

Natural Pastures and Mobile Animal Husbandry Under Pressure:  
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## From subsistence to market economy: Responses of Tibetan pastoralists to new economic realities

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*Abstract:* In many regions around the world the pastoral economy shifted from subsistence-oriented to a market-oriented production. Pastoral goods acquired monetary value and became a market commodity that entailed changes in the production system and in the attitude towards livestock. On the Tibetan plateau this shift did not follow a linear way. Until the 1950s, most consumption requirements could be satisfied with animal products. Economic exchange relations were essential to provide grain requirements, at least for those households who relied exclusively on animal husbandry. During the Mao era, animal husbandry was carried out in line with state targets and the produce was delivered according to central planning. In the late 1970s the transition towards a market-oriented production began. This paper discusses the recent reactions of pastoralists to the new realities in one specific area on the eastern Tibetan plateau. This shift from pastoral products to market commodities, the commercial network established as well as the market places for pastoral produce, are examined in this paper. These facts show that the pastoralists in question successfully market their produce. The research area, Dzoge county, is located on the eastern border area of the Tibetan plateau, where different ethnic groups live in proximity to each other. Grassland predominates the landscape, used by nomads as pastures for livestock breeding (yak, sheep and horses). Mobile animal husbandry and the marketing of the livestock products are decisive to guarantee the livelihood of the majority of the population.

**Key words:** China, commercial networks, market places, nomads, Pastoral economy, Tibetan plateau.

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### **Introduction: From subsistence oriented to market oriented**

In various regions of the world the pastoral economy shifted from subsistence oriented to market oriented production. "This shift occurs when monetary exchange becomes regular and so generalised that pastoral products are no longer solely produced for *direct use* by the production unit, but acquire a *monetary value*, realisable through market exchange. When this happens, the character of pastoral products as marketable commodities is taken into account a priori, during the process of production itself. " (Sikana *et al.*, 1993). Sikana *et al.* discuss this process for Africa's pastoral production sector, and they conclude that the commercialisation often leads to specialisation by

narrowing the range of products extracted from the herd. Frequently this specialisation goes with a shift from milk production to meat production which is encouraged by a general price decline for milk due to competing products, *e.g.* milk-powder.

Other strategies, allowing the pastoralists to respond to the demand from the new markets, include a change in the herd composition and a transition from intensive herding management to more extensive forms. In Lapland the former nomadic reindeer owners gave up milking reindeers completely and focused on meat production, which is a precondition for extensive animal husbandry (Paine, 1994). Nowadays, the 'semi-domesticated' reindeer roam around freely during the whole year in Finland. They are rounded up two times a year,

in summer to mark the calves and in early winter to select slaughter animals. According to Ingold (1980) this is a 'ranching economy'. In Norway and Sweden the reindeer are herded in parts of the year and the animals migrate or are moved usually long distances between discrete winter and summer pastures.

With respect to herding management it seems that an obstacle arises at the point where pastoral strategy of decision making shifts from the necessity to assure the households' food requirements towards maximising cash income from the sales. This entails, among others, a change in the valuation of the livestock. "In respect to livestock rearing, the fundamental question is whether the herd is an intrinsic value for a pastoralist or a market commodity. Certainly and unsurprisingly, the market factor has increasing importance." (Paine, 1994).

The nomadic economy of the Tibetan plateau had to provide subsistence and self-sufficiency. Most food consumption requirements could be satisfied with the animal off-take, the need for exchange was little<sup>1</sup>. In the case where the nomadic household relied exclusively on animal husbandry, exchange relations were only essential for grain requirements. In the case under discussion here, the pastoralists acquired grain from agro-pastoralists in the county itself. In addition, grain caravans were sent to the neighbouring farming areas of the lower altitude levels. The goods were bartered (grain for animal products) or paid for in cash (Informant in Dzoge, 2001).

