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Implementation of pasture leasing rights for mobile pastoralists – a case study on institutional change during post-socialist reforms in Azerbaijan

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Abstract: Our study focuses on pasture reform in Azerbaijan within the context of transition and pasture reform in Central Asian and Caucasian countries. Despite the rapid emergence of individualised rights for pasture plots, which is an exceptional development in this region, pasture reform in Azerbaijan has received little attention in the scientific literature. Using evidence from an empirical case study we analyse the implementation and outcomes of the reform process for pastoral land in the context of the macroeconomic development in Azerbaijan and in comparison to pasture reforms in other post-socialist transition countries. We apply the evolutionary theory of property rights to explain and analyse the exceptionally rapid emergence of individual property rights to pasture in Azerbaijan.

Keywords: Common pool resources, individualisation, mobile pastoralism, property rights

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I. Introduction

After the collapse of the Soviet Union, Caucasian and Central Asian (CCA) countries underwent a period of fundamental political, economic and social reorganisation, providing an interesting set of cases for scholars of institutional change in natural resource management. Given that permanent pasture resources constitute 64% of the land resources in Central Asia (FAOSTAT 2011), pasture utilisation is especially relevant there. Several case studies do exist, but the comparative analysis of pastoral land reform processes across CCA countries is still underdeveloped, although some comparative analysis has been done (Kerven 2003; Kerven et al. 2011, 2012).

CCA countries share many similarities, which invite comparisons across this region: The most important common characteristic is the presence of traditional mobile pastoralism relying on diverse livestock species. From the 1920s, socialist governance structures transformed pastoralism in similar ways in all CCA countries, resulting in reduced mobility and restructured collective herding organisations. Later, post-socialist reforms altered the political, economic and social conditions again, though the timing and extent of the reforms differ between countries.

This paper contributes to the relatively scant literature on pasture reforms in post-socialist transition countries by focusing on pasture reform in Azerbaijan and comparing this case to other CCA countries. The case of Azerbaijan is relevant for at least three reasons. First, while some general accounts on agricultural reforms are available for Azerbaijan (Kaneff and Yalcin-Heckmann 2003; Yalçin-Heckmann 2005; Lerman 2006; Lerman and Sedik 2010), pastures used by mobile pastoralists are largely ignored in the transition literature, despite the fact that permanent pasture covers 32% of Azerbaijan's land resources (FAOSTAT 2011). Second, Azerbaijan, alongside Kazakhstan and Turkmenistan, has one of the highest GDP growth rates of all CCA countries, which are based mainly on revenues from oil exports (World Bank 2012). Third, individualised lease contracts for pastoralists are implemented to a large extent in Azerbaijan, which is exceptional in the CCA region. This paper will show how important the overall economic development was for institutional change in mobile pastoralism in Azerbaijan.

Against this background, two research questions are addressed: (1) How were individualised rights for pastures implemented and which factors determined and influenced this process? (2) What lessons can be learned from the case of Azerbaijan for the governance of pasture resources in other CCA countries?

To answer the first question, the theory of the emergence of property rights on economic frontiers (Anderson and Hill 1990) – as part of the property rights school of thought (Demsetz 1967; Bromley 1991) – is applied to case study material from Azerbaijan. To answer the second question, we relate the case study results and theoretical implications to findings from a comparative review of the literature on CCA countries.

The paper proceeds with a depiction of the theoretical framework from the economic theory of property rights on economic frontiers and a review of the literature on the CCA region. This section is followed by accounts of the case study methodology and case study results. The paper closes with a discussion of case study and literature review findings, followed by conclusions.

2. Theoretical framework and review of the literature

2.1. The economic theory of property rights on economic frontiers

Which factors influence the emergence and evolution of property rights regimes for land? The property rights school of thought found the main answer in the relation between land value and the costs of defining and enforcing rights (Demsetz 1967; Bromley 1991). According to them, the right moment for a stricter definition of property rights is reached when the marginal value of land equals the costs for defining and enforcing rights to it. The value of land cannot be observed directly, but is a function of the productivity of the land use in question, which, in turn, depends on the technology used as well as market prices for products and inputs. Both factors influence the aspirations of users and potential users thus leading to competition and a relative abundance or scarcity of land. In addition, community preferences for private, state or community property rights regimes influence this process. Using this relationship, Demsetz (1967) explained the development of property rights to land among American Indians in response to the emergence of the fur trade. Similarly, Bromley (1991) developed a spatial model in which land value changes predominantly with the distance to markets.

Anderson and Hill (1990) build on the same theoretical foundations to explain the development of property rights in frontier regions. In those regions, rapidly increasing land values caused by consecutive processes of settlement, land improvements and infrastructural development result in a rapid change from open access regimes to more clearly defined rights regimes, as private property. According to Mueller (1997, 42) "a frontier is an area where the net present value of land use just covers the opportunity cost of the least cost claimant". He states further: "As a frontier closes land goes from a state where land values are low and property rights undefined, to a state where values have risen and tenure has become secure" (Mueller 1997, 42).

