

CONTRACTION IN LIVESTOCK MOBILITY RESULTING FROM STATE FARM REORGANISATION

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A nomadic way of life has long been a defining characteristic of the Kazak people, both in the imagination of foreigners and in Kazak literature celebrating the steppe and nomadic life. Even today it features strongly in government efforts to create a national identity. However for over 150 years nomadism has been on the decline in Kazakstan, so that today it involves only a tiny proportion of the population. In this chapter the major factors which have affected the mobility of livestock in the twentieth century are reviewed, and changes occurring since independence in 1991 are examined in detail.

THE ECOLOGICAL BACKGROUND TO MIGRATIONS

In the non-mountainous areas of Kazakstan there are three main ecological zones described by Soviet botanists (for example Kirichenko 1980 and Zhambarkin 1995), whose differences in rainfall, snow cover, and vegetation type have all been important in the history of livestock mobility in Kazakstan. These zones are shown in Figure 7.1.

The steppe zone in the northern regions of the country has an average annual rainfall of above 300 mm per year, the greater part of which occurs in the summer, making it ideal pasture at this

time of year. The natural vegetation consists of pastures dominated by grasses such as *Stipa*, *Fescue*, and *Agropyron* species. The semi-desert zone typically has a rainfall of 200--250 mm per year, is dominated by a mixture of grasses and *Artemesia* species.

The desert zone comprises roughly those areas having less than 200 mm of rainfall per year. This is the area from about 47 degrees and southwards. The northern desert zone is characterised by flat land on clay soils, and an almost total absence of grass species. Here productivity is low, and vegetation is dominated by *Artemesia* species such as *Artemesia terra alba* and *Artemesia turanica* together with salt tolerant and xerophytic species such as *Anabasis salsa*, *Salsola orientalis*, *Salsola arbusciformis*, *Atriplex cana*, and *Kochia prostrata* which become increasingly dominant towards to the south (Kirichenko 1980).

South of the rivers Chu and Syr Darya, and Lake Balkash are the three largest sand deserts of Kazakstan, the Moiyunkum, Kyzylkum, and Taukum deserts (see Figure 7.1). These are characterised by shrubby vegetation such as *Haloxylon* and *Calligonum* species growing on dunes.

Snow cover in the semi-desert zone exists between November and March and has an average depth of 25--35 cm. In the steppe zone it is higher. Animals cannot obtain food under snow when the depth averages 35--40 cm, or 20 cm when the snow is dense (Sludskii 1963). Therefore, the steppe and semi-desert regions cannot be used as winter pastures if supplementary fodder is not available. The best winter pasture areas are on sandy soils in the desert zone due to their shrubby vegetation which can be browsed even under conditions of deep snow. Those that have dunes are particularly suited to this as on the south slopes of the dunes the snow melts quickly.

THE STUDY AREA

The study on which much of this chapter is based was conducted in 1997 and 1998 in central Kazakhstan. The area includes central Dzhzhkazgan *oblast* (province), plus the Northern *raions* (districts) of Dzhambyl and South Kazakhstan *oblasts* (see Figure 7.2).

The region was chosen mainly because it includes one complete migratory system which was in existence both before 1917 (see also Figure 7.3), and in a shortened form in Soviet times. Traditionally stock from what are now Dzhambyl and South Kazakhstan *oblasts* wintered in the Moynkum sand desert, and spent summer in Karaganda *oblast*, or even further north, pastures known as *Sary Arka*. Spring and autumn were spent crossing the clay desert of Betpak-dala, and along the river Chu. Figure 7.2 shows the migration before 1917, in the late Soviet period, and in the late 1990s, and provides a case study for the changes which will be described in the next sections.

KAZAK PASTORALISM UP TO COLLECTIVISATION

As has been seen above, the ecosystems of Kazakhstan are generally harsh, with low rainfall, and crucially, the effective elimination of a large part of the pasture in winter due to snow cover. The distances separating winter pastures in the south, and summer pastures were often large, leading to long migrations of up to 700 km in some cases. The spring and autumn pastures were generally the northern clay deserts (*Artemesia* and saltwort pastures) lying between the summer and winter areas. In mountainous areas the foothills were used at this time of the year.