During the Mao era (from 1960s to the early 1980s), the agricultural sector was centrally planned and administered on a national level all over China. The production process was organised and directed by the plans and instructions of the Collective's leadership and the government. All pastoral produce was delivered according to state planning and product targets. The aim was not to provide subsistence for the local inhabitants but to produce commodities for consumers all over China. This suggests that the transition from subsistence to market-oriented production did not progress in a linear way as was the case in other regions of the world.

The communes were dissolved in the early 1980s,

the livestock was divided among the families, and the households became responsible again for everyday livestock management. The reform policies launched by Deng Xiaoping included a shift to a market-oriented economy. Central planning no longer regulated the production, which was instead regulated by the demand from markets. State subsidies ceased. The need to have cash in-hand increased during the following years, in case the pastoralists had to pay for grain and food requirements, for taxes and modernisation developments (like fencing-in pastureland and building winter houses), education, health care and transportation. The shift away from self-sufficiency diffused the everyday consumption patterns of the pastoralists and they began to substitute home-made products by ready-made goods bought from the markets.

The changing conditions primarily meant that the nomads have to manage now the marketing of their produce themselves. Secondly the pastoralists must cope with rising monetary needs. Based on data collected during two field excursions in the years 2000 and 2001, this paper examines the responses of pastoral producers to the new realities. The change from the pastoral products towards market commodities, the establishment of a network of commercial exchange relations and the market places for pastoral products were all examined. Based on this investigation, we may conclude that Dzoge's pastoralists successfully market their produce. The sustainability effects of this development, as well as the impact on the natural resources and cultural identity are not dealt with in this paper.

### **The study area: Dzoge county on the eastern Tibetan plateau**

Dzoge county (Chin. *Xian*) is located on the eastern fringe of the Tibetan plateau in the north-west of Sichuan province, with neighbouring provinces Gansu and Qinghai (Fig. 1). This border location makes it a transition area. A widely used road which links the Sichuan "Red Plain" with the "remote" north-western China (Tibetan plateau and Xinjiang) cuts through the county.

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<sup>1</sup>The relevance of additional activities like salt tracks and transportation services should be discussed in the future.

