting CLS to physical land titles by the deadline of 2005. Others may have registered only arable land or not been eligible to receive CLS in the first place. Livestock belonging to these groups still graze on land around settlements³⁴ (although some make arrangements with owners of family farms to have their stock kept with those herds outside the village for at least part of the year).

Otherwise, the main alternative option available today is registration of a family farm on remaining State Reserve land with all the uncertainties and transaction costs that this entails. Where such land is plentiful, herders have continued to use it without registration, but large herd sizes are required to cover transport and infrastructure in such areas (Kerven et al. 2006). Lastly, *leskhoz* land is also available in some areas and may be leased on a short-term basis.³⁵ For those who had contributed their CLS to the capital of agricultural corporations, although the 2003 Code reiterates that these can still be redeemed for physical plots, the withdrawal of land shares continues to be problematic, and many applications are simply not processed (USAID 2005a).

Statistics from the Kazakhstan Statistical Agency (2011) seem to confirm that family farms are becoming the most important players in the livestock sector: by 2011, 57% of all registered pastureland was allocated to this type of holding, a 25% increase in area on 2007.³⁶ There was no corresponding change in the proportion of arable land in family farms. There was also a transfer of livestock from households

³⁴ According to the Land Code of 2003 (Article 26.1), this “village pasture” cannot be purchased into private ownership; it is unclear to what extent it may be subject to leasehold title.

³⁵ Kerven (2012) reports annual leases in one region of the country (personal communication).

³⁶ Some of this increase is accounted for by increases in the total pastureland registered for use by any agricultural entity, suggesting that some land from the State Reserve is being brought back within formal tenure arrangements. The total area of pasture registered to users increased by 12% between 2006 and 2011.

to registered family farms: 68% of small stock and 81% of cattle were counted in family farms by 2011, proportions close to those attributed to households just 5 years earlier.

Kazakhstan is today considering the design of a law on pastures. One initial concept³⁷ recognizes overgrazing around settlements and underuse of remote pasture resources as an issue of national importance.³⁸ Among the policies recommended is the repair and construction of water points to open up new areas and in some cases to irrigate pasture for winter feed production. It is also suggested that pasture could be assigned to *raion* authorities, which would be responsible for allocation of short-term grazing rights through issuance of pasture tickets in some form. Local government would also be responsible for the development and maintenance of infrastructure enabling local users to exploit the remoter pastures. However, in cases where a large proportion of pastures previously within state farms are now held under individual tenure, such a system is likely to apply mainly to forest and State Reserve land.

In highly pastoral areas, the issue of commonly herded livestock concentrated around villages may become less of a problem over time if out-migration leaves mainly larger herders behind. But in areas with more diverse economic opportunities, then the question of common grazing land may remain a contentious issue: over four million sheep and goats are still held in households. Among those who hold pasture land within family farms, data on mobility are available only from case studies – there are no national statistics on the number of separate pasture areas leased by each family farm, but many may be sedentary or engage only in very limited migrations. A second issue for this group is the temporary nature of leasehold contracts, the duration of which has already been reduced once from 99 years to 49,³⁹ leading to worries about tenure security. These issues must be understood in more detail while considering the new law.

3.4 Turkmenistan: Private Enterprise Under State Control

There is little literature available on reform of the livestock sector in Turkmenistan, perhaps due to the difficulties of doing research in the country. Studies with wide geographical coverage focus on arable agriculture while those field studies reviewed here which focused on the livestock sector cover three sites, two of which are in the same province. However, it is clear that reform in Turkmenistan followed a very

³⁷ This concept was drafted by UNDP and is now under consideration at the Ministry of Agriculture.

³⁸ A speech by President Nazarbaev in December 2011 urged the development of migratory systems of livestock production (Kazakhstanskaya Pravda, 28 January 2012).

