

Who is benefiting from pasture reforms in Kyrgyzstan?
Designing institutions in a post-socialist transformation process

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Abstract

Policy interventions in pasture management is struggling to deal with the challenges of post-Soviet transformation in Kyrgyzstan, stabilize the spontaneously changed informal rules and structure social interactions. Rapid reforms have created a temporary institutional vacuum, which has stimulated the process of refilling with informal and newly created, decentralized, formal institutions. The gap between formal and ‘working rules’ may undermine pasture management reform in dealing with overuse and degradation of pasture resources and an increase in conflict. The research project critically assesses local institutions in pasture management within the process of adaptation of new legislation, and the interaction between ‘working rules’ and formal institutions. It also addresses how the bargaining process and emerging institutions are shaped by changes in formal institutions and power resource asymmetries.

Keywords: institutional change; power asymmetry; pasture management; Kyrgyzstan

1. Introduction

Kyrgyzstan has experienced simultaneous change from a centralized, state-managed economy to a decentralized market-oriented economy and gained valuable experience in designing new institutions in natural resource management. However, the on-going institutional reform in pasture management faces challenges in implementation and adaptation to the existing context.

During the process of establishing the new institutions and governance structures the level of information dissemination and awareness seems insufficient to assure the participation of all relevant stakeholders. Another challenge is that the new pasture law is being implemented whilst the legal framework is still in the process of development (Crewett, 2009).

Agro-pastoralists in Kyrgyzstan are experiencing legal and institutional transformation and are dealing with a situation of legal pluralism, which is characterized by many institutional levels coexisting, overlapping, conflicting or collaborating. Legal pluralism creates an opportunity for negotiations among pastoralists, but if frameworks for negotiations are missing, some groups of pasture users may have difficulties in obtaining fair access to the resource (Bonfoh et al., 2011).

Moreover, livelihoods, institutional and ecological uncertainties which have resulted from agricultural reforms are important characteristics of the pastoral context in Kyrgyzstan. Under conditions of uncertainty pasture uses refer to different legal orders to pursue their interests depending on the interaction situation and their power resources (Steimann, 2011).

This paper aims to reconstruct and theorise how the ‘working rules’ have been shaped by the introduction of the new formal institutions in pasture management thereby contributing to an understanding of the determinants of the bottom up process of institutional change in pasture use in Kyrgyzstan.

The terms ‘working rules’ are employed following Commons (1959: 631) and Ostrom (2005: 19) in order to address of the situation of legal pluralism in pasture use in Kyrgyzstan. In line with Hodgson (2006) institutions are conceptualised as systems “of established and prevalent social rules that structure social interactions” (Hodgson, 2006: 2). We also follow the equilibrium notion of institutions (Aoki, 2005) focusing on the exogenous and endogenous duality.

The paper develops and illustrates the application of a heuristic framework that details Knight's (1992) distributional theory of institutional change. It specifically highlights the importance of informal institutions and insists on the distributive aspect of institutional development, stating "social actors produce social institutions in the process of seeking distributional advantages in the conflict over substantive benefits" (Knight and Sened, 1995: 107).

Research results confirm that the asymmetry in power resources and distributional consequences are important determinants of the institutional change in pasture management in Kyrgyzstan and that new formal pasture institutions in Kyrgyzstan have a redistributing character and benefit small and medium herders/livestock owners.

The study demonstrates that the effective and new formal institutions are interrelated in the process of rule making in pasture use in Kyrgyzstan. Herders and livestock owners rely mainly on 'working rules', however, new formal rules, affect power asymmetries and payoff structures leading to actors to change their bargaining strategies. As a result, the formal institutions are transformed during the endogenous process of rule making and may become 'working rules' in future.

This paper is structured as follows: first, we introduce the concepts of institutions and institutional change and present the distributional and bargaining theory. Second, authors outline pasture reform describing formal as well as 'working rules' in pasture use. This is followed by a detailed analysis of different bargaining situations among pasture users and the questions of how new pasture regulation changes power asymmetries. Finally, we interpret our findings in the context of the understanding of institutions and institutional change in pasture use in Kyrgyzstan.

Qualitative data for the empirical study have been gathered from two case studies. The case studies investigate formal as well as informal, undocumented arrangements for regulating pasture use and analyses the causes and different factors, which determine the change of institutions. Two communities in Naryn and Chui regions in Kyrgyzstan were selected in order to compare the two different local institutional contexts, but also to explore each of them in detail, with special attention to their subunits (interactions between herders, livestock owners and Pasture User Committees in the rule making process). During extensive field research in 2011, 2013 and 2014 more than 80 expert interviews and field observations were conducted in Jergetal and Tösh-Bulak villages with pasture users, members of PUAs, as well as with regional and national experts in Sokuluk, Naryn and Bishkek. By analysing the empirical data, we have followed the qualitative content systematic analysis approach (Mayring, 2010).

2. Theories of institutions and institutional change

In order to understand the nature of the determinants of the on-going institutional change in pasture use in Kyrgyzstan, first we have to address a more fundamental question: what are institutions and what is their nature and origin?

Institutions are the subjects of the investigation of different disciplines. There are very different concepts of institutions. Some scholars assume that rational individuals intentionally create institutions and others that institutions emerge as a result of human actions, but not of design. Authors distinguish between formal and informal institutions. It is also suggested that informal institutions are spontaneous and formal institutions are designed (Brousseau et al., 2011).

Hodgson (2006) provides a broader overview of concepts on institutions. He defines institutions "as a system of established and prevalent social rules that structure social interactions" and notes that in the

New Institutional Economics (NIE) in there is a debate concerning whether institutions should be regarded as ‘equilibrium’, ‘norms’ or ‘rules’ (Hodgson, 2006: 2). He agrees about the importance of the informal rules, but opposes a sharp distinction between the formal and informal institutions. He claims that formal institutions always depend on the non-legal rules and inexplicit norms and that “ignored laws are not rules” (Hodgson, 2006: 6). He argues that such sharp distinctions can lead to confusion: “if formal rules means legal, then it is not clear whether ‘informal’ should mean illegal or non-legal, even if they writing down (i.e. not expressed in the law)” (Hodgson, 2006: 6). He suggests distinguishing between explicit and tacit, designed and spontaneous institutions in order to be sufficiently clear.

Brousseau et al., (2011) propose to differentiate between the two main principal conceptualisations of theories on institutions within the boundaries of economics: “institutions as (external) rules versus institutions as repositories of shared beliefs (about each other’s behaviour)” (Brousseau et al., 2011, 10). The first type of the concepts is referred to North (1990). North defines institutions as rules of the game, as constraints imposed on human interaction and differentiates between the formal rules (constitutions, statute law, common law and regulations and informal constraints (conventions, norms and self-enforced codes of conduct) and their enforcement characteristics (North, 1990).

The alternative perspective is the conceptualisation of institutions as “the endogenously derived “play of the game” or strategies created when agents repeatedly interact in a particular situation” (Brousseau et al., 2011: 10). While Sugden (1989) emphasizes the regularity of behaviour, Aoki defines institutions as the “self-sustaining, salient patterns of social interactions, as represented by meaningful rules that every agent knows and incorporated as agent shared beliefs about the ways how the game is to be played” (Aoki, 2005: 7).

