Chapter 3

THE SOCIOECONOMIC SITUATION OF HERDERS IN GUOLUO PREFECTURE

A REVIEW OF RESEARCH CONDUCTED UNDER THE QLDP BY SYLVIE DIDERON AND MARIE-LOUISE BEERLING

3.1 Introduction

The 1992 feasibility study for the Qinghai Livestock Development Project recommended that a socioeconomic component be incorporated. The study recommended that the project fully take into account the socioeconomic changes taking place in the area. These include: population growth and movements, changes in grazing systems, and possible marginalisation of the Tibetan minority. Even though the project had a technical focus, it was considered essential to have a full understanding of social issues, in order to have sustainable and replicable results.

At the start of the project in 1995, a socioeconomic monitoring and evaluation component was introduced under the supervision of foreign consultants. A baseline socioeconomic survey of herders' households was carried out and sample households were selected to monitor the impact of the project. This information was to be complemented by household income and expenditure surveys and a farm management survey. Another objective was to identify socioeconomic constraints to development, and to suggest ways to eliminate these through project extension and training activities.

Work on the socioeconomic baseline survey began in 1995 (Dideron R1995; Dideron and Wangdan R1997) and a monitoring framework was designed (Dideron R1996). Later on in the project the initial ideas on long-term monitoring were dropped and the emphasis was shifted to more extension-oriented measurements of impact (Zachernuk R1998, R1999). Additional socioeconomic information was gathered by Gates's rangeland stock-taking mission (R1996), Goldstein's social evaluation study (R1996), field work carried out by the extension and training consultants (Matthewman R1996; King R1998, R1999), the participatory resource planning workshop at Jianshe (van Wageningen R1998), and reports on weaving (Dunsmore R1998, Beerling R2000).

The five years of socioeconomic investigations and project monitoring and evaluation work have focussed mostly on poverty issues (socioeconomic stratification; causes and consequences of poverty; and changes in socioeconomic stratification) and herders' perspectives (perceptions of constraints; attitudes towards government interventions; and responses to project activities). The situation of herders has been compared with overall social trends, while impact measurement has largely focused on the effects of the project's extension efforts (see Chapter 5).

3.2 Agro-ecological Zoning, Demography and Sampling

Physical features

The project area consists of a series of high plains which are each surrounded by mountains. Together they form a watershed from which the waters eventually accumulate into the Yellow River. This river has already reached a considerable width at the point where it is crossed by the S 101 road at Lajia township. The many mountain streams create valleys that gradually widen towards the main roads.

Due to high elevation and low average temperatures (<0°C) crop production is not possible in most of the project area (Lajia being the exception). The economic mainstay of the area is extensive semi-nomadic livestock production.

Guoluo Prefecture

The project's initial socioeconomic baseline survey (Dideron R1995) used official statistics to make an inventory of agro-ecological and socioeconomic indicators for Guoluo Prefecture. Data on topography and climate, land use, population, administrative units, livestock numbers, prices for livestock and livestock products, infrastructure, and government services were gathered to inform the selection of the pilot project townships.

Guoluo Autonomous Prefecture is made up of six counties. The 1994 statistics report a population of 122,000, with 89.5% Tibetans, the remainder being Han Chinese and Mongol, Hui, Sala, and Tu minorities. Of the total population, more than 77% live in rural areas; 10% in the prefectural capital Dawu (Maqin county) and 12% in county headquarters. The two project counties — Maqin and Dari — together make up 44% of the total population of the prefecture. Maqin has a population of 31,224 and Dari 21,666. Seventy per cent of Maqin's population and 95% of Dari's are Tibetan.

The project townships

The project townships were selected to represent a cross-section of township types (Table 3.1).

There are significant differences between the townships. These are caused by a combination of variation in the length of the grass growing season from 90 to 200 days due to variations in temperature and snowfall levels; varying quality of grassland and whether or not pastureland has been allocated to individuals; the level of remoteness (access to inputs, marketing facilities), and the level of implementation of the Four-way programme. Townships also differ in the way regulations and policies have been applied. The townships are relatively

Table 3.1: Characteristics of the six project townships as of October/November 1995

	Wusai	Jianshe	Sangrima	Dangluo	Xueshan	Lajia
Utilisable land (total)	75%	80-90%	59%	80-90%	87%	56%
Management system	Group and individual	Group and individual	Tent groups	Group and individual	Individual (extended family)	Individual (extended family)
No. animals/hh	79	140	141	71	287	165
Sheep/yak ratio	0.53	1.4	1.24	1.4	2.32	1.07
Housing	>50% houses	50% houses	Tents	50% houses	100% houses	100% houses
Fencing	43%	30%	NA	30%	60%	85%
Shelters	>50%	20%	NA	20%	46%	12%
Oat growing	small plots	small plots	NA	small plots	50%	100%
Marketing facilities	Good	Relatively good	Poor	Relatively good	Good	Very good
Average annual income	550 yuan*	c. 700 yuan	706 yuan	c. 700 yuan	3046 yuan	1493 yuan

* There are 8.28 yuan to a US dollar.
NA not available

autonomous as most budgets are raised within the townships. Some townships are more prosperous as they have more resources at their disposal. Differences between townships are expressed in variations in taxes, quota regulations, land allocation rules, service provision, poverty alleviation programmes, and salaries of local leaders and service providers (Zachernuk R1998).

The project's townships have a variety of herd management systems. These range from group management in Sangrima township to groups coexisting with fences inherited from the collective system in Jianshe, and groups of relatives cooperating and migrating simultaneously in Wusai, to strict individual management in Xueshan and Lajia. Where pastureland has been allocated late, herders still tend to operate in groups and share pastures and work, especially where there are no fences.