Because of the constraints of long migrations, before Russia took an interest in the country, the Kazaks were purely pastoralists, practicing little agriculture or hay production at all. They thus did not have any supplementary feed for their animals (Matley 1994), and livestock numbers were entirely influenced by climate and seasonal fluctuations in pasture availability.

Particularly disastrous were *dhzuts*. This is a Kazak term referring to conditions under which melting snow re-freezes to form icy layer covering the grass, or to unusually heavy snow falls (Zhambarkin 1995, Fadeev and Sludskii 1982). Such events could cause entire herds to die of starvation. For example, in the winter of 1879--80 in Turgai *oblast* over 40 per cent of stock died due to *dhzut*, and a decade later up to 95 percent died in the Kazalinsk area (Zhambarkin 1995). There is also some evidence to suggest that livestock populations were affected by rainfall. In 1928 for example one quarter of the livestock in south and west of Kazakstan died due to drought (Channon and Channon, 1990). For Kazaks living in an extreme continental environment, migration was the best way of reducing the risks of *dzhut* and drought to a minimum, whilst at the same time maintaining high numbers of livestock.

The major migration routes were partitioned between three major tribes, or 'hordes', known as the Great, Little, and Middle hordes, and some of the major movements are shown in Figure 7.3. The migrations were not fixed, however, and depended from year to year on climatic conditions. For example if there was drought in the summer territory of one horde, it might move further north, or into the territory of another horde (Zhambarkin 1995).

The Russian influence

During the nineteenth century, Kazakstan came under Russian domination. From the 1890s onwards this took the form of the appropriation of former Kazak grazing lands for agriculture by European settlers. The Kazaks thus lost most of the best summer pastures, and migrations declined both in distance and frequency. The greatest changes wrought by the Russian 'invasion' occurred in the fifty years leading up to the Russian revolution. In Aktiubinsk *oblast*, at the end of the nineteenth century, Kazaks were already moving only 20--40 km from their winter pastures,

and in South Kazakhstan *oblast* the majority of the population were sedentarised by 1908 (Zhambarkin 1995). According to Olcott (1995), by 1917 almost 75 per cent of the population had some form of fixed winter quarters where many would also grow grain to feed their stock, and 50 per cent migrated only from May to September. In other words, they had become semi-nomadic.

In summary, up to the era of collectivisation there was already a huge decrease in mobility among Kazaks, due mainly to diminished access to land. However nomadism did not disappear and migrations which did not enter agricultural areas, such as that in the study region (Moiynkum to Sary-Arka) continued, 'the productive *Artemesia--Stipa* pastures "pulling" nomads' from further south (Zhambarkin 1995: 15).

STOCK MOBILITY IN THE SOVIET PERIOD

After 1930 settlement was deliberately enforced upon the population in the form of collectivisation. This resulted in huge famines as livestock died of hunger or were slaughtered to avoid collectivisation. Over 80 per cent of the Kazak herd was lost (see Figure 7.4) and most families had no animals at all (Olcott 1995). The failure of sedentarisation of nomads was officially recognised in the 1940s and the system was adapted to allow for the limited form of nomadism which continued within the context of the state farms until the early 1990s.

Under the Soviet system, the farm structure in Kazakhstan was predominantly that of the *sovkhos* (state farm). These were state enterprises in which each worker had a wage paid by the state, with bonuses if the state quota was exceeded. Each contained in the 1980s an average of 540 workers and their families (Goskomstat 1988) and had a school, hospital, social facilities, vets, accountants, technicians, shepherds, tractor drivers, and agricultural experts. *Sovkhozes* had

strictly defined boundaries which were marked on maps, and beyond which stock movement did not occur.

In March 1942 the communist party passed a resolution to increase the numbers of stock, and this included provision for use of remote pastures. In the 1940s the numbers of animals started to increase, and in the winter of 1941--42 the driving of cattle and sheep to pastures remote from the farm itself began (Alimaev et al 1986). This occurred mainly from farms situated in the desert regions, whose animals started to migrate each year to the northern semi-desert or steppe regions with their rich summer pastures. At this time the migration from the Moiyunkum desert went as far north as Karaganda *oblast* (Zhambarkin 1995).