Anderson and Hill (1990) claim that not the marginal value of land but the net present value is the variable considered by potential users. While the marginal value of land can be still negative at a certain time point and location, the predicted development of the frontier leads to positive expected net present values of the respective plot. Under these conditions settlers compete heavily for parcels of land and strive to secure rights even before the economically optimal time point of utilisation (marginal benefit equalling marginal costs) is reached: Thus, the 'race for property rights' leads to a premature utilisation of land and depletion of rents.

This theory has been applied successfully to rapid processes of frontier settlement, e.g. during the 1870s in the US (Anderson and Hill 1975, 1990), the rapid development and disappearance of rights during the American gold rush (Umbeck 1977), land clearing under shifting cultivation in Indonesia (Angelsen 1995) or on-going settlement in the Brazilian Amazon (Alston et al. 1999). Besides the net present value of land, power and the interaction of political and local processes are found to influence the definition and allocation of property rights (Umbeck 1981; Alston et al. 1999).

2.2. Implications for grazing frontiers, hypotheses and research strategy

The economic theory of property rights on economic frontiers is particularly applicable to cases where the definition and allocation of property rights takes place within a very short time period. This happened during the pasture reform process in Azerbaijan: in the early years after the collapse of the Soviet Union pastures were virtually depopulated due to the lack of livestock and transportation. Subsequently, those lands were repopulated within a very short time period during the recovery of the economy.

Based on the economic theory of property rights, we hypothesise that net present value of pastures, i.e. their shadow price, influenced the implementation of Azerbaijan's pasture reforms decisively. For CCA countries, we hypothesise that more extensive pasture utilisation and more dynamic economic development is associated with better implementation and more clearly defined property rights to pastures. In this comparison, besides land value, differences in ecological and socio-political conditions need to be taken into account.

As land value or its net present value cannot be observed directly, we collected evidence for the factors influencing it. For the present case study, we were able to observe prices for land utilisation products (meat), as well as perceived demand for pasture land. For the literature review on CCA countries, a ratio of permanent pastures per livestock gives a rough estimate as to which extent pasture resources are utilised, thus indicating scarcity or abundance of pastures. Gross Domestic Product (GDP) is a good indicator of economic development in the respective countries. High GDP growth is commonly associated with increasing consumer wealth and prices, resulting in a higher demand for livestock products as well as a release of capital constraints on investments, which, in turn, leads to a higher demand for pasture resources. Evidence on the legislation and implementation of property rights to pastoral land was collected within the scope of our case study and taken from the literature.

2.3. Pasture utilisation, economic development and pasture reform implementation in CCA countries

In this section, we review information on (1) the extent of pasture utilisation, (2) economic development and (3) implementation of pasture reform in CCA countries.

During the initial phase of post-socialist transition, livestock numbers decreased in all CCA countries, leading to a much lower demand for pasture land than before. This resulted in a large scale abandonment of remote pastures in Kyrgyzstan, Kazakhstan and Tadjikistan (Behnke 2003; Kerven et al. 2003; Farrington 2005; Undeland 2005; Robinson et al. 2008; Dörre and Borchardt 2012). Resulting from low livestock numbers, a contraction of the mobility of pastoral herds was reported for CCA countries. More recently, this trend has begun to reverse with the accumulation of livestock by wealthy households or capital investors reviving a more mobile lifestyle to ensure fodder supply for their large herds (Kerven et al. 2003).

Table 1 presents statistical information about pasture resources, livestock numbers and the ratio of pasture resources to livestock in 2008. Permanent pasture is in all CCA countries the prevailing agricultural land use. After the breakdown of livestock numbers in most countries during the first years of transition, the degree of restocking of pasture areas varies. The average growth rate of small ruminant numbers between 1995 and 2008 indicates that there has been a dynamic development in the livestock sector in Turkmenistan, Mongolia and Azerbaijan, while Kazakhstan and Kyrgyzstan have low and on average negative growth rates in livestock numbers.

The ratio of permanent pasture resources to livestock numbers measured in hectare per Tropical Livestock Unit (TLU) shows that Azerbaijan has a relatively small pasture area available per livestock unit, while the ratio is especially favourable for Kazakhstan and Mongolia. However, with increasing aridity on the large-scale climatic gradient from west to east in the CCA region the pasture area needed per livestock unit is likely to increase.

The breakdown of the pastoral sector during the restructuring process led in many cases to a sharp decline in pastoral mobility, leading to overgrazing of pastures in the vicinity of villages, while remote pastures are underused. This problem is reported especially for Tajikistan, but also for Kazakhstan and Kyrgyzstan (Robinson et al. 2010; Kerven et al. 2012; Vanselow et al. 2012).¹

¹ From a conservation perspective, the decline of livestock numbers and the retraction of mobility in the transition period might have had positive effects on vegetation coverage and wildlife. Positive effects on the quality of remote rangelands were observed (Robinson et al. 2003). However, wild ungulate populations experienced a further decline in the transition period due to the breakdown of Soviet conservation rules and poaching (Michel 2008).