Socioeconomic stratification

To assess the socioeconomic status of different herder households, a way of ranking the prosperity of households was developed. This ranking system was based on herd size and composition. Herd size is the most important indicator of wealth as in the Tibetan pastoral system, animals provide security for the reproduction of the household, and are also the main form of accumulating wealth. The number of animals owned is an expression of the relative wealth of a household. Officials also view it is the main criteria of relative wealth. It is estimated that 25 yaks (of which at least 30% should be productive females) are necessary to ensure a household's subsistence. This number of animals requires one man and one woman for management and milking. Ten animals are considered the absolute minimum for survival. The proportion of sheep to yaks is a further indicator of prosperity. Poor households usually have a pure yak herd with no sheep. In the six project townships the average ratio varied from 0.5 to 2.3 sheep per yak .

The stratification system distinguished between three types of household: those unable to meet subsistence needs; those able to meet subsistence requirements but unable to save; and those able to meet subsistence requirements and make savings. The study classified households into the six categories from 1a to 3b (Table 3.2).

Table 3.2: Household prosperity categories

	Category 1 (poor)	Category 2 (average)	Category 3 (rich)
Sub-categories	1a: less than 10 animals very poor and vulnerable 1b: 10-20 animals poor, difficult conditions	2a: more yaks than sheep (typical for Dari) 2b: more sheep than yaks (typical for Maqin)	3a: sheep/yak ratio 0.77 3b: sheep/yak ratio 1.4
Characteristics	• average hh size of 4 • < 20 animals • barely meet subsistence needs • very poor • only yaks	• average hh size of 7 • 20 to 120 animals • can meet subsistence needs • average income • mixed herds	• average hh size of 7 • 120 animals • ample income allows savings • invest in livestock production • mixed herds
Constraints	• vulnerable to accidents • insufficient labour • no savings capacity • reliant on off-farm income	• not enough savings capacity to make investments • little access to credit	• limited area of land and productive capacity
Stated priorities	• to improve diet • to increase livestock numbers • to increase off-farm income	• to improve grassland & fences • to reduce black beach • to build animal shelters • to grow oats	• to continue grassland improvement • to improve living conditions: housing, solar generators

This categorisation can be further refined if the number of animals (or, ultimately, the number of sheep units[1]) per person is taken as an indicator instead of number per household. This is considered to be a better system, but it is not universally applicable because the actual level of 'rich' and 'poor' differs very much from one township to another.

This ranking reflects the physical and economic conditions in each township. For example, the poorest households in Xueshan have more than 25 animals per person, a level which exceeds that of average or even rich households in other townships (Dideron and Wangdan R1997). This issue is discussed in Section 3.4.

3.3 Herders' Living Conditions

Habitat and way of life

Except for the county headquarters, almost the entire population of the project area lives in the rural areas and engages in livestock keeping. The settlement pattern is extremely dispersed. In the winter season (October to May) the herders usually stay in their winter pastures relatively close to rivers, main roads, and township headquarters. Owing mainly to government programmes that promote permanent winter dwellings, clusters of houses have emerged in the winter grazing areas over the last 15 years. In the summer months (May to September) the herders move to the summer pastures which are usually situated on higher plains or in narrower valleys. The habitat pattern becomes most dispersed in the summers with families usually living more than a day's journey from each other. The summer dwellings are traditional tents woven of yak hair.

[1] 1 adult sheep represents 1 sheep unit (su); 1 yak is considered equivalent to 4 sheep in terms of feed consumption, therefore 1 yak = 4 su; 1 horse = 5 su (Goldstein 1996: 1 yak = 5 su, 1 horse = 7 su)

The average household size is slightly over five persons. Tibetans, as a minority people, are exempted from 'the one-child policy'. A household is usually a nuclear family (father, mother, and 3-6 children), but many other forms of cohabitation occur including multi-generational households and extended family households. The proportion of female-headed households may be as high as 20% (Zachernuk R1999). The not unusual out-migration of male household heads in poor households leads to this situation.

Life is very basic for most plateau dwellers: they live off what their animals provide, with few outside inputs. Their diet consists mainly of home-made dairy products (milk, cottage cheese, yoghurt, butter, and meat) which are supplemented by roasted barley, tea, potentilla roots, and, in the richer households, bread and sugar. Trade is very limited and very few households sell butter or milk. The isolated living conditions preclude commercial activities. Outside of the county headquarters there are no markets or fairs where products can be exchanged.

Practically the entire population of the project area adheres to the Buddhist religion. Religion is visible everywhere with prayer flags, altars, and prayer wheels in the homes and lamaseries. Many young men become monks and so do not work as herders. Religious ceremonies are the main occasions during which people meet.

Livestock and land

The main production factors of the Tibetan livestock keepers are livestock and land. The few households (1-10%; see Dideron and Wangdan R1997) that do not have animals are very poor. There are hardly any alternative sources of income.

Since decollectivisation in the early 1980s, individual families have become responsible for the management of livestock and land (Goldstein R1996). These assets remain formally the property of the state, which has allocated numbers of livestock and areas of grazing land to herders on a 50 year lease-contract basis. To pay for their leases, herders have to deliver a quota of animals and animal products to the government against fixed (low) prices. The government in turn provides certain services to the herders at regulated prices such as. veterinary services and commodity items like flour and oil.

The allocation of animals was done between 1983 and 1986. The animals belonging to the cooperative (the former 'production brigade') were divided according to household size, with each household receiving the number of animals deemed enough for their subsistence. How many animals each household eventually held depended on how rich the cooperative was, and whether the household had any animals of their own. (In the Communist era it had been at the discretion of each township to allow families to keep some animals as private property. In Xueshan and Lajia households had been allowed to keep as many animals as they wanted, while in Sangrima only one yak cow per person was allowed.)

