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CHINA'S RANGELANDS UNDER STRESS

A Comparative Study of Pasture Commons
in the Muslim Hui Autonomous Region of Ningxia¹

Introduction

The problems of rangeland degradation, overgrazing and desertification have become issues of serious concern for the Chinese government since the start of the economic reforms in 1978. The central government has recognized the environmental problems sparked by the economic reforms, as well as the widening rural-urban income gap, which is exacerbated by a degrading ecological environment. Dealing with these problems is regarded as essential to solving rural poverty in the long term. Rangeland degradation and desertification occur mainly in the arid, poverty-stricken areas in the northwest of China (Xinjiang, Qinghai, Gansu, Ningxia and Inner-Mongolia). To date, the Chinese state has attempted to halt the decline of rangeland resources mainly by means of technical measures, such as aerial sowing, the construction of manmade ranges, and the sinking of wells. However, due to the difficulties encountered in the implementation of rangeland policies, officials have gradually become aware that technical measures are only part of the picture, and that rangeland management can only then be successful if technical, legal, and institutional problems are addressed at the same time.

One of the more pressing issues that awaits a political solution is the unclear tenure system for rangelands: the heritage of a collectivist past. During the reign of Mao Zedong, customary rights structures for rangeland were delegitimized and supplanted by the institutional system of the people's communes. Although ownership rights were formally vested in the production teams (an administrative unit below the commune), the pastures were open to all. This practice of uncontrolled grazing has persisted after the demise of the communes in the eighties, and has given way to free-riding as the most natural grazing strategy.

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In Chinese political and academic circles it is felt that a mix of population pressure, overgrazing, and a lack of responsibility of pastoralists towards rangeland has led to a 'Tragedy of the Commons'. In the process of solving this free-rider problem, or 'eating from the common rice-pot' (*chi da guo fan*) as Chinese say, a heated debate about the proper land tenure structure has emerged. The discussion about property rights in China flares up now and then in political and academic circles, influenced by experiences from other ex-socialist countries and renown economists, such as Noble Prize Winner Douglas North, who pleads for clear property rights as a precondition for a well-functioning market economy. The camps of the debate on land tenure can be divided into three different groups: 1) the proponents of rigorous land tenure reform through privatization of rangeland; 2) those who hail downright nationalization, 3) the group that insists on the improvement of the current property rights system under which individual or joint households can lease user rights of state and collective rangeland for a period of thirty years (Reisch, 1992, pp. 15-20; Cheng and Tsang, 1995/1996, pp. 44-74; Zhang *et al.*, 1996; Keith, 1994, pp. 121-42; Zhou, 1993).

The latter group, has proposed that collectives or associations of pastoralists should be granted ownership and user rights, while the first and second argue against this on the grounds that common use and ownership will only lead to free-riding by the users and eventually to a complete destruction of the natural resource. In their view, only privatization or the establishment of strong supervisory organs (generally, state institutions) can offer a solution to free-riding. However, in the present stage of a 'socialist market economy with Chinese characteristics' it does not seem likely that the government will opt for any other solution than sustaining the current land tenure arrangement. Seen in this light, experimentation with alternative land tenure forms, other than nationalization, or semi-privatization through lease is essential. This experimentation is particularly important, when considering the sheer impossibility of nationalization, and the present implementation problems with the land lease system for rangelands, the so-called Household Pasture Contract Responsibility System (further referred to as the pasture contract system, or shorter: the contract system).

In the Ningxia Muslim Hui Autonomous Region, in the northwest of China, local attempts have been made to establish corporate management systems with the village as the basic unit of use and control. These attempts were mainly undertaken in Yanchi County, located in the steppe-desert region in the northeast of the autonomous region. Due to increasing problems of desertification, Yanchi has frequently experimented with new grazing practises, sometimes based on principles of traditional Mongol range management. In the early sixties, Yanchi - the only pastoral area in Ningxia after Alashan Left Banner² was returned to Inner-Mongolia - commenced with grazing experiments in an attempt to solve overgrazing and stimulate a more sustainable rangeland use (Lei, 1964; NHZNT, 1964; Yang, 1964). Unfortunately, these were seriously interrupted by the socio-political upheaval of the Cultural Revolution. But the experimentation was resumed as the economic reforms gained momentum in the early eighties.

