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Peter Ho

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Empty institutions, non-credibility and pastoralism: China's grazing ban, mining and ethnicity

Peter Ho

When institutional function is disregarded in property rights reforms, there may be two outcomes. One, the new institution grows detached from actors' praxis and evolves into an 'empty institution', allowing those governing to enforce without enforcing, while those governed can continue what they did. Two, the institution evolves into a 'non-credible' institution, which may collapse or change due to rising conflict. The concepts are applied to China's Grazing Ban, a profound measure to regulate the nation's largest land resource: grassland. A survey and interviews in 11 villages in Northwest China demonstrate that most herders feel that a ban is not appropriate for conservation. Over half perceive negative ecological change, while there are complaints over adverse income effects. More than one-third admit to illegal (night-time) grazing, leading to conflicts between enforcers and herders. The ban's lack of credibility may be attributed to its disregard of the function of land for social welfare. Through an institutional analysis of grassland reforms, it is demonstrated that the state's reasons to keep imposing the ban are as much driven by ecological conservation as by the need to ascertain control over a vast frontier endowed with mineral reserves and inhabited by ethnic minorities.

Keywords: rangeland and natural resource management; payment for ecosystem and environmental services; nomadism; non-state social welfare; credibility

1. Introduction

When institutions seemingly 'persist' – i.e. feature gradual, small changes – they actually fulfill a function, and, therefore, one should be careful with institutional interventions in the name of enhancing efficiency, sustainability or modernization (see the Introduction to this collection). Instead, assessing institutional function is what one should first probe into, prior to considering intervention, if at all. Yet in daily political realities this is often (un)intentionally disregarded, leading to the establishment of institutions that perform little function amongst social actors, and which can be strongly contested. Against this backdrop, the contribution examines the politics around the landed property rights that govern China's grasslands.

Grassland accounts for China's largest land resource (see [Figure 1](#)), covering nearly 41 percent of the national land area, followed by forest (31.9 percent), cultivated land (12.7 percent), waters enclosed in land (1.8 percent), and other land-use types (12.7 percent).¹ China's 'traditional' pastoral region consists of five autonomous regions and four

¹Grassland is the world's most common vegetation type, covering approximately one-fifth of the earth's land mass (Scurlock and Hall 1998, 229). The countries with the largest area of grassland are, respectively, Australia, Russia and China, with an estimated 6–8 percent of the world's total area located on the Chinese mainland (World Bank 2011; Ni 2002).

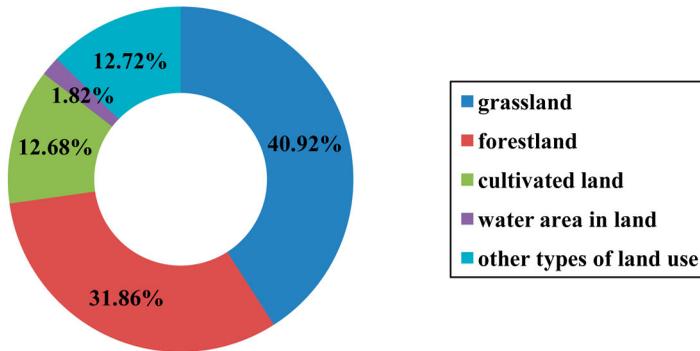


Figure 1. Distribution of China's land-use types.

Source: Illustrated on the basis of data by the National Bureau of Statistics (2011a, 12–2).

provinces.² What is referred to as 'grassland', in fact, comprises widely varying eco-types ranging from the meadows and forest steppes of former Manchuria in the Northeast; and the high, alpine pastures of the Qinghai-Tibetan plateau; to the (semi)arid steppes and deserts in the nation's Great West. Due to this geographical and ecological variety, the utilization of grassland is not limited to grazing and forage production, but extends to the exploitation of grassland and forest by-products (including protected animal and plant species for medicinal use; e.g. Yeh and Lama 2013; Ho 2000b), and the exploitation of mineral resources. We are thus speaking about a complicated, multi-layered and nested use of grassland that touches on topsoil and subsoil rights.

According to numerous government reports, China's grasslands are suffering from serious overgrazing, leading to degradation and desertification. In response, the state has issued a strict prohibition on grazing since 2000, enforced through fines and patrols by grassland police. This 'Grazing Ban' (or *jinnu zhengce*) is coupled to Payment for Ecosystem Services (PES) that supposedly buys out herders to give up free grazing in lieu of stall-feeding. However, the geo-political, military and economic interests in the pastoral region, which features strategic mineral deposits and ethnic peoples with possible separatist agendas, have also raised doubts whether grassland protection is actually the driving rationale for profound measures, such as the Grazing Ban. Whatever the case, the ban is little abided by as herders continue to graze illegally, while there are reports about income loss, grazing conflicts, decrease in fodder quality and rent-seeking by local cadres. One may wonder: why did the Grazing Ban, which aimed for a fundamental restructuring of grassland property rights, fail, and could this have been prevented? It will be demonstrated that the Grazing Ban's low credibility can in great part be attributed to its forceful imposition in combination with the neglect of an institutional function which made the agricultural lease system successful: social welfare and security.

²These are the autonomous regions of Inner Mongolia, Qinghai, Xinjiang, Tibet and Ningxia, and the provinces of Sichuan, Shaanxi, Gansu and Heilongjiang. This distribution does not fully concur with the distribution at a lower level of administration. At the county level, 264 counties (excluding city districts at the same administrative level) were categorized in 2006 as pastoral (120) and semi-pastoral (144). Together, these represent approximately 60 percent of all grassland areas. The population living in these counties is relatively small, and is estimated at around 3.5 percent (44 million) of China's total population of 1.33 billion (Song 2006, 17).

This paper is divided into two main sections: a theoretical and an empirical part. The theoretical section examines the premises, defining parameters and main conditions under which less credible, empty and non-credible institutions are likely to emerge. Following this, the subsequent empirical part will first review the property rights of natural resources (which includes grassland, but also mineral resources and forest). Subsequently, it will focus on the pastoral sector and discuss relevant national policies, particularly the Pasture Contract System and the Grazing Ban. To demonstrate how the imposition of the Grazing Ban is perceived by social actors on the ground, the empirical part includes a case study based on 22 in-depth interviews and a quantitative survey amongst 251 herder households in 11 villages dispersed over three counties in rural Ningxia, Northwest China. The paper closes off with a discussion of the potential implications of the case study for understanding development and institutional change.

2. Theoretical ramifications of non-credibility and empty institutions

In the paper's theoretical section we will first put forward the argument that less- or non-credible institutions may arise when actors: (1) are unaware of, or disregard existing institutional functions; (2) resort to social engineering, and impose newly devised 'rules of the game'; and, lastly, (3) feature significant divergences in power and resources.

2.1 *Empty versus non-credible institutions*

It is important to see that a non-credible institution is *not* tantamount to a symbolic set of rules of the game, or an 'empty institution'. Particularly when sensitive issues are at the center stage of social and political debate, 'empty' institutions tend to surface as a sort of institutional compromise (e.g. Aubert 1966; Aalders 1984). In these situations, institutions can become detached or 'decoupled' from social actors' behavior to *avoid* conflict.³ As such, the empty institution is, by and large, ineffective and ignored, yet simultaneously socially accepted, little contested and, in effect, to a certain degree *credible*.⁴ In light of the above, the 'empty institution' can be defined as a 'symbolic set of rules' by which:

The interests opposed to them ensure that they are established in such a way that they cannot achieve their aims, whereas the interests supporting them win a pyrrhic victory as their rules, as represented by the new institution, have no practical impact on social actors' behaviour. (Ho 2005, 73)⁵

³This process of detachment has – in organization sociology – been described as the 'decoupling' of daily human activities from institutions. In Meyer and Rowan's (1977, 357) wording: 'Because attempts to control and coordinate activities in institutionalized organizations lead to conflicts and loss of legitimacy, elements of structure are decoupled from activities and from each other ... decoupling enables organizations to maintain standardized, legitimating, formal structures while their activities vary in response to practical considerations'.

⁴In this regard, the discussion is also related to the neo-classically inspired notion of 'functional equivalents' in which alternative institutional arrangements replace formal institutions in industrialized and developed market economies (Rodrik 2007).

⁵Note that in Ho (2005b), the conceptual differences between the empty versus the non-credible institution were not as distinctly defined as here. For this reason, the non-credible institution is separately discussed and defined here.

Note that the ‘empty institution’ is to be distinguished from the ‘institutional void’ (e.g. Khanna and Palepu 2010). The latter is a concept with *distinct* neo-liberal undertones, describing developing markets and societies in which the much-dreaded lacuna of formal, private and secure institutions is supposedly infiltrated by informal, perverse and, at most, ‘second-best’ institutions. As Puffer, McCarthy, and Boisot (2010, 441) condescendingly worded it: ‘economies ... characterized by underdeveloped formal institutions, often resulting in an unstable environment and creating a void usually filled by informal ones’.

In contrast, the empty institution describes something entirely different: a tacit agreement between those governing to implement without implementing, and those governed to continue what they were customarily doing. It is an endogenously negotiated compromise, in which a newly desired institution has evolved into a symbolic rule detached from actors’ praxis. Positioned on the theoretical continuum of credibility, the empty institution would be situated somewhere in the middle, representing rules that are *not* perceived as common, but at the same time *not* enforced. However, and this is where matters become complicated, controversial and contested, the empty institution may under political and public pressure also be *actually* enforced, which causes it to shift on the continuum, and evolve toward a non-credible institution.

2.2 Conditions for decreasing credibility

As much as a credible institution should not be depicted as a conflict-free situation of complete harmony and social acceptance, neither should a less- or non-credible institution be caricaturized as one of utter conflict, ripped by social grievance and inequity. In this sense, it is important to recognize that credibility is conceptualized as a *continuum* varying from an (ideal-typical) credible institution to an (equally ideal-typical) non-credible institution. That continuum is temporally and spatially determined; that is, an institution perceived as *credible* at one given time and location could well be entirely *non-credible* or empty at another time and location, and vice versa. At the same time, the theory also posits that inasmuch as an institution that is functional in actors’ eyes will only change gradually and minutely, an institution that is non-credible will feature faster and larger changes (Ho 2014; Stiglitz 2000, 64; Huntington 1968, 264). Put differently, an institution is subject to continuous negotiation over its function as it is perceived by actors and economic agents, while the pace of its change reflects the extent to which its function is perceived as credible, empty or non-credible.

