

Yushu Nomads on the Move: How can the use of pastoralist resources be sustainable?

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Abstract

Alpine regions, high plateaus, and arid lands are highly fragile ecological systems. Historically they were mainly put in use by pastoralists. In order to maintain an existence there they needed to adapt well to those fragile systems, and this made them develop strategies involving high mobility. They were as mobile as their herds needed to be in order to sufficiently feed the animals and to conserve the pastures for future use. More than any other human systems of exploiting natural resources pastoralists were thus compelled to adapt to and reasonably use what nature offered them. Reasonably in this context clearly means: in a sustainable way. To identify the major transformational processes and understand their agents as well as consequences, we need to have a deep insight into tangible systems. Exemplified by pastoralists of Qinghai's Yushu region, this paper suggests taking different perspectives of human existence in the area. Starting off from the description of the status quo of mobile pastoralism, a preliminary survey of agents of change perceived by rural people in the region can help to understanding of how ongoing transformational processes may support or obstruct efforts for the stabilization or rehabilitation of the natural environment and thus for a sustainable use of pastoral resources.

Keywords: Mobile pastoralism – Rangeland availability – Declining Significance of Animal Husbandry – State interventions – Migration and Sustainability – Adaptation

Introductory remarks

Contemporary states and development bureaucrats and even scientists have, until the late 20th century, tended to blame pastoralists for the degradation of ecosystems in arid and semiarid areas. Then, China was no exception, and the nomads and their purportedly “non-scientific” use of the environment were mainly held responsible for the deteriorating situation of grasslands on the Tibetan Plateau. Although severe changes in the ecology of a region may apparently be related to an alleged major agent – like overuse by herders, for instance – we know that such systems change under the conditions of intricate multilayered causal chains. In complex systems many effects may combine to a series of small consequences, others may end in but one major

implication. Measures to fight degradation and to mitigate consequences of ecological change thus also need to be multifaceted.

There is always a human dimension of ecological conservation: sustainable use, environmental protection and rehabilitation. Populations who have long lived in environmentally challenging areas, in our case the nomads of Yushu in Qinghai, have met with changes before, have coped with those, mitigated the consequences on their daily lives and finally adapted – which is expressed by their individual and group strategies that form a complex indigenous knowledge. Nowadays, “socio-environmental systems” that once were spatially more distinct from each other, the ever faster processes of globalization have intertwined them more heavily, with people feeling consequences of actions in either sphere of their daily life. This is the major reason why adaptation to the present changes in the ecological systems necessarily also entail outside interventions; on the other side, however, those shaping such interventions need to understand the internal processes of such regions that are strongly different from the centres where policies are formulated.

Since centuries, notably during the last decades, pastoralists have adapted and still adapt to altering situations, involving individual and group initiatives as well as state actions. The examination of human actions and measures of adaptation to the changing ecological and socio-economic situation is beneficial to detect which kinds of action have been successful for whom, what kind of interventions may prove useful, under what kind of circumstances, and initiate a discussion of how the networking of respective stakeholders could be improved to procure better results for maintaining or restoring sustainability: both with regard to the use of resources pastoralist economies are based on and, at the same time, an adequate protection of the environment of a given region.

Methodology and Research Region

The thoughts and findings of this paper are based on research done in Tibetan pasture areas in the eastern half of the Tibetan plateau.³ Quantitative data were collected during three, qualitative data on altogether ten field trips in 2004–2010 with an overall duration of one and a half years. Major social research methods include participative observation, non-formal, semi-structured, biographical and 296 standardized household interviews as well as some focus group discussions. The interviews cover a big spectrum of household types and single protagonists in their various roles and positions in pastoral and non-pastoral society, economy, and administration. The main focus of

³ The research project “Nomads without Pastures?” was carried out within the framework of the Collaborative Research Centre “Difference and Integration” conducted by the Universities of Halle-Wittenberg and Leipzig (Germany), promoted and financed by the German Research Foundation.

research is on the Yushu Tibetan autonomous prefecture (TAP), a region extending in the east-central part of the Tibetan plateau and the south of Qinghai Province. The administrative seat of the prefecture is the town of Gyêgu (Tib. Jyekundo), widely known as Yushu, that was destroyed by an earthquake in April 2010. Although recent processes of urbanization are effective (GERTEL et al. 2009), the pastoralist population of this region still outnumbers farmers and agro-pastoralists: 68.3% of the population were classified pastoralist, 16.5% agricultural and 15.2% non-rural in 2005 (YSB 2006). Different processes of modern re-configuration are now following the recent re-nomadization.

The household survey was mainly carried out in five villages in different natural and socioeconomic settings:

1. Gyiza in Zadoi County, 60 km distance to the county seat, 4200 m above sea level, entirely pastoralist;
2. Yarcer in Nangqên County, 21 km, 3690 m, agro-pastoralist;
3. Zhêca, Nangqên, 30 km, 4080 m, pastoralist, agro-pastoralist and salt mining;
4. Shang Baitang in Yushu county, 25 km from Gyêgu town, 3830-3920 m, pastoralist, and
5. Jiaji Lu Resettlement Village No. 1 in Gyêgu, Yushu, 3 km from downtown, 3800 m; former pastoralists of Shang Laxiu resettled to Gyêgu town.⁴

Non-formal and biographical interview sites included 41 of 46 townships in all the six counties of Yushu TAP and are complemented by interviews and field observations in towns and other Tibetan areas.

The status quo of mobile pastoralism in Yushu

When China started the economic liberalization in the 1980s, it witnessed a revitalization of mobile pastoralism. The alpine steppes on the Tibetan plateau being managed by herders' households again, this kind of 're-nomadization' was taken, in western perception, as a testimony for the traditional lifestyle of Tibetan nomads being, *qua cultura*, the best way to adapt to a difficult ecological environment. A study of the basic fundamentals of that very nomadic economy – the natural resources and the conditions for their sustainability – has so far hardly been a research issue – be it due to the extensive nature of and difficult accessibility to field research and microeconomic data there, be it that a sound basic of pastoral resources for the entire nomadic society was presupposed.