The increase in production targets required that new pastures be brought into use, however in the 1950s most pastures in the steppe region were ploughed up for grain production in the massive 'virgin lands campaign', and any expansion of the livestock sector had to occur in the other vegetation zones. To this effect, in the 1960s, 155 specialised sheep raising *Sovkhozes* were created on the state land reserve in the semi-desert and desert regions, with a stock of 50,000--60,000 sheep each (Asanov and Alimaev 1990). Wells were sunk, water was extracted by pump where the water table was deep, or even brought in by tanker, so opening up new areas for grazing. The pastures which therefore would have formerly been used briefly during migratory periods started to be used for months at a time, and in some cases movement started to contract again as the new *Sovkhozes* blocked migrations routes.

Despite this, long migrations still existed, and although primarily conducted on horseback, benefited from considerable technical support. Families could use tractors to help transport their yurts and food, and were supplied with petrol to keep the water pumps going. Vets would visit the shepherds during the summer months, and in certain areas trucks would visit the shepherd and

his family once a month with supplies of food. Those members of the shepherds family who had to remain at the *Sovkhoz* while he was absent (e.g. children of school age) were fed by the *Sovkhoz* during summer. Some migrations crossed the boundaries of the Kazak ASSR, spending one or two seasons in what are now Kyrgyzstan and Uzbekistan. Through these efforts the Soviets managed to make use of even the remotest pastures, and to reach a high of livestock numbers in the 1980s of 36 million sheep, double the number of 1916 (Figure 7.4).

Two types of migration

Stock movement patterns in the Soviet period can be divided into two major types:

Type 1: Long distance migrations across ecological zones. These usually involved movements to pastures on state reserve land remote from the *sovkhov*, in other raions, *oblasts*, or even other republics. These migrations were several hundred kilometres in length.

Type 2 : Short distance migrations which should probably be better labeled as movements, occurring within the farm territory, and which did not always entail a move with each season, These would have been between 10 and 120 km in length and were usually within one ecological zone.

The long distance migrations were mainly from farms in the south situated on pasture between a good winter site such as a sandy desert and a good summer pasture such as Sary Arka or the Tien Shan mountains. They would generally concern mass movements of hundreds of thousands of animals from entire raions.

The short distance migrations occurred mainly on farms further north in the semi-desert zone, in which each individual *sovkhov* would be split into units of seasonal land use. On some of the new farms built in the 60s stock could be on the same pasture for three seasons, autumn-winter-

spring, or spring-summer -autumn, movement often constituting simply rotations between adjacent wells. According to Zhamabrkin (1995), such grazing regimes lead to pasture degradation.

To take the example of Dzhezkazgan *oblast*, half of its area was remote pasture for animals from Kyzyl orda, South Kazakstan, and Dzhambyl *oblasts* engaged in type 1 migrations. However, the rest consisted of *sovkhoses* established in the 1960s, on which livestock would have been engaged in type 2 migrations.

The difference between the two types of movement however, was never clear cut, and even in the more northerly *oblasts*, where significant areas of particularly useful pastures such as those on sands, or along rivers existed, they would be set aside as state reserve land, and used by several farms from the area who would drive animals there on a seasonal basis.

Flocks of sheep normally consisted of 750 head, whilst herds of cattle or horses would comprise 200--300 animals. An example of a full, four season migration is described below, season by season.

Winter (October--April): Shepherds lived in winter houses, or *zimovki* during this time. A *zimovka* is generally a brick construction, and has a barn next to it where the animals are kept at night and in bad weather. The *zimovki* are usually single isolated houses, but sometimes they are clustered together in small hamlets called *otdelenie*.

Spring (April--June): Stock were moved from the *zimovka* to lambing area (1 month) This area was usually very close to the *zimovka*, on the edge of the winter pasture. This way the sheep did not have to migrate a long distance when pregnant, but could benefit from fresh pasture (and also pasture which was never used for long, and was probably free of parasites). The sheep were sometimes moved once more in mid May to another spring pasture where they were shorn.

Summer (mid June--September, or May--September): This pasture was generally the furthest from the winter pasture, and all shepherds lived in yurts or wagons at this time. However, in some farms in the semi-desert zone, summer pastures were just 10km away from winter pastures. At summer pasture, each shepherd and herd were sometimes allocated two or more wells and a mid season move to a new water point was common.