To avoid confusion, the analysis of credibility needs to be differentiated from neo-liberally inspired studies on ‘credible commitment’. The latter refers to the commitment of the state in safeguarding secure and private property, and thus *exogenously* creating credible institutions (e.g. North and Weingast 1989; Rodrik and Zeckhauser 1988). Conversely, it is maintained that without that commitment institutions will remain inefficient and an impediment to modernization and development. In the case of land as a means of production, the aspiration to remove developmental blockage posed by inefficient institutions has justified and propelled large-scale programs of institutional change through titling, land and agrarian reform (De Soto 2000; Dorner 1972; Micelli et al. 2000; World Bank 1974; Johnson 1973).

At this point it is imperative to acknowledge a disparity between a situation in which the state devises and imposes a *new* institution that lacks credibility (cf. the Grazing Ban, and the volume’s following contribution on the Kelau Dam; Nor-Hisham and Ho 2016), versus situations in which allegedly inefficient, ‘old’ and traditional institutions seemingly

frustrate or block economic growth and modernization.⁶ The credibility thesis implies that if institutions were *not* credible, they would change, disappear or fail to materialize in actors' endogenous interactions (Ho 2014, 23–24). Thus, a non-credible institution imposed by the state will invariably follow one of these trajectories, as it is literally 'dysfunctional': it fails to perform a collectively perceived and supported function amongst actors. In this sense, the credibility thesis turns the neo-liberal argument around, and maintains that government programs which aim at large-scale institutional engineering out of a 'credible commitment' for a modern, free market economy, with state-protected and enforced private property rights, are in fact the frequent source for non-credibility, and not vice versa. There are three parameters that may lead to such a situation, reviewed below.

2.2.1 *Disregarding institutional function*

What the non-credible institution does entail is a general perception of mismatch between the (state's) propagated institutional function versus that of existing institutions in use. Pioneering scholars such as Charlesworth (1983), Ilbery (1984) and Guhan (1994) have convincingly shown that in a developing context, land-based institutions often serve as an informal, non-state social safety net. In addition, Davy and Pellissery (2013) have argued that informal settlements (and housing) may perform a similar function. Bypassing this, by exogenously and forcefully altering land (and housing) institutions to cater for market transactions through formalization and privatization, may run a risk of adverse effects.

Nomadic pastoralism and extensive livestock farming often feature a collective way of resource use, aiming to make optimum use of grassland production in reaction to environmental variability (e.g. Behnke, Scoones, and Kerven 1993; Banks 1999). Under such institutional arrangements, grassland is allocated in a manner ensuring each herder family has sufficient (not necessarily equal) pasture for its livelihood. The state's disregard of this function boils down to the neglect of pastoralism as a collective way of resource distribution, in place of complete prohibition of resource use through stall-feeding and environmental subsidies.⁷ Put differently, under conditions of land dependency, institutional change in terms of privatization and formalization, let alone a full-fledged ban on grassland use, inevitably runs counter to its perceived function as a means of social security; likewise China's agricultural land lease (Ming 2012; Deng 2001, 3). Despite that rural collective pension and health systems have been established over the past decade, we will see that herders and livestock farmers in the case study area still perceive a high need for a communal distribution of grassland as a form of social security.

It is for this reason that the credibility thesis propounds a principle of precaution, or what Bromley (2005, 46) termed a 'first principle of do no serious harm'. In other words, in the absence of evidence-based knowledge of an institutional function to the contrary – specifically in the case of resource-poor, rural and land-dependent communities – the state and society might be better off with a non-interventionist 'institutional, hands-off policy', or at most a facilitating, nurturing approach rather than one pushing for change (see section 6 of the Introduction to this collection).

⁶As, for instance, Kuran (2012, 1086) maintains in the case of Islamic institutions.

⁷In this regard, the paper by Zhao and Rokpelnis (2016) elsewhere in this volume also points to the need to pay more attention to local knowledge.

2.2.2 *Imposition of institutions*

A second condition for the non-credible institution to arise is when the state seeks to incorporate the propagated yet mismatched function in newly designed institutions, and consistently imposes these on other actors (Scott 1998). Regardless of whether one is looking at agrarian reform in Latin America or Eastern Africa (Everingham 2001; Andre and Platteau 1998), forest titling in India or China (Kumar and Kerr, 2013; He and Zhu 2008), or grassland privatization in Mongolia and Africa (Mearns 1996; Behnke, Scoones, and Kerven 1993), when examining institutional change around land, one may find numerous instances of institutional imposition.

The institutions that the Chinese state tried to effectuate in the traditional, pastoral regions have been related to widening socio-economic inequality, rising environmental degradation, problems of enforcement, civil disobedience and social conflict (e.g. Li and Huntsinger 2011; Yang 2009; Taylor 2006; Banks et al. 2003; Williams 2002, 1997; Sneath 2000). The Grazing Ban is a case in point. Central and local authorities have gone to great lengths to formulate and enforce the Grazing Ban. Since the first pilot to prohibit grazing was undertaken in Inner Mongolia in 2000, it has been extended to many other regions, and currently covers *all* pastoral areas of Qinghai, Ningxia, Shaanxi, Shanxi, Hebei and Beijing, as well as the majority of the pastoral areas in Xinjiang, Inner Mongolia, Tibet, Sichuan and Yunnan (Zhang 2011, 6).

2.2.3 *Power divergences*

A mismatch between propagated versus existing function is not sufficient to cause the emergence of non-credible institutions. It is necessary that there are also significant power divergences, allowing more powerful actors to impose institutions on others, regardless of whether that is done for the public good or for predatory reasons of rent-seeking. Theorists reasoning from an endogenous perspective have pointed to the importance of power in the formation of institutions. For instance, Farrell and Knight (2003, 544) noted that

if external circumstances change so that some actors acquire new alternatives in case of breakdown, whereas other actors face the same set of alternatives as they had previously, then asymmetries of power may emerge, and a bargaining theory of institutional evolution will begin to provide a better explanation than a contracting or efficiency one.

According to Grabel (2000, 11):

new-classical theorists deny the significance of factors endogenous to all societies which significantly influence the likelihood of a policy's success and hence its credibility. Notably absent from new-classical accounts, for instance, are considerations of ... the distribution of income, wealth, and political power.

Although Grabel's observation is mostly correct, neo-classically inspired scholars did make attempts to account for the role of power (e.g. North 1994, 360–61), albeit not necessarily convincingly. For instance, Acemoglu and Robinson (2006) asserted that power may explain why informal, inefficient and authoritarian ('extractive') institutions persist. Simply put, the reason why countries such as Iran, Afghanistan, or Nigeria for that matter, feature inefficient and 'perverse' institutions should be fully attributed to the dictatorial nature of their polities. There are, however, crucial differences with the endogenous view on institutions as expounded here, and in the other papers of this collection.

First and foremost, the neo-classical and neo-liberal schools hardly consider that the institutions they *propagate* are the result of power as well. Thus, the idea that formalization and privatization, too, are driven by power dynamics does not play any significant role in the analysis of neo-classically trained scholars, and Acemoglu and Robinson are no exception. By contrast, formalization (and privatization) of grassland rights is here taken as a fundamental point of departure to study how divergences in power may work out.

Second, in the neo-classical view formalization and privatization are seen as *exogenously* designable interventions. From there it is not a far step to establish democracy, good governance and human rights in other economies, societies and cultures in the name of freedom, open markets and private property rights. Yet adhering to endogeneity implies that actors' action is inevitably followed by reaction, triggering chains of interdependent actions and reactions, that tie an alleged external 'designer' of institutions into a spontaneously ordered game in which intentions are inherently watered down into something different or unintended.⁸

Third, in the endogenous view power is *not* to be seen in moral terms of inefficiency, but in the way it structures institutions into credible, non-credible or empty arrangements. Ergo, when institutions persist over time and space, they *are* credible and functional, as they have evolved from a spontaneously ordered evolution, regardless of how that has been engendered by divergences of power. This principle equally applies to the change and extinction of less and non-credible institutions, as apparent through rising levels of distributional conflict, contestation and cleavage.

A media report once portrayed Chinese pastoralism as 'the end' and 'a last look at a nomadic way of life' (Dodds 2013, 1 and 12). Reliable figures on the total number of herders in China are not easy to obtain. The population in the 264 officially designated 'pastoral' and 'semi-pastoral' counties is just 3.5 percent of China's total population of 1.33 billion (Song 2006, 17). It is estimated that a little over five million herders are dispersed over the pastoral counties, and more than 11 million over the semi-pastoral counties. This brings the total of the herder population to over 16 million, in general living in remote, scattered and resource-poor communities (Han 2009, 2).

Due to China's urbanization and globalization, the economic role of customary pastoralism is on the decline (Ho 2005, 70). Paradoxically, the importance of commoditized animal husbandry has grown substantially in the *agricultural* regions and currently dominates in most areas there. Only in the case of wool and cashmere, the pastoral areas still account for about half of the national production. In 2009, the total meat output of the main agricultural provinces, such as Shandong and Henan, each far exceeded the combined output of Xinjiang and Inner Mongolia, while each province also equaled or surpassed the combined cattle output of the two pastoral regions (Watson 2011, 14). In the case of national meat production, the pastoral and semi-pastoral areas in 2005 merely accounted for around 2.3 and 4.1 percent, respectively, approximately 15 percent of cattle off-take, and 21 percent of sheep off-take (Han 2009, 3). Compared to the hundreds of millions of Chinese farmers, the herder population of approximately 16 million is small, with limited resources, limited political leverage and declining economic relevance. The economic and socio-demographic constellation described here is what constitutes the power divergence between pastoralists and the Chinese state.