³⁹ The 2003 Land Law (Articles 26.1 and 101) states that “*otgonnye*” or remote seasonal pastures can only be used by family farms under the leasehold tenure arrangement and not bought into private ownership. It is not clear what proportion of the pastures currently in the State Reserve fall into this category.

different pattern to that of other republics examined so far. Although statistical data are unreliable, at the end of the 1990s, half of small stock and one third of cattle remained in the state sector; steep falls in inventories were not reported despite decreases in feed and concentrate availability (Hodjakov and Wright 2003; World Bank 2001).

3.4.1 The Reform Process

In 1990–1992, Turkmenistan increased household plot sizes through distribution of land to households and even allocated land to individuals under conditions of “private ownership” between 1993 and 1996.⁴⁰ These two measures concerned only irrigated land and in the latter case affected a relatively small number of farmers as the land provided was usually poor (Lerman and Stanchin 2003). Pasture itself is under the stewardship of government and not subject to private ownership; it may theoretically be granted under the other two existing tenure categories: use and rent,⁴¹ but cases of pasture being accessed in this way were not reported in the studies reviewed here.

The reform which most transformed the agricultural sector was the Presidential Decree of June 1995 (and subsequent related legislation) which transformed the state and collective farms into associations of leaseholders known as *dayhan birlishik* or peasant associations, referred to henceforth as associations (World Bank 2001; Lunch 2003). Water and land remained owned by the state, but other assets were transferred to the associations. These then distributed arable land or livestock to individual members on a leasehold basis. Leaseholders provided a proportion of their output to the association or directly to state marketing organizations. In the case of livestock operations, leases concerned only flocks and herds, not the pastureland. Leaseholders could not make decisions on herd composition or marketing of state-owned animals, but the access to pastures and a proportion of young animals which accompanied leases allowed them to keep and accumulate their own flocks. The reforms thus turned the majority of the agricultural sector over to individual management, but independent decision making among these new farmers was still limited (World Bank 2001).

Leasehold contracts for livestock herding were at first characterized by considerable variability, with some shepherds being paid in cash and others in livestock offspring (Lunch 2003). Payment in live animals was more popular due to arbitrary pricing arrangements by associations and because it gave lease holders the opportunity to build up private herds. Although government targets to increase livestock numbers put pressure on associations to keep their stock and pay shepherds in cash, it appears that leasehold terms set in favor of payment in animals have persisted (Jumardurdyev 2010; Behnke et al. 2005). The terms of these agreements set expected lambing

⁴⁰ Land under the category known as “private ownership” cannot be bought and sold and may be confiscated by the state under a wide range of conditions (Lerman and Stanchin 2003).

⁴¹ Articles 59 and 66 of the 2004 Land Code.

rates and fixed percentages of offspring accruing to the leaseholder and association, respectively. One study reports lambing rates set at an expected level of 95% for Karakul sheep and 85% for Sarajin sheep, with lambs then divided between the leaseholder and association on a 50:50 basis. However, shepherds are entitled only to small numbers of female lambs thus constraining the rate of accumulation of private animals (Jumardurdyev 2010). Behnke et al. (2005) noted that if a shepherd exceeded his quota, he could claim all surplus animals, while if he failed to reach it, he had to substitute missing animals for his own private ones – thus, incentives for increasing productivity are considerable.

Marketing of state livestock and support for livestock producers has been split over time to varying extents between the associations themselves and Turkmen Mallary, the state agency responsible for livestock.⁴² Turkmenistan's system of state orders has been highly criticized as binding leaseholders into unfavorable credit, sales, and input supply contracts with the state and for distorting agricultural markets (Lerman and Stanchin 2003). However, these orders apply to a relatively small range of products, which do not include livestock, meat, or milk. Associations are able to market their own livestock on the open market,⁴³ but must submit a proportion of their production to Turkmen Mallary, which is also engaged in marketing (Kerven 2003). The state may also interfere in other ways; for example, presidential decrees to increase livestock numbers prevented associations from selling their stock at an economically optimal age, while a ban on slaughter of Karakul lambs caused the virtual collapse of the Karakul pelt industry (Kerven et al. 2002). Leaseholders sell their private animals and livestock produce exclusively on the open market.