The interesting aspects of the Yanchi grazing practises are twofold. Firstly, it is a local initiative aimed at introducing a new management form in a sedentary livestock farming system quite unlike that of nomadic Mongol herders. Secondly, the system was uniformly introduced in the entire county, in rich and poor regions alike. Together, these factors make Yanchi a challenging region to conduct a comparative study of the viability and the institutional dynamics of such village range management systems.

² Alashan Left Banner was a part of Ningxia till 1978. The banner is an administrative level in Inner-Mongolia, which corresponds to the county in the rest of China.

By relying on concepts from theories of common property resource management and collective action (see: Wade, 1987; Oakerson, 1992; Ostrom, 1992), I will attempt to answer a series of questions focusing on the impact of the newly introduced institutional structure for range management on the existing grazing practises. One can wonder how a sedentary livestock farming system reacted to the imposition of a new institutional management structure encouraging rotational grazing, as opposed to the past free-for-all grazing. Moreover, did the system indeed offer sufficient incentives for collective action of the pastoralists, thus stimulating sustainable livestock farming? Were the outcomes of these methods of range management the same for the various regions in Yanchi? And how valuable are the Yanchi experiences for the rest of China?

This article has been written on the basis of research conducted in Ningxia in the spring and summer of 1996. Besides qualitative in-depth interviews, a quantitative survey was carried out, which comprises a total of 284 farm households in ten natural villages in four counties (Yanchi, Tongxin, Guyuan and Pengyang). The villages investigated in Yanchi County are Xiawangzhuang and Shangwangzhuang villages in Chengjiao Township, and Shangjijuan and Ma'erzhuang village in Ma'erzhuang Township. The numbers of the farm households investigated in Yanchi are respectively: 50 (Chengjiao) and 48 (Ma'erzhuang).

Ningxia borders Shaanxi Province on the east, Inner Mongolia on the north and west, and Gansu Province on the south. Instead of being administered as a province, Ningxia was carved out as an Autonomous Region for the Hui Muslim minority in 1958. Ningxia is situated in the central Asian steppe and desert region with a continental, temperate climate increasing in aridity from the south (subhumid) to the north (arid). In the north, Ningxia is enclosed by the Tengger (northwest) and Mu'us deserts (northeast). The total land surface is 51,800 km² and the total population in 1993 was 4.95 million people, of which 1.64 million (33 per cent) belonged to the Hui.³ The Hui is a religious and ethnic minority that socio-economically lags behind the majority of the Han Chinese. This becomes clear by a brief look at the statistics: 64 per cent of the Hui live in the seven poorest counties⁴ in the Autonomous Region, i.e. Tongxin, Guyuan, Haiyuan, Xiji, Longde, Jingyuan and Pengyang, in contrast to only 29 per cent of the Han Chinese. Furthermore, 60 per cent of the Hui, which includes 78 per cent of the women, are defined as illiterate, against 36 per cent of the Han, including 49 per cent female (Ningxia Statistical Yearbook, 1994: 65; Gao, 1995: 57). In some regions in Yanchi, the struggle for scarce natural resources - in particular the digging for medicinal herbs - has led to extreme violent clashes between Hui muslim and Han Chinese farmers.

For this article, I have drawn on the material of two sample villages, which are both located in the arid, desert-steppe region of Yanchi County (200-250 mm annual precipitation). The population is predominantly Han, only 3 per cent belonging to the Hui. Yanchi has been defined by the Ningxia Government as a poverty region, though poverty alleviation projects tend to concentrate on the other seven counties mentioned above. In the regional planning of the government Yanchi is listed as a pastoral region. The county has 13 per cent of the total area of pasture in Ningxia; 84 per cent of the county is rangeland (of which 85 per cent - or 473,400 ha - is ranked as usable pasture). Occupying 55 per cent of the total agricultural output, animal husbandry is the main agricultural activity in Yanchi (Ningxia Statistical Yearbook, 1994: 84 and 265; ZZZCBW, 1995: 205; NCZZD, 1985: 132).