⁸The endogeneity of human action is here demonstrated by focusing on the pastoral sector. However, it can be as easily ascertained in, for instance, the impossibility of 'leapfrogging' the dirty stages of development. See (Ho 2005a).

3. Governing China's pastoral sector

Having reviewed the theoretical ramifications of non-credible and empty institutions, the empirical part will first describe the pastoral sector in terms of its property rights and governing policies. It will then move on to the case study that demonstrates how the Grazing Ban could have shifted into a non-credible institution.

3.1 *Grassland, mining and the ethnic dimension*

Of the total of around 393 million hectares of grassland in China, 84 percent or 331 million hectares is deemed usable for grazing (National Bureau of Statistics 2011a, 12–2). In the arid and semi-arid regions, large tracts of grassland consist of steppe, semi-desert or desert, with low or very low forage production.⁹ It is maintained that a major proportion of China's grasslands have been degraded or desertified to varying degrees (Squires et al. 2009). A variety of causes for grassland degradation have been identified, which include overgrazing, overpopulation, mining, agricultural reclamation, pests and rodents, geophysical change, climate change and variability (Ho and Azadi, 2010). Simultaneously, it needs to be emphasized that there is contention about the extent to which degradation has taken or is taking place (Harris, 2010; Yonten 2012; Da and Zheng 2012; Zhang et al. 2011; Ho 2001). Researchers have also posited that Chinese statistics over grassland degradation are politicized and need reinterpretation in the light of larger ethnic, geo-political and strategic interests (Banks 2003; Williams 1996, 1997).¹⁰

The ownership structure that underlies the access to and use of natural resources, including grassland, appears simple: it is state-owned unless proven collectively owned. As the 2004 Constitution stipulates: 'Mineral resources, waters, forest, mountains and hills, grassland, ... and other natural resources are state-owned, that is owned by the people, except for those ... that are collectively owned as stipulated by law' (Article 9).

However, behind this straightforward stipulation lies a substantially more complicated institutional background.

For one, although mineral resources and forests were nationalized early in the history of the People's Republic, in 1950 for forest (through the Land Reform Law, Article 18) and in 1954 for mineral resources (Constitution, Article 6), the property rights of grassland were left untouched for an extended period of time. The sensitivity of the ethnic question played a decisive role in upholding private and communal ownership over the grasslands. Apart from the fact that the ethnic areas have been formally accorded a degree of regional autonomy (Ma 2006; Mackerras 1995), they were by and large also shielded from the revolutionary agrarian reforms. The 1950 Land Reform Law specifically stated it was not applicable to the ethnic areas (Article 36).

It was not until the proclamation of the 1982 Constitution, over three decades after Land Reform, that grassland was finally declared state owned. The debates that led to this were part of a larger debate on the nationalization of *all* rural land (Xu 2003, 679). Although that

⁹As grassland includes other vegetation types, the more neutral term 'rangeland' or 'range' is also sometimes used. Other synonyms or overlapping terms include but are not limited to prairie, pasture, savanna, woodland and shrubland. However, in this monograph, we will adhere to 'grassland', as the term *caoyuan* (literally 'grass plains') is commonly used in China.

¹⁰Coupled to this is the claim that pastoralism is economically inefficient and in need of modernization. A description of the history of the perception and politics on pastoralism as a 'backward' system in order to legitimize its 'modernization' is provided in Ho and Azadi (2010, 303).

radical proposition was later overturned by a more moderate faction within the central government, gaining control over the nation's mineral resources was an important reason for nationalization. Powerful proponents pushed forward the measure, not least (and perhaps surprisingly, due to his ethnic background), Vice President Wu Lanfu, a politician of Mongolian descent; Fang Yi, the President of the Science and Technology Commission; and Hu Ziyang, a member of the Standing Committee of the China People's Political Consultative Conference (Xu 2003, 645 and 679). The latter maintained:

The mines exploited by the state are all located under the grasslands (*guojia wa kuangcang, dou zai caodi xiamian*), the Shengli Oilfields, the Qian'an Iron Mines, if you dig away one tree, you have to give 1,000 RMB to the peasant. That cannot be. (Hu quoted in Xu 2003, 679)

Interestingly, the debates were also joined by the Panchen Lama. He appeared to have opposed the nationalization of grassland, or at least voiced a certain apprehension. In his cautious wording: 'The grasslands need to be well protected. The grassland vied over between farmers and herders should not be dealt with as an ordinary land dispute (*nongmu xiangzheng de caoyuan bu neng dangzuo yiban de tudi jiufen kandai*)' (cited in Xu 2003, 679). Although the state nationalized grasslands, their ownership is today still claimed by the collectives, while the mining of the grasslands' subsoil resources has remained a Daedalean collusion of state, collective and private interests. In effect, despite the (central) state-owned nature of mineral resources, the local state and rural collectives have great influence on the actual mining as the mining permit cannot be effectuated without a land-use permit, which should be issued by either the local state or the collective.

Complicating matters is the fact that the property rights of grassland are registered and administered by different state departments, with grassland ownership and use respectively falling under the Ministry of Land and Resources and the Ministry of Agriculture. Moreover, depending on the ecological definition, the use right of resources such as forest steppe and grassy forest may actually fall under the jurisdiction of the State Bureau of Forestry or the Ministry of Agriculture. Exceptionally, the ownership and use of land (including grassland) that transcends the level of the province should be dealt with by the Ministry of Civil Affairs (State Council 2002, Article 3).¹¹

3.2 National regulatory context: privatization and stocking rates

The rationale that by and large drives and justifies the Chinese state's interventions in the pastoral sector is the protection of grassland effectuated through the privatization of property rights. This is done via the Pasture Contract System under which grassland is leased (euphemistically termed 'contracted') for a period between 30 to 50 years to herder households.¹² The lease is coupled to the assignment of stocking rates or carrying capacities that a given plot of grassland can theoretically sustain. Simply put, by delegating the responsibility to limit the number of livestock to individual herders, the off-take from grassland can be held in check, thus safeguarding its sustainable use. As the 2013 Revised Grassland Law stipulates: 'This Law is enacted with a view to protecting, developing and making rational use of grasslands. ... Contractors for grassland management

¹¹A typical case in this regard is the decades-long grassland dispute over the boundaries between Ejin Banner of Inner Mongolia and Jinta County of Gansu Province. See also Ji (2015).

¹²The lease period is stipulated in article 20 of the 2002 Rural Land Contracting Law.

... may not exceed the carrying capacity verified by the competent administrative department' (Articles 1 and 33).¹³

According to official figures, around 70 percent or 220 million hectares of China's usable grassland has been allegedly leased to individual herders and livestock farmers (Ministry of Agriculture 2011, 34; Song 2006, 18).

However, numerous reports from the grassroots mention that the lease system exists in name only; that contracts do not specify demarcated pastures; and that, as a consequence, most herders continue to use grassland in common (e.g. Squires et al. 2010, 279; Brown, Longworth, and Waldron 2008, 55; Nelson 2006; Richard 2000; Williams 1996).¹⁴ For instance, in a survey of 284 herders in rural Ningxia, it was found that merely seven percent of the respondents had contracted grassland, while 62 percent stated that they had never heard of pasture contracts (Ho 2000b, 393). In this regard, Longworth and Williamson (1993, 322) remarked: 'At central government level certain policies are in place and provincial, prefectural, county and even township officials will describe . . . how the policy is working. However, at the village and household level, the policy does not exist'.

Banks (1999, 304) has pointed to a potential yet critical sign of the level of institutional credibility of the Pasture Contract System:

[N]either contracts nor pastoralists have demarcated individual household boundaries and small-group common property arrangements persist. Thus the overstretched nature of state administration has created sufficient political space for the realities and informal tenure practices of the pastoralists to influence policy implementation.

In other words, because it is *not* implemented – albeit widely reported as such – the Pasture Contract System might be able to fulfill a function amongst social actors. On the one hand, it satisfies the state that sees its ambitions of governing the pastoral sector rewarded. On the other hand, although it represents norms and values that are not accepted in society, its non-implementation provides the maneuvering space for pastoralists to continue using common, customary arrangements. In short, the Pasture Contract System can be regarded as an *empty institution*. As such, the Pasture Contract System functions as an institutional compromise that provides it a certain degree of credibility, while avoiding, or at least minimizing, distributional conflict.

¹³The Grassland Law was originally proclaimed in 1985. It was revised (*xiuding*, i.e. replaced by a new version) during the 31st Meeting of the Standing Committee of the Ninth National People's Congress on 28 December 2002. It was amended (*xiugai*, i.e. content partially changed or added) for the first time in accordance with the Decision of the Tenth Session of the Standing Committee of the 11th National People's Congress on 27 August 2009, and amended for the second time at the Third Session of the Standing Committee of the Twelfth National People's Congress on 29 June 2013.

¹⁴It should be noted that at the national level there is confusion about the legal status of the lessor (as the owner of grassland), as well as the lessee (as the user of grassland). Regarding the former, the issue revolves around the legal representative of grassland ownership – the state or the collective (Ho 2000a). Regarding the latter, some national laws and regulations mention that grassland can be leased to individuals as well as collectives (Article 13, 2013 Grassland Law; and Article 15, 2004 Land Administration Law). In contrast, the 2002 Rural Contracting Law (Article 15) and the 2007 Property Law (Article 124) state that land (including grassland) should be contracted out to individual households ('*nongcun jiti jingji zuzhi shixing jiating chengbao jingying wei jichu*').