In this paper we employ the term ‘working rule’ following Commons (1959: 631) and Ostrom (2005: 19) in order to address the situation of legal pluralism in pasture use in Kyrgyzstan. We advocate that rules and regulations are only effective, if they are accepted and generally applied by resource users at the local level. Many rules and regulations in Kyrgyzstan are currently not effectively implemented, in the sense of not achieving the purpose for which they have been designed. Moreover, conflicts may not only remain unresolved but new might emerge in case of institutional failure. In our target area, we largely deal with ‘working rules’, which are defined as a mix of formal and informal institutions. Contemporary literature argues that especially in a transition context, discrepancy between formal rules (e.g. constitutions and laws) and ‘working rules’ (e.g. rules which are followed by resource users) exist. We therefore focus on the study of locally accepted ‘working rules’ and governance structures.

We also employ definition of institutions “a system of established and prevalent social rules that structure social interactions” (Hodgson, 2006: 2). This allows better capture the duality of institution: “effects of institutions on individuals, as well as the effects of individuals upon institutions” and analyse different types of institutions (formal and informal, spontaneous and designed, explicit and tacit institutions) (Hodgson, 2006: 21). In line with Aoki (2005) we follow the equilibrium notion of institutions by focusing on the exogenous and endogenous duality and avoiding the distinction between operational, and rule making and social choice institutions.

Institutional change in the bargaining and distributive theory

While Libecap (1999) and North (1990) assume that distributive bargaining is important for the creation of formal and political institutions, Knight (1992, 1995) argues that the distributional conflict

explains the spontaneous emergence of informal institutions as well. He insists on the distributive aspect of institutional development, stating that “social institutions are a by-product of strategic conflict overall substantive social outcomes” and “social actors produce social institutions in the process of seeking distributional advantages in the conflict over substantive benefits” (Knight and Sened, 1995: 107).

Knight (1992) states that the spontaneously emerged informal institutions (norms and conventions) constitute the foundation of society and the formal institutions are designed and created based on this foundation. Formal rules are established as a way of stabilizing or changing existing informal rules, or can be created to structure social interactions, which may lack the informal rules (i.e. collective decision making). Law and state enforce the formal institutions.

Institutions can be created intentionally or evolve unintended “as a consequence of the pursuit of strategic advantage” (Knight, 1992: 126). The theory proposes a mechanism of institutional change. Social actors try to constrain the choices of others in order to secure their beneficial outcome. The successful interaction is repeated and the constraints becomes generalised as institutional rule. Institutional change is very slow and costly. It can be defined as a change of the equilibrium outcome recognised by the social actors as the solution to the problem of social interaction. The balance or status quo between power asymmetries and distributional consequences is an important factor for institutional change. Actors will not question institutions unless they believe that they have power to change them, and they assume that a new institution will secure higher benefits. Disfavoured actors have always an incentive to change status quo and external factors may increase their incentive to change. These include change of economic conditions, introduction of new technologies or unintended long-term consequences of institutions. The change in relative bargaining power may trigger the institutional change. This can happen because of the change of power relationships external to the particular social interaction. The collective action of disfavoured actors may also change the balance of the bargaining power and trigger institutional change.

Following steps are required for decentralised institutional change to happen:

1. Recognition of change in the relative bargaining power or distributional consequences
2. Individual interactions with attempts to change institutions
3. Gradual shift to a new equilibrium strategy

Knight transformed the Prisoner’s Dilemma game into a bargaining problem in order to model basic social interaction and the emergence of social institutions. The model is based on the following assumption: “institutions are rules that structure social interactions in ways that allow social actors to gain benefits of joint activity” (Knight and Sened 1995, 98). The bargaining model is presented in table 1.

Table 1. The basic bargaining game

		B	
		L	R
A	L	$\Delta A, \Delta B$	$x, x+\varepsilon B$
	R	$x+\varepsilon A, x$	$\Delta A, \Delta B$

Source: Knight (1992).

A and B are two actors in the bargaining situation. If we set $\Delta A, B < x$, then two equilibrium outcomes R, L and L, R can solve their coordination problem. R, R and L, L are strategies, which represent the breakdown of coordination. The Δ values represent the payoffs for non-coordination (break down values). For $\epsilon A > 0$, ϵ represents the distributional advantage that can be accrued to one of the actors, depending on the type of equilibrium achieved. The main goal of the actors is to achieve ϵ (Knight 1992).

Power asymmetry

In the game theory power is the ability of the player to survive several rounds of the game without playing cooperative solutions due to his stock of assets or relatively low opportunity costs (Knight 1992). Knight assumes that actors have a difference in their bargaining power and the power asymmetries “affects the willingness of self-interested actors to accept the bargaining demand of other actors” (Ensminger and Knight 1997, 5). He differentiates between individual bargaining resources such as an actor’s intelligence, experience etc. and power resources, which are common for a wide range of bargaining interactions. Only the latter can lead to the emergence of institutions. The key feature of the distributive theory is the “fundamental relationship between resource asymmetries on the one hand, and *credibility, risk aversion* and *time preferences* on the other” (Knight, 1992: 129). The bargaining theory argues that social actors suffer significantly and not uniformly for failing to coordinate, and the awareness of these differences can influence the credibility of certain strategies. “In this way, the commitment of the powerful can significantly influence the choice of equilibrium alternatives” (Knight 1992, 136). He assumes that a relationship exists between resource ownership and attitudes towards risks. It is positive towards *risk acceptance* and negative towards aversion. “The greater the difference in the resources between the actors, the stronger the relationship between the costs of non-coordination and risk attitudes should be” (Knight, 1995: 109). The costliness of an extended bargaining can influence the choice of the strategies by actors. A more powerful actor has an advantage in the bargaining as he has different time preferences and may be more patient in the bargaining process. The possible threat of retaliatory action is an important power resource, which an actor may use in the bargaining. This means that an actor affects the choice of others to play the less preferable strategy by threatening to punish him by diminishing his benefits. *The information* is the key power resource. *The information asymmetry* about available individual and institutional alternatives may affect the decision of an actor in the bargaining (Knight 1992). *The transaction costs* of informing, negotiating, agreeing, monitoring, enforcing and adapting institutions and ability to distribute them among actors may affect bargaining (Thiel, 2014). *The positional power*, existing *networks and mental model* of actors within the networks are important factors in the Post-Socialist context (Sehring 2009, Theesfeld 2011). Schlüter (2001) and Theesfeld (2005) propose an extended list of power resources (see table 2). The relative bargaining power is related to the differences of payoffs of defecting, and the distributional consequences of the bargaining outcome expresses the differences of payoffs in case of cooperation.

Table 2. Power resources of the Distributional Theory of Institutional Change

Power resources	Effects on the bargaining model
Exist costs	Relative bargaining power
Risk behaviour	Relative bargaining power
Time preferences	Relative bargaining power
Credible commitment	Relative bargaining power
Sanction power	Distributional consequences of the bargaining outcome
Organizability of the group	Distributional consequences of the bargaining outcome
Joint mental models	Distributional consequences of the bargaining outcome
Information / knowledge	Distributional consequences of the bargaining outcome
Transaction costs	Distributional consequences of the bargaining outcome
Positional power	Distributional consequences of the bargaining outcome
Networks	Distributional consequences of the bargaining outcome

Source: Schlueter (2001, 114); Theesfeld (2005, 78).

Theesfeld (2005, 2011) analyses the transition processes in Bulgaria in the irrigation sector. In the case of Bulgaria's Water User Associations, she empirically studies the perception of power by actors and ranked them in order to find their interrelation. Theesfeld (2005) argues that 1) unrestricted access to information, 2) personal relationships, 3) trustworthiness, 4) cash resources for bribing, 5) menace, and 6) physical power and violence are the main power resources, which were abused by local actors and significantly influenced the implementation of the privatisation and decentralisation reform in Bulgaria's irrigation sector.