Autumn (September--October): This was sometimes in the same area as the spring pasture, and was often in the vicinity of the farm centres, lying between the summer and winter pastures.

To summarise, during the Soviet period, and especially after the 1960s, the whole of Kazakstan was partitioned into a patchwork of units, each with its land use and type defined by the state. Each farm, and indeed each herd was allocated grazing locations for each seasons. Shepherds took no decisions all as to where they went with the animals in their charge. All decisions were taken by the farm management. However, upon closer inspection it can be seen that some of the longer migrations which remained followed routes of earlier movements of traditional times. For example, the migration from the Moynkum desert to Sary Arka, and from the winter pastures of the Kyzylkum desert and Syr Darya river to summer pastures further north (see Figure 7.3) survived in a shortened form. In both cases stock did not go so far north, as the former summer pastures were taken up by new farms and stock which stayed all year round in those areas, barring migrations from southern farms. From the 1960s onwards both migrations animals went into Dzhezkazgan *oblast*, but no further.

Figure 7.4 graphically illustrates the changes which have occurred in livestock farming over the twentieth century. Decreases in numbers due to the first world war, and during collectivisation

can be clearly seen, as can the large increase in numbers over the 1980s. The most spectacular drop however occurs between 1994 and 1998. This drop is the main impact of agricultural reform since independence, and is also the main reason why nomadism is at present virtually non-existent in Kazakhstan.

REFORM

The land tenure reforms have been described and discussed in Chapter 5. Here, however, a brief summary is presented.

Prior to privatisation, a state committee for privatisation assessed the value of farm property, taking into account debt, inflation, and depreciation, and established a standard property share for each member of the farm (Asian Development Bank, 1996). It was found that the value of the share allocated to a person is based on a number of factors such as post held, age, and number of years worked for the farm.

The farm management was then supposed to conduct an informal consultative process to try to establish a consensus on the structure of the new type of farming entity and the allocation of property and land shares. Several types of collective farm structures were formed, for example Joint Stock Companies, Production Cooperatives or Small Enterprises, all of which closely resembled the structure of a *sovkhos*. Whichever form was chosen, however, workers wishing to leave the farm and form independent smaller farming units had the legal right to redeem their land share certificates for demarcated land plots. They were also entitled to some share of the farm assets such as stock or access to machinery. The resulting entities were designated as *kristianski khozastva* (peasant farms), but they will be referred to here as private farms. Such farmers who were leaving collective farms, or re-organised state-owned agricultural enterprises, were normally

be granted land out of the property of the former *sovkhov* of which they were a member, the registered value of which was to be at the enterprise's average level (articles 77 and 79 of 1995 civil code).

This implied that land on remote pastures in the state reserve land was not distributed, as it was never *sovkhov* property. However, in 1998 although it appeared that officially shepherds or collectives should rent land in these areas, the few people still going to the state reserve land in Sary Arka, which had formerly been designated for the use of their *sovkhovs*, did not encounter any obstacles.

Where several seasonal pastures existed on farm territory, land shares were offered to farmers as several parcels, each in the different seasonal pasture areas. Therefore, continued migration was envisaged by policy makers. This is also suggested in the civil code of 1995, article 80 of which stipulates that *oblast* and *raion* authorities can grant permanent land plots set aside for the driving of stock to and from summer pastures, or arrange temporary tracks in agreement with land owners. However, the implications of this legislation is as yet far from clear. This is because so far access to land has not been a constraint to stock mobility, and this is discussed in the next sections.

EFFECTS OF REFORM ON MIGRATION

As discussed elsewhere in this book the major result of de-collectivisation was a huge drop in stock numbers. Between 1989 and 1999 sheep numbers dropped nationally by 70% (see Figure 7.4). One of the main reasons for this was that state procurement of wool and meat completely ceased between 1991 and early 1995, and there were no emerging markets to replace it. The economy came to rely solely on barter, even where large amounts of goods were concerned. Farm

managers were put in a situation in which they needed to pay their workers and buy petrol, coal for heating, spare parts, and winter feed, all of which lost their subsidies in 1993. They bought these items by bartering away their animals. The loss of animals occurred both in collectives, and individual private farmers. In some cases animal numbers dropped due to starvation. Collectives were essentially left in a semi-nomadic system totally reliant on winter feed from elsewhere, which was paid for by the state. With the end of state subsidies on feed, mass mortality as a result of heavy snow was recorded by the author on two farms which lost 5000 (Karaganda oblast) and 30,000 (South Kazakstan oblast) sheep in a matter of weeks.