The allocation of land occurred simultaneously in some counties and townships, while in other counties it happened later (1986-93). It was done on the basis of animals allocated earlier, and sometimes it partly took into account the surplus acquired in the intervening

years[1]. The winter/autumn pastures were allocated first, and the summer pastures (much) later. Records of the areas of land are kept at township headquarters and are known by the association/cooperative leaders; however, the herders themselves often seem to be unaware of the amount of land they hold (Gates R1996). There is active encouragement of fencing, mostly of winter pastures, but also for summer pastures. By the end of 1995, more than 170,000 mu of grazing land had been fenced in Dari county, and the target was that 80% of the 3,889 households in the county would have their grazing land fenced by the year 2000 (Goldstein R1996). By the end of 1999, 2.14 million ha (6.8% of used pasture in the province) were reported to have been fenced (Xung, P67).

Activities and livelihood systems

Yaks are essential for family survival. It is only after the number of yaks is sufficient to cover the basic subsistence needs that a family will also consider keeping sheep. Sheep are never milked; they are mainly kept for their wool and for selling.

There are hardly any off-farm activities in the project area. The only non-livestock related activities are caterpillar fungus and *Potentilla* root collection and some hunting. Very few Tibetans derive income from trading or handicraft production.

Women do the milking and milk processing and look after young animals, collect dung, and do most of the housework. Wool processing and weaving is also women's work. Men herd the animals and look after the feed (grass cutting, grass planting, fodder crop production, feeding animals). They are also responsible for animal health care, meat processing, skin preparation, and leather work. The summer is the busiest period for women, while the men are busiest in winter. Children are engaged in farm work from the age of seven (Dideron R1995; King R1999; Beerling R2000).

Position of women

Apart from investigations into women's work loads, little in-depth information was collected on the position of women in Tibetan herder society. Most information was derived or deducted from other sources.

Dideron (1995 R1997), Zachernuk (R1999), and Beerling (R2000) report that women have a relatively independent status in Tibetan society. This is probably related to the fact that Tibetan culture is influenced by a matrilineal kinship system. While inheritance generally follows patrilineal lines, it is not unusual that, in the interests of safeguarding the family property, the female line is actually followed (Dideron R1995). Sometimes a young couple will install themselves in the wife's home (matrilocal). Beerling noted the relatively high degree of independence of young women. They can have their own separate dwelling, choose their own partner, and often have one or two children before marriage. Divorce seems to be quite frequent, although describing a woman as a divorcee may be another way of saying she was never actually married.

[1]The fact that allocation of land did not always happen at the same time as allocation of animals caused some families to attempt to increase their livestock numbers in the mean time, in order to have increased claims at the time of land allocation. Eventually this was only partly taken into account and households received land basically according to the number of animals they had in 1985.

The number of female headed households (FHH) is probably more prevalent than is officially recognised. Using official township statistics, Zachernuk (R1998) found a proportion of between 7 and 20% (average 14.3%) FHHs and believed that this was probably an underestimate. Six out of 51 households in the socioeconomic survey were female headed. Almost half of the FHHs were classified as very poor (< 10 animals per capita). The lack of labour is the main constraint for FHHs. Another constraint they have is that they find it difficult to attend training sessions as often as men do, and they do not have easy access to inputs (they often need the help of relatives to get veterinary treatment for their animals). Women are more tied to the home and generally less mobile than men.

Nevertheless the overall impression is that women are important and enjoy a relatively autonomous status. They seem to have a freedom of expression and can be producers, income earners, and decision-makers in their own right. However, the tendency (also in QLDP) to view women consistently as 'herders' wives' rather than as economic actors in their own right is not conducive to women's advancement.

3.4 Issue I – The Structure of Poverty

Poverty as a relative concept

Analysis using the above wealth ranking categories, showed that poor households made up between 30% and 52% of all households in the project area (Dideron and Wangdan R1997; Zachernuk R1998, R1999). Goldstein (R1996) reported that 73% of the households in Jianshe were poor whilst there were no poor households in Xueshan. Official data suggest that the 117 families in Dangluo township (32%) are exempted from taxation because they are considered too poor (Matthewman 1996; Zachernuk 1998). Dari is a nationally recognised poverty area and benefits from central government poverty alleviation funds.

Local perceptions of what is poor and what is rich are always relative. Herders in Wusai and Jianshe said that for them, 'rich' households were those with more than 20 animals per person and 'very poor' households were those with less than five animals. In Sangrima, households which have 30-70 animals per person were thought of as 'rich' whilst households with between five and fifteen livestock per person were viewed as 'very poor'. In Lajia, Xueshan, and Dangluo the people did not even mention the category 'very poor'. In Xueshan, the poorest households have more than 25 animals per person, which is more than what is considered as average or even rich in other townships (Dideron and Wangdan R1997).

Origins of poverty

Animals were equally distributed at decollectivisation in the early 1980s; however, by 1999 major differences in wealth – as measured by the number of livestock — had come about. Dideron (R1995) gives the following causes of socioeconomic differentiation.

- Access to livestock and grassland. Livestock numbers were allocated according to household size and grazing land according to herd size. Changes in household size and composition since then may have created the need for more animals to sustain households' subsistence requirements. However, the number of livestock a family can keep is limited by the amount of accessible grazing land they have.

- Labour availability. A minimum amount of labour is required to care for livestock. Notably the number of yaks that can be kept (the subsistence animal par excellence in the project area) is limited by the number of female family members. Households lacking male members, or with disabled persons, have difficulties in caring for their herds.
- Access to off-farm income. The major off-farm income source is the gathering of caterpillar fungus for sale. In some areas this resource is being depleted. Also, some households lack the labour power to go out and gather it. Other income-generating opportunities are impeded by limited skills and knowledge.
- Climatic disasters, accidents, and disease. The impact of climatic disasters, accidents and disease are often a consequence of poverty with smaller herds being more vulnerable. Such events lead to further impoverishment by, for example, herders incurring further debts to replace their herds. There is large climatic variability in the project area with frequent snow disasters and droughts.