⁴ Zhêca was subject to a 50 percent sample, while in the other four villages all resident households were interviewed. Furthermore, Yarcer village households who actually had taken residence in Nangqên County could also be interviewed.

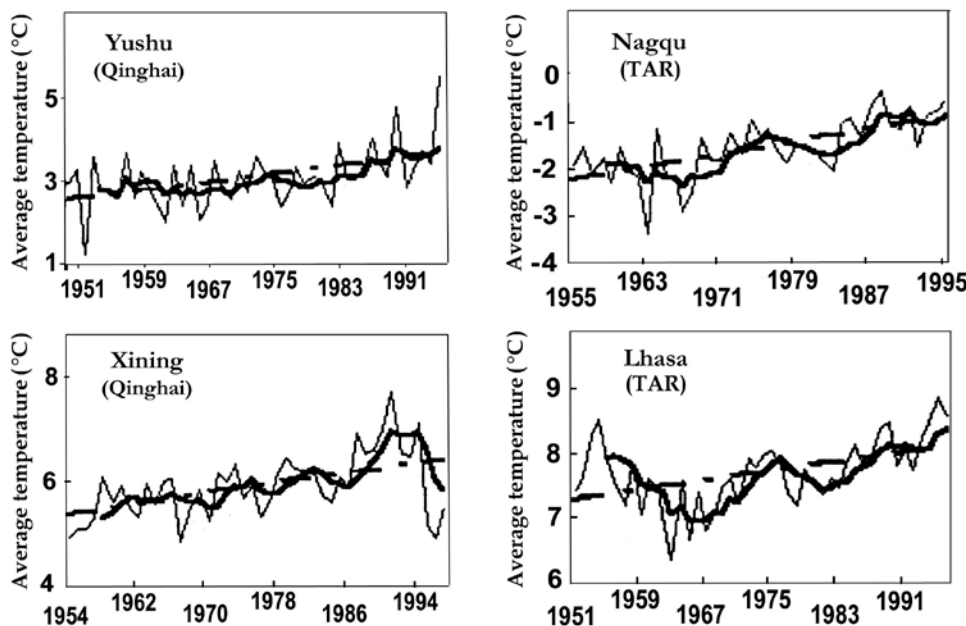
In Yushu, however, population growth in conjunction with the ecological conditions of the grassland areas have definitely resulted in a limited availability of basic natural resources, namely pastures. Sample surveys in pastoralist and semi-pastoralist villages of Yushu TAP suggest the livelihood based on animal husbandry of considerable numbers of pastoralist households there have decreased. This is reflected by the stratification of the pastoralist society into poor and wealthy households with and without livestock, by increased state intervention and state-induced resettlement activities. During the last fifty years, Yushu has seen considerable fluctuations in both population and livestock numbers (*Table 1*). The human population in rural areas has more than doubled.

Table 1: Development of population and livestock in Yushu

Year	Total Population (TP)	Non-rural population	Livestock (in millions)		
			Yaks	Sheep	Total
1950	123,110	14.44 %	0.832	0.974	1.844
1959	168,005	7.74 %	0.379	0.645	1.032
1969	123,071	6.99 %	1.171	2.781	3.977
1979	178,935	10.5 %	1.656	3.848	5.574
1989	224,071	12.4 %	1.578	2.301	3.963
1999	252,696	13.89 %	0.895	1.742	2.689
2004	283,144	15.56 %	0.868	1.949	2.853
2005	297,004	15.2 %	0.908	1.950	2.859

Sources: YSB (2000:66-109), YSB (2006:64-88), QPSB (2005:68, 223)⁵

Fig. 1: Rise of the mean annual temperature on the Tibetan plateau since the 1950s



Source: LIN Zhenyao et al. (2000:97)

⁵ Total livestock numbers include horses and goats.

Furthermore, there is a consensus that problems of environmental degradation are increasing.⁶ As exact scientific measurements suggest, the Tibetan Plateau undergoes, and has for some time past undergone, a process of warming and drying (NOGUÉS-BRAVO et al. 2007; *Fig. 1*), and the increase of wind speed and pressure greatly affects the rate of evaporation. Like in neighbouring Golog,⁷ nomads in some areas of Yushu blame drought and increases in the size of rodent population, namely plateau pikas,⁸ for increasing the extent and severity of degraded rangeland. With high stocking rates and other stress factors, the grassland resource is less able to recover from drought and utilization pressure.

Even though issues of natural disasters, grassland carrying capacity, and the impact of climatic and ecological changes cannot be discussed here, the development of the population-to-livestock ratio in Yushu TAP elucidates the diminishing livelihood basis of the pastoralists. In order to consider the livelihood situation, we compute the so-called sheep unit⁹ (SU) per person, a measure that helps both to calculate the livestock density in a given pasture and to understand the subsistence level of pastoralists. According to MILLER, a person would need at least 25 sheep or 5 yaks to meet her basic needs:

In terms of animal numbers, about twenty-five Sheep Units per person is the generally accepted break-off point for poverty in Tibetan nomad areas. Families with less than twenty-five Sheep Units would not be able to meet their basic needs. (Op. cit. Miller 2001)

Although we have to admit that calculating a poverty line, especially in non-monetary terms, is a very problematic undertaking, the situation in the field made it quite obvious that the stocking units many households have at their disposal already reached a low level decisive for their (in-)ability to maintain a pastoralist livelihood. FISCHER (2008) introduces the concept of “subsistence capacity” which appears adequate to express “the ability of a household to produce a surplus above the subsistence needs required reproducing itself economically.” The argument at this point is that, as far as a “purely” pastoralist economy (i.e., solely relying on livestock) is concerned, the change of the households stocking situation in Yushu clearly shows trends towards their subsistence capacity being at risk. For this purpose, the definition of an “absolute poverty line” may not be crucial, but it definitely helps to demonstrate the development of Yushu pastoralists’ subsistence capacity.