³ The official statistics give a total surface of 66,400 km². But recent surveys have shown that the actual surface is much smaller. The Hui are the predominant ethnic minority in Ningxia, other minorities like the Mongols and Uyghur only account for 0.45% of the population.

⁴ The rural net annual income per capita has been taken as indicator for poverty of the counties.

The Pasture Contract System: Smashing the Common Rice Pot?

During land reform in the late fifties, rangeland in China was seized from the landlords, Mongol princes, lamaseries, and clans and nationalized. However, state ownership of rangeland was not incorporated in law until the 1982 Constitution. When the communes were established in 1958, rangeland ownership was eventually vested in the production team⁵ by the grace of the Work Regulations for the Rural People's Communes (popularly known as the Sixty Articles), which were proclaimed by the Communist Party. Over time, the teams which made use of adjacent rangeland came to regard this as collective property. Thus, a situation emerged with *de facto* state and collectively owned rangeland, while *de jure* the two ownership forms did not exist (because the Sixty Articles were never adopted by the National People's Congress, and therefore not laws).

With the introduction of rural reforms in the early eighties, China broke with its collectivist past and set off on a long and winding journey which should lead from a centrally planned economy to a free market economy. The communes - the institutional basis of agriculture under Chairman Mao - were disbanded and the user rights of communal land were redistributed to individual farming families. The communes were replaced by a family-based contract system, the Household Contract Responsibility System, that offered farmers more managerial freedom by linking rewards directly to production and efficiency. Farm households could lease a certain plot of land, while land use rights could also be subcontracted or inherited. Initially, the contract period was only five years, later extended to twenty-five. In 1993, after years of trial and error the contracts were extended to an additional thirty years on top of the original contract period.

As the successes of the early rural reforms (rising grain production, and a bumper harvest in 1984) made the contract system the orthodox form of land tenure for agriculture, it was also transferred to forestry and the pastoral sector. The Rangeland Law proclaimed in 1985 is the official incorporation of the pasture contract system into law. It states that the user right of state or collective rangeland may be leased to households or collectives for a 'long term'.⁶ However, after decollectivization there was a legal gap in the definition of land ownership rights (including the rights to rangeland and forestland), as these had not been officially transferred from the teams to its successor, the natural village. The 1982 Constitution only mentioned the existence of collective and state rangeland, without defining what the term 'collective' comprised. Was rangeland to be owned by the township, the former commune, or maybe the brigade? Or would the former team, replaced by the natural village, become the true owner of rangeland? The legal basis of the pasture contract system was thus unclear.⁷

The Chinese Ministry of Agriculture has envisioned four different stages in its policy in order to effect the pasture contract system (CSCPRC, 1992: 33). First, the distribution of animals to individual households (which was essentially completed by the end of the eighties). Secondly, the

⁵ Below the commune existed two other administrative levels: that of the production brigade (equivalent to the present administrative village), and the production team (the current natural village). The commune has been replaced by the township level of administration.

⁶ The Rangeland Law does not specify the period of contracting, but in practice the maximum period is presently 30 years.

⁷ For a detailed overview of the shift in legal rules of grazing from the collectivist period to the reform period, see Peter Ho, "Rangeland Policy in China: Retracing the Origins of a Policy on Contradiction", forthcoming.

assessment or in some cases re-assessment of rangeland boundaries between collectives and the consequent allocation of rangeland user rights to collectives and households (officially stated as completed). Third, the appraisal of pastures in terms of carrying capacities or stocking rates (under way). And finally, the implementation of a system of incentives and penalties to ensure that producers abide by the carrying capacities of the plots of land assigned to them (under way). In theory, the greater part of grasslands in China has already been contracted out⁸, and the time should be ripe to assess the carrying capacities of the plots and to enforce them subsequently.