3.3 From empty contracts to non-credible bans

Whereas the Pasture Contract System may be characterized as an empty institution, much less could perhaps be said for the Grazing Ban. In fact, it will be contended that the ban has been less credible, if not non-credible, in its outcome. As stated earlier, there are vital interests that give the pastoral region great significance for the state. For one, the pastoral region encompasses major mineral and energy resources, including oil, gas, copper, iron, coal and rare earths. Second, the pastoral region represents much of the nation's frontier region inhabited by a diverse population of ethnic minorities with possible separatist agendas, including Uyghurs, Tibetans, Mongols, Kazakhs, Kirghiz, Tadjiks and Hui. It is thus not difficult to see that the region has substantial economic, military-strategic and geo-political significance.¹⁵

Therefore, institutional interventions in the pastoral sector also serve wider interests than nature conservation and environmental protection alone. A typical example is the sedentarization of nomadic herders (*dingju youmumin*), interchangeably (but erroneously) used with the term 'ecological resettlement' (*shengtai yimin*) (Du 2012; Zhang 2012; Merkle 2004).¹⁶ In one of the main policy documents issued under the auspices of the powerful National Development and Reform Commission (NDRC), its objectives were clearly stated:

By settling nomads one can improve their production and living standards, and promote economic growth and social development of the ethnic regions, in order to ... expel social unrest, and maintain ethnic unity and stability of the border areas (*weihu minzu tuanjie he bianjiang wending*). (NDRC et al. 2012, 10–11)

Against this backdrop, the Grazing Ban could be seen as a critical measure in gaining control over vital resources of the grasslands.

Well before the mid 2000s, when the Grazing Ban gained prominence in the media as a key component of national policy (Xinhua 2004),¹⁷ it was already in existence in various forms and at various levels of administration. The origins of the Grazing Ban date back close to 10 years, to a local experiment carried out in Yijinhuoluo Banner in Inner Mongolia in 1991. This pilot led to the proclamation of a partial ban on grazing in 1998 and, subsequently, a full prohibition in the entire banner two years later (Jia, Li, and Song 2008).¹⁸ The Grazing Ban was adopted as national policy for the first time in 2000 (State Council 2000) and later encoded in the revised Grassland Law in 2002 (article 35, section 2).

In following years, the Grazing Ban was merged with additional programs. These were, respectively, the Herds for Grass Program (*tuimu huancao*, similar to its agricultural pendant: the 'Grain for Green' program or *tuigeng huanlin*)¹⁹ and the Payment for

¹⁵The strategic significance of the pastoral region as China's frontier can be dated back over 2000 years to when the Western Han imperial state engaged in agricultural reclamation by the military or *tunken* (Ho 2000c). Xinjiang is mostly known for its *bingtuan* or military farms, but they can also be found in other pastoral regions, such as Heilongjiang and Qinghai.

¹⁶Strictly speaking, the sedentarization of nomadic herders can be seen as a part of ecological resettlement, as the latter not only pertains to pastoralists and ethnic minorities, but can also involve sedentary farmers, as well as Han Chinese.

¹⁷The Grazing Ban continues to speak to popular imagination, as evidenced by media reports that 'China banned grazing on nearly 90 million hectares' and 'forbade 30 million livestock from roaming on grasslands' (Reuters 2007, 1).

¹⁸The name banner or *qi* is generally used in Inner Mongolia, and is equal to a county.

¹⁹This program aims to convert cropland vulnerable to soil erosion (such as sloping and arid lands) into forestland. It was started in 1999; see also e.g. Zhou, Zhao, and Zhu (2012).

Grassland Services (*caoyuan shengtai baohu buzhu jiangli jizhi*). Integration of the Grazing Ban with the former was effected in 2005 through a notice by the Ministry of Agriculture (2005, 2), which defined the program as including grazing bans, grazing restrictions (*xiumu*) and rotational grazing (*lunmu*).²⁰ The connection with the latter program – in effect, a PES program – was effectuated six years later (State Council 2011, 4). Due to the Grazing Ban's merging with other policies, there is considerable confusion regarding its relation with the Herds for Grass Program (of which it is a part) and the Payment for Grassland Services (to which it is an addition).²¹

The Grazing Ban decrees that where it is in force, pastoralists and livestock farmers are prohibited from grazing livestock on grassland in place of stall-feeding. To compensate for the loss of income, herders are entitled to subsidies based on a flat rate of 6 RMB per mu of pasture.²² The ban is enforced through Grazing Ban Teams – in practice, cadres already assigned to grassland supervision – that are entitled to impose fines or confiscate livestock if the ban is transgressed. In theory, the Grazing Ban applies to severely degraded grassland, whereas for less-degraded categories, seasonal bans (*xiumu*), rotational grazing (*lunmu*) or 'balanced grazing' (*caoxu pingheng*) on the basis of stocking rates are used.²³ In these areas, herders can receive an additional subsidy of 1.5 RMB per mu if the carrying capacity is not exceeded. It is unclear whether, and if so on the basis of what indicators, such detailed categorization (full bans, rotational grazing, seasonal bans and balanced grazing) is used (Zhang 2011, 6).

The Grazing Ban has been debated online in overly negative terms.²⁴ Equally important, with only a few exceptions, the Grazing Ban has been unfavorably evaluated by a variety of Chinese studies.²⁵ For starters, in environmental terms the empirical evidence

²⁰In the same ministerial notice, seeding of grass was included as an additional measure for areas under the Grazing Ban.

²¹Moreover, there is also confusion over the English translation of the term *jinmu*. For instance, while Waldron, Brown, and Longworth (2010) mention that Yeh (2005) focuses on grazing bans, she is actually talking about the *tuimu huancao* program, translated by her as 'converting pastures to grassland', and translated by Waldron et al. as the 'reduce livestock/grazing return grasslands program'. Nakawo et al. (2010) translate *jinmu* as 'banning of grazing', while they do not mention *tuimu huancao*, but only *tuigeng huanlin(cao)* and *tuimu huanlin*, respectively translated as 'conversion of farmland to forest/grassland' and 'conversion of stock farming to forest'.

²²The rates for subsidy for the grazing ban and other areas were determined in a notice by the State Council (2011, 4) proclaimed on 1 June 2011.

²³In 2010, the central state called upon the local governments of Inner Mongolia, Sichuan, Yunnan, Tibet, Gansu, Ningxia, Xinjiang and Qinghai to determine the zones in which the Grazing Ban should be applied (Ministry of Finance and Ministry of Agriculture 2010). One year later, in 2011, it was determined that under the *tuimu huancao* program no more new Grazing Ban zones would be established (National Development and Reform Commission et al. 2011).

²⁴Problems of enforcement and income are discussed next to issues of identity, ethnicity and culture. Some asked for incidental advice, such as the online question by Gezi (2012): 'Are there any standards for the penalties under this grazing ban? Some bastard officials (*gouguan*) use the Grazing Ban as an excuse to indiscriminately impose fines. Hopefully someone knowledgeable could kindly reply, it isn't easy to be a peasant!' Others are active as bloggers, such as Jorilt (2013) and Changsheng Tian de Enci (2013). The latter stated: 'The Grazing Ban is simply an awfully bad pretext (*chaolan de liyou*) to prevent grassland degradation', and his blogs have attracted some interesting reactions. His homepage mentions he is a male of Mongolian descent and lives in Hailar, Hulunbei'er. He studied at the Ke'erqin Vocational Arts School. His biography reads: '20 years at the grasslands, after that is something I don't want to talk about'.

²⁵An exception might be the studies by Dong et al. (2007) and Chen (2007), which are more positive. Dong et al. showed that the Grazing Ban is widely implemented, but also signaled that high input costs

is far from conclusive. Whereas some scholars maintain that the Grazing Ban has shown positive ecological effects (Wang, Li, and Gen 2005; Zhao, Cao, and Li 2003), others have been more prudent in their conclusions (Shi et al. 2007; Wang et al. 1997).²⁶ Research has also pinpointed numerous reasons for the failure of the Grazing Ban, including its ill-adapted nature to the ecological realities of the pastoral area (Zhang et al. 2011; Song et al. 2004; Qi and Hu 2006), and its commandist, top-down manner of implementation (Chen and Su 2008; Wang 2010).²⁷ Moreover, problems with the administration, standards and payment of the subsidies have also been identified (Li 2011; Li 2006), along with rent-seeking by local cadres and adverse effects on income and livelihood (Liu et al. 2007; Chen and Su 2008).²⁸ As a result, the Grazing Ban has been opposed, as evidenced by rural disobedience through clandestine grazing (*toumu*) during night or at remote locations (Yu and Xu 2010; Qi and Hu 2006; Fan, Zhou, and Ma 2005).²⁹

After having reviewed China's pastoral sector in terms of its underlying property rights structure and regulatory context, we will move on to discuss how the implementation of the Grazing Ban has led to its establishment as a non-credible institution, through the case of the Ningxia Hui Autonomous Region in Northwest China.

were the most serious problem in stall-feeding. According to them, incentives need to be given for sustainable implementation of the Grazing Ban. The latter study, by Chen, does not provide a systematic presentation of materials, methods and results, and appears to be more a government report. In relation to PES, the Grazing Ban only found justification in the eyes of a limited group of scholars. Hou, Li, and Ying (2008) argued that market approaches such as PES are an important means for grassland management, whereas Yu and Wang (2011) – based on a case study in Yanchi County (Ningxia) – concluded that creating appropriate conditions for the transfer (and, thus, marketization) of grassland rights is important to raise farmers' income.

²⁶Shi et al. (2007) found that the output of high quality forage (mostly grass species) was more than half lower (351.24 g/m²) in the area under the Grazing Ban versus the freely grazed area (721.72 g/m²). They also found that the number of species (27) in the enclosed grassland was lower than in the grazed one (34), which led to the hypothesis that dominant species more easily get the upper hand in an enclosed environment as these are no longer controlled through grazing. The article contains a good review of the international literature in explanation of their findings. Wang et al. (1997) conducted one of the few long-term studies (1983–1994) on the effects of the Grazing Ban, and found that after 10 years the vegetation in the enclosed area still had not recovered (in a Clementsian interpretation). In this regard, Shi et al. (2007) made the important observation that time is crucial in assessing ecological change and recovery.