Methodological difficulties in operationalization of power

There are methodological difficulties in the definition and operationalization of power: power is dynamic and changes over time, power might be offset by another resource; the unit of power analysis is missing and power is very difficult to measure (Theesfeld, 2011: 90-91). Williamson (1996) criticizes the ex-post rationalization of power: "power is ascribed to that party which, after the fact, appears to enjoy the advantage". But he also admits that: "efficiency arguments have mainly prevailed over power interpretations because the latter are tautological, but power issues refuse to go away" (Williamson 2000: 611).

A possible way to operationalize power is to adapt the 'practice force field' approach (Nuitjten, 2005), which focuses on the three types of power relations:

- Power as interactions between individuals and groups, which structure possible fields of actions of others
- As institutional force, systematised, regulated 'technology' of power with a specific form of reasoning
- As domination, hierarchical, asymmetrical relationship; subordinated person or group has little room for manoeuvre

All three dimensions of power are closely linked and can only be studied and analysed in the context of institutions and organizations. The 'practice force fields' refer to structural forms of power relations

shaped around the access and use of pasture resources. This approach suggests to start first ‘on the ground’ with an analysis of informal institutions, followed by a later analysis of formal institutions in a ‘non-functional’ way. In this method it is important to conduct conflict analysis and case studies of specific projects and “combine, for example, the study of strategic power games during official meetings with the analysis of institutional power embedded in standardised rules and regulations, with conclusions about structural power defining the hierarchical differences and forms of subordinations” (Nuitjen, 2005: 12).

3. Empirical case study

Animal husbandry is important in all regions of Kyrgyzstan, constituting 47 % of agricultural output and playing a highly significant role in rural livelihoods (National statistics, 2012).

This is true for Naryn and Chui regions we have selected for the case study. These regions have different environmental and socio economic characteristics. While Naryn is a remote mountain region with harsh climate conditions, a traditional specialisation in livestock and limited economic alternatives, Chui region has characteristics of peri-urban area with soft climate, good access to market, developed infrastructure. In both regions the livestock has increased strongly in recent years affecting pasture conditions. Compared with Chui, Naryn has a larger total area of pastures for climatic and topographic reasons. Both regions have similar numbers of livestock, but have different herd-structures. While Chui has more cattle, Naryn has more sheep and horses. Due to the scarcity of resource the pressure on pasture is much higher in Chui region.

Case study: Jergetal and Tösh-Bulak communities

The first *kolkhozes* in Jergetal and Tösh-Bulak were set up in 1930ies. “Jangy Talap” and “Karl Marx” *kolkhozes* were successful farms during Soviet time specialized in meat, fine sheep wool, and fodder production. After the dissolution of *kolkhozes* and the privatization of livestock, machinery and agricultural land, the Jergetal and Tösh-Bulak municipalities were formally established in the mid-nineties. Today about 1213 and 626 households reside in Jergetal and Tösh-Bulak communities respectively. Unlike Jergetal, with mainly Kyrgyz population, Tösh-Bulak is ethnically diverse community. Mainly Kyrgyz, Russian and Ukrainian, but also some Uygur and Kazakh families are living there (Communal statistics of Jergetal and Tösh-Bulak, 2013).

Jergetal has more pastures comparing to Tösh-Bulak (table 2). In both communities winter pastures located near the villages and most accessible spring/autumn pastures are overgrazed as they used throughout the whole year. The most distant summer pastures are not used by herders (e.g. Aksay and Susamyr summer high mountain pastures). About 146 bars in Jergetal and 43 in Tösh-Bulak on winter and spring/autumn pastures are owned by large and medium livestock owners.

Livestock is the core of Kyrgyz nomadic culture and is an important economic basis for securing people’s livelihoods in both communities. Livestock is important for establishing and maintaining social relations in the communities and has become important as financial capital. The value of livestock is increasing and livestock can be easily sold for cash. Livestock numbers have strongly increased in recent years in both communities. However, the herd structure is different (see table 3).

Table 3. Livestock and pasture in Jergetal and Tösh-Bulak communities

Community	Cattle	Sheep & goats	Horses	Poultry	Pasture land (ha)
Jergetal	2 857	27 706	2 440	2 084	85 100
Tösh-Bulak	1 209	4 240	488	3 559	11 563

Source: Communal statistics of Jergetal and Tösh-Bulak, 2012.

There is a high asymmetry in the livestock ownership in both communities. For instance in Jergetal, while 1 % of households own 16.8 % of livestock and 61 % of households own only 39 % wealthy households keep more horses and cows, while small and medium livestock owners prefer goats and sheep (Isakov, 2013).

'Working rules'

After the dissolution of the *kolkhozes* and *sovkhозes* the traditional institutions and practices have been adapting to the new realities and many different institutional arrangements have been developed. Steinmann (2011) argues that local herding practices and forms of cooperation emerged and have become institutionalized, adapting to the changing socio-economic context. During the on-going process of “social reorganisation” Farrington (2005) differentiates between a variety of coping strategies employed by pasture users: migration organised by individual families, partnerships, extended family and reorganised herding cooperatives. While the most common are extended herding family, mixture of herding herder’s own livestock together with the livestock from sedentary clients, much less common is a transhumance practiced by a single family. The author confirms that the strategy of “ending of all nomadic herding practice completely” is on the increase (Farrington, 2005: 178). Many small and medium livestock owners pool their livestock together in order to collectively use common pastures. Herder have the same costs if they move with their own livestock, but the benefit for the herder may increase strongly by collecting livestock and providing herding services to ‘clients’. Providing herding services has become a popular ‘business’. Wealthy herders and livestock owners are herding their livestock individually, but many provided herding services in the past, stopping as soon as their own livestock increased and they are not managing any more to take care for other’s livestock.

‘*Mal koshuu*’ is practised in both communities. For instance, more than 70 % of herders in Jergetal community provide services for livestock owners collecting livestock and moving to pastures. Herders have their own livestock and may collect some additional from ‘clients’. Up to 700 sheep can be collected by a herder in Jergetal. In spring livestock owners agree with herders about the conditions of cooperation.

A herder explains: “livestock owners approach me them self. If the price is right I herd their livestock. We get livestock from people because we feed livestock well on summer pastures” (experienced herder/small livestock owner in Jergetal).

The work of a herder is a risky one. Livestock can be lost, eaten by wolves or succumb to extreme weather conditions on high pastures. Herders have to pay the price of lost livestock to the owner in such case. Herders offering this service therefore have to have certain professional experience and assets.

Rules differ regionally and parties may have specific individual arrangements, but certain rules are generally accepted:

- The herder is responsible for herding on spring, summer and autumn pastures and protecting livestock
- In case of livestock being eaten by a wolf, the herder has to show the evidence (head and skin of the animal). If there is nothing left, he pays the price of the livestock. Likewise, if livestock is lost, the herder pays the price. The payment can be made in kind by replacing the animal with another one or by providing service for free in future.
- The livestock owner is responsible for illness in his livestock. In such case he has to come to the pasture bringing medicine and treat animal. The herder is responsible only for informing the owner and, if requested, for sending livestock back to the village
- The herder takes care for mares for free (*bee baylap*), in turn the herder may have milk products for himself

There is no singed contract and the conditions are agreed orally. “We are Kyrgyz- nobody writes agreements” (*mal koshuu*’ herder).

Each writes on his own paper the agreed price for the herder’s service and how many heads of livestock are being given for pasturing. They also write down the age and marks of the livestock. Based on these documents, livestock are returned. Each livestock owner has to remember his animals and their marks in the autumn. There is a certain trust between herder and livestock owner during their cooperation every year.

Livestock owners prepare winter fodder and get their livestock in the autumn. Some of the livestock is sold at this point by livestock owners as livestock have their highest value at this time.