Country	Cover of permanent pastures		Livestock n	umbers	Average growth rate of	Ratio permanent		
100	1000 ha	% Of agricultural	Small ruminants	Cattle	TLU ⁱ	small ruminant numbers	pastures: livestock	
	area		(heads)			% (1995–2008)	ha per TLU ¹	
Armenia	1244	71	637,101	629,146	599,280	0.2	2.08	
Azerbaijan	2669	56	8,109,713	2,212,800	3,281,543	4.5	0.81	
Georgia	1940	77	797,100	1,031,000	932,670	0.3	2.08	
Kazakhstan	185,000	89	16,080,000	5,840,900	7,596,675	-2.3	24.35	
Kyrgyzstan	9374	87	4,251,816	1,168,030	1,726,386	-1.2	5.43	
Mongolia	114,887	99	38,331,700	2,503,400	9,543,890	5.1	12.04	
Tajikistan	3856	82	3,798,430	1,702,540	2,036,591	2.9	1.89	
Turkmenistan	30,700	94	18,274,900	2,157,700	5,273,255	8.7	5.82	
Uzbekistan	22,000	83	12,625,000	7,458,000	8,118,500	1.9	2.71	

Table 1: State of the pastoral sector in CCA transition countries in 2008.

Data source: FAOSTAT (2011).

ⁱTLU, Tropical livestock unit; ⁱTLU, 0.75 cattle or 0.2 small ruminants (FAO 1999).

For information on the economic development, we present in Table 2 economic indicators for 2008. The GDP as well as the Real GDP per capita is highest in Kazakhstan, Azerbaijan and Turkmenistan. The economic indicators in these three countries are enhanced especially by high revenues from oil export (ESCAP 2010). In contrast, Kyrgyzstan, Tajikistan and Uzbekistan show under-average Real GDP and GDP per capita figures and high contributions of the agricultural sector to the GDP.

Table 3 gives information on the reorganisation of pasture access for CCA countries. For many countries up-to-date information is lacking, especially

Table 2: Economic development indicators in 2008 for CCA countries.

	Real GDP	Real GDP per capita	GDP growth	P growth Value added per sector i value added			
	In billions of 2005 US\$	In 2005 US\$ per capita	% Change per year	Agriculture	Industry	Services	
Armenia	7	2192	6.9	17.4	44.5	38.1	
Azerbaijan	25	2758	10.8	6.2	69.4	24.4	
Georgia	8	1834	2.3	10.2	21.5	68.4	
Kazakhstan	71	4530	3.3	5.4	41.5	53.1	
Kyrgyzstan	3	574	8.4	28.8	19.1	52.1	
Mongolia	3	1127	8.9	22.3	38.0	39.7	
Tajikistan	3	428	7.9	23.2	30.3	46.5	
Turkmenistan	12	2424	10.5	22.6	41.9	35.5	
Uzbekistan	18	658	9.0	26.2	30.4	43.4	

Data source: ESCAP (2010, 2012).

Country	Year of legal reorganisation	Legal regulations	State of implementation	Reference (year of data collection)
Armenia Azerbaijan Georgia	N/A 2000 1996, 1998, 2010	N/A Individualised lease contracts Leasing of state land, between 1996 and 2005 through district administrations, since 2006 through municipalities	N/A Full implementation Partly implemented, unregulated competencies of land ownership between state and municipalities led partly to annument of contracts; regulation of	See case study (2007/2008) Gvaramia 2013 (N/A; newest information cited from 2012)
Kazakhstan	2003	Private ownership possible, shared lands remain under state ownership	competencies urgently needed Insufficient due to lack of staff and lack of skills	Schillhorn van Veen et al. 2004 (N/A; newest information cited
Kyrgyzstan	2002, amended 2004; changed approach in 2009	State land leased to users; after 2009: Management responsibility lies with user commitees	Most remote land under de facto community use, administrative procedures too complicated; no information on involvementation after 2000	Undeland 2005 (N/A; newest information cited from 2005); for changes after 2009; Crewett 2012 (27008/2000)
Mongolia	1994; amendements 2002 and (2008)	Possession of campsites by individuals, possession and management of pastures in groups, regional and local	Allocation of campsites widespread; no effective regulation of pasture management and mobility	Fernandez-Gimenez and Batbuyan 2004 (1999); Fernandez-Gimenez et al. 2008
Tajikistan	2004	Variety of leasing options for state land: individual/collective; permanent heritable/lono term/chort term	Majority of herders hold pasture shares in collective farms; physical distribution has beeur, remote nastures remain nunsed	(2000) Robinson and Whitton 2010 (N/A; earlier than 2007)
Turkmenistan	1994/1995, amendements 1999, 2000	Management rights with collective farms, use rights for single plots distributed to herders of state-owned animals	Implemented, persistence of structures from Soviet period	Behnke et al. 2005 (2003/2004)
Uzbekistan	N/A	N/A	Persistence of structures from Soviet period	Zanca 2000 (1998)

Table 3: Legal reorganisation and implementation of pasture access in CCA countries.