However, in reality the official claim that the contract system for rangelands is firmly in place is questionable. In their extensive study of animal husbandry in Inner-Mongolia, Gansu and Xinjiang, John Longworth and Gregory Williamson note the following: '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' (Longworth and Williamson, 1993: 321).

In this respect the former vice-head of the Ningxia provincial Department of Animal Husbandry states:

'The figures of contracted rangeland have no importance at all. They are administrative figures, which the central government has required us to report, and exist on paper only.'

Longworth and Williamson also state that '...another serious source of uncertainty surrounding pasture use contracts in some areas is that while the contract specifies the area assigned to the household, it does not designate the precise location of this pasture land. These "partial" contracts obviously encourage grazing-in-common practises and discourage investments in pasture conservation and improvement by individual households' (Longworth and Williamson, 1993: 321).

Leasing Ningxia's Pastures: Theory and Practice

In Ningxia, the pasture contract system was established in the middle of the eighties. The implementation of the contract system is characterized by a large discrepancy between the intention and the actual practise. In theory, the implementation of the contract system took place in three phases, i.e.:

- 1) the assessment of township and village boundaries of rangeland, through official written agreements;
- 2) the issuance of contracts to the natural village by the county government (note that no carrying capacities were specified in the contracts);
- 3) the issuance of contracts to joint and individual farm households by the administrative village.

In practise, the agreements between townships were not always signed, in particular, when boundaries were still disputed. Generally, these agreements date back to boundary agreements that had been made between communes in the late seventies. The pasture contracts were issued in

⁸ The following percentages of contracted rangeland in China have been mentioned: 90% for Gansu, 80% for Sichuan, 70% for Inner-Mongolia, 79% for Qinghai, 69% for Ningxia, 26% for Heilongjiang, 30% for Xinjiang, 37% for Jilin and 30% for Liaoning (Li, 1994, p. 101).

triplicate: one to be kept by the township, one by the administrative village and one by the natural village, or the joint or individual household. However, there are only some instances in which individual villagers actually obtained pasture contracts. From a survey (1996) of 284 households in four counties in Ningxia, only 7 per cent of the farmers indicated they had contracted rangeland, while 62 per cent said there were no pasture contracts at all. Contracts were allegedly issued to joint households, but in reality farmers never saw a contract, as it was kept by the village committee. Here we also touch on the legal notion of a contract. In the western legal tradition, a contract is a voluntary agreement between two parties, but the pasture contract seems a far cry from this, as it is a duty imposed by the state on the village and the farmers.

In some cases, the implementation of a village pasture contract was accompanied by fencing. The results of fencing of village rangeland were mixed, on the one hand, there was often a clear improvement of pasture quality due to fencing. On the other hand, poles and barbed wire were often stolen, and fencing was not always a solution to illegal grazing by farmers of neighbouring villages since they would simply cut the wire. At any rate, fencing proved to be too costly to be used as a general measure to effect the pasture contract system.

As a result of the above-mentioned reasons, the overall evaluation of the pasture contract system by bureaucrats at various administrative levels, as well as the farmers, is fairly negative. In the words of one village leader in Yanchi:

'The pasture contract system has not been invented by us. All these problems and boundary conflicts, because it is just another whim of the Communist Party. The Kuomintang⁹ would never have done such a thing. In fact, during the Kuomintang we managed our range in such a way that no conflicts could arise. Times were much better when the land had not been allocated to the individual users, when there was overlapped grazing and the boundaries were still vague.'

In an earlier article on rangeland management (Ho, 1998), I argued that the original underlying cause of the present situation of 'eating from the common rice pot' in Ningxia is actually the outcome of the establishment of collectivist institutions (i.e. the people's communes) that delegitimized customary rights structures over the regulation of grassland usage. These customary rights existed from the last century of the Qing dynasty (1644-1911) well into the republican era (1911-1949). This customary grazing consisted of a common use of the pasture by means of overlapped grazing (called *chuanmu*), whereby clan heads or leaders of the traditional household land tax registration system (*baojia*) decided where pasturing was allowed.¹⁰ However, the commune was organized in such a way that it failed to provide the necessary socio-economic and regulatory conditions that would allow individual users to pursue their own well-being without destroying the livelihood of future generations.