²⁷In an interview by Wang (2010), Yu Changqing, director of the Ecological Protection Centre of Tsinghua University, maintained that grassland policies, including the Grazing Ban, should not be implemented in a 'one-size-fits-all' fashion (*yi dao qie*). Wang Xiaoyi, director of the Centre for Research on Rural Environment and Society of the Chinese Academy of Social Sciences, blamed a blind focus on project acquisition from central funding by local governments (*xiangmu zhuyi*) for the standardized, top-down manner of grassland policies.

²⁸Wang stated that in Inner Mongolia there is a silent understanding (*moqi*) between township cadres and herders that they would only occasionally check on clandestine grazing, for instance during inspections by higher level administration. However, in return for not being investigated, local cadres would ask as much as 10 RMB per sheep from herders ('*mei zhi yang ... jiao 10 kuai qian, xiang zhengfu jiu bu zai zhuijiu ni de wenti*' (official cited in Wang 2010).

²⁹For instance, a rural survey of 52 farm households in nine natural villages in Yanchi county (Ningxia) by Fan, Zhou, and Ma (2005) found that over 90 percent of the respondents maintained grazing in defiance of the Grazing Ban. A similar situation was reported for the (semi-)arid pastures in Inner Mongolia, by Yu and Xu (2010, 78).

4. The Ningxia case

4.1 Site, sample and methods

The Ningxia Hui Autonomous Region is located in virtually the geographical middle of China, albeit associated with the ‘Great Northwest’ (*da Xibei*) by the Chinese: a memory reminiscent of the Republican era when Ningxia Province still covered a large area of western Inner Mongolia. In 1958, Ningxia was established as an autonomous region for the Hui Muslim.³⁰ Present-day Ningxia is one of the nation’s smallest provincial-level units, and borders Shaanxi Province to the east, Inner Mongolia to the north and west, and Gansu Province to the south.³¹ It features a diverse geography of forested mountains and hills, table lands, deserts, flood plains and basins cut through by the Yellow River. It was reported that approximately 34 percent (33.85 million *mu*)³² of the region’s total surface consisted of grassland (Ningxia Bureau of Statistics, 2013, 1.2). This figure is down from approximately 40 percent in the 1990s.³³ The grasslands are spread over the dry desert-steppe area in the northeast (which forms a part of the Inner Mongolian steppe region), and the hilly pastures located on the semi-arid Loess Plateau in the south.

Ningxia is rich in mineral resources with proven deposits of 34 kinds of minerals, much of which located in grassland areas. In 2011 it was estimated that the potential value per capita of these resources accounted for 163.5 percent of the nation’s average. Ningxia boasts verified coal reserves of over 30 billion tons, with an estimated reserve of more than 202 billion tons, ranking sixth nationwide. Coal deposits are spread over one-third of the total surface of Ningxia, and mined in four major fields in the Helan and Xiangshan mountains, Ningdong and Yuanzhou (or Guyuan). The region’s reserves of oil and natural gas can be found in Yanchi and Lingwu County, and are ideal for large-scale development of oil, natural gas and chemical industries. Ningxia leads China in gypsum deposits, with a proven reserve of more than 4.5 billion tons, of which the rarely found, top-grade gypsum accounts for half of the total deposits. The Hejiakouzi deposit in Tongxin County features a reserve of 20 million tons of gypsum with a total thickness of 100 meters. There is a considerable deposit of quartz sandstone, of which 17 million tons have been ascertained. In addition, there are phosphorus, flint, copper, iron, barite, other minerals and Helan stone – a special clay stone (Hsieh 2016; Zhongguo Baike Wang 2011).

Rural Ningxia was for long an officially designated poverty area, and is still located on the lower rungs of the developmental ladder.³⁴ Similar to other areas, Ningxia has seen a

³⁰In China’s administrative system, the autonomous regions (*zizhiqu*) were established as a way to recognize and co-opt ethnic diversity. The autonomous region has provincial-level status, and in principle enjoys certain rights of autonomous governance as stipulated in the Constitution and the Law on Regional Autonomy. However, the actual level of autonomy has been disputed (Stein 2003). The Muslim Hui population constitutes 34.63 percent of Ningxia’s population, while 64.72 percent is Han (Ningxia Bureau of Statistics 2013, 4.3).

³¹It measures 456 km from north to south, and 250 km from east to west, and has a total land surface of 66,400 km². Earlier surveys found the actual surface to be considerably smaller, namely 51,800 km² (Zhongguo Ziran Ziyuan Congshu Bianyi Weiyuanhui 1995, 1). This lower figure was due to widespread under-reporting of (agricultural) land during the 1980s and 1990s (Ho 2005, 8).

³²*Mu* is a Chinese unit of measurement used. One *mu* is equal to 1/15 hectare.

³³According to the Ningxia Bureau of Statistics (1991–2011, 1.2, 1.4) the amount of grassland was stable over 1990–2000: 39 million *mu*. From 2000 onward, the area declined annually to 33.85 million *mu* in 2010.

³⁴The autonomous region’s rural net income per capita was 79.0 percent of the national average (4674.89 versus 5915.01 RMB in 2010), and just 35.3 percent of the Beijing rural net income

gradual decline of its peasant population due to rural–urban migration.³⁵ In spite of this, the great majority (62.8 percent) was still agricultural at the time of the survey (Ningxia Bureau of Statistics 2013, 4.2).³⁶ Animal husbandry is important for the regional economy. In the main pastoral county, Yanchi, it is even the leading industry when specified for the primary sector. The dominant grazing animals are sheep and goat.³⁷ In the (semi-)pastoral regions, herders engage in a mixed sedentary farming operation of dryland agriculture and extensive animal husbandry, while full nomadic pastoralism is no longer practiced. This is also reflected in farmers' identity. Although all respondents still herd or have herded grazing animals, the overall majority identify themselves as 'farmers' (*nongmin*), rather than as 'herders' (*mumin*).³⁸

The presented case study is based on 22 in-depth, semi-structured interviews³⁹ and a quantitative (non-representative) survey carried out in the summer of 2011 amongst 251 herder households distributed over 11 natural villages in two counties (Yanchi and Tongxin, selected for pastoral features in combination with respectively, oil/gas and gypsum reserves) and one district (Yuanzhou, formerly known as Guyuan, a traditional pastoral district and important coal mining area).⁴⁰ The villages are located in different regions, in terms of ecology (arid steppe and semi-arid loess area), economy (officially designated poverty areas versus wealthier regions; pastoral and semi-pastoral areas) and ethnicity (predominantly Muslim Hui; predominantly Han Chinese; mixed Hui/Han Chinese) (see Table A3 in the Appendix).

A non-probability sampling approach was used by going from household to household. The survey was carried out by two specially trained graduate students and guided by the

(13,262.29). Nationally, it ranked ninth lowest, with Gansu as the minimum (3,424.65 RMB; see (National Bureau of Statistics 2011a, 10.21).

³⁵Over 1958–1990, the proportion of agricultural population dropped from 87.8 percent to 76.1 percent (Ningxia Bureau of Statistics 2013, 4.2).

³⁶At the time of writing this percentage had decreased to 46.4 percent (Ningxia Bureau of Statistics 2015).

³⁷Ningxia has a total of 4.73 million sheep and goats, of which 19.06 percent are located in Yanchi, 11.80 percent in Tongxin, and 5.09 percent in Yuanzhou. Yanchi and Tongxin have the largest number of sheep in the region (Ningxia Bureau of Statistics 2013, 11.20). As early as the Western Han dynasty (221–206 BC), up to the early Qing dynasty (1648–1911), Ningxia was also known for horse-breeding under the auspices of the Imperial Stud (Ho 2000c, 351–52).

³⁸The percentages of respondents who identify themselves as farmer are, respectively, 93.9 (Yanchi), 86.8 (Tongxin) and 82.4 (Yuanzhou). Compare this to minorities, such as Kazakh, Uyghur and Mongol, which have a strong linkage between ethnic and economic (herder) identity. An online post by Todhon (2013) might demonstrate this: 'The Grazing Ban and settling (of nomads) has helped human development, but has also caused the people of the grasslands to lose their roots (*sangshi caoyuanren de genben*). It is hoped that herders, who have been settled and banned from the grasslands, will at any time [continue to] wear their traditional Mongol dresses and speak Mongolian'. However, it should be recognized that *Hui*, although recognized as a minority are, in fact, ethnically difficult to distinguish from Han Chinese, apart from adhering to a different religion (see also Gladney 2004). It is why one might wonder why, for example, Hakka are not regarded as an ethnic minority in mainland China even though they have distinct cultural and linguistic features from surrounding populations.

³⁹Each interview lasted at least an hour. To protect interviewees' privacy, no names have been provided here.

⁴⁰Before 2002, Yuanzhou District was known as Guyuan Prefecture, with jurisdiction over six counties: Guyuan, Pengyang, Xiji, Haiyuan, Longde and Jingyuan. The 11 natural villages are, respectively, located in Huamachi Township, Wanglejing Township, Dashuikeng Township, Fengjigou Township, Xiamaquan Township and Guanting Township. In some cases, research in originally selected villages was not possible, and alternative villages representing similar features were selected.

Table 1. Basic sample features.

<i>N</i> = 251	Total sample	Yanchi	Tongxin	Yuanzhou
Number of respondents (person)	251	147	53	51
Gender (in %)				
Male respondents	68.9	61.9	86.8	70.6
Female respondents	31.1	38.1	13.2	29.4
Age distribution (in %)				
≤20	0.4	0.7	0.0	0.0
21–30	5.6	4.8	3.8	9.8
31–40	17.9	17.0	18.9	19.6
41–50	33.9	34.7	34.0	31.4
51–60	23.9	22.4	32.1	19.6
≥61	18.3	20.4	11.3	19.6
Educational level (in %)				
No education	31.1	30.6	17.0	47.1
Primary school	36.2	37.4	39.6	29.4
Junior high school	26.3	23.1	37.7	23.5
Senior high school	4.8	6.1	5.7	0.0
Higher education	1.6	2.7	0.0	0.0
Total household income (RMB/yr, mean)		24,096.5	28,580.4	15,934.7
Agriculture (%)		20.6	38.1	32.5
Animal husbandry (%)		35.2	17.9	30.5
Non-agricultural (%)		42.6	44.0	37.0
Extra agricultural (e.g. liquorice, %)		1.6	0.0	0.0

Source: Author's survey.

author. Although this form of sampling may not be necessarily statistically representative, a higher degree of validity (data accuracy) and reliability (data consistency) was sought through the purposive selection of the research sites. In addition, only households which held herding animals at the time of surveying, or had held herding animals over the past five years, were included. To control respondents' mutual influence, group meetings and joint discussions were avoided. Lastly, theoretical saturation was used to determine the sample size, up to the point where additional data provided no new insights into the research questions (Morse 2004).