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for Armenia and Uzbekistan. While in most countries the legal framework for pasture access was completely restructured in favour of individualised use rights, collective pastoral farms remained in place in Turkmenistan, Uzbekistan and partly in Tajikistan. None of the countries opted for a complete privatisation of pasture land.

Broad implementation of new regulations for allocating campsites to individuals was achieved in Mongolia, while comparably little pasture land is leased out in Georgia, Kazakhstan and Tajikistan. In Kyrgyzstan, as reported by Crewett (2012), the lacking applicability of the law and insufficient implementation induced the change from an individual lease approach to common pasture management in 2009. The legal framework for individualisation led in many cases to unintended, negative outcomes, such as the development of different de facto regulations for land use or land grabbing by powerful actors (Kerven et al. 2011, 2012). According to the information reviewed here, Azerbaijan is the only country where a pasture law allowing individual lease is fully implemented.

3. Case study methodology

The present case study on pastoralism in Azerbaijan follows a qualitative approach due to the explanatory aim of the research and limited ex ante information (Yin 2003). Mobile pastoralists in Azerbaijan use the high mountain ranges of the Greater and Lesser Caucasus in summer and dry foothills during winter. Summer pastures are located above 1700 m asl and are grazed between June and September. Winter pastures are situated in semi deserts and steppes between 0 and 700 m asl and are grazed from October to May. The winter pastures utilised by mobile pastoralists comprise 1.7 million hectares or 20% of Azerbaijan's land area, while summer pastures are estimated to cover 0.6 million hectares (Mamedov 2003).

We conducted qualitative research in two mobile pastoralism linkages in Azerbaijan consisting of corresponding winter and summer investigation areas. The eastern system links winter pastures in Gobustan with summer pastures in the Greater Caucasus (Shahdag). The western system links winter pastures in the Jeiranchel region with summer pastures in the Lesser Caucasus (Gedebey). Study sites were selected according to the demands of an interdisciplinary research project with ecological and socio-economic investigations and cover core regions of mobile pastoralism on the largest possible east-west gradient. Figure 1 depicts the location of summer and winter pastures in Azerbaijan and the study sites.

Field work took place over five periods of 1–3 months in 2007 and 2008. Collecting information was an iterative process in which the literature and the statements of different interview partners were cross-checked. We conducted semi-structured interviews with representatives of the national level pasture administration (State Land and Cartography Committee, SLCC) and officials in seven district administrations and six municipalities, as well as with thirty seven farm managers. Interviews with farm managers were distributed approximately evenly across the case study regions. Administrative officials answered questions

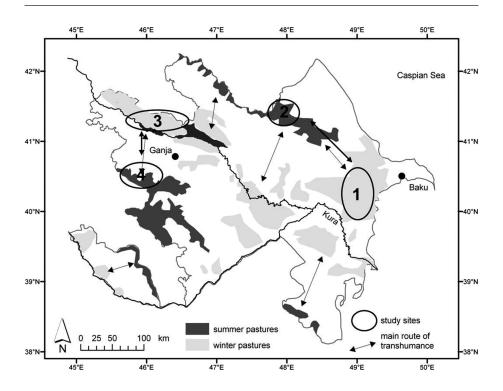


Figure 1: Pastures in Azerbaijan and study sites. 1: Gobustan, 2: Shahdag, 3: Jeiranchel, 4: Gedebey. Map source: Aliyev et al. 1965.

on the following topics: (1) the structure of pasture administration, (2) lease contracts and their allocation (3) control and disputes and (4) status of the allocation process. In addition to questions on pasture contracts and access, herders were asked about the costs and benefits of keeping sheep. Regulations on pasture use were discussed with administrative representatives and herders alike. Interviews were done by the authors together with a translator using a consecutive interpreting approach. To keep translation losses as low as possible, interviews were recapitulated together with the translator after finishing the interview. Problems of mistrust appeared either generally (i.e. respondents refused to give an interview) or particularly regarding herd sizes. Pasture leasing was not regarded as the most sensitive issue.

The qualitative inquiries showed that institutions for pasture use as well as farm organisation were strikingly similar in all study sites. Therefore, data from the four study sites was analysed in combination. Data analysis involved data ordering according to conceptual themes, contrasting of data from herders and administration in matrices and pattern matching techniques for leasing processes (Miles and Huberman 1994). In addition, we analysed statistical information from

different sources to depict the economic situation in Azerbaijan. The matching of statistical data with case study material also relies on pattern matching techniques.

4. Results

4.1. Historical information on mobile pastoralism in Azerbaijan

Mobile pastoralism is one among various traditional occupations of Azerbaijani peoples. The combinations of household activities which comprised livestock keeping as well as agriculture, gardening and trade were spatially highly different (Baberowski 2003). For our eastern study areas ethnological research found that pastoralists originated from lowland and mountain villages. The traditional migration pattern included grazing on summer pastures in the Greater Caucasus, on autumn and spring pastures in the foothills, as well as on winter pastures in the semi-desert of the Kura-Arax lowlands. While winter pastures have been in individual or clan ownership, summer pastures had traditionally to be rented from the local mountain population (Klug 2008; Salzer 2008).