⁶ Although HARRIS (2010) doubts the alleged extent and notably the customary hypotheses on the causes for rangeland degradation, he does not sincerely draw its evidence into question. For a complementary synopsis of literature on the topic of degradation cp. GRUSCHKE (2008:9f and 2009:91)

⁷ COSTELLO 2008; SHEEHY (2001:5).

⁸ Not all sources agree on the negative influence of the pika; cp., for instance, FOGGIN 2000.

⁹ The *sheep unit* (SU), or sheep equivalent, is a reference unit to make different livestock on the pastureland and of the people’s livelihoods comparable. The basis for the SU is one adult female sheep. Calculated on the assumption that one SU requires 4 kg of hay per day, other animals are usually converted as follows: 1 yak = 5 SU; 1 horse = 6 SU (MILLER 2001; YAN et al. 2005:37) or 7 SU (GOLDSTEIN 1996). The area of rangeland used for 1 SU depends on the natural conditions of the region and therefore varies greatly.

In 1950, the average rural household in the Yushu TAP owned 17 animals equivalent to 48.75 SU per individual.¹⁰ Even if Yushu's total population (including non-rural) is considered, the rate still amounts to 41.7 SU per person (*Table 2*).

Table 2: Development of livestock distribution in Yushu 1950-2005

Year	Rural Population	Yaks per person		Sheep per person		SU per person	
		TP	RP	TP	RP	TP	RP
1950	105,333	6.76	7.90	7.91	9.25	41.71	48.75
1989	196,286	7.04	8.04	10.27	11.72	45.47	51.92
1999	217,596	3.54	4.11	6.89	8.01	24.59	28.56
2005	257,859	3.01	3.52	6.57	7.57	21.62	25.17

Calculated from data in YZT (2000, 2006)

TP = on the basis of the total population

RP = on the basis of the rural population

Following the disbandment of the people's communes and the redistribution of the animals to the households in the early 1980s, large livestock numbers continued to exist for a while, but there were and still are considerable fluctuations due to natural conditions (e.g., snow disasters, drought). The year 1989 appears to be a good average year in this period.¹¹ It represents a situation in which an average rural individual in Yushu owned almost 52 SU and thus a livestock number that was twice as high as the minimum level for subsistence capacity. It was slightly higher than in the 1950s, even though there were two serious snow disasters in Yushu during the 1980s. Ten years later, the numerical value of SU/person had already decreased to 28.56 and meanwhile plummeted to an extent that today all the rural inhabitants of Yushu TAP (25.17 SU/person) live just slightly above the above mentioned "break-off point for poverty in Tibetan nomad areas". That is to say, pastoralists of Yushu are, in the average, about to lose their subsistence capacity.

Nevertheless, the grassland of Yushu is more under stress than it was before. In 1950, there were on the whole 5.135 million SU, in 2005 already 6.49 million SU for the entire prefecture. The grassland should thus, theoretically, produce 25% more biomass, although the basis of the pastoralists' sustenance was reduced by almost 50 per cent. It can be assumed that the higher demand for fodder can not always be met by the rangelands, thus resulting in a lower productivity of the animals.¹² It needs to be emphasized that not the herd size of every, or most,

¹⁰ Since in Yushu goats hardly play a role for alpine pastoralists and horses do not contribute to their food production, they are neglected in this calculation.

¹¹ It is likely that the statistics of the collective era exaggerated the numbers for political reasons. The livestock statistics were probably most accurate at the time when the animals were distributed among the families in the early 1980s.

¹² In certain areas, carcass weight and milk production of yaks have decreased by 25-50% (communication by Prof. HAN Jianlin, ILRI Nairobi). Cp. respective papers in WIENER et al. 2003/06.

households was growing, but the livestock number of the entire district; the average size dropped due to the increase of households. Such conditions make the herders, of course, attempting to increase their herd to a level with subsistence capacity, with sustainability in pastures resources at their disposition becoming a secondary aim only: “You can’t eat a protected environment if your provisions are finished.”

Most herders in Yushu with medium-sized or larger herds are complaining about the shortage of grassland, especially in the more densely populated southeast. More and more pastoral people are left without enough pastures, therefore will gradually fail to subsist from the rapidly decreasing number of their animals. Under such circumstances it is intelligible why a growing number of pastoral people already left their native land to look for new fields of economic activities and for other viable livelihoods. In Yarcer and Zhêca of Nangqên County, two sample villages of our research project, between one third and half of the registered households had already taken residence in the county town during the past 15 years (GRUSCHKE 2011). This helped to relieve the strained resources situation in their home village where fewer households than actually registered were commonly using all the available pastures.