According to a 2001 World Bank report, associations continued to supply leaseholders with a range of inputs and services from seeds to machinery, usually obtained from state sources (World Bank 2001).⁴⁴ However, studies in predominantly livestock raising areas report very low levels of support (Lunch 2003). The bulk of inputs such as fodder, vet services, and water are thus purchased by lease-holding shepherds on the open market. The fact that the associations receive 50% of offspring every year and yet provide little support to leaseholders in return raises the question of their function. Lerman and Stanchin (2003) have summarized them as “organizational shells” engaged mainly in administration of state-owned land, maintenance of rural infrastructure, and transmission and enforcement of state orders. They are also of marginal financial viability – income is plowed into salaries, while many are owed debts for livestock products by government marketing organizations (Kerven 2003; World Bank 2001).

⁴²The ownership of a large proportion of state livestock was transferred from associations to this agency by government directives (World Bank 2001).

⁴³In the case of items subject to state orders, leaseholders submit their produce directly to government marketing organizations rather than through the intermediary of the association; thus, in such cases, associations play no part in marketing of agricultural produce (Lerman and Stanchin 2003).

⁴⁴In the case of state orders, inputs are provided by state marketing organizations, not the associations (Lerman and Stanchin 2003); see also the Law on Peasant Farms of 2007 (Article 8.2).

3.4.2 Pasture Access and Mobility: State Livestock

Access to pastures depends to a large extent on having state animals to herd. Comprising around 700–800 heads of small stock, these flocks create both the need and the means to move (Behnke et al. 2005). Yet even in the state sector, mobility is still lower than in Soviet times. Some state herds have begun to stay at one well all year round, although where seasonal and spatial variation in pasture quality and water quality is high, livestock mobility has persisted (Behnke et al. 2005). A mixture of sedentary and migratory behavior among association shepherds has also been reported by Jumardurdyev (2010), but in no cases have state animals been reported to graze around villages.

While in some cases leaseholders may be assigned wells by association directors, in others access to various seasonal grazing sites are arranged by shepherds: Behnke et al. (2005) describes how, in one district, while some shepherds used only those wells assigned officially to their own association, others negotiated access rights in other areas according to historical precedent or linked to claims over wells and houses. At a higher level, Jumardurdyev (2010) also states that associations negotiate pasture access in other districts to supplement their own pasture resources. A significant factor limiting migrations is water availability: delivery of water for dilution of saline wells by truck was reported as of the most burdensome costs borne by lease-holding shepherds (Jumardurdyev 2010).⁴⁵

3.4.3 Mobility of Private Animals

Relatively few rural households hold leases over state flocks and herds: on farms having access to irrigated land, many association members lease land rather than livestock or are engaged in salaried employment, having a few private stock as a secondary activity. In remoter and more pastoral areas only those involved in herding state animals remain; others moved away, leaving their private stock behind (Lunch 2003). The grazing of these private animals occurs through a system known as *chekene*, a little like the Kyrgyz *bada* system described above, in which a professional shepherd is paid to herd the animals of others. The following types of arrangement were observed in the case studies reviewed here:

- Leaseholder shepherds taking *chekene* animals into their own herds, for example, as a way of covering the costs of water haulage.
- Shepherds herding exclusively *chekene* animals – thus making a living as a shepherd without herding association animals – such arrangements are common in areas where many non-herders work outside the livestock sector but own their own animals.

⁴⁵ Despite high costs and lack of support from associations, Jumardurdyev (2010) found that livestock leasehold arrangements are relatively advantageous – in one area of mixed farming, those engaged in shepherding with access to state herds had average incomes around 50% higher than leaseholders of arable land or salaried workers.