‘Bada’ is a method of cooperation on livestock management practiced in Tösh-Bulak community. Many have some cattle, but have no sufficient time and means to manage their livestock them self. Owners of cattle select a herder *‘badachi’* who have some herding experience. *‘Badachi’* collects animals early morning and bring them back in the evening. He decides them self to which pasture to go. There is an agreed price for his service, which is negotiated annually at the community meeting in spring.

In Jergetal small and medium livestock owners cooperate by taking part in *‘Mal kesüü’*- a neighbourhood based rotational herding scheme. Each participating household appoints a herder to collect livestock in the morning and after the herding on near village pastures bring it back to the owners in the evening. Respected people and elders coordinate the cooperation. For instance, they define the starting day and when to stop. It may stop by end of April in Naryn when work in the field starts. They discuss and decide together with the community about the rules and conditions.

The rules are mainly informal, however the Head *Ayil Okmotsy* intervene and officially approve the decision when the pasturing in fields and near village pastures have to be stopped and livestock have to move to summer pastures. Sometimes there is an agreement that *‘Mal kesüü’* continues after field work starts, but livestock- mainly milking cows and some weak animals can stay at pastures and are not allowed to enter the fields. If livestock enter fields, livestock will be ‘arrested’ and owners or herders have to pay a fee.

These rules are not strict and many individual arrangements exist. For instance herders take the livestock of their relatives for free. Instead relatives may help with the work on the herder’s arable land during summer, contribute to the transportation costs or help to prepare winter fodder. Herders herd cows or mares for free and take milk etc. A lot depends on the relationship between herder and livestock owner and the household’s strategy. Some herders provide services for only one or two households, others provide service for up to twenty ‘clients’. For instance, livestock owners do not

want to give all their sheep to the herders who move to summer pasture as they may need some sheep close to village to sell. So the livestock owner may look after some sheep himself in the garden. Livestock owners may also agree with a herder who has bars on a near village pasture and is not moving to a summer pasture. There are some regional differences as well. For instance herders in Naryn take horses for free from relatives during summer and take care in winter, while in Chui the responsibility in winter is that of the owner.

Formal rules

Policy interventions in pasture management struggle to deal with the challenges of post-Soviet transformation in Kyrgyzstan stabilize the spontaneously changed informal rules and structure social interactions. Policy makers designed formal institutions combining different principles and approaches and adapted them to existing governance structures. For instance the perception of pasture as a state property, spatial categorisation of pastures and management competences were combined with the decentralised administration and later with the participatory resource management principles (Dörre 2012: 136).

Dörre (2012) describes change of pasture legislation after independence in 1991. The first important change was that the pastures could be leased short or long term to private as well as to state and collective users. However the distribution of management competences among governance structures at the district, regional and national level remain based on the categorisation of pastures inherited from the Soviet era (near village, intensive and remote pastures) depending on the distance between the pastures and settlements. The redistribution of competencies took place in 1995 and in 1999 when municipalities became responsible for the pastures near the villages, district administration for intensive pastures and making the Ministry of Agriculture responsible for the remote pastures in 1995 and again shifting it to the oblast administration in 1999. The possible time and procedures for leasing were changing, allowing for the leasing of pastures for a maximum of 25 years in 1991 and reducing this up to 10 years in 2002. Pasture-use rights could be awarded via auction, provision to the local communities and economically vulnerable people. The State Agency for Environment Protection and Forestry (SAEPFUGKR) and forest enterprises were responsible for pasture management in forested areas (pastures of the Forest Fund).

However, the expectations of policy makers were not fulfilled (Underland, 2005; Dörre, 2012). The emergence of pasture related problems, such as an increase in conflicts among herders and the degradation of near village pastures, showed that the formal institutions and governance structures were ineffective and generated little revenue for the Kyrgyz state. Inherited from the centralized Soviet system, the division of management levels (local, district and regional) according to the spatial pasture categories (near village, intensive and remote pastures) proved to be impractical and contributed to the confusion among pasture users. The allocation procedure was complicated and created high organizational costs among participants. The auction as well as the procedure for pasture allocation to vulnerable people was never applied. Moreover, the wealthy and powerful people enjoyed asymmetrical access to pasture (Dörre, 2012).

“Wealthy livestock owners bought bars for their livestock on pastures and rented 50 -150 ha of pastures. But there were more pastures and nobody controlled their use. We paid tax on winter pastures without calculating the number of livestock. Many herders used pastures for free” (NGO leader, Jergetal, medium livestock owner).

The World Bank and other international agencies supported the Kyrgyz government in the development and implementation of the new pasture law which introduces radical changes to the pasture management system: (1) It abolishes the three level system of pasture management based on

spatial pasture characteristics; (2) it creates Pasture User Associations (PUA) and Pasture Committees (PC); (3) it transfers the competence for pasture management to municipalities; (4) it abolishes the area-based long term pasture lease system and introduces an annual livestock-based pasture fee ('pasture ticket'); (5) and finally the new law introduces a planning and monitoring system for pasture use and management.

After intensive discussions among experts and responsible organizations at the national level, the new law "On Pasture" was adopted in February 2009 by the Kyrgyz Parliament and came into force by government resolution in June 2009. By 2011 Pasture User Associations and Pasture Committees had already been created in all 475 *Ayil Okmotys* in Kyrgyzstan. The World Bank's Agricultural Investment and Services Project (AISP) and Community Development and Investment Agency (ARIS) supported the creation of the new governance structures.

4. Bargaining in pasture use

Following the recommendation of Knight (1992) and Nuitjten (2005) for the analysis of institutions and the role of power, we have started first 'on the ground' relating actions, bargaining situations, actors, institutions and organisations; we describe informal and formal institutions, and carry out an analysis of bargaining situations among pasture users, with conclusions about bargaining power asymmetries. In the next analytical step authors explore how newly designed formal as well as informal institutions are related to the change of power of actors.

Herder/livestock owners are involved in many bargaining situations with different actors at local, regional and national level and related to informal and formal institutions and governance structures (see table 4).

Table 4. Relating actions, bargaining situations, actors, institutions and organisations

Actions	Bargaining	Actors	Institutions	Organizations
Negotiating prices, place terms and conditions for herding	Between herders and livestock owners on price, terms, place and conditions of herding	Individual herders and herding households, Livestock owners, Head of AO, Head of PC and Members of AK	<i>Mal Koshuu/Bada/ Kesüü Tüllöö meeting Labor market Pastoral commodity market</i>	Household, family, kin, AO & AK, AC & ACC and PC
Acquiring pastures (informally)	Between individual and community herders on access to pasture	Individual herders and community herders	<i>Tooganchilik Mal Koshuu Bada and Kesüü</i>	Household, family, kin and tribe
Acquiring pastures tickets Concluding pasture lease contracts	Between PC and herders/livestock owners	Individual herders and herding households Livestock owners Head of PC Rayon representative of the State Forester Department	Planning of pasture use Pasture ticket	Pasture Users' Association (Pasture Committee) AO & AK Forest Department
Moving to/from pastures	Between herders and livestock owners, herders and land owners, herders and truck drivers	Individual herders and herding households Livestock owners / 'customers' Truck drivers	<i>Mal Koshuu Kesüü Bada</i> Planning of pasture use	PUA & PC AO & AK veterinarians
Selling pastoral products and livestock	Between herders/livestock owners and traders	Individual herders and herding households Traders and middlemen		AO Communal veterinarians
Building and using bars	Among herders/livestock owners	Individual herders and herding households		
Getting permissions	Between governmental organizations and herders/livestock owners	Individual herders and herding households Communal land use specialist	National pasture legislation	AO Rayon GosRegistr & Architecture Giprozem

Source: Based on Appendini and Nuijten (2002); Steimann (2011).