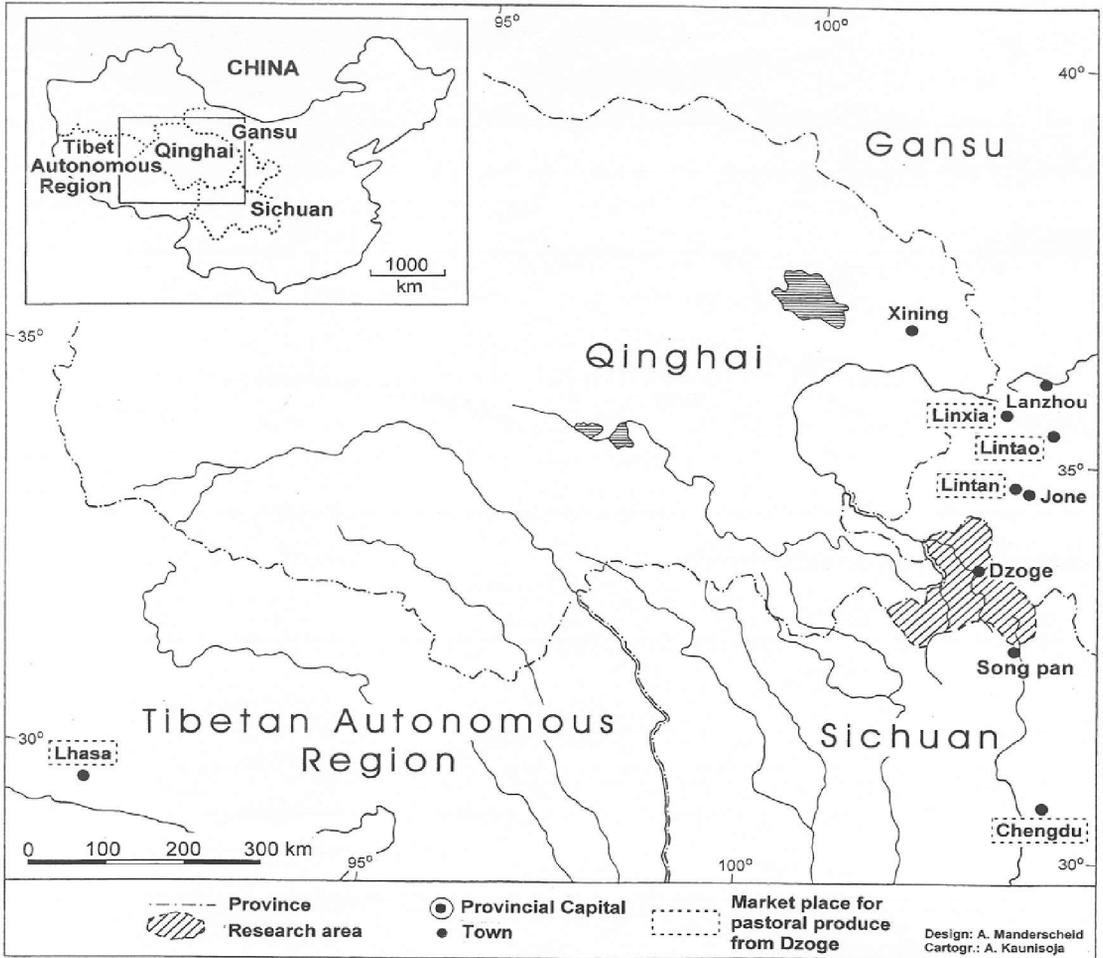


Fig. 1. The research area Dzoge county. The hatched cities are market places for pastoral produce.

This road climbs up through the narrow Minshan river valley frequently threatened by landslides. In order to enable the rapidly increasing traffic, especially heavily-laden trucks, to pass unhindered, the road has been considerably reconstructed and improved during the last 10 years.

The western border between Qinghai province is marked by the Yellow River, which has a bend here of nearly 180 degrees. This landmark can be recognised easily from aerial images and is dominated by a Buddhist monastery (*Thang skor*), which played a significant religious-cultural role both in the region and outside.

The Hongyuan-Dzoge plateau (3400-3800 m) dominates the terrain of the county, which is

covered by alpine meadows and swamps. All these natural resources are used as pastures to carry out mobile animal husbandry. About 60% of the total area of 6060 km<sup>2</sup> can be used for this purpose. The pastoralists keep yak, sheep and horses, of varying compositions. The swampy areas, for instance, are not suitable for sheep breeding. The pastures are state property, but since the 1990s they have been leased gradually to the pastoral households on a leasing basis founded on the Rangeland Law which came into force in 1985 (Ho, 1996)<sup>2</sup>. Therefore, most of Dzoge's rangeland is currently leased to individual families and fenced in<sup>3</sup>.

The northern and eastern part of the county is mountainous, as high as 4200 m, the lowest part of the valley is at 2800 m. The slopes are covered by

<sup>2</sup>For English translation of the wording see (Manderscheid, 1999).

<sup>3</sup>See Wu Ning and Richard, C. (1999) for the impact of the privatisation process.

forests, but since the logging ban launched in 1998, wood extraction has stopped. Arable fields (< 1% of the counties total area) spread along the river valleys. Here the pastures, located above the tree-line on the ridges of the mountains and hills, are used for mobile animal husbandry.

In more than 50% of the administrative districts (*Xiang*), two different land-use systems complement each other. In the regions where grassland prevails, the inhabitants rely exclusively on animal husbandry, in the more dissected parts they combine field-cultivation with animal husbandry (agro-pastoralists). Pure farming is negligible. In the remaining seven districts, all the inhabitants are pastoralists only. This study focuses on the latter districts which are located in the west and south of the county. About 80% of Dzoge's inhabitants are Tibetans (data for 1990. Tabulation on China's Nationality: 1990 Census Data, Marshall & Cooke, 1997), more specific *Amdo* Tibetans<sup>4</sup>. They follow Tibetan Buddhism, in this county the *Gelugpa* school prevails, and the influential Labrang monastery in the Gansu province dominates their religious orientation. Most Dzoge Tibetans are pastoralists or agro-pastoralists. Han-Chinese immigrated significantly after 1956, when the county was incorporated into the Peoples Republic of China (PRC). They are mainly employed in the areas of administration, education, health-care or carry out wholesale commerce.