- Shepherds herding the animals of those who have moved away from the area entirely.

Mobile herds composed entirely of private animals are rare; most *chekene* animals not taken on by leaseholders are thus found close to settlements. Part of the reason for this is economic and linked to the costs of movement (Soyunova 2003). In other cases, access may be a problem: Jumardurdyev (2010) found that the presence of *chekene* herds located in remote deserts sometimes caused tensions with leaseholder shepherds. Where association flocks occupy all available wells, private animals based in villages are “locked in” and graze round village all year round, incurring high supplementary fodder costs (Lunch 2003; Behnke et al. 2005).

Overall, the Turkmen system seems to have enabled state and, at least a proportion of private animals, to use pastures away from settlements all year round with some flexibility, albeit with differing levels of mobility. New land legislation specific to pastures is currently being drafted, but is not yet in the public domain.

3.5 Uzbekistan: A Growing but “Landless” Livestock Sector

In Uzbekistan, three major forms of farming entity have emerged from the reform process (Veldwisch and Spoor 2008; Lerman 2008). Firstly, *dehkan farms* (whose holders are known as “*dehkan*”) concern households with access only to household plots for permanent heritable use.⁴⁶ *Peasant farms* (whose holders are known as “*fermer*”) are larger household farms established by state farm employees on a leasehold basis from state farmlands. There was no process of allocation of equal shares to all state farm members as occurred (or was meant to occur) in some of the other republics reviewed here. Land allocation processes openly favored rural elites so that today *fermer* make up a minority of the rural population and *dehkan* the poorer majority (Veldwisch and Spoor 2008). Lastly, “*shirkat*” (agricultural enterprises) are the successor organizations to state farms and remained structured along collective lines.⁴⁷

Since 2003, *shirkat*, which were poorly productive and close to bankruptcy, have been progressively dismantled in favor of peasant farms, which now have replaced them as official suppliers of those products subject to state orders. Peasant farmers must produce set quantities of wheat and cotton and obtain special permission to grow other crops, which they can then sell on the open market. By 2006, the number

⁴⁶ These plots were enlarged by state decree, in the interests of food security and today have an average area of 0.2 ha, 100 times smaller than the average peasant farm (Veldwisch and Spoor 2008). *Dehkan* farmers are not subject to state restrictions on crop types to be grown and marketed; however, this type of farm may not exceed 0.35 ha of irrigated land by law, and thus, *dehkan* farmers are unable to grow much above what is needed for subsistence. They thus often work for peasant farms on a wage or cash cropping basis (Lerman 2008; Veldwisch and Spoor 2008).

⁴⁷ These three structures were first recognized in the 1998 Land Code; the legal frameworks governing each one (the Law on Dehkan Farms, the Law on Peasant Farms, and the Law on Shirkat) were passed with the Land Code in April 1998 (Lerman 2008).

of *shirkat* had fallen from 2,000 to 314 and peasant farms controlled the bulk of arable land (Lerman 2008). In contrast, most of the nation's livestock is owned by *dehkan* farmers: according to Lerman (2008), 96% of cattle and 80% of small stock are held in the individual sector, the vast majority in *dehkan* farms. The only livestock still held by the *shirkat* are Karakul sheep in desert and semidesert areas and a small number of cattle. Livestock inventories were not characterized by serious falls during the 1990s and (if state statistics are to be believed) have seen significant increases since that period,⁴⁸ mostly in the *dehkan* sector and despite reductions in feed availability (Yusupov et al. 2010).

Concerning pastures, peasant farms may be allocated land from their respective *shirkat* according to the number of livestock which they declare – they are required to have at least 30 cattle units (corresponding to 300 sheep) and may lease a minimum of 2 ha per cattle unit from the state for a period of 30–50 years. There is little information from the field about modes of pasture access among this group. In the case study areas discussed here, officially registering a farm for extensive livestock breeding is not an economically attractive option and such operations play only a minor role. Statistics also imply that the massive transfer of land from *shirkat* to peasant farms which has occurred over the past 10 years seems to have concerned mostly arable land – the share of hayfields and pastures used by these farms officially accounts for only 6% of the total (Yusupov et al. 2010).