Bargaining 'herder vs. livestock owner'

We apply the bargaining model on the bargaining situations between herders and livestock owners, and between individual and community ('*mal koshuu*') herders (see table 5). Both situations have a strong relation to the social dilemma in pasture use. The social dilemma in pasture use is related to the decision of herders to use pastures for the whole year without seasonal rotation causing the degradation of pastures and conflicts among herders. First we describe the bargaining between actors themselves and the existing power asymmetry. In the next step we introduce the intervention from 'working rules' enforced by third actor (the *Ayil Okmoty* & Pasture Committee) and describe the changes in the bargaining situation and power asymmetry.

Table 5. Bargaining ‘mal koshuu’ herder vs. livestock owner

		B (herder)	
		L	R
A (livestock owner)	L	$\Delta A, \Delta B$	$x, x+\epsilon B,$
	R	$x+\epsilon A, x$	$\Delta A, \Delta B$

Source: Adapted from Knight (1992).

Actor A (livestock owner) and B (herder) in the bargaining situation over price and conditions of herding (time and place of moving to pasture). If we set $\Delta A, B < x$, then two equilibrium outcomes R, L and L, R can solve their coordination problem. R, L strategy is selected if the herder moves with the collected livestock to spring, summer and autumn pasture and L, R strategy - if the herder stays on spring/autumn pastures close to village and market, without moving to summer pasture. R, R and L, L are strategies, which represent the breakdown of cooperation. In this case the herder and livestock owner take care of their livestock themselves. The Δ values represent the payoffs for non-coordination (break down values). For $\epsilon A, B > 0$, ϵ represents the distributional advantage that can be accrued to one of the actors, depending on the type of equilibrium achieved. The main goal of the actors is to achieve ϵ . The social dilemma erases if the herder selects strategy L, R, and stays on pasture without seasonal rotation. This strategy has a distributional advantage (ϵ) for the herder as he can sell livestock products at the local market and have less transportation costs. The distributional advantage for the livestock owner is if a herder moves to summer pasture (R, L strategy). In this case his livestock will gain more weight and have a higher value.

Power asymmetry

In the game theory power is the ability of the player to survive several rounds of the game without playing cooperative solutions due his stock of assets or relatively low opportunity costs (Knight, 1992). Knight assumes that actors have a difference in their bargaining power and the power asymmetries “affects the willingness of self-interested actors to accept the bargaining demand of other actors” (Ensminger and Knight, 1997: 5).

Exit costs are generally high for a herder and livestock owner in Naryn region. There are not lot of alternatives for income generating activity. In Tösh-Bulak situation is different and herders have more exit opportunities. In case of the breakdown of cooperation the exit costs will depend very much upon the livestock ownership - an important power resource. Having only a small number of livestock, a herder will not be able to move to pastures, as the costs will be too high. A medium or large livestock owner may still consider going to pasture with his own livestock. For both actors the number of livestock owned as well as access to loans, social benefits and remittances are important power resources. According to the number of livestock he has accumulated a herder may claim for pasture and decide how much livestock and from whom he will collect. An owner selects a herder also depending on the number of livestock he owns. For instance, a large livestock owner may not allow a herder to collect additional livestock from others.

Exit opportunities for livestock owners have changed as more herders are providing herding services now. With higher numbers of livestock the demand for herders' services has increased driving up the price for herding as well. For instance the price for the herding service in Jergetal has increased by 100 % for sheep/goats and by 150 % for cows from 2007 to 2013. This has resulted in more and more herders starting to offer their services. More than 70 % of herders in Jergetal provide services for livestock owners collecting livestock from clients and moving to pastures. Usually herders first approach a livestock owner. A livestock owner may select an experienced herder who moves to good pastures and takes good care of livestock. Livestock owners push herders to go to summer pastures as they have better fodder.

A medium livestock owner explains: "You don't go looking for a herder, they approach you them self. For example this year he (the herder) is planning to go to the pastures and is interested in collecting livestock. Then you ask him to which pasture he is going. If he says he is going to the near village pasture, you can say that this pasture is not productive, it is good for cows but not good for sheep. You may look for somebody else who is going to a "big" summer pasture (*chong jayloo*). The livestock owner has a choice now" (medium livestock owner in Jergetal).

Credible commitment

The key feature of the distributive theory is the "fundamental relationship between resource asymmetries on the one hand, and credibility, risk aversion and time preferences on the other" (Knight 1992: 129). The bargaining theory argues that social actors suffer significantly and not uniformly for failing to coordinate, and the awareness of these differences can influence the credibility of certain strategies. "In this way, the commitment of the powerful can significantly influence the choice of equilibrium alternatives" (Knight, 1992: 136).

Livestock owners as a rule pay the first month in advance to help herders move to pasture as herders have significant costs for transportation to remote summer pastures. "We pay for the first month giving as much as we can. It is important is to move to summer pastures, and when the herder comes back in autumn, we pay the rest of the amount for his service" (Small livestock owner in Jergetal). Another large livestock owner explains his approach to cooperation with herders: "You may have problems sometimes, but I close my eyes and ignore it. For example if a wolf eats livestock, I say nothing as it can happen. Otherwise a herder will refuse to take my livestock. I know people in our village who change herders often after conflicts. It brings nothing. I see sometimes a small problem, but say nothing. It is not necessary to be involved too much in a herder's work. I am controlling from outside and prepare winter fodder. I visit my herder on the summer pasture from time to time to control" (trader/large livestock owner).

Risk aversion

Knight (1992) assumes that a relationship exists between resource ownership and attitudes towards risks. It is positive towards risk acceptance and negative towards aversion. The risk attitude is related to exit costs and the player who has less to lose from a breakdown will more likely accept the risk of a breakdown of cooperation. However, the risk attitude may be differentiated not only in relation to the breakdown of cooperation, but also in relation to the risks shared in case of cooperation. There is a high risk related to the work of herder as livestock can be eaten by wolves, get lost or die in harsh weather on high mountain pastures. Those risks are shared between herders and livestock owners. The herder needs a certain amount of experience and capital in order to accept the risk and provide his services to clients. At least he has to have some livestock that allow him to start and take a certain risk. Poor herders have lower risk aversion power and have to work mainly for a large livestock owner. A hired herder by a large livestock owner does not have to pay the livestock price; instead he will work for some time for free. "We all have herding experience and understand each other, in the case of livestock being lost, a herder will not be forced to pay the whole price, instead a only a part of the livestock price will be deducted from his salary" (large livestock owner in Jergetal).

The experienced herder can deal better with risks associated with the work of a herder. Steimann (2011) reports that during the privatisation of livestock in 1993 in Jergetal professional herders from kolkhozes were able to benefit from the distribution of livestock. Also a medium livestock owner confirms: "Former kolkhoz herders became rich as they knew how to manage livestock and deal with risks in the mountains. Some of them acquired bars on pastures. People, who were working in other positions in kolkhozes, were not so successful". The attitude towards risks shared in case of cooperation affects the bargaining between herders and livestock owners as well. For instance the asymmetry towards the risks aversion creates asymmetry in the bargaining between poor herders and large livestock owners. Large livestock owners hire herders who do not have their own livestock. Often poor herders who are working for large livestock owner are not allowed to take livestock from other clients. In the case of livestock being lost and a poor herder being unable to repay the price of the livestock, then he has to work for free for a certain period of time for the livestock owner.