With regard to trade and commercial business on the Tibetan plateau, and especially in its border regions, the Islamic Hui merchants play a decisive role. In 1990 they constituted up to 3% of Dzoge's total population (including a small proportion of the Qiang nationality; Marshall & Cooke, 1997). Generally, they live between the plateau inhabited by Tibetans and lowlands populated by the Han-Chinese so that the Hui play the role of middlemen. The Hui population has a long trading tradition in China. In order to do business, they travel extensively and according to existing records they had already been visiting the nomads in the early Manchu Qing dynasty (1644-1911). Under these harsh conditions they specialised in small-scale retail trade. Often they adapted to Tibetan culture by adopting their language, clothing and food habits by intermarrying (Moevus, 1995). In Dzoge, most of the restaurants and shops are owned and run by Huis.

All counties which are governed by the Aba Tibetan Autonomous Prefecture (TAP) have similar

environmental features and land-use systems as Dzoge county. It is remarkable that the primary sector in Dzoge contributes 71% of the Gross Domestic Product (GDP), which is much higher than any other county (data for 1994; Marshall & Cooke, 1997). This proves that animal husbandry and marketing of the pastoral commodities are developing adequately. In Dzoge the extraction of products from land resources (mushrooms and medicinal herbs) plays only a little role as an additional economic activity, at least for the pastoralists investigated here. They stressed that they do not dig medicinal herbs intentionally because it diminishes the quality of the pasture and is also forbidden by law. However, some pasture was rented to extractors from outside the county.

### **Pastoral produces shift to a market commodity**

The shift from producing for their own consumption to a market commodity is exemplified by a number of the current top commodities of Dzoges nomads, which contain *churra* (dried cheese), butter and livestock. Traditionally, milk was not included in the pastoral produce for trade. The commercial sale of milk began only some decades ago, and will be briefly discussed in this chapter.

It was a big surprise for us that dried cheese belongs to the current top commodities of Dzoges pastoral producers. *Churra* is a by-product of butter processing. When dried in the sun it serves as a staple food, when mixed with *tsampa* (roasted barley-flour), or as provisions for migration and other trips. Nomadic families often save a surplus, and until about 10 years ago it was used almost exclusively for their own consumption and was not for sale.

The new demand is caused by at least two factories in Gansu province. In one of these plants *churra* is used as an ingredient in paint production, the other plant needs it to produce the sachets of medical pills. However, these factories in Gansu province are not the only users. It is traded to a greater extent via Linxia to Guangzhou, Shanghai, Shenzheng and Hongkong (pers. comm. Du, 2002)<sup>5</sup>. The pastoralists sell *churra* seldom for cash, but barter it with traders who visit their tents or winter houses. Its high market value is reflected in the exchange rate: for 1 *jin* (about half a kilogram) of *churra* the nomadic women could get in the autumn 2001 ten *jin* of apples. The

<sup>4</sup>Due to the traditional Tibetan division is Amdo the northeastern province. For location Huber. 2002. Fig. 1.

nomads declared that, from all their products, *churra* is the easiest to sell. However, it can be assumed that the factories will soon substitute *churra* by some other products. Butter is the main dairy product of Tibetan nomads and serves as one of their basic food items. In this subsistence-oriented economy, part of the annual butter production was stored as a "hidden reserve", and larger amounts were bartered or sold in local markets when the need for cash arose. Ultimately the main consumers were, and still are, the Tibetan Buddhist temples and monasteries, where butter is used as fuel to be burnt in the butter lamps. Tibetan families who own only a few yaks, buy butter for their own consumption as well. A great demand comes for instance from Central Tibet (TAR), even though mobile animal husbandry is widespread there too. But, in contrast to the eastern Tibetan plateau, sheep and goats dominate the herd composition in Central Tibet and therefore the butter production is low. Since transportation facilities and long distance trade improved, butter from the eastern Tibetan plateau is transported to TAR. According to some nomads, butter as fuel for the butter lamps is increasingly substituted by factory products imported from India. Livestock constitutes the third pastoral product here, namely yak and sheep. For cultural-religious reasons, meat is seldom marketed. In a subsistence economy yak and sheep produce food, fiber, transportation and fuel for pastoralists. A pastoral family owning about 60 yaks and 140 sheep, slaughters only one yak and five sheep per year for their own consumption, and sell three to four yak and 20 sheep alive.