Under tsarist and socialist influence several attempts were made to suppress nomadic movements. Especially devastating were the collectivisation campaigns in the 1920s and 1930s. Moreover, with the introduction of irrigated agriculture for large-scale cotton production the winter pastures for mobile pastoralists were significantly reduced. After abandoning the devastating attempts to suppress mobility totally, pastoralism was reorganised in collective herds which migrated regularly between summer and winter pastures.

4.2. Socio-economic development in Azerbaijan since 1991

In Azerbaijan economic reforms began later than in other transition countries due to the conflict with Armenia in Nagorno-Karabakh. The period between 1991 and 1996 is characterised by an institutional vacuum, political instability and war, leading to inflation as well as a decline in production and consumption. However, after 1995 reforms were implemented rapidly (Lerman and Sedik 2010). The country benefits from the exploitation of its oil reserves, which fuelled economic growth of over 10% per year between 2002 and 2008 (SSCA 2008). Despite the encouraging economic indicators, the country still suffers from insufficient institutional reform aimed at advancing the business environment. Furthermore, Azerbaijan is characterised by poor indicators for democratic freedom and control of corruption (Lerman and Sedik 2010).

During the recovery of the national economy the pastoral sector received direct and impressive incentives from the overall economic development: Local meat production profits from consumers' preferences who value local slaughtering and purchase of live animals (Economist Intelligence Unit 2012).

Livestock numbers underwent rapid changes during the transition process: from 1990 to 1996 livestock numbers dropped rapidly as livestock was sold and consumed to a great extent during the recession, but the numbers significantly

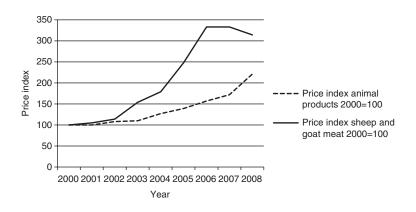


Figure 2: Development of price indexes for livestock products in Azerbaijan. Data source: SSCA 2008.

recovered afterwards. In 2006, 7.6 mln small ruminants were registered in Azerbaijan while in 1989 the figure was 5.7 mln, which is the highest number reached prior to transition (SSCA 2008). As the development of livestock numbers in mobile pastoralism is not covered separately in statistics, the information provided here also includes data from stationary types of livestock keeping. Despite this growth of livestock numbers, the prices for sheep and goat meat have risen relative to the price index for animal products as shown in Figure 2.

4.3. The reform process on pastures in Azerbaijan

The pasture reform process can be divided in four phases covering the period from approx. 1991 to 2008.

The decline of mobile pastoralism in the first years after decollectivisation (approx. 1991–1999)

The starting point of the transition process in our study sites is the large pastoral collective or state farm existing during the Soviet period. Farms kept mostly sheep for wool production while milk and meat products played minor roles. The management unit was a herding unit of 1000–1500 ewes, which were herded by four to five shepherds under the leadership of a head shepherd. Each herding unit used a summer and a winter pasture with fairly clearly defined boundaries, which was owned by the state or collective farm. A collective or state farm consisted of four to 30 herding units.

The breakdown in the pastoral economy began in late 1980s with the division of state farms and their conversion to smaller collective farms. Between 1990 and 1996 livestock numbers decreased dramatically as animals were sold to satisfy consumption needs. In 1996 the first privatisation laws were adopted (Law

'On land reform', issued 16 July 1996), and the livestock and machinery were distributed to the employees of collective farms while pastures remained under the administration of the collective farm. In the distribution process of livestock the criteria for calculating the share of animals received by each employee were age, duration and status of employment (Kaneff and Yalcin-Heckmann 2003). According to information from interviewees, only people in higher ranked positions in the collective farms (directors, veterinaries and head shepherds) received considerable shares of livestock.

In those years pastoralism declined dramatically. Most people did own only a few animals which could be herded easily on the common pasture of their home villages. For conducting mobile pastoralism the herds needed to be large enough in order to pay off the long migrations. Most of the early entrepreneurs who continued mobile herding during that time were head shepherds or leading personnel of the former collective farms. They received enough livestock to form herds of sufficient size and had experience with organising the herding units. Other shepherds in most cases did not possess enough livestock and lacked knowledge to manage herding units. However, also at this time people with few livestock were employed as shepherds by the early entrepreneurs. As shepherds could bring their own livestock, this employment provided for them an alternative to herding their animals on the common village pasture.

The use rights for the pasture of a collective farm were de facto distributed among the persons interested in utilising them based on verbal agreements; though, there were much more pastures available than interested entrepreneurs. During the decline of pastoralism between 1991 and 1999 the de jure property rights for pasture land were with the remaining structures of collective farms, of which some administrative structures were still in place while some parts like livestock and machinery were already distributed and dissolved. As pastures were nearly depopulated and officials of collective farms lacked transport means, no control was exercised and competition between users was absent. Therefore, de facto pastures were under an open access regime as the land value of the collective farms was too low to justify the enforcement of de jure property rights.