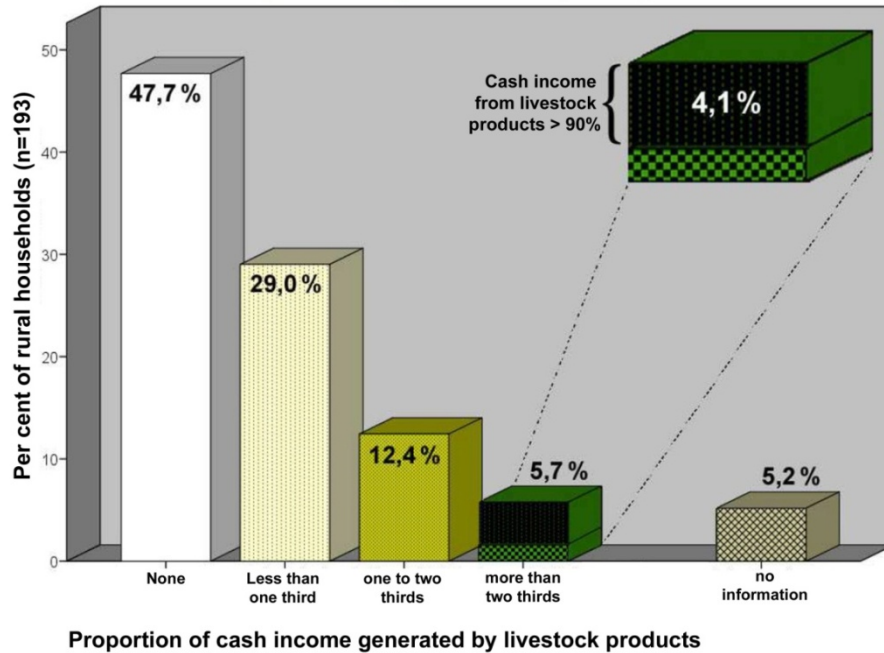
Furthermore, the “opening and reform” policy of China has resulted in the integration of pastoralist areas into a wider politico-economic context of the national and the world economy which led ‘traditional’ pastoral commodities for sale or for exchange of livestock products to compete with world market prices. The private marketing of specific products encounters different kinds of problems. Households who have enough pastures and thus the herd size is big enough to have a surplus for sale are mostly too far from towns where they can market fresh milk or yoghurt, while butter and cheese finds consumers among neighbouring herders whose herds are too small. For meat as well, the demand is growing within the region, since meat consumption in many families is higher than their own production. A major commodity has long been sheep wool, but the influence of the Australian wool on the world market has made prices fall to level that many Tibetan nomads give up.¹³

All these transformations have weakened the subsistence capacity of most pastoral households. There is a certain evidence for the majority of the population in Yushu no longer being able to subsist from mobile pastoralism alone; the majority of nomadic households are not even self sufficient in animal products (GRUSCHKE 2009), not to speak of having the possibility to market them (*Fig. 2*). Together with the exposure to the frequent snow hazards the risk of vulnerability to food crises is thus seriously getting bigger and entailing more state interventions of various kinds.

¹³ Cp. GRUSCHKE 2009:263 and 266 n.361)

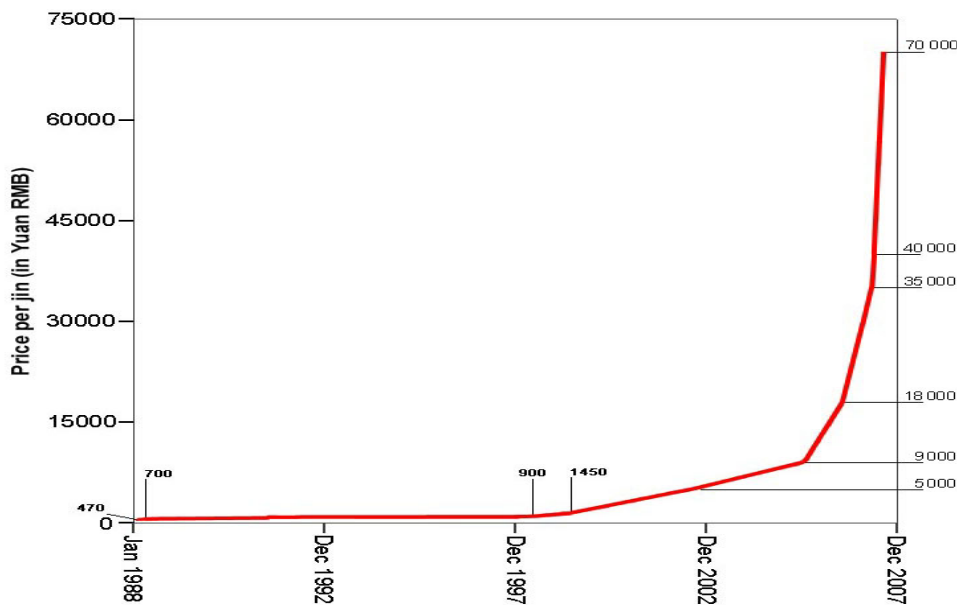
The declining importance of livestock was so far, however, balanced by cash income generated by a unique resource: the caterpillar fungus (*Cordyceps sinensis*), yartsagunbu in Tibetan (Chin. *dongchong xiacao*). This is a fungus parasitizing the larvae of a moth of the genus *Thitarodes* (*Hepialus*), which lives in alpine grasslands of the Tibetan Plateau. (WINKLER 2005:69)

Fig. 2: Decreasing importance of livestock for income generation in Yushu



Source: own survey (2006/2007)

Fig. 3: Development of the caterpillar fungus price in pastoral areas of Yushu



Source: own field research in Yushu

Collecting these fungus-infected larvae has met with an increasing demand as a tonic on the Chinese medical market during the last two decades and thus became more important for income generation than products of the pastoralists' animal husbandry. When the economic liberalization began in the 1980s, the price of caterpillar fungus began to rise. Only gradually at first, but due to the growing demand in inner China, Southeast Asia and Japan, the prices of this commodity rose significantly over the last two decades (*Fig. 3*). This development has led to the situation that today digging, collecting and trading yartsagunbu is the most important resource and source of cash income for the majority of pastoral Tibetan households in Yushu.¹⁴

According to an official website,¹⁵ Qinghai province yields 20 to 50 tons of yartsagunbu per year. In 2007, this produced an annual turnover of up to 2.5 billion Yuan (approx. 400 million US\$) as income for pastoral households who have access to caterpillar fungus. Most of those regions are situated in the Tibetan prefectures of Golog and Yushu.¹⁶ The sum of local cash income from yartsagunbu in the two major yartsagunbu producing prefectures, Golog and Yushu, was almost five times higher than the official annual budget of the entire Yushu TAP in the same year.

The effect of the caterpillar fungus having become the major resource for pastoralist households' income generation is resulting in a unique and widespread dependence on this resource. The implications of this situation go far beyond the possibility of providing sufficient income for pastoral livelihoods. At present, it proves to be an essential contribution to the systemic resilience of the nomadic way of lifestyle: Only due to the cash income thus generated, many nomads can continue to live in the customary way in the pasture areas, even if the herd size is far below subsistence capacity (GRUSCHKE 2011). For this reason, the image of present-day mobile pastoralism depicted in Yushu is that of a yartsagunbu collector economy rather than a market-oriented animal husbandry.