In 1991, about 20 million ha of pasture was recorded as belonging to agricultural enterprises; today about 40% of this pasture has reverted to the state reserve (Yusupov et al. 2010). The rest (apart from the small area in peasant farms mentioned above) remains in those *shirkat* which have not been dissolved, including 103 Karakul sheep breeding operations (see next section). *Dehkan* farms, which own most of the livestock, do not have any formal entitlement to pastures and must use *shirkat* pastures on an informal basis. Where *shirkat* have fallen apart, one case study from a mountainous area has reported that the resulting “tenure vacuum” has seen the emergence of customary patterns of pasture allocation which existed in pre-Soviet times (Cariou 2002). Lastly, some pastureland is under the administration of the State Forest Agency (*leskhoz*), which is better funded and staffed than the *shirkat* and has a much tighter control over its territory. Permission from the local *leskhoz* and the payment of a fee per head of livestock is required to obtain access to these pastures.

3.5.1 Transformation in the Karakul Sector: Pasture Held Under the Shirkat System

In Soviet times, the vast desert and semidesert areas of Uzbekistan were used as pastures mainly for the grazing of Karakul sheep and the production of Karakul lamb pelts, which were highly appreciated for luxury clothing at that time. After the

⁴⁸ Official figures for 2007 suggested a 40% increase in cattle numbers and 20% increase in small stock numbers since 1991 (Yusupov et al. 2010).

breakdown of the Soviet Union, the former *sovkhos* specialized in Karakul sheep breeding were transformed into *shirkat* under the semiprivate company Uzbek Karakul, which is required to fulfill governmental plans for production. However, the quality of the Uzbek Karakul sheep breeding has deteriorated; demand for Karakul lamb pelts and world market prices have both decreased significantly. As a result, the number of Karakul sheep owned by the *shirkat* has been shrinking. At the same time, the number of livestock owned by peasant farms and households (*dehkan* farms) has increased dramatically.

In some regions, the number of household livestock far exceeds the number of *shirkat* livestock. Private households usually graze their livestock on the pastureland leased by their *shirkat* free of charge and without legal entitlements. For the moment the *shirkat* have had to accept this situation – they lack both the capacity and a legal framework to control pasture access effectively, but there is a growing awareness that the current system is not viable in the long term.

However, the discussion about land tenure reform and the future role of the *shirkat* and households is just only beginning. Different models are under consideration (private vs. collective leasehold of pastureland, remuneration of the *shirkat* for pasture use vs. leasehold directly from the state). In Box 11.2, we present case studies from two regions, which differ in pasture productivity, population density, and the relationship between the *shirkat* and local households.

4 Summary and Conclusions

4.1 Land Reform

During the 1990s, a reduction in livestock numbers combined with general economic breakdown led to the collapse of migratory systems, abandonment of remote pastures, and high stocking rates around settlements across Central Asia. These trends were most marked in Kazakhstan and Kyrgyzstan where state animals virtually disappeared along with associated state structures in the rural areas, leaving private livestock with no formal support. In Uzbekistan and Turkmenistan, livestock numbers did not collapse. But even state herds have become less mobile than in the past, and formal systems for seasonal pasture access by private animals are lacking. Availability of working wells also limits use of pastures in many desert and steppe areas.