Another determining factor mentioned by Dideron is a household's start-off position. Present day animal wealth is a result of how 'rich' a cooperative was at the time of the allocation of animals, and on how many of its own animals a family had at that time. Wealth was already unequally distributed before decollectivisation.

Goldstein (R1996) mentions population growth as a reason for concern. As children mature, marry, and establish their own households, the pastureland given to a household at the time of privatisation will have to be divided into smaller units. There is no way for new households to acquire more pastureland. Goldstein refers to this as trans-generational fission. To compensate for this herders try to improve the productivity of their pastureland, but it is difficult for them to attain the economic level of the original households. This can lead to herders trying to overstock their pastures. If this is not possible they will be forced to accept a lower standard of living.

Herders and local officials themselves cited the following factors that caused poverty (Dideron and Wangdan R1997).

- The lack of adequate good quality grazing land
- The harsh climate, with a short growing season and great variability in climatic conditions and frequent natural disasters
- Large household sizes with too few animals
- Poor management abilities of the herders
- Female-headed households, (overburdening of women and children and insufficient labour)
- Lack of access to off-farm income
- Trans-generational household division

Although labour availability is missing from this list, it is obvious from other sources (Matthewman R1996; King R1998; van Wageningen R1998) that labour force constraints are among the major causes of poverty and that female households (HH) are more affected. Dideron's analysis shows that the number of animals is closely linked to the active labour force in a family, a lack of labour keeps a family from herding more animals. A mixed herd requires more labour than a single-species' herd. While yaks are the mainstay of a family's

subsistence, the number of yaks that a family is able to keep is limited by the availability of women to look after them. One woman can handle a maximum of ten female yaks. A young couple with small children can hardly manage to keep the number of yaks required for their subsistence.

Consequences of poverty

Differences in animal wealth and income, as shown in Table 3.3, imply that the constraints and, therefore, the needs of the different wealth categories are fundamentally different. The income generated by 31 households, representative for the socioeconomic stata defined in Table 3.2, is summarised in Table 3.3.

No major constraints seem to exist for rich households (Goldstein R1996). Their livestock enterprises are secured as most have winter fencing and animal shelters, and they are able to invest in summer fencing, grassland improvement, and oats pens. Other preferred investments are a house, household equipment, clothes and jewellery, and a pilgrimage to Lhasa. Such households do not purchase animals, but sell them to pay for the investments (Dideron R1995). They are more commercially oriented (Zachernuk R1998).

The basic constraint for the 'average household' is money for investment. The priority of these households is to improve their grassland and livestock production by practising forage cultivation and by building fences and shelters. As they lack access to credit their only way to generate more income is to increase livestock numbers, which is, however, constrained by a shortage of grazing land.

For poor households, the main constraints are the lack of subsistence means, investment, labour, and cash. The priority for poor households is to satisfy their subsistence needs for food and clothing. They attempt to achieve this by increasing the number of animals they keep. Also, they look for income-generating opportunities, but are constrained by lack of labour. Sometimes they lease their land to richer herders and work for others. However, the vicious circle of poverty, vulnerability, and limited opportunities often hinder them.

Table 3.3: Summary of household models (Dideron 1995)

Categories (see Table 4)	1 (poor)		2 (average)		3 (rich)	
Sub-categories (see Table 4)	1a	1b	2a	2b	3a	3b
Total number of livestock head	10	20	120	120	250	250
- of which yak	10	20	68	50	141	104
- sheep	0	0	52	70	109	146
Value of production before taxes/fees	607	3,413	16,004	14,413	33,184	29,980
Value of production after taxes/fees	567	2,733	14,476	12,943	30,016	26,922
Off-farm income in yuan	2,500	3,000	2,000	2,000	2,000	2,000
- Total net income for the household	3,067	5,733	16,476	14,943	32,016	28,922
- Total net income per capita	767	1,433	2,354	2,135	4,547	4,132
Cash income per capita	2,640	4,380	10,095	10,000	18,786	18,640
Composition of cash income:	660	1,095	1,442	1,430	2,398	2,390
- from yaks	5%	32%	46%	35%	52%	38%
- from sheep	0%	0%	34%	46%	38%	51%
- from off-farm activities	95%	68%	20%	20%	11%	11%

Because the prevailing view is (wrongly) that poverty stems from laziness, ignorance, and lack of interest, the poor come to feel ashamed of their situation which further undermines their position. Many poor households are female-headed.

One notable trend from the project area is the marginalisation of the poor. The poor come to be ignored in various ways, Between 1997 and 2000 the proportion of poor households among demonstrator households went down from 3 to 0% (personnel communication Laurens Wester). This does not mean that there are no longer any poor households, but that they are being overlooked by the extension services. The poor are even underrepresented in the project's monitoring sample. Any monitoring exercise should take a representative cross-section of households. However, the project's monitoring sample had more better-off households. Of the 51 households, only 11 fell in the poor category, 8 in the average category and 32 in the rich category (Dideron and Wangdan R1997; Zachernuk R1998). Attempts should perhaps have been made to have equal proportions of all three categories.

The gap between the poor and the rich will increase unless structural action is taken to stop the poverty spiral. Zachernuk's mathematical household model predicts that under unchanging circumstances, in about ten years time (c. 2008), poor families will have a negative income of almost 3,500 yuan (Zachernuk R1998).