⁹ The Kuomintang or KMT is the Chinese Nationalist Party established by Dr. Sun Yat-sen.

¹⁰ Before land reform, rangeland in China was in general owned by princes, lamaseries, temples and tribes, yet commonly used by herdsmen and livestock farmers. Yanchi did not belong to the grazing territories that were formally enfeoffed to Mongol princes (or *jasagh*) during the Qing dynasty. In Yanchi rangeland was owned by landlords or clans, yet commonly used. The end to the traditional property rights system in China was heralded with land reform in the early fifties. The timing of land reform for grazing lands differed for the various pastoral regions. Ningxia belonged to one of the "old revolutionary base areas" where land reform was carried out rather early starting in 1936. For a detailed description of customary grazing practises in Ningxia during the end of the Qing dynasty and the republican era, see (Ho, 1998).

Moreover, this failure occurred at a crucial time when the grasslands were becoming economically scarce due to expanding livestock and loss of arable land induced by political campaigns, such as the Great Leap Forwards and the Great Proletarian Cultural Revolution. This external change could not be adequately counterbalanced within the institutional structure of rangeland management during the time of the People's Communes. Instead, a pattern of resource use developed bearing all the traits of an open-access regime, thus leading to the squandering of pastureland. Just as under the communes, the present attempt of privatization and parcelling of rangeland under the pasture contract system does not ensure the cooperation of rangeland users. Therefore, the way grasslands have been used in collectivist times has persisted to the present, and the problem of free-riding remains unsolved.

At present, the Chinese government adheres to the idea that squandering of the resource can only be avoided through a strengthening of the pasture contract system, or, in some exceptional cases by establishing national nature reserves supervised directly by provincial or central authorities. As the contract system has become the dominant form of land tenure, it will not be easy to argue for the establishment of common property in China. The concepts of common property theories are diametrically opposed to the principles of the pasture contract system. Whereas common property of rangeland proposes flexible limits of pasture (that is, rotational grazing or even nomadic pastoralism) - thus making optimum use of the variability in range production over time and space - the pasture contract system employs fixed boundaries based on a 'proper use factor' or a maximum carrying capacity of the rangeland. Furthermore, a common property regime is based on resource use and control by a community of users that can effectively exclude non-community members from using that particular resource. The pasture contract system, however, always needs to rely on an external agency of control (the state) to ensure that the individual users do not free-ride and exceed the carrying capacities of the plots of rangeland.

A Tale of Two Villages

When you ask any official of the Ningxia Provincial Department of Animal Husbandry how rangelands are managed and used, he will not fail to mention the merits of the pasture contract system to you. Would you travel two administrative levels lower in the bureaucracy and pose the same question to someone working at the Yanchi County Bureau of Animal Husbandry, you will hear quite a different story. The official might not only be more critical about the pasture contract system, at times even cynical, but he will also talk about village-based range management. And indeed, a brief tour around Yanchi shows that all villages have one or more range guards, employed and paid by the village community, who watch over a plot of pasture closed off during a certain time of the year. Furthermore, which plot is closed off can vary over time, depending on the condition of the rangeland vegetation: the plot in the worst condition being closed off first. Often with a tinge of pride, do the county officials talk about this management system as an alternative to the pasture contracts.

Since the early sixties, Yanchi has been a region for pastoral experiments in Ningxia. But it was not until 1976 that a formal pilot project was established by the Yanchi County government in what at the time was still called Sidunzi Brigade (encompassing six villages, or teams) in Chengjiao Commune. In the initial stage, the project aims were mainly technical, i.e. to assess the effects of fencing on vegetation growth, as well as to test the possibilities for rotational grazing. Thus, a total area of 1,300 ha was fenced. Both the site and area to be fenced in were chosen and decided by the project members. Four range guards were appointed, each one

responsible for watching an area in the neighbourhood of a production team. The range guards were paid by the brigade.