With the increasing commercial involvement the pastoralists began to substitute home manufactured products like the narrow stripes woven from yak hair for the black tents or woollen blankets with ready-made goods bought from the markets (Manderscheid, 2001a). A new demand for beef and mutton from urban areas in China occurred during recent years. The livestock raised on the Tibetan plateau, and from the pastoral areas of Xinjiang and Inner Mongolia, are able to meet this growing demand. In order to satisfy these requirements private traders now buy livestock directly from the nomads.

In the past the consumption rate and sale of milk

has little meaning for Tibetan pastoralists. In their subsistence oriented economy Tibetans processed all their milk into butter and smaller quantities into curd. In Hongyuan county a state milk processing factory was founded in 1956, and in other counties of Aba TAP, *e.g.* in Dzoge, this happened in the 1970s. Their most important output is milk powder which is sold all over China. Generally speaking, in Hongyuan county the pastoralists are now eager to sell milk. Meanwhile the factory has been privatised. But the state milk powder factory in Dzoge closed two or three years ago, because the pastoralists did not supply enough milk. The nomads reported that the price was too low and the factory did not pay on time. Now they have reverted to making butter from all their milk. Only some families with pastures located close to the Dzoges *Xian*-center sell milk locally to the town dwellers.

### **Dzoges pastoralists and the new economic realities**

The market places for the pastoral products and the economic exchange relations of Dzoges pastoralists will be discussed now, focusing on their selling activities. Fig. 2 presents an overview of different market places and Table 1 an example of the sales of a pastoral family.

#### *Local places*

During the Mao era, the administrative centres, such as in Dzoge (Dzoge *Xian*) and the district provided all kinds of infrastructures for the herders' centres (*Xiang*). In terms of commerce, the earlier one or two state-run shops are now joined by a wide range of private shops, street sellers, market compounds, direct sales from trucks etc. During recent years, the variety of supplies and number of merchants increased significantly. Even in the small village-centres (*Cun*) and in the state farms (*Mushan*), one or two small shops offer basic supplies. On the other hand, the nomads sell some of their animal products to wholesale buyers at the local markets. In summertime, large tent-shops in the summer pasture areas increase their shopping opportunities. These shops also serve as buying-stations, for butter for instance.

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<sup>5</sup>Probably serving the same purpose.

Table 1. Sales of a pastoral family in Xiamen *Xiang* in the year 2000. (7 family members, 105 yak, 210 sheep; the animal numbers are above district average).

Product	Amount (1 jin = 500 g)	Sale to	Month	How important
Living yak	15	Traders from Gansu, state meat factory, local traders	9-11	1 (very important)
Sheep	55	State meat factory	9-10	2
Butter	300 jin	Traders from Gansu, Tibet, local traders	7-10	3
Churra	100-200 jin	Local market, traders from Gansu	7-10	4
Sheep wool	350 jin	Local market, traders from Gansu	8	7
Yak down	100 jin	Local market, traders from Gansu	8	6
Yak hide	11	Local market, traders from Gansu	1-12	5
Sheep skin	15	Local market, traders from Gansu	1-12	5

#### *Regional market places*

These are located at lower altitudes adjoining the pastoral living areas market places for pastoral products multiplied in the 1990s. Relevant for Dzoge are those in neighbouring Gansu province (see Fig. 1). Number one is Linxia near Lanzhou, about 400 km away from Dzoge, called "Little Mecca". It has the largest Hui community in north-west China and for decades it has been an important commercial centre. A special market for stock exchange (sheep, yak, horses, animal products) is located in the outskirts of the city (Dillon, 1999). Traders and wholesale buyers from the provinces of Henan, TAR, Qinghai, Sichuan and Gansu frequent this trading centre. During Muslim festival times, the demand for mutton from this market increases above the already considerable average demand.