Solutions to poverty - perspectives of herders and others

To cope with poverty herders:

- maximise their herd sizes, to reduce their vulnerability to disaster;
- pool their resources by keeping family herds together even after parents die–they operate on an extended-family basis in tent groups to share labour to manage the grasslands and herds;
- improve the feed resource by protecting the grasslands (fencing), improving grassland productivity (sowing, rodent control, and fertilisation), and by using alternative feed (fodder, barley flour);
- procure access to more pastureland by migrating to other areas (Sechuna, Maduo) or by renting grazing lands; and
- herd, weave or build fences for others, and pursue other types of non-farm income. (Their access to many alternative income sources, however, is limited by their low education level).

The herder's coping strategies are, however, often regarded as 'irrational' or 'traditional' by outsiders, who fail to see that they are forced to follow these strategies for the lack of any alternatives.

The government offers assistance through relief programmes such as: exemption from taxes, the five guarantee system, the establishment of poverty communities (as in Wusai), work for welfare schemes, poverty alleviation programmes, and subsidised loan schemes (Four-way programme). However, many of these packages do not help the poor because they cannot afford to join them. For example, the Four-way programme is too expensive for the poor to join. Fencing 500 mu of grassland, constructing a 60 m^2 animal shelter, and planting

10 mu of oats costs approximately 17,000 yuan which presupposes a savings' capacity of 3,400 yuan per year over five years. This is way beyond the capacity of the poorest herders.

Extension activities are supposed to take account of poor households by selecting a certain number of poor households as demonstrator households, and by including low external input technologies — such as hand tilling for oats cultivation. However, the mainstream package gets nearly all the attention and is taken up by those herders who can afford it. The number of poor households participating in extension schemes remains negligible.

It was suggested that QLDP promote poverty alleviation by launching a revolving fund for animals. The idea was to help the poor get out of poverty by supplying them with animals. A suggestion was also made to establish a pilot weaving project to help create income-generating opportunities for women. Unfortunately neither of these has been instituted.

So far, little structural improvement of the poverty situation has been achieved. However, the perspectives outlined by Gates (R1996), Goldstein (R1996), and Zachernuk (R1998) leave little doubt that a structural solution to poverty urgently needs to be found, if only because this must form an essential part of a structural solution to resource degradation. It is also clear that viable poverty-alleviation strategies can no longer be defined unilaterally, but have to be developed in dialogue with the herders and must be based on their own coping strategies.

3.5 Issue II – Managing a Marginal Resource

Range degradation: constraint or construct?

The issue of the availability of good grazing land is closely linked to the poverty debate. For the herders in Guoluo prefecture, limited accessible pasture land is a major constraint. The consensus is that this situation is getting worse.

In the many interviews with herders conducted during QLDP's socioeconomic and extension work (Dideron R1995; Gates R1996; Goldstein R1996; Dideron and Wangdan R1997; Zachernuk R1998; Matthewman R1996; Moorehouse R1997; King R1998; van Wageningen R1998), the herders highlighted rangeland degradation and the formation of black beach landscapes and the depredations caused by rodents and drought as the main causes for their deteriorating resource base. It is difficult to assess which is cause and which is effect; as there is a complex of factors that interplay in a vicious circle. However, what has been lacking in this analysis has been the human element. The herders themselves seldom mention overstocking or keeping too many animals as the cause of the diminishing resource base (Matthewman R1996). This is because animals are so vital to their survival and it is inconceivable to them that there could ever be 'too many' animals.

Interestingly, local officials likewise say that, despite erosion, rodents, and black beach, the carrying capacity of the rangelands has not yet been exhausted (Matthewman R1996; Goldstein R1996). The concept of destocking is utterly alien and is not seen as a solution to the problem, but as an attack on herders' livelihoods.

However, academics, policy-makers, and extension staff strongly believe that the causes of grassland shortage are overgrazing and overstocking, and that they reflect irresponsible use of the range resource by the herders (Xiong, P67).

There are clearly conflicting views. The herders mention mainly 'natural' causes; whilst the authorities blame the herders for causing the problem and think that their production system should change.

A third view, held by some outside experts, is that the government has been instrumental in rangeland degradation. Gates (R1996) holds that consistent pressure from central government to increase production led to 'four decades of overstocking'. The fact that production aspirations were not coupled with any concern for the condition of the rangeland led to devastating results. Government policies contributed to the disruption of the traditional nomadic system with its built-in flexibility that allowed for differential grazing and the spread of grazing pressure. Goldstein (R1996) argues that the introduction of the family responsibility system (decollectivisation) and the reduction of transhumant movements to winter and summer pastures have led to increased and more concentrated grazing.

The fact remains that the family responsibility system has not only privatised the rangeland, but also individualised the herding system in Guoluo. This has caused a fundamental change in the relationship between herders and the rangeland. Some observers consider this as the imposition of a new model: private subsistence ranching. Goldstein has said that "This policy actually transforms the Tibetan herders, who were originally open-range pastoralists, into subsistence ranchers." The system has moved towards an American style ranching system when it is clear that the Qinghai-Tibetan Plateau lacks many of the features that allow American ranches to operate successfully.

Strategic choices

The present situation is far from the traditional open, communally-managed, pastoral system characterised by frequent seasonal migration in line with the needs of the animals and the condition of the rangeland. The in-built flexibility mechanisms, which are essential for sustaining extensive livestock production on marginal grazing land, no longer exist (Gates R1995; Goldstein R1996). The new system has fundamentally changed the old pattern by ruling out mobility and free access to land. This has made differential grazing practically impossible, and makes it difficult for households to adapt the amount of land to their needs.

In the face of weaker animals, lower milk production, more casualties from disease, decreasing fertility, and large losses in case of snow disaster, they have deployed a range of coping strategies.