In Yushu, the majority of the registered rural population (over 80 %) has access to the resource caterpillar fungus and uses this opportunity to gain cash income (*Fig. 3*). However, inequalities are large. On one hand this is due to different quality and wealth of *chongcao* resources in different sites and areas. This has also led to conflicts eventually being resolved by access restrictions – a development that spreads more and more across the eastern part of the Tibetan plateau.¹⁷ Nevertheless, even if high incomes can be generated, people are highly vulnerable since they mainly depend on a single resource.

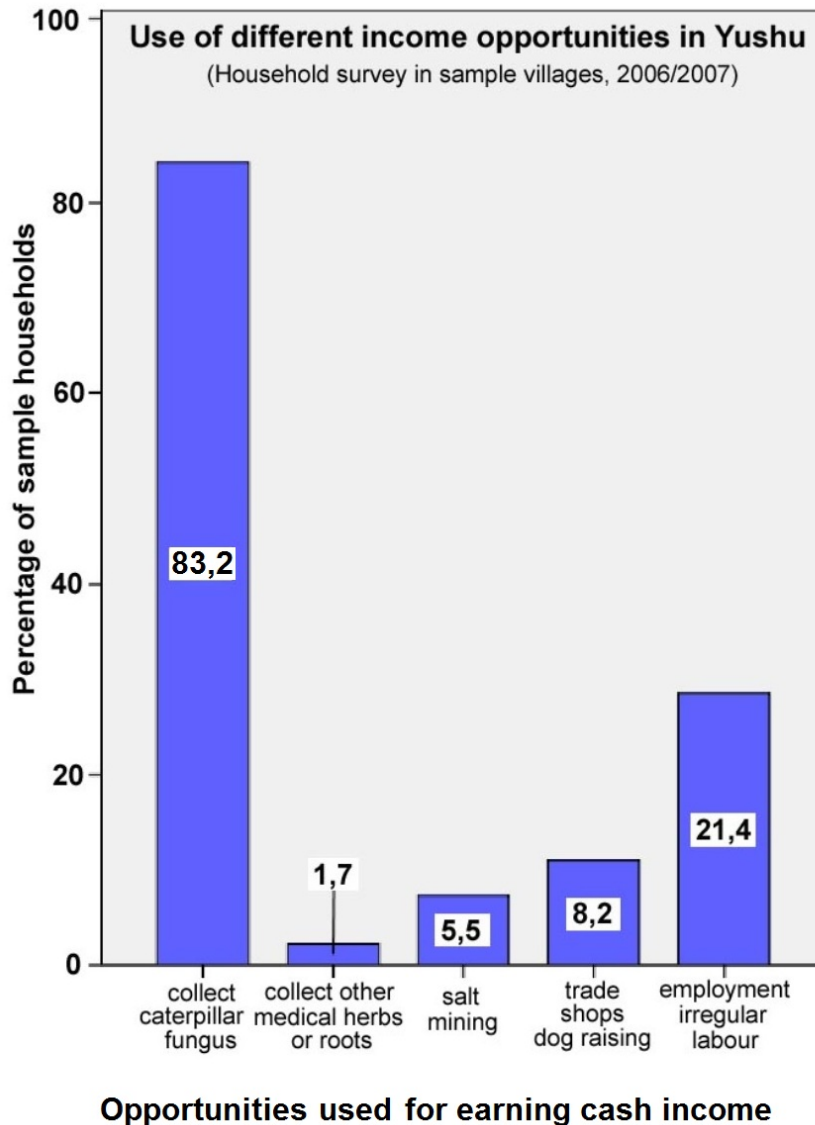
¹⁴ These findings correspond to research results of WINKLER (2008) in northern and eastern TAR.

¹⁵ www.qhei.gov.cn/qhly/gytc/mgyc/t20060420_203261.shtml [Accessed in August 2007]. Official assessment of yartsagunbu yields in the TAR and estimates of its turnover in neighbouring regions correspond to this figure (cp. WINKLER 2008).

¹⁶ In official provincial and prefectural statistical yearbooks of Qinghai yartsagunbu was not even enlisted. We have to assume that the province's actual output of yartsagunbu is much higher.

¹⁷ A strong feeling for safeguarding of the yartsagunbu resource has developed in many areas. Not surprisingly numerous conflicts have unsettled the area during the last years as more and more outsiders – Tibetans from Qamdo,

Fig. 3: Strategies for income generation among Yushu pastoralists



Source: own survey

The use of other resources, notably of labour force and education, is difficult as there is a severe lack of non-nomadic employment opportunities in the pastoral areas. Presently, the disposition of

Dêgê, Ngawa and other parts of Kham and Amdo, Hui Muslims from Qinghai and Gansu – started pouring in. A major conflict about yartsagunbu digging, which lasted for almost a decade, was settled only in 2006 in southern Zadoi’s Sulu xiang. The outcome of this settlement was that outsiders are no longer permitted access to pastureland during the yartsagunbu season. The local population succeeded in protecting her grassland resource against people from outside their counties (COSTELLO 2008 reports similar procedures in Golog). While most Yushu pastoralists have thus succeeded in managing their resource, some like the majority of the nomads in yartsagunbu-poor Qumarlêb County have in turn lost access to this presently most important income-generating resource.

labour force does not prove decisive for the level, diversity or stability of income. The same is true, so far, for education and even health. Whatever is the disposition of resources in the households, caterpillar fungus plays the major role in most cases. For those in Yushu who have access to this resource a good opportunity to accumulate capital for urgently needed investment is thus opened:

Since moving wealth out of pastoral production and into other sectors seems key to greater development in this region, (...) local Tibetans must invest wealth in other sectors in order to develop the local economy significantly to their benefit. Sectors with potential for development include transportation, the processing of both livestock products and raw materials used in traditional Tibetan medicine, tourism, and small scale service enterprises including retail shops, barbershops, and restaurants. Whether local Tibetans can develop these sectors, or whether other Tibetans or Chinese will succeed first, depends initially on the availability of capital to invest. (Op cit. COSTELLO 2008).