Declaration of formal rules for pasture leasing and the immediate consequences (approx. 2000–2003)

In 2000 property rights to land were reorganised based on the 'Land Code' (issued June 25, 1999). The privatisation of arable land and meadows took place, while all pasture resources remained under state control. For newly established pastoral farms it became possible to lease pastures from the state. Before looking at the first stages of the allocation process, we introduce the newly-created state agencies and the de jure regulations pertaining to pasture use.

At the national level the SLCC became responsible for pasture land. The Committee centrally registers pasture lease contracts, prepares maps for pasture plots and performs other monitoring functions at national level. The actual allocation of lease contracts is exercised by the district administrations and the municipalities (Belediye). The municipalities control pastures situated near villages, while in more remote areas the district administrations are responsible.

The formal rules for leasing pastures were in most aspects identical for both, the district administrations and the municipalities. Legal prescriptions refer to the decree 'Rules of Allocation and Use of Pastures, Commons and Hayfields' in the 'Resolution of the Cabinet of Ministers of the Azerbaijan Republic No. 42 of March 15, 2000'. Central to the leasing process were the requirements for legal claims to pasture land. Legally qualified applicants had to prove livestock possession by registration of livestock with the municipal administration. Furthermore, the size of leasable pasture was calculated from the number of livestock possessed by the leaseholder. For each hectare of winter pasture, one to four small ruminants were prescribed, for summer pasture four to eight. After approval of the application a lease contract and a map of the leased pasture was prepared and centrally registered by the SLCC. It was prescribed that this process should not take any longer than 1 month.

The leaseholder received a contract, normally for a period of 15 years. The fees in district administration contracts were fixed by the SLCC and range from 0.34 to 1 AZN per hectare depending on the quality of the land (information from 2007/2008). Municipalities could decide themselves about the level of fees as long as they were above the prices for district administrations' pastures. The interviewed persons in the municipalities stated that prices varied according to the quality of the land and whether it was leased to a villager or herders from other villages. While villagers paid between 0.5 and 2 AZN, outsiders were requested to pay up to 6 AZN per hectare in 2007/2008. Lease prices with district administration remained constant since 2000, while the prices for municipalities' pastures significantly increased from the legally fixed minimum prices to the 2007/2008 levels.

After these regulations were issued and published, the allocation process of leasing contracts began only slowly. Recalling the situation on the pastures during this time, this is understandable. As only few people were engaged in mobile pastoralism and meat prices were comparably low (Figure 2), the value of pasture land was low and the pastures could be accessed for free or with reliance of verbal agreements. Most herders contracting shortly after 2000 described the leasing process as unproblematic. They obtained their official lease contracts with the help of relatives working in administration. These relatives had the necessary information and were used to the interaction with other administrative agencies. The great majority of herders were legally qualified for leasing pastures as they already engaged in mobile herding and possessed registered livestock. As pasture seemed abundant and herd growth was necessary, the officially prescribed key for calculating pasture size was not utilised. Rather, the leasable sites were based approximately on the size of pastures of the former herding units, which is 500-1500 hectares. Some herders were even able to lease several empty pastures in expectation of further herd growth. Other herders did not see the necessity to initiate a leasing process consuming time and effort at that time as they could still occupy pastures for free or based on verbal agreements.

Meanwhile, the overall economic situation had begun to change. The overall economic development due to the exploitation of oil reserves in Azerbaijan resulted in increasing wealth in the society and a rapid increase of prices. We showed that the price development for sheep and goat meat exceeded the growth rates of the price index for animal products. With increased overall consumption the demand and prices for meat grew more than for other food products. On pastoral farms the high prices for lamb meat changed the production goal from wool to meat and led to a high profitability of sheep production. As herders faced continuously profitable production, they invested in building up larger herds. Therefore, pastures became gradually repopulated.

As a result of these developments, the increase in meat prices and higher livestock numbers, the land value for pasture rose. This resulted in competition for unoccupied pastures which were from the beginning settled in favour of the possessor of a lease contract by the administration. Even the last herder now realised that the possession of a lease contract is the precondition for secure access to pasture land in the future. Along with a high land value, the enforcement of leaseholders' rights against administration and other herders also led to a high security of the property right associated with a lease contract. In addition, the lease fees for pasture land were nearly negligible compared to other costs of herding as the rates were not changed since 2000 despite the rapid increase of consumer prices. These favourable conditions – low lease prices and security of property rights – accelerated the increase in land value and further fuelled demand.