The traditional strategy of mobility — to seek greener pastures elsewhere — has not quite disappeared. Particularly in Dari, herders practise seasonal migration to Maduo or to Sichuan provinces. Other strategies include the renting and buying of more land. The more efficient use of resources is achieved by splitting herds and sharing land and tasks with other herders in tent groups. More directly management-oriented strategies include deferred grazing, which is made easier by fences; hay cutting on natural grassland; and the strategic planting

of oats and barley. Reseeding and rodent control were already carried out before the introduction of such government schemes. Herders have also consciously adapted their herd structures to their production conditions (Zachernuk R1998). Since decollectivisation in the mid-1980s, herders in the southern townships have reverted to a higher yak-to-sheep ratio (Zachernuk R1999).

Re-orienting the production system is one of the options. Zachernuk's analysis of trends since the mid-1980s suggests that some herders have embarked on the government-traced path that leads to private ranching (Zachernuk R1998, R1999). They have built fences and shelters to protect their grassland and implement rotational grazing. Other indicators of this trend are a higher sheep to yak ratio and a higher proportion of female animals in the herds. This strategic option is only, however, open to richer herders who have a surplus to sell. These happy few are the epitome of the new Guoluo subsistence rancher. The majority of herders are still forced to stick to the traditional production system because they are poor.

Where the strategies fail

Apart from planting oats, there is no ready answer to the problem of grassland shortage and degradation. Most herders cannot afford to destock and become a rancher. However, access to good grazing land is becoming an ever more serious problem.

The key issue is that of 'control'. The government, assumes that the carrying capacity of the area is exhausted, and so is trying to bring the number of animals into balance with the feed resources through its three- four- and five-way policies[1]. The herders who have to live in this marginal environment with its harsh and unreliable climate want to secure their livelihood and seek to control their risks by maximising their herd sizes. They feel the government policies are of no help to them.

Both are trying, but failing, to control the situation. The government's policies lack a scientific base. Data on the volume of the feed resource are lacking and no ways have been employed to take account of geographic and temporal variability. There has been no adequate monitoring system to verify whether degradation has increased and at what rate, which has precluded a proper analysis of cause and effect. As a result, no extension policy on grassland management exists and no concrete advice on stocking rates or grassland protection is available (Matthewman R1996; Zachernuk R1998).

The herders have more confidence in their own knowledge and invention than in any if the government's policies or interventions. Interviews conducted by Goldstein (R1996) and Dideron and Wangdan (R1997), and to some extent King's participatory rural appraisal (PRA) work (R1999), have shown how herders react to government service provision and interventions with frustration and scepticism. At the Jiangshe Resource Planning Workshop, herders showed little confidence in government efforts to control rodents. Government efforts to restore grassland were also considered with scepticism, and as being too expensive

[1] "control flock by grass production and keep balance between feed and animals"; "increase the number of sheep, maintain the number of yaks, reduce the number of horses"; "one allocation, four fixings, five unifications"; see Xiong (P67).

for individual herders (van Wageningen R1998). This leaves the herders with little else to do but to continue with their traditional coping strategy of maximising livestock numbers to circumvent climatic hazards.

Enhancing control

With the help of QLDP ways are being sought for both the government and the herders to enhance their 'control'. This is happening on the government's side by support for rangeland research, the introduction of monitoring systems based on remote sensing and GIS, and by encouraging an integrated perspective on the problems of rangeland management.

The herders are being assisted to develop reliable technologies aimed at reducing the loss of animals from unpredictable climatic hazards. If the herders have more control over animal productivity and mortality, they will soon see that it is no longer necessary to keep so many animals to maintain their subsistence. The system's rationality can change and develop in other directions.

To find out where enhanced control and the associated development interventions could lead, a mathematical model representing a household economy was developed (Zachernuk R1998). The model showed that continuing the present production systems as it is would result in a wider gap developing between poor and rich herders with the income of poor households even becoming negative. It also indicated that:

- keeping the current number of animals constant by selling off the increases would result in a widening gap between poor and rich households, although the poor household would not end up with a negative but with a small positive net income;
- manipulating the tax structure would not change the situation significantly;
- improving veterinary care for poor herders would mean that a poor household would have four more sheep and 1,022 yuan less net income — these households would only break even when the sheep price was 250 yuan, the main gain would be a lower degree of risk; and
- improving veterinary care for the average herders means that average herder households, could expect an increase of 2 yaks and 15 sheep with a drop of 2,554 yuan in net income — at current animal prices this would represent a net gain of 2,196 yuan.

The model also suggested that investments in fencing could reduce mortality rates. However, it is unclear whether or not this is a realistic assumption. If, for example, the lamb mortality goes down from the present 32 to 28%, and the calf mortality rate from the present 21 to 13%, then the gain will be 45 yuan. If mortality rates are further reduced, then the gain will be higher. This calculation does not take into account other advantages of fencing such as weight gain of adult animals, economy in terms of labour, and better relations with neighbours.

Technology can help to enhance control over rangelands and eliminate hazards in livestock raising, but the socioeconomic impact is not automatically a positive one. Lack of attention to socioeconomic initiatives will lead to an ever widening gap between the rich and the poor. Technological initiatives must go hand in hand with socioeconomic policies aiming at the more equitable distribution of wealth.

3.6 Issue III – The Politico-Administrative Context

An issue common to both the poverty and the rangeland management debate is that of existence of norms to which herders are subjected. These are defined on the one hand by culture and religion, and on the other by the policies and laws instituted by the administrative authorities. The herders have to make their decisions and make a living within these boundaries.

The hierarchical administrative system of counties, townships, herders associations, and herders' cooperatives, all impinge upon herders' lives. Policies implemented by these bodies include:

- livestock-related and general taxation, levies, and quotas;
- five-year plans and other central-level policy priorities, such as 'development of the west';
- minority policies and relief policies in poverty alleviation programmes;
- environmental policies — these are relatively new but forebode dramatic impacts on herding; and
- population and migration policies.

The extension and the market environments also directly influence herders.