The first results were not very encouraging. It proved to be difficult to manage and supervise the fenced area as it was too extensive. It frequently occurred that barbed wire was stolen, or the fence pushed over, so that sheep and goats could still be pastured in the restricted area. Furthermore, it is said that the guards were not always dutiful in patrolling the area, as they received a low salary.

With the support of the Yanchi Party Committee and the Ningxia Science and Technology Commission, the pilot project was followed up in 1987 by a 'development and research priority project' listed in the 7th five-years' plan of the autonomous region. In addition to the county branch of the State Science and Technology Commission, members of the County Agriculture and Livestock Research Center of the Ningxia Academy of Social Sciences, and the Ningxia Agricultural College participated in the project.

The project was mainly technical including research such as the grazing behaviour of sheep, water-saving techniques, and agroforestry practises. A spin-off of this project was the establishment of an institutional structure for rotational grazing. The follow-up project started in Sidunzi Natural Village in which - based on the relatively negative experiences of the pilot project - a much smaller area of only 25 ha was fenced in. The area was divided into four smaller areas, three of which were in alternating use during four months, while one was improved and closed off for pasturing for the entire year. The more mobile and traditional overlapped grazing (which was delegitimized during the period of the communes and had actually developed into a situation of free-riding) was no longer allowed, and each farm household received a grazing permit which included a map showing the area open for pasturing. Furthermore, the sheep numbers per household were restricted on the basis of stocking rates determined for the fenced in rangeland. In general, the number of sheep and goats per person was set at a limit of three, calculated for a total of the whole village. But, there were no sanctions if the village raised more ruminants than stipulated and the quota did not seem to have very much effect. For the supervision of the rangeland, again, a range guard was appointed from amongst the villagers, who was paid by the natural village itself. (YCNXYK, 1992: 8-9 and 55-6).

Soon after the project had been established in Sidunzi village, demonstration meetings were held for village leaders of the neighbouring villages. The new range management system gradually spread to other townships in Yanchi. As this management system was adopted by other villages over time, it lost much of its initial scientific rigour employed in Sidunzi village. The range management system that evolved in later years bears many characteristics to what in academic literature is referred to as a 'common property regime'. Is the Yanchi model a true common property regime? Did it offer more incentives to the livestock farmers in order to cooperate instead of to free-ride, as compared to the situation of open access before its

introduction?

Introduction of Management System of the Two Villages

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SUMMARY AND CONCLUSIONS

The good news about the common property regime of the two villages in Yanchi County (Ningxia Hui Autonomous Region) reviewed in this article is that it works remarkably well. One might have expected that there would be significant differences in the institutional dynamics in a relatively prosperous settlement, such as Xiawangzhuang, as opposed to the poorer Shangjijuan village, where rangeland is much more under stress. It would not have been so surprising if farmers in Shangjijuan were less willing to commit themselves to the rules of a range management system that in itself is incapable of preventing desertification caused by outside free-riders. However, there are no indications that farmers in Shangjijuan are less dedicated to the common property regime because of external socio-economic pressure.

Moreover, Xiawangzhuang belongs to the early project area where rotational grazing was introduced as an experiment. Therefore, this village received more care and attention from the local authorities in building up the common property regime than Shangjijuan village did. Yet, also in this respect there is no significant impact on the way how the system works in the two villages.

Several reasons for the success of the experiments with common property management in Xiawangzhuang and Shangjijuan villages can be pinpointed. First of all, the closed rangeland used for rotational grazing in the villages in Yanchi County is small (generally 300 to 400 ha), and located in the vicinity of the village. Its boundaries are clear, either through fences, hedges or the use of earth mounds. These factors facilitate the detection of rule-breaking free-riders increasing villagers' trust in the system, and their willingness to abide by the rules. Farmers' need for collective action is enhanced by the relatively high demand put on the resource by the users, which has already led to a certain degree of desertification.