Inside the city boundaries, in the centre of the Muslim quarter, there is another market area. Besides jewellery, rosaries, skins, Tibetan cloth (Moevus, 1995) there are all kinds of goods on display which Tibetans need, and rarely find on a local market. The nomads have a good choice of solar panels, and there are cement rings to support the walls of water wells dug into the pastureland. Exceptionally - Honda motorbikes are also on display in local market places, demonstrating the growing importance of modern traffic. Other relevant market places in Gansu province are: Linxian, Lintan, Wai mo near Jone (Pers. inform. Du, 2002) and Lintao (Moevus, 1995).

Dzoge county is located approximately half way between Linxia and Chengdu. Chengdu, the capital

of Sichuan province 500 km away, acquires mainly live animals from Dzoge. Two slaughter houses for yak and sheep are located in the outskirts of the city. The traders bring back ready-made products from Chengdu. No other specific market areas for pastoral products exist which would be attractive for a visit. The nomads interviewed, preferred to go to the markets in Gansu province, often combining it with a visit to Labrang Monastery. Older nomads mentioned that they visited the monastery one or two times a year before the Mao era<sup>6</sup>, and that it is now again an attractive destination for them. The market area, adjoining the monastery compound, is spacious and offers a rich collection of religious goods, cloth, kitchen utensils etc., but there is only a small choice of "modern" goods for nomads. It is popular now to combine a visit to the monastery with a trip to Gansu's markets, without a special need for shopping, just for leisure and fun.

With regard to the national markets, great quantities of frozen beef and mutton from the Dzoges state slaughterhouse reach Beijing. Lhasa and the TAR is an important destination for butter from Dzoge, the "export" of *churra* having been mentioned above.

#### *Marketing of pastoral produce*

The importance of private wholesale traders for economic exchange increased significantly. They often belong to the Hui nationality, but Han Chinese also act as intermediate traders. The interest of most traders is to buy the main pastoral commodities (livestock, butter and *churra*) on the

<sup>6</sup>van Spengen (2000) describes the former role of monasteries as centres for trade in terms of seasonal fairs, markets for pilgrims and stop-over places on trading routes.

spot. They arrive in the nomadic area by truck and take back directly what they bought. The pastoral producers who were interviewed reported that the traders visited them frequently, and that they can sell as much as they like during the right season. Nomads who live in very remote regions of the county, however, stated, that they are only seldom visited by the traders.

Commodities which the pastoral producers offer themselves to a station or shop at the local market places are hides and wool for instance. At present their demand is low, and traders seldom ask for them. Another motivation to sell is a sudden need for cash, as well as a very good price. Direct marketing can be carried out by an individual family, but likewise it can be organised by a household-group or a village. If the pastoral producers plan to sell livestock to a slaughterhouse in Chengdu, they rent a truck, hire a driver, collect livestock and transport it there. Markets located further away than the regional markets in Gansu province and Chengdu, are rarely supplied by the pastoral producers themselves, but by commercial traders.

With the exception of remote pastoralists, the Dzoge nomads sell most of their produce to external traders who visit their tent or winterhouse. They emphasised that they usually pay best. Self-organised transportation can bring a good profit, but it is more risky, because the price might already have dropped when the truck arrives at its destination. In addition, the external traders are eager to sell products to the nomads directly. In

summer they drive across the plateau, the back of their three-wheel cars loaded with seasonal products like pears, apples, cabbage, onions. They stop in front of the tent, and offer the goods, which are often bartered for *churra* (Fig. 3). They take also orders for special ware from Gansu's markets which they deliver on their return journey.