Traditional collective herding systems quickly became reestablished in all five republics following the crisis; in some cases, shepherding of pooled animals is undertaken by participating households on a rota basis, and in others, a professional shepherd is employed. Those owning relatively large numbers of animals either herd these themselves or pay someone to do so. Common herding systems are particularly developed among mobile flocks in Tajikistan, Kyrgyzstan, and mountainous parts of Uzbekistan but also exist around settlements in desert-steppe areas. Many pastures were used informally at first, and grazing access was variously determined by former state farm boundaries, customary memory, locations associated

Box 11.2 Case Studies from Uzbekistan

- i. *Foothills and semidesert zones*: Farish district is located in Jizzakh region, some 250 km southwest of Tashkent; Bogdon *shirkat* is located in the eastern part of the district covering an area of about 75,000 ha with around 20,000 inhabitants, mainly concentrated in the foothills of the Nuratau mountain range in the south. The foothills and plain between these mountains and the Aidar and Tuscan lakes in the north are covered with semidesert vegetation. In 2011, household livestock resident on this territory outnumbered the *shirkat* livestock – some 67,000 sheep and 10,000 cows belonging to *dehkan* households graze on *shirkat* land around settlements, whereas approximately 25,000 *shirkat* sheep graze in the plain in the north. The 3,000 sheep officially registered as belonging to peasant farms (*fermer*) are almost negligible.

The *shirkat* herds are based at barns located at wells in the plains; these animals are mostly sedentary and only in dry years, when the pastures become totally unproductive in summer, are livestock transferred to other areas (mostly to irrigated lands), where the shepherds have to pay peasant farmers for the use of land. Occasionally the state (in the form of Uzbek Karakul) organizes livestock migration, maintaining elements of the Soviet system. During a harsh drought in 2011, livestock in southern Uzbekistan was close to starving, and about 3,000 *shirkat* sheep were brought to the pastures of the Bogdon *shirkat* by train.

Most *shirkat* shepherds are able to graze their private livestock with the *shirkat* sheep. Existing systems for paying the shepherds include both fixed and variable in-kind monthly payments and an arrangement comprising an obligation to fulfill plans combined with the right to keep all the newborn sheep exceeding the plan. Here, nonfulfillment of the plans entails replacement of the difference with private livestock. The *shirkat* is theoretically obliged to provide its shepherds with veterinary services, winter fodder, and equipment, but in reality, few services are provided. As in Turkmenistan, many *shirkat* herdsmen are *de facto* independent farmers whose main incentive to graze *shirkat* sheep is the free access to *shirkat* pastures for their own livestock.

In contrast to *shirkat* animals and those of their herders, livestock belonging to *dehkan* households are almost completely village based during all the year, grazing around each settlement and returning there every evening. The three schemes for this type of grazing are familiar from other republics reviewed here and include individual grazing (where a member of the family grazes the livestock of a single household every day) and herding of collective flocks on a rota basis or using a paid shepherd. In addition, some livestock are put out to graze without a shepherd and return to the village on their own.

(continued)

Box 11.2 (continued)

Most minor livestock owners in most villages on the territory of Bogdon *shirkat* practice collective grazing with a paid shepherd, whereas large livestock owners usually graze their flocks individually.⁴⁹ As none of these owners have official land use rights, there are no formal rules for grazing, but most (collective or individual) pasture users have a notion of which territory belongs to them by customary law. However, there are conflicts about pasture use between:

- Pasture users from different villages who claim the same territory for themselves.
- *Shirkat* herdsmen and private pasture users from the villages close to the plain.
- Collective pasture users and big livestock owners (who do not follow the rules which have been developed by those who have joined the collective grazing).

Such conflicts usually remain unresolved or are solved through unofficial intermediation by the village authorities. The *shirkat* has lost control of one third of its territory to the private pasture users from the villages, and yet has to pay tax on this land. The management has been unable to enforce payments for the use of this pasture, firstly because there is no legal basis for the use of *shirkat* pasture by private households and secondly no backing from the local authorities (which recognize the importance of livestock to villagers' livelihoods) for such payments.