The herders hardly figure at all as active stakeholders in these formal institutions. Rather, they have to abide by their decisions which are seldom made with herders' interests in mind. This often forces them to operate within the narrow margins of what is permitted and what is not. Finding holes in the fabric of the law has become a part of their way of life. Inter-county migration, long-term renting of grazing land, interference with fences, sticking to herding groups rather than individual ranching, are not so much signs of opposing government policies as attempts to adapt a basically incompatible normative environment to the requirements of semi-nomadic herding. The Tibetan herders are accused of being 'reluctant' to accept government decisions, and of being unwilling to understand the rules and laws. The herders' perspective is that they do this out of necessity, as the existing rules do not allow them to safeguard their own interests and to continue their extensive semi-nomadic livestock production.

The herders are not involved in the formulation of rules and regulations, laws, policies, and five-year plans. These laws and policies can be described as essentially being "about them but without them". Hence, Tibetan herders have to operate within a normative environment that does not reflect their values, interests, and priorities, and that is at times contrary to them.

The limits to autonomous decision making

The herders have a variety of coping strategies but official interventions constrain rather than help them to implement these strategies. The privatisation policy is a case in point.

Major policy developments over the last few decades have been the abandonment of the collective production system, the introduction of the family responsibility system, and the

privatisation of pastureland. Although these policies have had a profound impact on the lives of the herders, the herders have not been consulted about their introduction. The policy of shifting the responsibility for production to individual households is suitable for crop-growing areas but not for the herding areas, as extensive livestock production on marginal land can derive substantial benefits from communal resource use. Although they are hesitant to discuss this issue openly, herders, and especially those who are poor and have not (yet) benefited from the Four-way programme, would have preferred another, more open, system (Goldstein 1996). The implicit constraints the new policy imposes on the free movement of assets (land and livestock) have been discussed earlier. The fifty-year leases and the inflexibility of the rules are perceived as major problems and may in the long run be major impediments to efficient herd management.

Privatisation of pasture land has done little to solve the grassland problem whilst poverty alleviation policies have not helped the poor. Extension has not been geared to the poor. The markets are still distorted by government interventions in pricing and purchasing, while deficient infrastructure and remoteness prevent herders from freely trading in the market. Recent environmental projects, such as the Three Riverheads' project, have been put forward by central government with national rather than local interests in mind. It is unsure whether or not this programme will improve the situation of the herders. The central government's idea to create 'livestock-free' zones (by moving herders to other areas) epitomises the baseless concept that herders are the source of degradation when scientific fact shows that grazing actually helps to keep ranges healthy.

There are a number of other examples of where the institutional environment imposes constraints on autonomous decision-making.

- The rigid top-down structure which, although it may be a good way to pass instructions and information from the top down to the grass roots, can also be a filter that keeps information away from the grass roots. This is an issue because of the remote and dispersed habitat of the herders who are therefore not able to independently access information themselves and have to rely on others to keep them informed.
- Government control of the management of animals, stocking rates, and the use of rangeland is exercised through cooperative, association, and township leaders. The timing of transhumance movement of livestock is determined by these leaders. Also, Goldstein quotes some township officials who are aware that they have the authority to intervene in case they perceive overstocking has occurred (Goldstein 1996). However, local government has never limited the number of livestock, although the idea of restricting the number of animals per family, as is already the policy in Tibet, has occasionally been discussed at local government level.
- The rigid structure of extension is not conducive to the involvement of herders. Only a small part of the herder community is actually served by extension services.
- The statistics that herders are obliged to supply to officials about their farms are often inaccurate (Zachernuk 1999). This hampers planning.

Given the unhelpful official policy framework it is not surprising that Tibetan herders sometimes behave in a recalcitrant way towards government officials and government rules. The official environment at best does not help the herders, and at worst limits and restrains

them in the implementation of their survival strategies. Rules and regulations imposed by outsiders often have such opposite effects.

The problem can be solved either by improving the legitimacy of the normative environment by enhancing local people's participation in decision-making, or by reducing the strictness of the norms, so that violation becomes less of a necessity.

Greater flexibility in applying the norms is necessary to avoid completely estranging the Tibetan herders from the state system. This would reduce mutual distrust and social unrest, and would help to create an atmosphere of solidarity. It would create the basis for a situation in which parties can collaborate for a better future. Imposing the norms by force will only make things worse.

Can the herders be brought in?

The Tibetan herders are a negligible minority amongst China's population of 1.3 billion. Their traditional extensive mode of production is viewed as being of little relevance where more than 95% of all meat consumed is pork and poultry produced in intensive production systems. Beef and mutton from extensive production systems account for less than 5% of national consumption.

The participation of Tibetan herders in the mainstream of development has lagged behind, due to their low levels of education and participation in representative bodies. Tibetan herders are widely considered as 'traditional', backward, and uneducated. In policy development forums there is little understanding of the predicament of the herders. The majority of Chinese, who are overwhelmingly crop growers, have little affinity with extensive livestock keepers and little appreciation for the values of their production systems. There is a general lack of faith in the traditional migratory grazing systems; which are considered 'irrational' and harmful because they are believed to cause range degeneration (Richard 2000). Such dichotomies need to be recognised and resolved, lest they result in increasing polarisation between the herders and the authorities.

The problems seem to be growing. Besides the need to improve rangeland by implementing management measures and conservation practices, there is also a need to change regulations concerning land holding, tenure, taxation, and marketing (Gates 1996). Fences and shelters will not create a stable equilibrium if the problems of high population growth, lack of alternative employment opportunities, and restoration of degraded pastures are not tackled simultaneously (Goldstein 1996).

The population, environment, food security, and employment problems that China is facing are national scale problems. They cannot be solved without a thorough policy framework. For these policies to be effective they must be formulated in consultation with a cross-section of Tibetan herder society.