Intervention of the Pasture Committee in the bargaining between herder and livestock owner

The bargaining situation becomes more complex with the introduction of a new actor. In such bargaining situation the introduced external rule favours a more powerful player (see table 6).

Table 6. Institutional change favouring a more powerful actor

		B (herder)	
		L	L'
A (livestock owner)	R	$\Delta A, \Delta B$	$x, x+\epsilon' B,$
	R'	$x+\epsilon A, x$	$\Delta A, \Delta B$

Source: Adapted from Knight (1992).

Strategy combination R, L is the status quo, and strategy R', L' is the new institutional rule, which produces additional benefits for player A.

Organisability of the group

The power of actors depends also on the ability to organise and act collectively (Knight, 1992, 1997). In our case the *Ayil Okmotu* intervenes in the bargaining between a livestock owner and a herder and increase the *organisability of the group* power of livestock owner by establishing special institutions ‘*Tüloö* meeting’ in spring where bargaining takes place. “At the general community meeting in spring (usually in April), everyone takes part and discusses and agrees different issues including the terms of herding, the price for herding and tractor services etc...If somebody does not agree about the price, it will be solved during the meeting. Conflicts start there, but at the end of the meeting everyone agrees on tariffs... Herders cannot take a higher price. If he asks for more, nobody will agree.” (medium livestock owner in Jergetal).

The Head of the *Ayil Okmotu* in Jergetal explains the reasoning for the intervention: “There is no strong competition among herders. That is the reason. If we had many herders then probably the market mechanism would work. Now the competition among herders is too weak”.

This intervention of the *Ayil Okmoty and Pasture Committee* gives more power to the livestock owner as the price of the herding service is limited and cannot differ very much. Livestock owners can select the most experienced herder who plans to move to a summer pasture for more or less the same price. This change of power supports the probability that actors will agree on the strategy (R, L) and the herder will move to the summer pasture.

Herders also bear *the transaction costs* of the enforcement of collecting pasture fees (pasture tickets). In both communities community herders are forced by PCs to collect pasture fees for the community livestock. In Jergetal “herders paid their pasture fees for community livestock to the Pasture Committee in 2011, but were not able to collect money from livestock owners” (expert, NGO in Bishkek). This intervention also increases the power asymmetry between poor herders and large livestock owners.

On the other hand the Pasture Committee supports herders by improving the infrastructure and decreasing the transportation costs related with migration. This intervention also increases the probability that herders decide to follow a socially optimal strategy and move to summer pasture.

Table 7. Bargaining herder vs. livestock owner

Bargaining power	Bargaining herder vs. livestock owner	Intervention of <i>Ayil Okmoy & Pasture Committee</i>	Change of power asymmetry
Exit opportunities	More herders are available, the livestock owners can select experienced herders who move to summer pastures for the same price	-	Power asymmetry by livestock owners as more herders are available and maximum price is defined
	Large livestock owners do not allow poor herders collect livestock from the others	-	Power asymmetry by large livestock owners against poor herders
Credible commitment	Livestock owners make an advance payment to the herders helping them to move to pasture	-	Power asymmetry by livestock owners
Risk aversion	Poor herders are not collecting livestock, but mainly working for one wealthy livestock owner and in case of loss of livestock have to work for free	-	Power asymmetry by large livestock owners against poor herders
Transaction costs		Herders are forced by PCs to collect pasture fees for the community in Jergetal	Power asymmetry by large livestock owners as fees for the community transactions costs for the enforcement of the pasture ticket
Organisability of the group	Livestock owners can demand that herders move to summer pastures	The maximum price for herding is defined during the ' <i>tülöö</i> ' bargaining meeting organized by ' <i>tülöö</i> ' meeting the <i>Ayil Okmoy</i>	Livestock owners are better organized in the during the ' <i>tülöö</i> ' bargaining meeting organized by ' <i>tülöö</i> ' meeting the <i>Ayil Okmoy</i>

Source: Authors.

Bargaining between individual and 'mal koshuu' herders

The situation is different in case of bargaining between '*mal koshuu*' and individual herder on access to pasture (table 8).

Table 8. Bargaining '*mal koshuu*' vs. individual herder

		B (' <i>mal koshuu</i> ' herder)	
		L	R
A (individual herder)	L	$\Delta A, \Delta B$	$x + \varepsilon B, x$
	R	$x + \varepsilon A, x$	$\Delta A, \Delta B$

Source: Adapted from Knight (1992).

L, R strategy is if both herders (A and B) move with livestock to spring, summer and autumn pasture and R, R strategy is if an individual herder (A) stays on spring/autumn pasture close to the village without moving livestock to summer pastures. In such case ‘mal koshuu’ herder (B) has to move from winter to summer pasture and then back directly to winter pasture. L, R is the social optimal strategy. The distributional advantage (ϵ) for the individual herder (B) is higher if he stays at spring/autumn pastures (LR strategy) selling livestock products at local markets and having less transportation costs. Additionally he may fence some pasture land and produce winter fodder. The distributional advantage for the ‘*mal koshuu*’ herder (A) if both herders move to spring summer pasture and autumn pasture (RL strategy), he can earlier move down from mountains, first to autumn pasture and then to winter pasture. It reduces the risk of losing livestock to bad weather in the mountains in autumn.

The *positional power* is the further power resource, which can arise from a strategic position of an actor. It can, for example, offer more power to control assets or have better access to resources (Theesfeld, 2005). The positional power is an important factor in the post-Socialist context (Sehring, 2009; Theesfeld, 2011).

In the studied cases, large and some medium livestock owners increased their *positional power* with long term renting contracts signed under previous pasture legislation before 2009. Moreover, mainly large livestock owners build or buy bars on winter and spring/autumn pastures. This restricts the access of other herders to the pasture. This creates a problem especially for herders who provide herding services for the community. They need certain flexibility in order to fit their arrangements (e.g. number of livestock they collect) with the selection of pasture.

A ‘*mal koshuu*’ herder complains: “There are some livestock owners who own stalls on winter and spring pasture and do not allow others to come to this pasture. For example one herder in our village has rented 500 ha of pasture having only 100 sheep and 20 horses... Why should only one person have the right to use this pasture. Where will the others go? Some herders rented a pasture in order to privatize it in the future. Some herders have collected livestock, but cannot use the pasture.” (During a meeting of the Pasture Committee with elders in Jergetal community).

In order to increase their *positional power* medium livestock owners invest also in the construction of bars and apply for an official permission in order to increase their positional power. According to an *Ayil Okmoty* land specialist in Jergetal the number of applications has increased by four times in 2013 compared to 2012. There is the asymmetry of positional power between mainly wealthy individual herders who have signed long term contracts and own bars on pastures and ‘*mal koshuu*’ herders regarding the access to pasture.

This contributes the *time preference* power of individual herders. Large (and some medium) livestock owners/herders with contracts and bars on pastures are moving to summer pastures later and coming back again earlier enjoining advantage in the bargaining over the access to spring and autumn pastures.

Intervention in bargaining between ‘mal koshuu’ and individual herders by Pasture Committee

The Pasture Committee plans pasture use and enforce the implementation of plans pushing individual herders to move to summer pastures. In this bargaining situation the external rule favours a less powerful player (see table 9).

Table 9. Institutional change favouring a less powerful actor

		B ('mal koshuu' herder)	
		L	R
		$\Delta\mathbf{A}, \Delta\mathbf{B}$	$x, x+\varepsilon'\mathbf{B},$
A (individual herder)	L	$x+\varepsilon\mathbf{A}, x$	$\Delta\mathbf{A}, \Delta\mathbf{B}$
	R		

Source: Adapted from Knight (1992).