The pastureland in the higher ranges of the Nuratau Mountains is under *leskhoz* management and is more productive than the semidesert pastureland in the foothills and plains. Villages in the mountains are close enough to this territory for their livestock graze there in the day during the summer, returning to the village in the evening. Even if they have to pay a fee to the *leskhoz*, they consider this worthwhile due to the higher quality of *leskhoz* pastures in comparison to the free-of-charge *shirkat* pastures. Only in exceptional cases are livestock taken up to night camps in *leskhoz* territory. The *leskhoz* tends to give priority access to its pastures to big herds from other districts or cities, which follow a well-organized and transhumant grazing scheme and pass through the Nuratau mountain range from east to west during the spring months. The source of these migratory livestock is unclear; but they are not *shirkat* livestock, implying that private households and farmers are still able to undertake long migrations to access seasonal pastures in certain cases.

(continued)

⁴⁹The situation differs slightly in the western part of Farish district on the territory of the Farish and Kyzylkum *shirkat*: here, collective village-based grazing is rather uncommon. Most households either graze their livestock individually, have it graze without a shepherd, or give it to a *shirkat* shepherd who has a barn in the steppe.

Box 11.2 (continued)

ii. *Desert areas:* Our second case study, from Romitan district, in Bukhara region, is rather different. The study site concerns the former territory of Kyzyl Rovat *sovkhos* which covered over 220,000 ha of sandy desert. There are only three villages close to the Amu Darya river with a population of 960 inhabitants, whereas the desert is almost unpopulated. Today about 60% of this land is managed by the Kyzyl Rovat *shirkat*, 35% by the *leskhoz*, and 5% is part of peasant farms. In contrast to the above example, most livestock belong to the *shirkat* (7,200 sheep), while the local population owns about 2,000 sheep and 500 cows. Of the 52 wells constructed within the overall Kyzyl Rovat land use area during the Soviet period, only three were operational on *shirkat* territory in 2011, leaving most pasture abandoned. *Leskhoz* territory is also not used for the same reason. Livestock mobility is severely constrained due to this lack of wells. The quota system for Karakul pelts and debt servicing both create disincentives to increase livestock production and thus to repair wells. Those with registered peasant farms in contrast have invested in wells on their land and are able to keep higher stocking densities on their holdings. Small stock belonging to households are grazed with *shirkat* animals, while cattle graze, unsupervised, close to settlements by informal agreement with the *shirkat*.

with particular households during the Soviet time, and purchase or construction of infrastructure such as barns. The initial focus of formal land reform was on arable land, but as this progressed and private stock numbers rose, attention turned to formal tenure of pasture systems.

Of the cases examined here, only in Kyrgyzstan have pastures been designated as common property. In the other republics, pasture is either still allocated to large state structures or is subject to general land codes which emphasize individual forms of land use or ownership.⁵⁰ As livestock numbers grow, these land codes and associated legislation are increasingly being applied to pastures, but even today, and particularly in remoter areas, much pasture use by non-state livestock still occurs in a legal gray zone. A real understanding of pasture use patterns can be obtained only through detailed field studies, which are few and far between. High regional variability in the outcomes of land reform makes it very difficult to make general statements about republics from these case studies, so the results presented here represent only a rough outline of current trends.

⁵⁰ It should be noted that the establishment of “private farms” by groups is possible in both Kazakhstan and Tajikistan, but has not generally been taken up for the purposes of pasture management. This may be due to the fact that arable land comes under the same registration process and also to the unstable membership of common herding groups.