As it is clear that the Tibetan herders must be 'brought in' and consulted the main question to address is how best to do this? What options exist given that the herders distrust the government and disregard its rules, whilst the government lacks faith in the herders?

Creating trust is a precondition. This requires the two sides understanding each others' motives and perceptions. Further socioeconomic studies of the herders' perceptions, and forums where technical and socioeconomic experts can discuss each others' work, will contribute to a better understanding. Participatory rural appraisal (PRA) should be adopted as the basic methodology for technology development and extension. But more important than meetings and methodologies is a willingness to listen to each other and to respect each others' views.

Language has been a major barrier preventing mutual understanding between Chinese and Tibetans. Chinese officials should learn the Tibetan language as the Tibetans would have more faith in officials who speak Tibetan.

A system of bottom-up planning needs to be adopted to allow marginal groups, such as Tibetan herders, to participate in decision-making processes. QLDP's Jianshe Resource Planning Workshop provided many learning experiences that can be useful in the development of bottom-up planning.

3.7 Conclusion

The role and place of socioeconomic work in QLDP

Poverty, the herders' concepts of the causes of rangeland degradation, the herders' reactions to government policies, and the government systems' attitude to herders have been the main socioeconomic themes in QLDP.

Yet, the incorporation of a socioeconomic component in QLDP has been officially viewed as an alien concept that was imposed by the donor and implemented by European consultants. The Bureau of Animal Husbandry had no socioeconomic expertise among its staff and viewed talking with the herders as of only limited use. They saw their real role as being to increase animal productivity. Five years of socioeconomic research have done little to convince the decision-makers in BAH that socioeconomic investigations need carrying out to improve the efficiency of their task. In many ways the socioeconomic work has failed because it has been carried out in relative isolation, by foreign consultants. The Chinese counterpart was from outside BAH, and there has been little sense of Chinese 'ownership' of this work. There has been little integration of the results of the socioeconomic studies into other aspects of the project. The socioeconomic work has reflected the poor relationship between the Tibetan herders and the authorities: it has lacked legitimacy because the partners have not been fully involved.

Poverty and distribution of animal wealth

Poverty is a big problem and a major challenge for all involved in the development of the Qinghai-Tibetan Plateau. However, so far there has been little reduction of poverty in the project area. Suggestions have mostly remained at the recommendation level. What needs doing is to:

- develop extension packages for poor herders and female-headed households that take into account their lack of finance and labour;

- develop low cost technologies that require few external inputs to reduce labour requirements and relieve drudgery; and
- investigate what types of credit are needed and manageable by poor households.

At a structural level it is recommended to:
- investigate alternative income-generating opportunities for all Tibetan herders. Within one or two generations the livestock sector will be unable to support the growing population;
- promote education and skill development;
- develop and stimulate the processing and marketing of livestock and livestock products; and
- facilitate flexible land legislation and allow the free movement of assets.

Animal wealth is unequally distributed with the poorest 20% of Tibetan herder society having only 2-5% of all animals whilst the top 20% own more than half of all animals. These increasing levels of inequality mean that more and more people are sliding into poverty, which makes the implementation of anti-poverty measures ever more urgent. This also has implications for the implementation of range management measures. The bigger stock owners make greater demands on the range resources and are therefore more likely to cause degradation than the small stock owners. It is economically rational to target range management policies at the herders with the most animals.

Women herders

The number of female herders and female-headed households has probably been underestimated. They are ignored as they are not regarded as a target group by the extension agents, the BAH, or the QLDP. These organisations only talk about 'Tibetan herders' wives'. Yet, in some cases they are producers and decision-makers in their own right. They suffer from specific constraints with a lack of labour being the most prominent one. Programmes are needed to offer assistance to women herders. This is quite different from attempts to build the capacity of women as weavers.

Future developments - do socioeconomic insights help?

The government's policies lack a scientific basis. Its premises have not been objectively determined and assumptions have not been explicitly declared. The government has used dubious calculations of rangeland carrying capacity. The problem is that basic data on the volume of the feed resource is lacking and no mechanism exists to take account of geographic and temporal variability. There is no adequate monitoring system to verify whether black beach is increasing and whether or not snow disasters have become more frequent and the climate is changing. It is therefore impossible to properly analyse causes and effects, and hence very difficult to make a realistic long-term grassland development policy. As a result, no extension policy on grassland management exists and concrete advice on stocking rates or grassland protection is not available (Matthewman 1996; Zachernuk 1998). Nevertheless the government does impose policies, the soundness of which is justly questioned by the herders.

The herders have more confidence in their own knowledge and invention than in the government's policies and interventions. The herders feel frustration and scepticism with

the government's service provision and interventions (Goldstein 1996; Dideron and Wangdan 1997; King 1999). Some herders are critical about privatisation, saying that it has only worked for the benefit of herders who have enough land. However, privatisation is a fact, and most are in favour of fencing to control, protect, and improve their land. Planting oats is rather positively viewed although it has only been implemented by the better-off herders (Dideron and Wangdan 1997). The herders have little confidence in government efforts to control rodents and restore grasslands, as they are viewed as too expensive for individual herders to carry out (van Wageningen 1998). The opinion on shelters is not unanimously positive; some herders feel the standard design is not good and others feel that providing too much protection makes their animals lose their resilience for surviving the harsh conditions (Dideron and Wangdan 1997). Herders have little contact with the extension services at county level, and there are not many grassland technicians involved in extension work (Matthewman 1996; King 1999). The veterinary services have been appraised rather critically (Dideron and Wangdan 1997).

The main challenge for the future is to bring the herders and government officials together. This will be a difficult task but they have one main interest in common: the need to safeguard the common resource base. The new policy to 'develop the West' may serve as the first test ground. The idea is that western China benefits from enhanced economic investment, whilst eastern China is able to release some of its pressure of overpopulation. Can this policy be the win-win situation that it is advertised to be?