With few animals, long distance migrations were no longer necessary or viable. The economies of scale needed to support the migrations no longer existed, all long distance movement in the country virtually ceased, and vast areas of Kazakstan emptied of livestock.

Examples the impacts of reform on type 1 and type 2 migrations.

The effects of reform on the type 1 (long distance) is illustrated here by the migration from the Moiynkum desert to Sary Arka.

The numbers of sheep going to Sary Arka from the two northernmost *raions* of Dzhambyl *oblast* fell from about 600,000 to less than 50,000 between 1992 and 1997. In 1997 the animals were spending winter in Moiynkum desert much as before, but were spending summer at wells on the former spring-autumn pasture on *sovkhos* property. Overall, of seventy one farms in Dzhambyl *oblast* using land in Sary Arka in the 1980s, it was found that only shepherds from five of them continued to migrate after the reforms (with greatly reduced numbers of stock). None of these shepherds were independent private farmers, and they were all still employed by collectives.

This meant that all the state reserve land in Dzhezkazgan *oblast* which had been designated as summer and autumn pasture for other *oblasts* was empty at the time of the study. The same applies also to the summer pastures in the Tien Shan mountains (Kerven et al 1998), and it is probable that the same story is repeated throughout the country.

The effects of reform on type 2 migrations in the semi-desert zone can be illustrated by the case of farms in northern Dzhezkazgan *oblast*. Here, at the time of the study the farms had been fully de-collectivised, and so the only structures in existence were households or private farms. Therefore the behaviour of individuals who were essentially making all their own decisions could be assessed with respect to stock movement.

Of the private farmers who had been allocated land plots in different seasonal pastures, many were not using them at all, pasturing their animals on common land around the farm, or were just using winter pasture all year round. The frequency and distance of migration appeared to be directly connected to the number of animals owned by the farmer. However most people had received too few animals to make any movement at all worth their while. The case study below illustrates this point:

Sovkhoz Mibulak had 60,000 sheep in the 1980s. At the time of privatisation, assets were divided on paper in 1992, but not given out till 1995 when fifty private farms were formed. In this year the *Sovkhoz* had 19,000 sheep, 462 horses, and twenty cows left to distribute. These were distributed to all *Sovkhoz* members, but other assets were only distributed to those starting a private farm. By 1998 over 20 of the private farms on Mibulak had folded and only 12,000 sheep remained on the farm. The frequency distribution of ownership among registered private farmers in 1998 on the farm is shown in Figure 7.5. This shows clearly that the largest category of

shepherd is that owning 50 sheep or less, however this distribution concerns only those who registered as private farmers (a minority). The rest of the farm population tended to have even fewer animals.

This distribution highlights a major reason for the decrease in livestock mobility in Kazakhstan. There is a direct relationship between the numbers of sheep owned by people, and the distance they are prepared to travel. This is shown of one of the study farms, Sarysu in Figure 7.5. This *sovkhos* had access to a small area of winter pasture on sands 100 km away from the farm property. Those farmers with 300 or more sheep tended to continue to make the journey, but those with less usually moved shorter distance or did not move at all. A lack of numbers is, however, not the only reason why mobility has decreased, and grazing strategies among different types of farmer are discussed in more detail below.

EMERGING PATTERNS: DIFFERENCES IN GRAZING STRATEGIES AMONG PRIVATE FARMERS

There are two emerging types of independent livestock owner in Kazakhstan. The largest category is made up of those who did not receive or acquire enough animals or capital to start a viable private farm, or those who started one but lost their animals very quickly. These shepherds are basically subsistence farmers, selling a few animals from time to time.

The second group is made up of those who have higher stock numbers, and access to a *zimovka*, barns, and wells, either as assets received on registration, or because they are simply unused and available. They have stable or increasing numbers of animals, and their farms could be described as commercial enterprises (Kerven 1999).