Participation of absentee entrepreneurs and the intense allocation process (approx. 2004–2006)

The allocation process was further accelerated by the participation of absentee entrepreneurs. These persons were in search for investment possibilities and did not intend to engage with their personal time in sheep production. They set up and control farms but do not reside on the pastures themselves. Instead, their farms are led by an employed manager or head shepherd. Some of these entrepreneurs occupy high ranks in administration or public service or are businessmen.²

Absentee entrepreneurs differed in their motivation for livestock keeping and in their social background from the herders introduced before, who had been already engaged in mobile livestock keeping during Soviet times (henceforth called traditional herders). While the latter rely almost completely on herding for their household income, the absentee entrepreneurs stated that their main household income stems from other activities. They were rather interested in sheep farming because of capital investment opportunities and considerations of spreading risk among different investments. Furthermore, cultural aspects might have played a

² Absentee entrepreneurs were rarely available as interview partners. Information about them and their farms was provided mainly by their employees, sometimes with the approval of the entrepreneur. Three absentee entrepreneurs were interviewed personally.

role for their motivation to engage in sheep farming as in Azerbaijan possessing much livestock is traditionally equated with wealth.

The high profits from sheep production, the nationwide growth of livestock numbers and the interest of absentee entrepreneurs led to increased competition for the pastures available for leasing. However, the legal regulations for the leasing process did not prescribe any mechanism in case of competition between applicants. As mentioned in the preceding section, in the first years of the allocation process pasture leasing was described as relatively easy if people relied on friends and relatives for organising the formalities. In the later years of the allocation process applicants reported about payments and purposeful use of social networks while the success of their application was not guaranteed. Some traditional herders did not succeed in obtaining a lease during that time. They found themselves unable to make high payments and lacked social network ties to the respective administration to ease the formalities. Asked for the actual rule behind these outcomes, herders repeatedly mentioned: 'you need friends or family in administration to obtain lease contracts' or 'you need a lot of time and money for pasture leasing'.

The end of the allocation process (approx. 2007/2008)

By 2008 livestock numbers in Azerbaijan rose to levels never reached before while sheep farming remained very profitable. The allocation process of lease contracts was nearly finished in our study sites. Nearly all pastures were under contracts; only on summer pastures under the responsibility of municipalities verbal agreements persisted in some instances.

In Table 4 the pattern of contract allocation in Gedebey area is depicted. Qualitative information from other administrations interviewed proved that the same pattern of contract allocation happened in each district. However, only the administration in Gedebey provided detailed figures. The table shows that until 2004 nearly no contracts were issued although it was possible according to formal rules, while between 2005 and 2007 all contracts were distributed rapidly. In 2008 no free sites were available although people applied for pasture land.

In 2008, all pasture administrations interviewed reported that free plots were rarely available while interested parties were still more than abundant. However, on some pastures still very small herds grazed, which are not profitable due to the high overhead costs of mobile herding (see for a detailed economic analysis of mobile pastoralism Neudert and Allahverdiyeva 2009). Interviews revealed that on such farms the owners lack capital to set up a profitable livestock enterprise, but expect to earn money by other occupations in the next years, which they are

Table 4: Number of contracts issued each year in Gedebey district (study	site 4).
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Year	2000	2001	2002	2003	2004	2005	2006	2007	2008
Number of contracts	0	1	0	0	0	13	38	16	0

willing to invest on their farm in the future. These pastures were virtually secured for future investments in livestock keeping.

5. Discussion

The case study findings rely mainly on interview material collected by extensive field research in Azerbaijan. Although great care was taken to tackle problems of mistrust, study findings may be influenced by the circumstances under which the data was collected. As no preliminary information on property rights to pasture was available before the beginning of field research, research questions and findings were elaborated in a stepwise approach. Also, the phases of pasture allocation as described are abstracted from case study material. In reality, these phases, especially the increasing pace of allocation and the participation of absentee entrepreneurs, do not have a clear beginning or end, but happened in one region earlier or later between the clearly distinguishable beginning of the allocation process in 2000 and the situation found in 2008.

As we cannot observe land value directly, the results section and the literature review draw on factors influencing land value. In the case study lease prices for the majority of lease contracts are fixed by legal rules, thus the lease prices do not reflect land value as one would expect under free market conditions. But we observe among herd owners a perception of high benefits from sheep keeping in 2007/2008. That these profits are generated in reality is proven by cost-revenue calculations (Neudert and Allahverdiyeva 2009), but no direct data on cost-benefit relations is available for this or earlier time periods to trace the development of profits. Nevertheless, assuming that at least part of the price development for sheep and goat meat in Figure 2 increased profits, we can state a dynamic increase of cost-benefit relations during the period 2000-2008, with a particular increase in net benefits between 2004 and 2006. This case study information is consistent with statistical data, showing a dynamic development of livestock numbers and GDP during this time period, as well. According to data from pasture administrations as well as herder perceptions, especially between 2004 and 2006 the demand for pasture plots rose dramatically, leading to changes in the de facto regulations for pasture allocation and a de facto implementation of individual leases. Thus, we observe factors influencing land value positively as well as a widespread implementation of individual lease rights in the case study.