Dzoge's butter trade is dominated by a group of local traders, the so-called "Bobtso" trader group<sup>7</sup>. They own a hotel in the capital, which serves as a buttershop location. Moreover, the group carries out regular buying trips to the nomadic areas, and for the nomads these traders represent a reliable possibility to sell their butter. However, the price paid by them is slightly lower than the offers by traders from beyond the county. This group of traders transports the entire butter to Lhasa. Local Tibetan traders, however, seem to be an exception. Reports from Hongyuan county state that the butter trade there is handled by Hui from Gansu.

The state quota purchases has almost ended, yet there is still a state quota on products which are nationally or internationally in demand. Some districts in Dzoge have a state quota on livestock, for example in Hongyuan county a state quota exists on milk. These quotas supply the regional state enterprises. In Dzoge for example supplies the slaughterhouse, and the price paid is below the market price. Even the better paid sales to the state enterprises, which exceed the quota sales, are not very popular<sup>8</sup>. The nomads sometimes sell livestock to the slaughterhouse if no other buyers turn up.

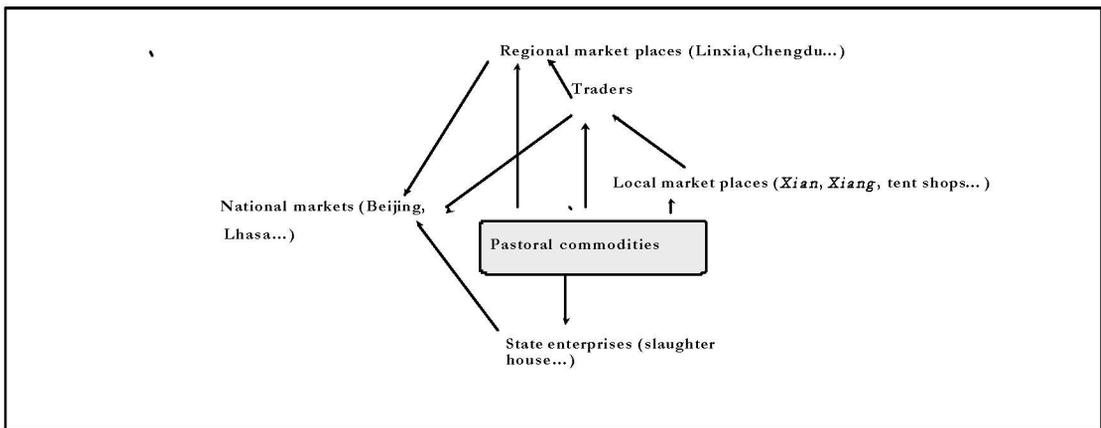


Fig. 2. Market places for pastoral commodities. The pastoral producers offer some commodities at markets, while others reach the markets via wholesale traders or state enterprises.

<sup>7</sup>The name derives from their place of origin, the *Xiang* Bobtso in southeastern Dzoge.

<sup>8</sup>The state meat processing factory of Dзам-thang county (Aba TAP) which opened in 1995 closed down 3 years later due to insufficient supply from the producers (Manderscheid, 2001b).



Fig. 3. A Hui trader from Gansu province sells produce straight from his car in front of the tent.

## Discussion and conclusions

In the past, wool was the main pastoral product demanded from the Tibetan plateau. The consumption patterns of the majority of the Chinese population did not include beef or dairy products. Only in pastoral regions, adjoining Muslim inhabited areas, some mutton could be sold.

Yet a market for beef and dairy products has emerged gradually in China, and motorised transportation has facilitated long-distance trade. New market places for pastoral products have developed fast at the fringe of the Tibetan plateau, like in the province of Gansu. Wholesale traders, often Hui from Gansu, purchase pastoral commodities, especially live animals, butter and dried cheese directly from the producers in order to supply these markets. Furthermore, the markets offer those goods which the pastoralists need. This development leads in the long run to a steady integration of the formerly economically isolated Tibetan plateau into the national market system.

In spite of these increased marketing opportunities, many features of pastoral production and livestock management have remained the same as in the period of subsistence-oriented production. But the marketing process of pastoral produce eventually adapted to the new economic realities, exemplified through the established commercial networks. The shift from subsistence to commercial production thus may be seen as a gradual participation of the nomads in the national Chinese market.