Strategy combination R, L is the status quo and strategy L, R is the new institutional rule, which produces additional benefits for player B ('mal koshuu' herder).

The enforcement of the pasture use plan and the allocation of pasture to herders by a pasture ticket gives the *sanction power* to the community herder and contributes to the decrease of the power asymmetry (see table 10).

A former member of the Pasture Committee in Jergetal recalls: "Alymkul a wealthy livestock owner has a long term renting contract and a bar on the spring/autumn pasture and has refused to move to summer pastures in 2010. The Pasture Committee went to court in order to punish him. This year it seems he went to the summer pasture".

The change of the *information asymmetry* about available individual and institutional alternatives may affect the decisions of an actor in the bargaining process. An ARIS expert argues that information about the pasture allocation is much more open now, and this has triggered negotiations during formal community meetings.

However, the asymmetry of *positional power* persists as the holders of pasture lease contracts can keep their contacts until the end of the term. Moreover, the asymmetry will probably increase as many large and medium livestock owners build bars on pasture. For instance out of 146 bars in Jergetal about 46 were constructed in recent years.

Former *kolkhoz* leaders and herders - members of '*nomenclatura*' networks, share a common ideology and enjoy a bargaining advantage. They are wealthy livestock owners and herders now are well represented in new governance structures in order to protect their interests.

Table 10. Power asymmetry in the bargaining between individual and ‘mal koshuu’ herder

Bargaining power	Bargaining individual vs. ‘mal koshuu’ herders	Intervention by Ayil Okmoty & Pasture Committee	Power asymmetry
Positional power	Mainly wealthy, but also some medium livestock owners have long term rent contracts, bay or construct bars and fence pasture securing their access to pasture	PCs do not prolong pasture rent contracts and enforce pasture tickets payments	Power asymmetry of wealthy herders with long term contracts, bars on pasture and fencing Decrease of power by enforcement of pasture tickets
Time preference	Large (and some medium) livestock owners and herders with contracts and bars on pastures are moving to summer pastures later and coming back again earlier having better access to spring and autumn pastures	Enforcement of pasture use plans and pasture tickets push individual herders to move to summer pasture	Power asymmetry of wealthy herders with long term contracts, bars on pasture and fencing Decrease of time preference power by enforcement of pasture use plans
Information		Information about the pasture allocation is more open now, triggering bargaining during formal community meetings	Decrease of information power of wealthy herders and livestock owners
Sanction power		Enforcement of pasture use plans and pasture tickets push individual herders to move to summer pasture	Power asymmetry of individual herders with long term contracts decreases
Networks & mental models		Former kolkhoz leaders and herders are wealthy livestock owners and individual herders are now well represented in new governance structures in order to protect their interests.	Power asymmetry of individual herders (often former kolkhoz managers and herders)

Source: Authors.

Change of relative bargaining power and distributional consequences

Knight assumes that the change of informal rules is generated by the change in the relative power of actors or distributional consequences. The first is related to the asymmetries in the break down values of non-cooperation ($\Delta A < \Delta B$ or $\Delta A > \Delta B$), the later to the asymmetries of the distributional outcome ($\varepsilon A < \varepsilon B$ or $\varepsilon A > \varepsilon B$) of cooperation (Knight, 1992: 132, 145).

Our analysis suggests that different types of bargaining power (relative bargaining power and power related to distributional consequences) play a different role in two different bargaining situations.

In the bargaining situation ‘livestock owners vs. herders’, where both actors are highly interdependent and the costs of the break down are high, we observe that the relative bargaining power (*exit*

opportunities, credible commitment, risk aversion) plays a decisive role. The intervention of the Ayil Okmotoy and Pasture Committee in the bargaining contributes to the increase of the power asymmetry of the livestock owners (*organisability of the group and transaction costs*). In this case, the power asymmetries have been affected by the existing formal institutions ('*tüloö*' meeting and pasture ticket).

In the second bargaining situation 'individual vs. community herder' where actors compete for access to pastures, the interaction is indirect and actors are less dependent on each other. In this case, the power asymmetries (*positional power, time preference, information and networks & mental models*) have been expressed by the distributive consequences of cooperation and shaped by the old institutions (long term pasture rent contracts) as well as by new formal institutions (pasture ticket, pasture use plan).

We conclude that in both bargaining situations the power asymmetries have been affected by the intervention of the formal institutions and governance structures. In the bargaining between herder and livestock owner, the intervention increases the power of the livestock owner. And in the bargaining between individual and community herders new institutions support less powerful actors. Both interventions reduce the social dilemma in pasture use and increase pastoral migration.

5. Conclusions

In this paper we analysed effective institutions in pasture management within the process of adaptation of new legislation. In our analysis, we have relied on the concept of institutions which underline the duality (endogenous and exogenous aspects) of institutions (Hodgson, 2006), the equilibrium notion of institutions (Aoki, 2005) and a heuristic framework that details Knight's (1992) distributional theory of institutional change, which allows for an analysis of factors, such as bargaining power, changes in actors' resources, intervention in the bargaining situations by third actors.

In the empirical research approach authors have followed the recommendation of Nuitjten (2005) starting with an analysis of individual bargaining power, actors' strategies and relating them with informal and formal institutions and governance structures. Concluding about the change of power asymmetry.

What have we learned from these empirical case studies about the nature of institutions and institutional change in pasture use in Kyrgyzstan?

The research results show that there is a high interdependence among actors in pasture use and herder/livestock owners are involved in multiple bargaining situations with different actors at local, regional and national level. We have observed a change of power asymmetries strongly influenced by existing informal as well as new formal institutions and governance structures.

In our view the introduction and enforcement of the new formal institutions such as pasture tickets and pasture use plans have reduced the asymmetry of *positional power* in pasture use between individual and '*mal koshuu*' herders. But the intervention in the bargaining 'herder vs. livestock owner' increases the power asymmetry and supports more powerful actors. Both interventions reduce the social dilemma in pasture use and increase pastoral migration.

Moreover, the enforcement of formal institutions changes relative bargaining power and the distributional advantage of actors and triggers the institutional change in pasture use. It seems that actors involved in the bargaining recognize the change in their bargaining power and there are individual interactions going on with attempts to change ‘working rules’.

For instance, small and medium livestock owners and ‘*mal koshuu*’ herders are questioning the legitimacy of the asymmetrical access to pasture enjoyed by large livestock owners. And individual herders/large livestock owners experience pressure from the Pasture Committee and other herders to migrate to summer pastures. On the other hand, the positional power asymmetry between individual and community herders has increased owing to the construction of bars on pasture and the fencing of pasture.

The study demonstrates that there is a strong and complex interrelation between new formal rules and ‘working rules’ in pasture use in Kyrgyzstan. Herders and livestock owners rely mainly on ‘working rules’, however, new formal rules affect power asymmetries and payoff structures leading to changes in actors’ bargaining strategies.

The formal rules (which are exogenous to the community) influence the endogenous process of rule making. It seems we can observe a process of ‘internalisation’ of exogenous rules, which may lead to the evolution of new ‘working rules’. Formal rules are not just accepted or ignored by pasture users, but they are transformed in the rule making process.

Thus, effective and new formal institutions are interrelated in the process of rule making. Exogenous institutions are transformed in the endogenous process and may become ‘working rules’ in future.

The ‘internalisation’ process requires the change of pasture users’ beliefs. Knight and North argue that “...rational decisions are the product of beliefs that are instantiated in social institutions and in other cultural symbols” (1997: 218). Authors underline that belief formation is a dynamic learning process. Beliefs need to be “reconfirmed and reproduced” through the experience of actors (Aoki, 2005: 12).