Respondents were given a set of 64 questions divided into four different sections: (1) basic information (eight questions); (2) grassland use (23 questions); (3) Grazing Ban (19 questions); and (4) livelihood (14 questions). SPSS version 18.0 was used to analyze the data. As Table 1 shows, of the 251 respondents, 68.9 percent were male and 31.1 percent female. The sample can fairly adequately represent the views of young, able-bodied rural laborers, as well as the older but still active working population: the age cohort between 21–40 years is relatively high (23.5 percent), while the majority (57.8 percent) are between 41–60 years. The level of education of the sample is low (as compared to the national level), with over two-thirds having no education at all (31.1 percent), or having only received primary schooling (36.2 percent).⁴¹

⁴¹The level of no education according to the 2010 Sixth National Census was 8.93 percent, and the level of illiteracy (defined as the population above 15 years of age that cannot read or write) was 4.08 percent (National Bureau of Statistics 2011b). The level of those without education stands out in Yuanzhou (47.1 percent), as compared to Yanchi (30.6 percent) and Tongxin (17.0 percent).

Table 2. Views on egalitarianism and land as social security.

Answer	Yanchi (%) (n = 145)	Tongxin (%) (n = 53)	Yuanzhou (%) (n = 51)
Question 1: Should the village committee readjust contract land during demographic changes in households (e.g. marriage, divorce, death)?			
Fully agree	41.5	18.9	21.6
Agree	33.3	35.8	29.4
Neutral	17.7	17.0	29.4
Disagree	6.1	7.5	7.8
Fully disagree	0.0	18.9	11.8
Do not know	1.4	0.0	0.0
Missing	0.0	1.9	0.0
Total	100.0	100.0	100.0
Question 2: Do you think that the village committee should allocate land to farmers in an egalitarian way?			
Fully agree	56.5	39.6	27.5
Agree	33.3	39.6	41.2
Neutral	5.4	5.7	17.6
Disagree	4.8	5.7	5.9
Fully disagree	0.0	9.4	5.9
Missing	0.0	0.0	2.0
Total	100.0	100.0	100.0

Source: Author's survey.

The average sample household size is 4.78 with marked regional differences, respectively 5.40 (Tongxin), 5.16 (Yuanzhou) and 4.43 (Yanchi).⁴² On average, one person had left the household as migrant worker (*da gong*), while 0.26 persons per household had left to follow higher education. The self-reported total income for the sample households varied between approximately 15,000 (Yuanzhou) and 28,000 RMB (Tongxin), with a major part coming from agriculture and animal husbandry.⁴³ Almost 70 percent of the respondents still own livestock (i.e. sheep and goats), while the remaining 30 percent indicated that they owned livestock in the past.⁴⁴ The average herd size is highest in Yanchi (41.2), followed by Tongxin (16.6) and Yuanzhou (9.5). The maximum herd size can amount to 400 sheep and goats (see Table A1 in the Appendix).

Indicators on land dependency and social welfare were also included in the survey, as these have been hypothesized to be major factors influencing the institutional credibility of the Grazing Ban. Virtually all respondents indicated they had a new rural cooperative medical insurance (*xinnonghe*), while a great proportion indicated they had a new rural cooperative pension (*xinnongbao*).⁴⁵ Despite this, the great majority of respondents still adhered to

⁴²The national average household size is 3.10 (National Bureau of Statistics 2011a), and 3.24 for the Ningxia Hui Autonomous Region (Ningxia Bureau of Statistics 2013, 4.1).

⁴³Net income for rural households for the three survey areas is respectively 3669 (Yanchi), 3421 (Tongxin), and 3546 RMB (Yuanzhou, see Ningxia Bureau of Statistics 2013, 10.19).

⁴⁴The survey also asked about other livestock, such as pigs, donkeys and mules. However, as these animals are not grazed on the grasslands, the data are not presented here.

⁴⁵Percentages for medical insurance were 100 percent (Tongxin and Yuanzhou), and 98.6 percent (Yanchi). The mean annual payment for the medical insurance was 35.3 (Yanchi), 30.0 (Yuanzhou) and 27.5 RMB (Tongxin). The percentages that had a pension were 93.9 (Yanchi), 64.7 percent (Yuanzhou) and 56.6 percent (Tongxin). The mean annual payment was 129.0 (Yanchi), 5688.9 (Tongxin) and 115.6 (Yuanzhou).

the principle that village authorities should ensure farmers' equal access to land as a means of social security. As shown in Table 2, half to two-thirds agreed or even fully agreed with the statement that the village committee should reallocate land during demographic change (e.g. birth, death, marriage or divorce), while a clear minority disagreed or fully disagreed.

4.2 Local perceptions of 'the actual': survey results

A careful analysis of actors' perceptions below shows that the state's imposition of the Grazing Ban as a new social rule did not lead to its emergence as an 'empty institution' – which could be symbolically upheld to satisfy state interests, while allowing for the persistence of local institutional functions. In contrast, the state's continued push for the Grazing Ban as a new institution, supplanting grazing as resource use in place of stall-feeding and herders as state-subsidized grassland stewards, has given way to a less- or even non-credible contested institution. When looking at herders' perceptions of 'the actual' (i.e. effects of property rights as enjoyed in actuality; see the Introduction to this collection, section 4.6), this becomes evident in environmental, economic and social terms.

Ningxia first experimented with a ban on grazing in Yanchi County in 2001. The Bureau for Agriculture and Animal Husbandry and Yanchi County jointly established a Grazing Ban Team, consisting of members from the County Grassland Work Stations. In addition, Township Grazing Ban Patrol Teams were formed with local cadres from the townships of Ma'erzhuang, Subujing, Gaoshawo and Ya'erzhuang. However, as herders were not provided with subsidies for building sheds and fodder bases, only the pilot in Ya'erzhuang was considered successful. The local experiments led to a full-fledged ban for all pasture in the entire autonomous region from 2003 onward (Qi and Hu 2006; Zhang 2011). Not until eight years later were formal rules on the Grazing Ban adopted, in 2011 (Ningxia Hui Autonomous Region People's Congress 2011). In the regulatory sense, Ningxia was thus neither frontrunner nor latecomer.⁴⁶

The main outcomes of the Ningxia survey confirm the studies cited above, and demonstrate that herders by and large perceive the Grazing Ban as a failure. When asked about ways to improve grassland, close to two-thirds (59.0 percent) of respondents disagreed that a full ban on grazing was an appropriate measure. In addition, a great proportion stated that the Grazing Ban is not accepted by the rural populace.⁴⁷ Close to 45 percent believed the Grazing Ban was 'not very successful' or 'had failed', while approximately 19 percent expressed no opinion. The general negative view on the policy is further corroborated by herders' more detailed views on the policy's impact on the environment, economy and society, discussed in the respective sections below.

⁴⁶This is despite claims to the contrary, asserting that Ningxia was the first to adopt provincial-level regulations on the Grazing Ban (e.g. Legal Daily 2011). In fact, the first provincial rules (adopted by a People's Congress) were adopted four years earlier by Shaanxi in 2007. These were followed by Shanxi (2008), Liaoning (2009), Ningxia (2011), Xinjiang (2012) and Gansu (2013). Sichuan had only proclaimed provisional rules on implementation (2012); Inner Mongolia proclaimed only regulations by the Regional Bureau of Agriculture and Animal Husbandry; while Jilin had sent its rules for review to the provincial People's Congress (December 2012). Regional and provincial rules for Tibet and Qinghai have not been proclaimed up to the end of 2013.

⁴⁷Divided over the three research sites, the respective percentages to this question are: 66.7 percent in Yuanzhou ($n=51$); 56.5 percent in Yanchi ($n=145$); and 32.1 percent in Tongxin ($n=53$). The exception – although still relatively high – is, thus, Tongxin.

Table 3. Herders' environmental perceptions per research site.

Answer	Yanchi (%) (n = 145)			Tongxin (%) (n = 53)			Yuanzhou (%) (n = 51)		
	Yes	No	Don't know	Yes	No	Don't know	Yes	No	Don't know
Question 1: What are successes of the Grazing Ban?									
Environment improved	67.6	30.3	2.1	67.9	32.1	0.0	60.8	37.3	2.0
Grassland resources restored	44.1	53.8	2.1	62.3	37.7	0.0	35.3	62.7	2.0
Grass species increased	40.7	57.2	2.1	49.1	50.9	0.0	33.3	64.7	2.0
Question 2: Do you agree with the following statement?									
Fodder types decreased as edible grasses decreased	79.3	15.2	5.5	73.6	24.5	1.9	88.2	9.8	2.0
Sheep quality decreased as they are fed in sheds	73.8	20.0	6.2	58.5	37.7	3.8	74.5	23.5	2.0
Sheep fertility decreased as they are fed in sheds	66.9	27.6	5.5	43.4	50.9	5.7	54.9	41.2	3.9

Source: Author's survey.

4.2.1 *The actual in environmental terms*

Close to two-thirds of the respondents (65.7 percent; n = 251) think the Grazing Ban has led to an environmental improvement. However, that proportion dropped to nearly one-fifth (19.9 percent) when asked if the restoration of grassland could be labeled a success of the Grazing Ban. In this regard, the interview records with herders near some of the state grassland reserves might be illustrative. One mentioned: 'Grazing bans on some parts of the hills have been successful, such as Yunwushan. The grassland in this kind of national nature reserve is very good. In other areas it has had no effect' (oral communication, 2011, 4.1.6.CMA29).