Although these case study findings cannot prove causality, the development of the observed variables is consistent with the theory of property rights on economic frontiers by Anderson and Hill (1990). As the pastures had very low economic value and were virtually depopulated during the early stages of the transition process, the repopulated pastures can be seen as a frontier that was established and subsequently closed by rapidly increasing land values. However, as buildings, administrative borders and knowledge on mobile herding from the Soviet era remained in existence, the re-establishment of pastoral farms is certainly not a typical frontier like the American Wild West or the Brazilian Amazon (Anderson and Hill 1990; Alston et al. 1999). Nevertheless, the development described for pastures in Azerbaijan matches the definition of economic frontiers (Mueller 1997) in terms of land value and property rights development.

Compared to the information available from other CCA countries the allocation process in Azerbaijan was extremely rapid and led to individualised property rights, while the literature review showed that in other countries either no individual rights were enabled by legislation (e.g. Mongolia and Turkmenistan) or, under existing legislations for individual rights, the distribution of pasture plots was only partly implemented due to low livestock numbers and the resulting low value of remote pastures. However, the findings from the literature review are severely constrained by a general lack of information (e.g. on Armenia and Uzbekistan) or by a lack of up-to-date information on the status of pasture reform implementation. Statistical information on livestock numbers and GDP showed that these variables underwent a particularly dynamic development in Azerbaijan compared to other countries. Problems observed by authors in those countries (e.g. Kerven et al. 2011) also occurred in the intermediate stages of the reform process in Azerbaijan, e.g. the collapse of livestock mobility due to the lack of transportation, over-utilisation of pastures close to villages vs. under-utilisation of remote pastures, and de facto open access to remote pastures.

The case study suggests that the economic development in Azerbaijan played a major role in accelerating the repopulation of pastures, the revival of pastoral mobility and the implementation of individualised leases for pastures. These findings may imply that the failure of the tenure approach e.g. in Kyrgyzstan or the lacking implementation in Kazakhstan may be partly related to lacking economic interest of pasture users and low livestock numbers. This is consistent with the findings of Crewett (2012) stating that lack of mobility due to the high cost of long-distance migration and insufficient infrastructure are the major causes of poor implementation of lease regulations. The low value of distant pasture resources makes, according to the property rights theory, the delimitation and enforcement of boundaries unnecessary. In this situation, high transaction costs of pasture leasing may prevent herders from initiating the leasing process. Therefore, if the root cause of the lacking adoption of the tenure approach is a currently low value of pasture resources, the situation might change and individual property rights might be established in the future in other CCA countries, as well. An important side condition might be the cultural preferences for pasture use in the country concerned. For Mongolia a strong opposition of users against the tenure approach is stated (Fernandez-Gimenez 2002), which prevented an increasing individualisation of land tenure and required the adoption of a different institutional approach for pasture use. As Kazakhstan and Turkmenistan have a comparable economic situation and high GDP growth rates similar to Azerbaijan (World Bank 2012), we would expect similar developments in these countries especially. However, for Kazakhstan, the effects of economic growth on increasing the value of pasture resources might have, until recently, been levelled by the vastness of pasture resources. For Turkmenistan qualitative information is

especially scarce, so recently increasing pressures on pasture resources might be still be undocumented in the scientific literature.

6. Conclusions

Using the economic theory of property rights in frontier regions, we described the pasture reform process in our case study regions in Azerbaijan from 1991 to 2008, where between approx. 2004 and 2006 rapid allocation of pasture resources took place. Concurrently, GDP growth, increasing prices for livestock products and country-wide growth in livestock numbers suggest that the value of pasture resources rose dramatically. Rapid growth in the demand for pasture resources then fuelled a 'race for leasing rights', which was accelerated even further by low lease prices, the development of secure property rights for pasture plots and the participation of absentee entrepreneurs. At the beginning of the allocation process open access which was regulated only slightly by informal agreements dominated. In the course of the allocation highly exclusive, individualised rights to clearly defined parcels of pasture land arose, which were secured by the possession of lease contracts and registration by the land cadastre. The coincidence of increasing value of pasture resources, rapid allocation and implementation of individual leases is consistent with the economic theory of property rights in frontier regions.

The pasture allocation process was governed partly by formal rules, which prescribed the allocation of pastures on a first-come-first-served basis. In the early stages of the allocation process these rules were, by and large, implemented. In the later stages of the process, when it became clear that the demand for pasture land far exceeded the supply, informal rules for a 'selection' of potential leaseholders by the administration emerged. Thereby the decisive factors for a successful leasing process were personal networks, social status and material wealth.

For CCA countries, the case study findings and the statistical review indicate that, apart from the impact of economic growth on land value, cultural factors and the national abundance of pasture resources may also have played a role in shaping the recent de facto property rights to pasture resources. However, factors such as cultural and historical background as well as pasture productivity were reviewed only insufficiently in this study. A more complete and in-depth crosscountry overview of the emerging regulations and contributing factors might lead to additional insights, but is beyond the scope of this analysis. The limited review presented here already indicates that an extensive comparative analysis also calls for additional case studies in countries currently under-represented in the literature on pastoralism in CCA countries. In addition, comparisons to the broader literature on institutional change in pastoral systems, particularly African systems, would be an interesting field of future research.

We recommend that policy makers take future economic developments that affect land value and the behaviour of herders into account when considering any reform of the regulations on pasture access.

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