For future studies this suggests the need to specifically address the formation and change of actors’ beliefs in pasture use in Kyrgyzstan. What are the focal points in the bargaining of pasture use (e.g. fairness)? And how do they change under new formal rules? In addition, the role of deliberation and public discourse in the formation of beliefs and institutional change needs clarification and further research.

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Attachment A.

Table 11. Characteristics of the selected case study communities

Characteristics	<i>Jergetal</i>	<i>Tösh-Bulak</i>
Population	5 420	2 978
Pasture area (ha)		
- Winter	11 643	3 656
- Spring & autumn	24 179	4 958
- Summer	49 278	2 949
<i>Total:</i>	85 100	11 563
Livestock		
- Horses	2440	462
- Sheep & goats	27 706	636
- Cattle	2857	1202
- Camel	41	
- Poultry	2084	3559
Number of herders providing services	70	10
Number of bars on pasture	146	43
Date of establishment of PUA & PC	March 2011, April 2012	December 2009
Number of PC members	23	11
Number of PUA members	104	15
Pasture fee (KGS)		
Sheep & goat	7	60
Cows	35	260
Horses	50	550
Young cattle	50	350
Yak		
Total budget (KGS)	367 700	170 000
Collected amount (KGS)	108 226	94 000
Pasture fee collection rate	30%	55%

Source: Communal statistics of *Jergetal* and *Tösh-Bulak*, 2012.

Attachment B.

Table 12. Description of relative bargaining power and bargaining power related to the distributional consequences with interview excerpts

Relative bargaining power	Interview excerpt
<p><i>Risk aversion</i> (the risk attitude may be differentiated in relation to the risks shared in case of cooperation) There is a high risk related to the work of herder, which are shared between herders and livestock owners. Poor herders have lower risk aversion power and have to work mainly for a large livestock owner. A hired herder by a large livestock owner does not have to pay the livestock price; instead he will work for some time for free.</p>	<p>“We all have herding experience and understand each other, in the case of livestock being lost, a herder will not be forced to pay the whole price, instead a only a part of the livestock price will be deducted from his salary” (former PC leader, large livestock owner in Jergetal).</p>
<p><i>Credible commitment</i> (the commitment of the powerful can significantly influence the choice of less powerful actor).</p>	<p>“You may have problems sometimes, but I close my eyes and ignore it. For example if a wolf eats livestock, I say nothing as it can happen. Otherwise a herder will refuse to take my livestock. I know people in our village who change herders often after conflicts. It brings nothing. I see sometimes a small problem, but say nothing. It is not necessary to be involved too much in a herder’s work. I am controlling from outside and prepare winter fodder. I visit my herder on the summer pasture from time to time to control” (a trader & large livestock owner in Jergetal).</p>
<p><i>Exit opportunity</i> More herders are providing herding services now. With higher numbers of livestock the demand for herders’ services has increased driving up the price for herding as well. This has resulted in more and more herders starting to offer their services. Usually herders first approach a livestock owner. A livestock owner may select an experienced herder who moves to good pastures and takes good care of livestock.</p>	<p>“You don’t go looking for a herder, they approach you them self. For example this year he (the herder) is planning to go to the pastures and is interested in collecting livestock. Then you ask him to which pasture he is going. If he says he is going to the near village pasture, you can say that this pasture is not productive, it is good for cows but not good for sheep. You may look for somebody else who is going to a “big” summer pasture (<i>chong jayloo</i>). The livestock owner has a choice now” (a teacher & medium livestock owner in Jergetal)</p>
<p><i>Time preference</i> Large and some medium livestock owners & herders with contracts and bars on pasture enjoy time preference power and have better access to spring & autumn pastures.</p>	<p>“Some herders who rented pastures and constructed bars on spring & autumn pastures are moving to summer pastures later and coming again to autumn pastures earlier. This makes other herders unhappy” (a former member of PC & small livestock owner in Jergetal).</p>

Bargaining power related to the distributional consequences	Interview excerpt
<p><i>Positional power</i> (arises from a strategic position of an actor)</p> <p>Large and some medium livestock owners increased their <i>positional power</i> with long term renting contracts signed under previous pasture legislation before 2009. Moreover, mainly large livestock owners build or buy bars on winter and spring/autumn pastures. This restricts the access of other herders to the pasture.</p>	“There are some livestock owners who own stalls on winter and spring pasture and do not allow others to come to this pasture. For example one herder in our village has rented 500 ha of pasture having only 100 sheep and 20 horses... Why should only one person have the right to use this pasture? Where will the others go? Some herders rented a pasture in order to privatize it in the future. Others have collected livestock, but cannot use the pasture” (a ‘ <i>mal koshuu</i> ’ herder in Jergetal).
<p><i>Information</i> (the information asymmetry about available individual and institutional alternatives may affect the decision of an actor in the bargaining).</p> <p>Information about pastures allocation is more open now; it triggers bargaining during formal community meetings leading to decrease of information power of wealthy herders & livestock owners.</p>	“There is lot of discussion going on during the meetings of pasture users organized by PC. Before the information on pasture allocation was not available to people. I think it is much more open now...” (expert ARIS).
<p><i>Organisability of the group</i> (the ability to organise and act collectively)</p> <p>The <i>Ayil Okmotu</i> intervenes in the bargaining between a livestock owner and a herder and increase the <i>organisability of the group</i> power of livestock owner by establishing special institutions ‘<i>Tülöö meeting</i>’ in spring where bargaining takes place. This intervention gives more power to the livestock owner as the price of the herding service is limited and cannot differ very much. Livestock owners can select the most experienced herder who plans to move to a summer pasture for more or less the same price.</p>	“At the general community meeting in spring (usually in April), everyone takes part and discusses and agrees different issues including the terms of herding, the price for herding and tractor services etc....If somebody does not agree about the price, it will be solved during the meeting. Conflicts start there, but at the end of the meeting everyone agrees on tariffs... Herders cannot take a higher price. If he asks for more, nobody will agree” (a medium livestock owner in Tösh-Bulak).
<p><i>Networks & mental models</i></p> <p>Members of the ‘<i>nomenclatura</i>’ networks share common ideology and enjoy bargaining advantage. Former kolkhoz leaders and herders are wealthy livestock owners & herders now; they are well represented in new governance structures in order to protect their interests.</p>	<p>“Former kolkhoz leaders and herders became rich as they understand how to manage livestock and deal with risks in the mountains. Some of them acquired bars on pastures. People, who were working in other positions in kolkhozes, were not so successful”</p> <p>“They (wealthy livestock owners & herders) are well represented in different positions in PCs and push for their interests. If PCs do not work fair, small livestock owners & herders benefit less” (expert NGO in Bishkek).</p>
<p><i>Transaction costs</i> (the costs of informing, negotiating, agreeing, monitoring, enforcing and adapting institutions).</p> <p>Herders were forced by PC to pay pasture fees for community livestock in Jergetal.</p>	“Herder have paid pasture fees for community livestock to PC, but were not able to collect money from livestock owners” (expert NGO in Bishkek).
<p><i>Sanction power</i> (the choice of an actor can be affected by threatening to punish him).</p> <p>The enforcement of the pasture use plan and the allocation of pasture to herders by a pasture ticket contribute to the decrease of the positional power asymmetry of large and medium livestock owners.</p>	“Alymkul a wealthy livestock owner has a long term renting contract and a bar on the spring/autumn pasture and has refused to move to summer pastures in 2010. The Pasture Committee went to court in order to punish him. This year it seems he went to the summer pasture” (a former member of the PC in Jergetal).

Source: Authors.