Another stated:

The Luoshan Nature Reserve is a little greener than our mountains. In fact, there is not much difference between free or banned grazing. ... The important thing is that it doesn't rain, so whatever you do is in vain (*tian bu xia yu, gan shenme dou baigan*). (oral communication, 2011, 4.1.6.CMB29)

When further probing into environmental perceptions ('Question 2: do you agree with ...'), it was found that a great majority (79.3 percent) find that fodder variety has diminished due to a decrease in palatable grasses, while only 40.6 percent agree that the number of grass species has increased (for regional percentages, see Table 3). Respondents also noted that stall-feeding had a negative effect on sheep quality and fertility. Lastly, when asked about the grass composition before and after the Grazing Ban, over half of the herders perceive a drop in annual grasses (52.6 percent), while an even higher percentage (57.8 percent) signal a rise in less edible, biennial and perennial plants.⁴⁸

⁴⁸The percentages that do not see a decrease in annual grasses, or that do not know, are, respectively, 39.4 percent and eight percent; while the percentages that see a rise in biennial/perennial plants or that do not know are 36.1 percent and 6.1 percent.

Table 4. Question: Do you abide by the Grazing Ban?

Answer	Yanchi (%) (n = 145)	Tongxin (%) (n = 53)	Yuanzhou (%) (n = 51)
Yes, but I graze livestock on grassland at night	29.7	17.0	19.6
No, because I graze livestock on grassland at night	11.7	1.9	2.0
No, I graze livestock on grassland even in daytime	0.0	0.0	2.0
No, other	3.4	0.0	3.9
Yes, I do not let livestock on grassland 24/7	26.9	43.4	52.9
Yes, I do not raise sheep/goats anymore	24.8	32.1	11.8
Yes, other	3.4	3.8	5.9
Missing	0.0	1.9	2.0
Total	100.0	100.0	100.0

Source: Author's survey.

4.2.2 *The actual in economic terms*

When asked whether an increase of income could be considered a success of the Grazing Ban, the overwhelming majority of respondents in *all* three research sites responded negatively (respectively, 90.3 percent in Yanchi; 86.3 percent in Yuanzhou; and 71.7 percent in Tongxin).⁴⁹ This finding was once more corroborated through the control question 'Does the Grazing Ban have an effect on your income?' to which, again, an overall majority stated it had 'no' (38.2 percent) or a 'negative' effect (51.4 percent) (Table A2, Appendix). In Yanchi and Tongxin close to two-thirds, and in Yuanzhou close to half, of the respondents had seen a decrease in the number of livestock they owned. In all three areas, most stated that government policies were the reason for the decrease.

In relation to subsidies, it was found that only half (49.0 percent) of the respondents stated they had actually received it, while 46.1 percent felt 'neutral', 'not satisfied' or 'not satisfied at all' about it (see Table A2, Appendix). An interviewee stated:

During the initial two or three years when the Grazing Ban started, all the village's grassland subsidies became salary of the village and team leaders (*cun suoyou de caodi butie ... shi cun-duizhang de gongzi*). Who currently uses the subsidies is unclear; in any case, it was not given to the villagers. (oral communication, 2011, 4.1.5.CMC29)

A village leader stated that

[i]n 2003 subsidies were given. At the time, farmers received it in kind as grain, and had to go to the county granary themselves to get it. Converted to money, it would equal 0.7 RMB per mu. Afterwards, we only received subsidies in 2008 and 2010, respectively 4.5 RMB and 3.4 RMB per mu. (oral communication, 2011, 4.1.5.CZ29)

4.2.3 *The actual in social terms*

From the survey and interviews it can be seen that the Grazing Ban is contested and widely transgressed. To the straightforward yet sensitive question 'Do you abide by the Grazing Ban?' over one-third (35.5 percent) of all respondents openly admitted an answer to the contrary⁵⁰ (regional data in Table 4).

⁴⁹Percentages that replied yes or were missing are, respectively, for Yanchi (7.6 percent yes; 2.1 percent missing); Tongxin (28.3; 0.0) and Yuanzhou (11.8; 2.0).

⁵⁰Including the reply: 'Yes, but I let my livestock graze during the night'.

Table 5. Question: Are there conflicts about grazing?

Answer	Yanchi (%) (n = 145)	Tongxin (%) (n = 53)	Yuanzhou (%) (n = 51)
Yes, sometimes	59.2	37.7	60.8
Yes, frequently	14.3	15.1	29.4
No, herders obey government policies	11.6	9.4	3.9
No, grassland is fenced	8.2	3.8	0.0
No, because of other reasons (e.g. mutual consent)	2.8	3.8	2.0
No, no reason given	0.7	22.6	3.9
Do not know	3.4	1.9	0.0
Missing	0.0	5.7	0.0
Total	100.0	100.0	100.0

Source: Author's survey.

Table 6. If there are grazing conflicts, between which groups do these occur?

Answer	Yanchi (%) (n = 108)			Tongxin (%) (n = 31)			Yuanzhou (%) (n = 46)		
	Yes	No	Missing	Yes	No	Missing	Yes	No	Missing
Between herders and local government	88.9	11.1	0.0	90.3	6.5	3.2	97.8	2.2	0.0
Between herders of different villages	13.9	86.1	0.0	6.5	90.3	3.2	2.2	97.8	0.0
Between herders of the same village	9.3	90.7	0.0	19.4	77.4	3.2	4.3	95.7	0.0
Other	0.0	100.0	0.0	0.0	96.8	3.2	0.0	100.0	0.0
Do not know	0.9	99.1	0.0	0.0	96.8	3.2	0.0	100.0	0.0

Source: Author's survey.

When asked whether an increase in social stability could be listed as one of the successes of the Grazing Ban, most respondents disagreed (92.2 percent in Yuanzhou; 84.1 percent in Yanchi and 69.8 percent in Tongxin).⁵¹ In fact, as Table 5 shows, the majority of the herders stated that conflicts over grazing occurred on an occasional or even frequent basis (90.2 percent in Yuanzhou, 73.5 percent in Yanchi and 52.8 percent in Tongxin). Conflicts were mainly perceived to occur between herders and the government, and significantly less between herders from different villages or from within the village (Table 6).

Currently, the main source of grazing conflict is incited by the enforcement of the Grazing Ban, in particular due to the imposition of fines.⁵² In this regard, an official of a County Animal Husbandry Bureau stated that

⁵¹The percentages that agreed or did not answer are, respectively, 13.8/2.1 (Yanchi), 30.1/0 (Tongxin) and 5.9/2.0 (Yuanzhou).

⁵²Also violent conflicts occur, as shown by the following account: 'Two days ago [i.e. 4 August 2011, PH], a certain Huang from our village went to the well to water his sheep. On his way back, he got caught and fined. ... A conflict ensued, and the Grazing Ban staff hit him on the back of his head with an electric baton, grabbed two sheep and left. Until about ten o'clock in the evening his family got anxious, and went out to look for him. They found him, after which he was rushed to the hospital. He only woke up three days later. People from the Grazing Ban team telephoned and notified: "As

[t]he township leaders are primarily responsible for the Grazing Ban, they just need to prohibit grazing. That's what they are supposed to do, they don't sit in the office, when problems arise they have to take responsibility for it. We have special forms for fines, and fines need to be turned over to the treasury according to procedure. (oral communication, 2011, 4.2XMJ29)

However, many herders expressed discontent about the fines. One interviewee maintained: 'Staff indiscriminately impose fines, those with connections don't get fined; those who behave as a grandchild after being caught, get fined less; but some get fined really badly' (oral communication, 2011, 4.2CMC30).⁵³

Another interviewee asserted:

The government is a paradox (*zhengfu shi ge maodunt*). On the one hand it contracts grassland to individuals and allows the rights to use and benefit from the grassland. On the other hand, it bans grazing. Grassland is for grazing, how can these rights be realized if one is not allowed to graze? (oral communication, 2011, 4.1.3CMA28)

From the survey it was found that a substantial proportion of the herders (as high as over 80 percent in Yanchi) had been fined, with amounts varying from 20 RMB up to as high as 7000 RMB.⁵⁴

5. The importance of credible development: concluding observations

Whereas *emphy* institutions arise as a compromise that can minimize conflict by symbolically demonstrating action while preserving daily praxis or status quo, the *non-credible* institution surfaces when that status quo is actually broken. In the theoretical section of this contribution, we started out by examining the two main premises of the concept of non-credibility. First, it was posited that non-credibility is a state positioned somewhere on a continuum, which features conflict in any institutional arrangement. Second, inasmuch as credibility does not refer to a perfect conflict-free situation, neither does non-credibility refer to institutional collapse riddled by conflict.

It was subsequently shown that non-credibility is not the institutional antagonist of a neo-liberal idea of 'credible commitment', in which the state – or any other actor, for that matter – pledges to safeguard certain institutional forms – be they private or public, formal or informal, secure or insecure. It is not about institutional form at all, but about actors' neglect of institutional function in its time and space-dependent context. If that neglect is coupled to a repeated imposition of newly engineered institutions and major

long as he is alive ... quickly and quietly go home, and do not talk any nonsense. You can take the sheep back, and the fine will be exempted". We all think people of the Grazing Ban Team are social scum (*shehui zhazi*) hired by the Forestry Bureau; after beating and fining people, they go back and divide the money with the Forestry Bureau' (*daren faqian hou huiqu he linyeju de ren fenhong*, oral communication, 2011, 4.2CMA30).

⁵³Under article 22 of the autonomous region's rules on the Grazing Ban it is stipulated that apart from warnings, fines between 5 and 30 RMB per sheep may be imposed (Ningxia Hui Autonomous Region People's Congress, 2011). Yet, as the main text shows, interviewees' responses reveal a widely shared sense that fines are imposed indiscriminately. In another instance, an interviewee stated: 'The standards for the fines are not the same between the township and the Grazing Ban team. I have no idea how the national policy was determined' (oral communication, 2011, 4.2CMB30).