In addition, it is the trade with yartsagunbu and other high risky, but profitable commodities (like Tibetan mastiff) which bring pastoralists in contact with Chinese and international markets. The improving infrastructure, the growth of monetary exchange and therefore of trade, as well as new employment and work relations entail a stronger mutual pervasion of ‘nomadic’ and ‘sedentary’ spheres than before, both on a regional and transregional level. As access to, and participation in markets has become easier, and the variety of purchased goods has enlarged, consumption levels have increased enormously during the last decade. This growth leads to booming trade particularly in the prefectural capital, Gyêgu,¹⁸ and the county seats. The higher demand and expenditure for consumer goods, jewellery etc. leads to further enhanced trade activities connecting the rural areas and towns to cities outside the prefecture.

The changing significance of livestock keeping in Tibetan areas is not only perceived by outsiders, but by the pastoralists in Yushu TAP themselves. More (former) nomads are nowadays occupied or employed outside pastoralist activities than the statistics lead us to believe. This is not only because it seems impossible for most nomad households to exist on animal husbandry only, but also due to their willingness to follow other occupations instead of marketing their animals. They have realized that they should be involved in structuring the conditions under which ‘nomadic’ activities are increasingly abandoned or continue to exist, and should not leave this to others.

The development of the towns of Yushu TAP offers new job opportunities with newly opened businesses (both Chinese and Tibetan shops). The state of affairs of the pastoralist economy in Yushu would actually make such jobs needed, if there would not be caterpillar fungus compensating for the low livelihood level of many nomadic households. However, due to the low wages offered, such opportunities are rarely taken by individuals from pastoralist households

¹⁸ In Gyêgu, this boom was interrupted by the devastating earthquake in 2010.

(who revert to yartsagunbu whenever possible). Their unwillingness to engage in wage labour leads to the consequence that less people than expected are available on the local labour market. This phenomenon entails some (temporally limited) in-migration. Thus, not only professionals are called in from outside to Yushu, but also workers for unskilled labour – mostly Muslims from Amdo, some Tibetans from agricultural areas and Han Chinese. Meanwhile, wage labour jobs that formerly were only taken by Chinese or Tibetans from agricultural areas, such as jobs in restaurants or shops, are now occasionally accepted by local pastoralists, particularly young Tibetan women, and recently their number seems to grow slightly.

Agents of change and ongoing transformational processes

At first glance, people in Yushu towns and communities give the impression of leading a modern kind of life in a traditionally shaped society. Who is a nomad and who is not is less obvious than it used to be. This widespread ambiguity is also reflected by the circumstance that in academic discussions on pastoralism, the term ‘mobile pastoralism’ is nowadays preferred to the terms ‘nomadism’ or ‘nomadic pastoralism’. Rather than following conventional definitions of nomads or introducing the scientific discussion on the definition of ‘nomads’ led in the west, we just restrict our considerations to those people who designate themselves as *drokpa* (*‘brog pa*) – the term Tibetans use for ‘alpine pasture ones’, or “users of alpine pastures”.

The *drokpa*’s self-image, as GOLDSTEIN and BEALL have noted earlier,¹⁹ is primarily built on being pastoralists using alpine pastures in marked contrast to people practising farming in valleys. Their self-conception does not correspond to our western notion in which moving herds and living in mobile housing (like tents) belonged to the concept of nomads – the term that is generally used as translation of *drokpa*. Yet, animal husbandry has to be the main determinant of their production activities and mobility, and thus remains in the centre of what they understand as a way of life. This way of life is actually practised, and it does not merely function as a value orientation. In addition to raising livestock, many other activities, such as trading, hunting, gathering and farming may also be practised without definitely changing the pastoralists’ self-image as *drokpa*. Thus, our target group in Yushu can still be considered as quite a substantial one even if, due to changes that happened during the past decades, their society does not seem overwhelmingly occupied with pastoralist daily routines any more or is sustained much less by livestock products than before. What were the agents of those changes as perceived by the pastoralists?

¹⁹ GOLDSTEIN & BEALL 1990:64.

At first it is, of course, mobile pastoralism that is put in the focus of such a consideration. During the past half century, pastoral management was reorganized several times: collectivization, then redistribution of animals, of rangelands as commons, and eventually the privatization of usufruct rights of pastures. The agent was and is the state that tries to shape according to its ideological parameters. The changes enacted have a legal basis which is meant to strengthen the herders' rights, but at the same time allegedly destroy habitual ways of managing pastures. Fences and housing apparently obstruct mobility and therefore mobile pastoralism, if no adaptations are allowed. Nevertheless, we experience *drokpas* as highly mobile. Most of them seemingly continue to wander with their herds between seasonal pastures, while others move for trade or other businesses and purposes. As far as mobility is concerned, the opportunities offered by the changing society and seized by the various actors may be seen as important agents of change. State interventions for social and socioeconomic transformations do submit such opportunities even though they also produce new duties and constraints. On the other hand, they do not have the same meaning for everybody, but outline an organizational framework with new prospects for different actors – actors who leave the habitual pastoral ways of life and adapt to urban schemes.