This paper proves that a widespread lack of marketing opportunities for pastoral products is not true for the area under discussion. Dzoge pastoralists have favourable trade conditions due to

new demands for pastoral products and due to their location at the fringe of the plateau, mid-way between the cities of Lanzhou and Chengdu and adjoining Muslim inhabited regions. The general feedback of the nomads concerning this matter was: "We can sell as much as we want and need". They can cope well with their increasing demands to have cash ready at their disposal. However, this does not always reflect the situation of other pastoral areas, even in Dzoge itself the inhabitants of remote regions often have less good opportunities. Location plays a major role in the market opportunities, and can explain the significantly higher contribution of the primary sector to Dzoge's GDP in comparison with the other counties of Aba TAP.

It can be assumed that some of the present top commodities will lose their market value soon, therefore there is a need for innovative production strategies and new products. Attention should also be focused on the sustainability potential of the ongoing process and its impact on the natural resources (*e.g.* crossing the pastures with heavy trucks making deep off-road tracks).

The newly established commercial networks are controlled by private wholesale traders, most of them coming from outside the county. More local pastoral organisations, like the Bobtso trader group, could monopolise the direct marketing of the products, which would minimise the nomads dependency on external middlemen. However, Dzoge's nomads cannot be considered as wealthy in spite of their favourable sales opportunities. In practice, modernisation methods are costly and taxes are high. In order to establish and develop alternative livelihoods, savings should or must be re-invested in different kinds of business ventures and especially in education.

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## References

- Dillon, M. 1999. *China's Muslim Hui Community*. Curzon, Richmond.

- Ho, P.** 1996. Ownership and Control in Chinese Rangeland Management since Mao: The Case of Free-Riding in Ningxia. *Pastoral Development Network Paper 39c*, Overseas Development Institute, London.
- Huber, T.** (ed.). 2002. *Amdo Tibetans in Transition. Society and Culture in the post-Mao Era*. Brill, Leiden, Boston, Köln.
- Ingold, T.** 1980. *Hunters, Pastoralists and Ranchers. Reindeer Economies and their Transformations*. Cambridge University Press, Cambridge.
- Manderscheid, A.** 1999. *Lebens- und Wirtschaftsformen von Nomaden im Osten des tibetischen Hochlandes*. Reimer Verlag, Berlin.
- Manderscheid, A.** 2001a. The Black Tent in its Easternmost Distribution: The Case of the Tibetan Plateau. – *Mountain Research and Development*. 21: 154-160.
- Manderscheid, A.** 2001b. Decline and re-emergence of nomadism: Tibetan pastoralists revive a nomadic way of life and production. – *Geojournal*. 53(2): 173-182.
- Marshall, S.D. & Cooke, S. T.** 1997. *Tibet, outside the TAR. Control, Exploitation and Assimilation*. Washington: The Alliance for Research on Tibet. CD-ROM.
- Moevus, C.** 1995. The Chinese Hui Muslims' Trade in Tibetan Areas. – *Tibet Journal*. 20(3): 115-123.
- Paine, R.** 1994. *Herds of the Tundra. A Portrait of Saami Reindeer Pastoralism*. Smithsonian Institution Press, Washington.
- Sikana, P.M., Kerven, C.K. & Behnke, R.H.** 1993. From subsistence to specialized commodity production: commercialisation and pastoral dairying in Africa. *Pastoral Development Network Paper 34d*, Overseas Development Institute, London.
- Van Spengen, W.** 2000. *Tibetan Border Worlds. A Geohistorical Analysis of Trade and Traders*. Kegan Paul International, London and New York.
- Wu Ning & Richard, C.** 1999. The privatization process of rangeland and its impact on the pastoral dynamics in the Hindu-Kush Himalaya: the case of western Sichuan, China, pp. 14-21. – In: Eldridge, D. & Freudenberger, D. (eds.). *People and Rangelands*. Townsville, IRC.