⁵⁴The percentages of respondents (no missing values) who had been fined are 80.3 percent (Yanchi), 39.2 percent (Yuanzhou) and 37.7 percent (Tongxin). The average fines are 619.3 RMB (Yanchi), 603.4 (Tongxin) and 225.5 (Yuanzhou).

divergences in power, non-credible institutions are likely to emerge from actors' spontaneously ordered interactions. The paper subsequently zoomed in on a major institutional intervention in China's pastoral sector – the Grazing Ban. Various constitutive parameters are at the basis of this policy's lack of institutional credibility and functionality.

For one, despite the development of alternative employment, rural–urban migration, the case study area – Northwest China's arid grassland-steppe – still features a high rural population, where an important proportion earns its income from agriculture. This implies that the surveyed herders and livestock farmers are land-dependent. In other words, land plays an important function in buffering adversities and external shocks, such as during disability, disease, economic crisis and natural disaster. We see this reflected in the characteristics of the survey sample. Applying the same proxy for the measurement of institutional credibility used in Ho (2014, 17–18), we see that slightly over 65 percent agrees that the village committee should readjust land during demographic change. Therefore, a great majority of the herders and livestock farmers still support the principle that social security should be provided through a communal distribution of land.⁵⁵

The percentage found here is comparable to the figure found by other studies, and has been fairly stable since the 1990s (e.g. Yang, Zhao, and Yue 2008; Quanguo Nongcun Guding Guanchadian Bangongshi 1998). This shows that the Chinese state's efforts in extending rural pension and medical insurance have to date generally not resulted in a significant change in actors' perceived credibility of insecure land tenure (through periodic land reallocations) as a means for social security. It brings home the need to recognize the function of land in (communal and informal) social welfare, rather than its function as a marketable commodity that needs to be privatized or formalized. In the course of development, it is an oft-neglected truism, as Davy, Davy, and Leisering (2013, S9) wrote: 'Non-state welfare production may also ensue from property. While the links between land and social policy have been submerged in the history of Northern welfare states, global debates have brought land issues back on the social agenda'.

The lesson here is that it is better *not* to intervene, or to minimally intervene, under high land dependency, lest one's institutional intentions – in actors' endogenous interaction – lead to the emergence of non-credible, socially contested institutions. Thus, because the current property rights arrangement rallies a relatively high credibility, the option for institutional intervention is likely limited to one of 'condoning'. In effect, accepting or facilitating daily praxis rather than changing it (see the CSI Checklist in section 6 of the Introduction to this collection). Although the Grazing Ban in theory aimed to install herders as the new custodians rather than users of grassland by subsidizing stall-feeding through PES, the outcome was the opposite. Subsidies were insufficient and irregularly paid, resulting in a mere incidental topping-up of income, rather than a sustained incentive to minimize or abandon grassland use. Herders were excluded from their land on penalty of fines and confiscation of livestock, which in turn led to high levels of conflict between herders and the (local) state.

As a result, herders took recourse to civil disobedience and the clandestine use of grassland, if needed at night. An overwhelming majority of the herders (close to 90 percent) disagreed that an increase of income could be listed as a success of the Grazing Ban, whereas most (close to 60 percent) signaled a negative environmental impact on the grassland in terms of palatable grasses. The quantitative survey and interviews have provided the empirical data to support these conclusions. Furthermore, in comparison with numerous

⁵⁵See also the follow-up question in Table 2.

other studies, it has become clear that this case study could be seen in a substantially wider context of the failure of the Grazing Ban (Zhang et al. 2011; Li 2011; Wang 2010; Yu and Xu 2010; Song et al. 2004; Chen and Su 2008; Liu et al. 2007; Shi et al. 2007; Li 2006; Qi and Hu 2006; Fan, Zhou, and Ma 2005; Wang et al. 1997).

A tantalizing question may emerge at this point: Why does the Chinese state continue to push forward an institution that is clearly less or even non-credible? Why could it not opt to enforce without enforcing, and allow the Grazing Ban to endogenously evolve into an empty, symbolic institution? The likely answer lies in the fact that the institutional interventions in the customary pastoral sector are not driven by concerns of nature conservation alone. By contrast, they are as much the outcome of the local and central state's need to gain control over a sensitive, extensive border region populated by minority peoples, yet endowed with strategic mineral reserves. In the run-up to the 1982 revision of the Chinese Constitution, during which grassland was nationalized, the issue landed prominently on the political agenda. As a high-ranking politician stated:

The oil fields are located under the grasslands, causing frequent problems (*youtian zai caodi xiamian, wenti chang fasheng*). Grassland owners incessantly seek money from the state. ... The state must develop, we thus need to stipulate that land is state-owned. (Hu Ziyang quoted in Xu 2003, 679)

The presented Ningxia case may underscore the entwinement of the politics over grassland with mining and ethnicity. The Ningxia Autonomous Region is not only home to a significant concentration of the Muslim Hui minority, its grasslands also hide a great variety of mineral resources. In all the areas where the research was conducted, large reserves of oil and gas (Yanchi), gypsum (Tongxin) and coal (Yuanzhou) have been found.

In light of the rise of the Islamic State in Syria, Iraq and Afghanistan, and the heightened chance of (international) terrorist attacks on Chinese soil, the state's perceived need to ascertain developmental control over the pastoral region may have only grown in geo-political, socio-ethnic and economic urgency. On top of all this, when realizing that the herder population to which the Grazing Ban applies is just a mere fraction of the Chinese farming populace, has limited political voice, and is engaged in an activity that over time has only decreased in social and economic importance, it also becomes evident why the ban could have been imposed in the way it has been. In the volume's next contribution, we will see that the amalgam of developmentalism, ethnicity and vested interests over land and natural resources produces strikingly similar dynamics, irrespective of whether that concerns pastoralists in China, or indigenous forest dwellers in Malaysia.

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Appendix

Table A1. Herd animals per household.

Ownership of sheep			
<i>Currently owned livestock</i>	Yanchi (n = 98)	Tongxin (n = 33)	Yuanzhou (n = 44)
Mean	41.16	16.58	9.52
Standard deviation	48.605	17.871	7.226
Minimum	4	1	1
Maximum	400	100	40
<i>Formerly owned livestock</i>	Yanchi (n = 49)	Tongxin (n = 20)	Yuanzhou (n = 7)
Mean	44.88	25.40	7.43
Standard deviation	46.091	19.645	5.996
Maximum	300	80	20
Ownership of goats			
<i>Currently owned livestock</i>	Yanchi (n = 98)	Tongxin (n = 33)	Yuanzhou (n = 44)
Mean	10.35	29.91	0.25
Standard deviation	30.192	70.429	1.241
Minimum	4	7	0
Maximum	180	280	8
<i>Formerly owned livestock</i>	Yanchi (n = 49)	Tongxin (n = 20)	Yuanzhou (n = 7)
Mean	7.61	38.70	0.29
Standard deviation	12.052	79.909	0.756
Maximum	40	300	2

Source: Author's survey.

Table A2. Herders' economic perceptions of the Grazing Ban.

Answer	Yanchi (%) (n = 145)	Tongxin (%) (n = 53)	Yuanzhou (%) (n = 51)
Question 1: Does the Grazing Ban have an effect on your income?			
Positive effect	6.2	9.4	11.8
No effect	27.0	58.5	49.0
Negative effect	63.4	30.2	39.2
Do not know	3.4	1.9	0.0
Total	100.0	100.0	100.0
Question 2: Did you receive any Grazing Ban subsidies?			
Yes	35.2	79.2	58.8
No	57.2	15.1	35.3
Do not know	7.6	5.7	5.9
Total	100.0	100.0	100.0
Question 3: If so, are you satisfied with the subsidy?			
Very satisfied	3.9	21.4	13.3
Satisfied	31.4	47.6	50.0
Neutral	19.6	19.0	16.7
Unsatisfied	19.6	4.8	3.3
Not satisfied at all	21.6	2.4	6.7
Do not know	2.0	0	6.7
Missing	2.0	4.8	3.3
Total	100.0 (n = 51)	100.0 (n = 42)	100.0 (n = 30)

(Continued)

Table A2. Continued.

Answer	Yanchi (%) (<i>n</i> = 145)	Tongxin (%) (<i>n</i> = 53)	Yuanzhou (%) (<i>n</i> = 51)
Question 4: Did the number of livestock you own change in the past 5 years?			
Increase	12.9	1.9	25.5
No change	19.7	35.8	29.4
Decrease	67.3	62.3	45.1
Total	100.0	100.0	100.0
Question 5: If a decrease: is government policy a reason for it (listed as one amongst others)?			
Yes	89.9	78.8	87.0
No	9.1	21.2	13.0
Don't know	1.0	0.0	0.0
Missing	0.0	0.0	0.0
Total	100 (<i>n</i> = 99)	100 (<i>n</i> = 33)	100 (<i>n</i> = 23)

Source: Author's survey.

Table A3. Comparative features of research sites.

Research site	Ecology	Rural economy	Agr. output value/ capita (RMB/2012) ^a	Rank ^a	Ethnicity ^b	Mining
Yanchi County	Arid (desert) steppe	Pastoral	7375.44	8	Han	Oil/gas
Tongxin County	Arid steppe	Semi-pastoral	5824.77	12	Hui	Gypsum
Yuanzhou District	Semi-arid, Loess plateau	Semi-pastoral	5464.53	14	Hui/Han	Coal

Source: Compiled by the author.

^a(Ningxia Statistical Yearbook, 2013, Tables 2–9). Rank based on agricultural output value per capita, out of a total of 22 counties/cities.

^bIn Yanchi, the Han (97.09%) far outnumber the Hui (2.77%). In Tongxin it is the other way around, where the Hui population (88.88%) is the predominant ethnic group (versus Han, 11.11%). Yuanzhou features a fairly equally divided proportion with 54.19% Han and 45.70% Hui (Ningxia Bureau of Statistics 2013, 4.9).