When asked about rangeland degradation, pastoralists often refer to weather and climate as well as to the plateau pika or other rodents, obviously considering them as major agents of environmental change. Demography seems to be an abstract issue, even though the restrictive character of the limited availability of pastures and the need for pastures for coming generations of nomads is a fact people are well aware of. The herd size as an important influential factor for overgrazing is seen in relation to the accessibility of rangelands rather than to their condition. For those who have livestock below subsistence capacity this is a cumbersome issue anyway that has little to do with their difficult livelihood situation. In some interviews, however, people with small herds admit that their practice of not using seasonal pastures any more is not good for the rangelands and may actually lead to overgrazing. Thus, their specific way of managing the grassland could be seen as an agent of change leading to environmental degradation. Yet, the large majority of active herders want to use, and are still using seasonal pastures. Even though they have leasehold contracts with usufruct rights, many cooperate and make common use of the rangeland in order to avoid overgrazing. This kind of common management and use is thoroughly legal even under the leasehold system and not in contradiction to the official policy. Where conflicts with local administrators come up, it is often an erroneous or overly strict interpretation of what the policy aims at, allows and wants to prevent.

How changing prices are perceived by nomads is hard to assess, but having lived in a state-directed economy for most of, if not all, their life it is unlikely that they associate them with abstract market laws instead of with the government. While people who take up trade and other businesses develop a feeling for how markets work and how they can profit from them, the more

vulnerable households who have little more than a subsistence economy more willingly blame state policies for any new hardships. This is a major issue when projects like resettlement schemes are implemented, since often neither administrators who design and implement such projects nor re-settlers concerned have a clear idea of how market mechanisms could affect their new life in town. Financial support is granted to them is generally calculated on the basis of their – very low – rural incomes, disregarding the important values of subsistence products people enjoy while living in the countryside: like, for instance, milk, meat and dung delivered by the yaks they are keeping. People are often hit by extremely high cost once they sold their animals, and have no chance to make up for this unprecedented loss, or claim a compensation after projects started already. It is obvious that dissatisfaction will occur as a reaction towards the state, and only if there is more direct exchange between policy-makers and local stakeholders during the planning and implementation, there is a chance to avoid social unrest and unnecessary excessive cost.

Globalization is an agent of change that reaches pastoralists in the form of new images via media and new possibilities of communications. Yushu nomads are not only on the move as herders, but also as traders, pilgrims and, some, even as tourists as well as, of course, as temporary and long-term migrants. They get in touch with different life plans and make their own choices for a new way of living, for consumption patterns or even new forms of settlements. The field work in Yushu's Zadoi County and some other regions revealed that most nomad families use surplus income mainly for consumption. Their consumerism is seemingly more determined by male aspiration patterns than by female ones, as can be seen from the purchase of goods like TV sets, motorbikes, cars, and fancy modern clothing worn by men rather than by women.²⁰ The use of media is easily adopted and the acquisition of technical equipment for media consumption has become a self-evident part of daily routine. As such they also represent a constant agent of change since people are exposed, or expose themselves to new ideas, influences and stimuli from outside.

Consequently, more and more pastoral households move to townships and urban areas – wanting to develop new life plans and in search for a higher standard of living of which they often do not know much more than what they have learnt from images and media reports. Some migrate for business reasons, others because they feel they may find a more comfortable life while poorer ones just look for possibilities to make a basic living. In comparison to one or two decades earlier, the significance of education has become a major issue among nomads, and the longing for better education, namely the younger generation, has definitely become a major agent for changing life perspectives. This links pastoral livelihoods to urban and sedentary concepts of occupation and therefore offers a unidirectional way out of overpopulated pastoralist regions.

²⁰ Cp. WINKLER 2008.

The various policy interventions during the past two decades ensued serious changes to the general framework of basic conditions for pastoralist livelihoods. The observed changes seem to confirm this diagnosis: as more and more people live in the towns and cities and urbanization is proceeding even in distant pasture areas. Increasingly, nomads are settling down in houses and thus give evidence of being sedentarized. Sedentarization and urbanization are, however, not just symbols of state interference, of influence from outside the (former) nomadic society, but may, as an important link between nomads and sedentary population, procure livelihood options needed the pastoralist system itself can not produce.

Adaptation strategies

While traditional nomadic livelihood strategies centred around the role of the herd and the pastures, and the environment therefore plays an elementary part in their respective household economies, adaptations to the changes described for Yushu are based on new paradigms. For all pastoralist areas on the Tibetan plateau, we may ask the question whether the re-nomadization of the 1980s was merely a short-lived, temporary revitalization process before the ultimate demise of mobile pastoralism. From the perspective of nomadic actors, this would mean the end of their pasture-based economies and bring them – as in many places in the South (or so-called “Third World”) – a future as a marginalized nomadic population living, at best, with prospects of low-paid informal activities on the outskirts of cities. Findings of the present study have shown there is little argument for such scenarios in the case of Tibetan pastoralists *in general*. The resource base may prove narrow, the problem of poverty and vulnerability considerable – and yet, individual pastoral households, communities, nomadic societies and the pastoralist areas’ economic systems as a whole show evidence of a certain resilience.

Pastoralists do not only adapt to the changing ecological situation, to market developments or “modern life” in towns, but also to state policies and interventions. Reports on the enclosure movement in Tibetan areas, for instance, gave the impression that fencing pastures contracted to households would split up the entire rangeland into pieces of privately used land thus restricting mobility and interrupting the system of mobile pastoralism. Besides withdrawing protected areas from herding practice, the major issue of that movement is to have reserve pastures for harvesting fodder during the difficult spring period. There are certainly many areas where fences have been used to delimitate private pastures, but there are many more cases where villagers successfully disapproved of such measures. The adaptation to such policies must not be understood as a general one, as one that every nomad would follow, but as a choice that may be different from village to village.

The same is true for pasture management. The system has definitely led to every pastoral household in Qinghai having signed a leasehold contract that secures him the exclusive use rights over his rangeland. Still, examples of continuing traditional ways of common use of those “private” rangelands are widespread, and new forms of co-management developed. Even the most controversial state interventions – resettling herders who have to abandon their livestock into distant towns – may truly offer distressing representations of allegedly failed projects. When making detailed interviews, however, there is no uniform picture of failure: While many people are disappointed that the scheme does not work in the way they expect, there are others using the opportunity given by the state to set foot in an urban environment, to use it as a spring-board. The example of those who show their dissatisfaction by leaving the resettlement villages may even lead policy-makers to reconsider the whole scheme. Such households may have to stand unduly hardships, yet the different pastoral actors perform an adaptation to the system that goes beyond a mere acceptance of what they were asked. In the long run, of course, failure could be omitted and successes certainly be increased if the local stakeholders would be better considered and included in the processes of designing and implementing such projects.