Secondly, the group of users is small. Therefore, the costs of communication and decision-making are low. In the majority of the villages in Yanchi County the sheep and goats are herded collectively. The number of herdsmen per village is low, and their behaviour is easily supervised through social control within the village community. Regulations as to permissible behaviour are prescribed through a rather elaborate set of social rules pertaining to the delimitation of the resource, allocation of resource use, membership, input and punishment.

Last but not least, county and township authorities took great pains to establish and spread a corporate range management system. They supported and nurtured a management system which runs counter to the privatization aimed with by the pasture contracts. Moreover, it was not attempted to set up a new

institutional structure to guide common property management. Instead, local authorities relied on the present village institutions to effectuate the range management system.

However, one should not forget that the situation of livestock farming in Ningxia is quite different from that of the traditional pastoral areas, such as Inner-Mongolia and Xinjiang. To begin with, livestock farming in Ningxia is settled and not (semi)nomadic. Moreover, the grazing areas in Ningxia are smaller and closer located to the user group than in the traditional pastoral regions. In any case, the Yanchi experiments have proven that rangeland can be successfully managed by a village community on the basis of a common property arrangement at low transaction costs.

Not only in Africa, but also in China, rangeland management on the basis of carrying capacities is often not viable, as it involves very high costs for enforcement.¹¹ Due to the implementation difficulties of the pasture contract system, which is based on the concept of the carrying capacity, some scholars and officials within the Chinese Ministry of Agriculture have proposed that the responsibility of management and control for rangelands should be vested in the collective, be it the administrative, the natural village, or smaller traditional social groups, such as the Mongolian khot ail.

The bad news about the experimentation with village-based range management in Yanchi County is that its success is not really a success. Farmers face increasing difficulties to find good pastures, while also agriculture is affected by desertification. Despite the fact that villagers generally abide by the rules of the common property regime, rangeland degradation still persists. The main factor causing the degradation of grassland resources must not be sought within, but outside the village. Poverty drives farmers to look for sources of revenues that enable them to escape from the clutches of the state. In this sense, the digging of liquorice root can provide most farmers with an illegal, and thus non-taxed, extra income. The exploitation of liquorice root happens on such a large scale that rangeland is exposed to serious wind and soil erosion.

The experiences in Yanchi have shown us the limitations of common property arrangements. The system can work well only if a certain socio-economic level has been attained in the area. In the comparison of a relatively prosperous village with a poor village, two matters can be noted. First, in both (prosperous) Xiawangzhuang as well as in (poor) Shangjijuan village the villagers remain committed to the system, in spite of socio-economic pressure from outside. Second, if socio-economic pressure reaches such a stage - as in the case of the large-scale digging of liquorice root in Ma'erzhuang Township - the common property regime ceases to fulfil one of its basic functions: the exclusion from use by farmers from outside the

¹¹ In the academic world there is also considerable criticism on the carrying capacity as a leading principle in rangeland management. Authors such as Leeuw, Bartels, Scoones, and Behnke have extensively written on this topic (Leeuw, 1993; Bartels, 1990 and 1993; Scoones, 1995; Behnke, 1993).

village community. A common property regime is not a panacea. Maybe this is also one of the main lessons to be learnt from the Yanchi experiments: there where the power of the common property regime stops, the space is opened up for macro-economic policies of poverty alleviation, such as the development of alternative income-generating activities, and the physical and social infrastructure in order to alleviate the pressure on rangelands.

Acronyms:

CSCPRC	Committee on Scholarly Communication with the People's Republic of China
MXCW	Ma'erzhuang Xiang Cunmin Weiyuanhui
NCZZD	Ningxia Caochang Zhibei Ziyuan Diaochadui
NGO	Non-Governmental Organization
NHZNT	Ningxia Huizu Zizhiqu Nongye Ting
PCPRM	Panel on Common Property Resource Management
YCNXYK	Yanchi Caodi Nongye Xitong Yanjiu Ketizu
ZZZCBW	Zhongguo Ziran Ziyuan Congshu Bianji Weiyuanhui
ZGTJ&MB	Zhongguo Guojia Tongji Ju and Minzheng Bu

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