4.2 Livestock Mobility

Following the worst years of the crisis, in the mountainous republics common herding systems allowed livestock mobility to increase quite quickly in the form of transhumance to high-altitude summer pastures, but migration to more remote pastures across administrative boundaries remains limited. In Kyrgyzstan, the new law on pastures may remove some of the administrative barriers to such movement, but economic constraints continue to restrict the use of some remote pastures. In Tajikistan, only the few remaining state herds and relatively small numbers of private animals continue such long-distance movements. In that republic, mobility may also become affected by the annexation of common pasture by individuals for exclusive use as pasture reform accelerates (Kurbanova, Chap. 7)

In predominantly pastoral areas of Kazakhstan and Turkmenistan, many left regions with poor water and winter feed supplies – leaving behind mainly households with large numbers of private animals (or access to state ones). In Turkmenistan, such households, who lease large state flocks, have fewer economic or administrative restrictions on pasture access than Kazakh pastoralists. The latter use a combination of leasing and informal use of state land to access grazing resources, but the number and scale of movements undertaken is directly proportional to herd size, which is highly variable. A shortage of viable wells in both these two republics, and in Uzbekistan, restricts the area of pasture which is available for use.

4.3 Pasture Access

In Kyrgyzstan, it is unlikely that the new pasture law will eradicate tensions between those participating in common herding systems and owners of large individual herds; domination of the new Pasture Users Associations by wealthier herders may be inevitable (Crewett 2011; Kraudzun 2012). But the existence of a legal basis for common property means that some access to seasonal pastures by all categories of livestock owner has a greater chance of persisting in this republic than in Kazakhstan or Tajikistan.

In more highly populated or agro-pastoral areas of the desert-steppe-dominated republics, where significant numbers of smaller livestock holders exist, they generally have poor access to pastures – in Turkmenistan and some areas of Uzbekistan because state herds occupy most of the wells, and in Kazakhstan, because much of the pasture and the infrastructure which makes it usable has already been purchased or registered into a family farm. Those with small numbers of animals do not generally register grazing land and so must either arrange to place stock within larger herds or graze their animals around the village all year round. In Tajikistan rural households have very small numbers of animals and collective herding systems are thus well developed, making individual permanent use a particularly poor choice of tenure type. Pastures are now being annexed by individuals and, in some areas of the

country, access has become a critical issue⁵¹ (Kurbanova, Chaps. 7 and Halimova, Chaps. 13), although in other regions, *de facto* collective access persists in spite of the legislation.

5 Conclusions

From the above discussion, we may tentatively conclude that common herding systems (and associated tenure arrangements) may be most appropriate where large numbers of households are engaged in livestock raising as a secondary activity. However, even where this is not the case, individualized forms of property right may be poor at facilitating access to multiple noncontiguous parcels of land, especially if each must be registered separately. In Kazakhstan, households having exclusive access to only one pasture area are likely to have higher supplementary feed costs and to experience greater problems of livestock disease and productivity than those who are mobile (Kerven et al. 2004). Transaction costs associated with land registration are high in all republics and a disincentive to livestock mobility.

In Central Asia, the importance of land reform legislation for pasture management was understood late in the reform process. Attention was focused on increasing the productivity of arable land, which is why forms of individual tenure were initially pursued in every case examined here. Kyrgyzstan formed separate provisions for pasture early on, which was an enabling factor in the passing of a pasture code. Today, the other four republics are considering the introduction of pasture codes, with provisions for common pasture management under debate. Yet, because there is no formal distinction between pasture and arable land in the underlying land codes and laws governing the establishment of household farms, policy makers will find it very difficult to introduce pasture-specific common property regimes without modifying other existing legislation. In Kazakhstan, where much pasture is already under individual forms of tenure, and in Tajikistan, where that process is now beginning, it may now be possible to introduce common property rules for pasture only on the state reserve, which is often very remote from settlements. In Uzbekistan and Turkmenistan, it seems that further reform of state farms and remaining *shirkat*, which currently hold legal tenure over vast areas of pasture, is inevitable, and it is in these republics that the largest transformations in pasture access and allocation may be still to come.

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⁵¹ A recent (unpublished) study by the World Bank, which presents results from 1,800 surveyed farmers in 18 *raion*, found that pasture access and rotation was ranked among the top five problems most commonly cited by farmers (World Bank 2012).

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