Future perspectives

All in all, the strategies of nomadic actors in Yushu tend more likely to preserve “nomadism”, or being a *drokpa* as a way of life rather than an explicit form of economic activity. Therefore, to secure their existence, many pastoralists are seemingly ready to give up animal husbandry and “move out of the system of mobile pastoralism”, resulting in that system gaining a higher resilience.

Pastoral households with herds too small to subsist live side by side with others who appear to market their animals very successfully, and both follow, in a rather conventional way, the patterns of mobile pastoralism. At the same time, rural migrants to towns establish themselves in the newly developing urban milieu of townships or in the city under difficult conditions, with their livelihood so far secured by income from caterpillar fungus – both ends are an expression of the resilience of the (ex-) nomadic society:

- Mobile pastoralism in Yushu could survive so far because many nomads moved out of the pasture areas and live in town.
- But mobile pastoralism also continues because even pastoralists below subsistence capacity can secure their livelihood by complementing their income with cash generated from caterpillar fungus collection.
- Furthermore, pastoralists without education or vocational training can currently still make a living in towns. Some do trade (*yartsagunbu*), but most of them, as they are still registered in their rural home village, still have access to caterpillar fungus and base their livelihood on this.

The interesting paradox created by the caterpillar fungus income is that it supports both the remaining of non-subsistent nomads in rural areas and the migration of nomads to towns and cities. This may not, however, last for long as the dependency on a single resource makes them vulnerable and the sustainability of the system must be questioned. Especially due to the yartsaganbu price drop in 2008 more people might have become aware of such risks, and some nomads may turn towards other forms of resources, namely education and cultural knowledge.

A phenological classification of the “nomadic societies” in Yushu displays a diversity that unveils any generalization of types of vulnerability as unacceptable simplification. The abundance of transformations, problems, opportunities, images, attitudes, lifestyles, influences and individual behavioural patterns unfold a pluralistic, albeit fragmented society – a society in which poor and vulnerable people may be identified, but under the given special circumstances of a “caterpillar fungus economy” coherent vulnerable groups are yet hardly discernible. They are less defined geographically or socially, but rather individually *within all existing groups*. Future interventions to strengthen the sustainability of household economies therefore need, more than until now, to focus on the strengthening and developing of incorporated resources – for instance by improved education, vocational training, management training, and alike. This is the stage where we have to do more research to see how the development in pastoralist areas can be more directed towards the need and the wishes of the people concerned.

The pastoral society in part has reacted by active migration, further supplemented by state interventions. The latter needs a better planning of what can be done for the migrants in town. Here it is extremely important to reflect on how state agencies work, what they are expected to perform, and how their structure influences this performance. Since the 1980s changes in administration enabled a certain degree of decentralization, allowing for implementation measures to be adapted to local condition. As not only such conditions are extremely varied, but also the commitment and the expertise of cadres as well as their willingness and ability to consider requests of the herders, those policies are, on the local level, more often than not diverse at best, or conflicting, confusing or even counterproductive at worst.

While state interventions in China definitely aim at solving problems reported by both pastoralists and academics, successes tend to be limited and new problems arise. In the long run, there will only be a chance to improve results if herders are not just meant to accept policies decided, but rather if they are included in the process of decision-making. Participation in implementation still sounds like a long way to go, although there are cases in which local administrators and pastoralists, often under involvement of NGOs, have managed to do so – like in cases of co-management as advocated by ICIMOD (BANKS et al. 2003). Local adaptations demonstrate that herders have expertise enabling them to play a part in the process, if they are allowed to.

Project of state interventions are accepted by nomads more than is believed. Major complaints are about measures not consistently implemented, conditions changed and local administrators not sticking to what was promised. One of the major issues of all projects in China is met with here: monitoring and evaluation. The same people who implement projects do also give their feedback to higher level authorities: This leaves little space for critical analysis. Official statements on projects in public media make think that projects are a success if huge amounts of allocated funds were fully spent. This is providing for good opportunities to misappropriation. Corruption among local Tibetan administrators is as big a problem as in the rest of China, and this creates issues even if projects are acceptable to local people. This becomes more serious for pastoralist households since due to the remoteness of their places of living they have less possibilities to access enough information about how policies are and can be interpreted, what kind of rights they have or should have, and by which means they could organize themselves to insist on them.

Policies and interventions in Tibetan pastoralist areas can not be understood without regard to the ideology-guided decision framework of China's general economic policy, while successes and failures need to include an analysis of the structural problems and shortcomings in its implementation, monitoring and evaluation. So far, it has to be feared, that changes in policies will not help much as long as no amendments in the monitoring and evaluation system can be made.

At this stage, the preliminary answer to the question *How can the use of pastoralist resources be sustainable?* may include the following facets:

- The resources situation of pastoral regions needs to be adequately assessed.
- Scant resources need to be shared by fewer people.
- If many people share scant resources, they need to complement their income portfolios by developing new resources. Only this can allow resources be preserved for sustainable use.
- The successful continuation of mobile pastoralism is complemented by rural-urban migration. If better job opportunities for migrants to towns can be developed, they will be more successful than state resettlement schemes.
- Measures for carefully increasing livestock productivity may allow for using pastoral resources with consideration.
- There is ample evidence that such objectives are more easily successfully implemented if local stakeholders' voices are heard at an earlier stage.
- Policies and interventions will prove more successful if new, more adequate systems of monitoring and evaluation can be introduced. Changes in policy have a low efficiency as long as those implementing it are the same who do the evaluation.

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