The difference between the two types of farmer is defined by stock numbers. In Dzhezkazgan *oblast*, due to low meat prices and distances to markets, even flocks of 150 sheep were considered to be small, and even non-viable as the basis for a commercial enterprise, however, Kerven (1999) has found that in Almaty *oblast* the transition from subsistence to commercial farmer can be made at flock sizes of fifty or above.

Group 1: subsistence farmers (less than 100--150 sheep)

Those people having very low numbers of animals are either private farmers who have gone bust, or families who never received enough animals to make it worth them registering as private farmers. These families tend to graze their stock on common land around the village in summer for which a tax must be paid. This includes horses, because milking mares have to be kept in the village during the day as they must be milked every two hours. In winter the cows and sheep are kept indoors most of the time, and the horses are sent out further from the village (normally about 15--20 km). Several farms were noted to have special common land set aside for horses.

The system for grazing household sheep usually involved about ten families taking turns to pasture all their sheep as one flock, whilst for horses a group of families share the price of a shepherd, who takes them out every day, or even in some cases lives out permanently in the steppe in winter, when the horses are pastured a long way from the farm. Few people paid established shepherds to pasture their sheep elsewhere, as half their lambs would be taken as payment.

Due to this system, the majority of stock remaining on the farms are now clustered into a small area around settlements. Those people with 100--150 animals also did not move pasture at all during the year, however they were normally based at a *zimovka* all year round rather than on the village.

Group 2: those with more than 150 sheep

In Dzhezkazgan *oblast* most people in this situation were registered as private farmers, and therefore had received specific areas of land for their animals. The amounts of pasture received by private farms in Dzhezkazgan *oblast* varied substantially, falling between 500 and 1800 hectares according to official records (Karaganda *Zemliustroistvo* 1998). However, these figures were found to be essentially meaningless. This is because all respondents who grazed stock on the summer pasture said that was enough land not to be limited by anything other than distances from the water. A practical reason for owning a low number of hectares of pasture on paper was that tax was paid per hectare of land owned on paper rather than per hectare of land actually used. In reality people could go where they wanted, and lack of land was no obstacle to mobility.

Of those who had officially received land, it was found that most were either not using it at all, or had swapped it for other land so as to reduce migration distances. It would seem that the benefits of the snow free winter pastures, or the productive summer pasture were outweighed by the costs of getting the animals there. Many farmers did not have access to transport, or even if they did they did not have the money for petrol for the vehicle or for the well pumps. Even the richest farmers with access to all these necessities were often choosing not to go to distant pastures, and either swapped distant shares for those nearer the farm, or ignored registration and used abandoned areas as near to the farm as possible. This was due to a number of factors, which are discussed below:

Access to services and markets

It must be remembered that, for all their faults, the state farms in many ways enabled stock mobility. The marketing of animals was conducted by the state and winter feed production was taken care of by specialised brigades. Children of shepherds could stay at boarding school free of charge whilst their parents were away. Families would often spend the whole summer several hundred kilometers from the nearest town, but were supplied with goods by trucks from the *sovkhos*. Since reform all the services mentioned above were discontinued. In the study area shepherds preferred to be near farm centres in order to have access to links to town, both for marketing, and for obtaining goods and services.

Stock theft

With the increasing isolation of those few shepherds migrating to distant pastures, and the increase of crime in Kazakstan, many people are scared of moving far with their animals. There were reports of stock theft, and indeed this was the major reason why well-off farmers had stopped moving to distant pastures in Almaty oblast (Kerven et al 1998).

Lack of Labour

In cases where de-collectivisation was complete, hay brigades were broken up and hay land distributed. In such cases, those farmers with access to the equipment to cut hay themselves sometimes had difficulty reconciling the fact that the summer pastures were far from the hay land that was available. On some farms the production of grain was possible, although it is marginal in all but the steppe regions of Kazakstan. Again, moving animals to summer pasture was sometimes sacrificed for spending more time on grain production for direct sale, or for animal feed in the winter.

In both Soviet and traditional times, the costs and risks of migration was compensated for by the large numbers of animals moved. In the pre-Soviet era Kazaks would have moved in groups of 20--30 families, pooling their livestock together (Olcott 1995). In Soviet times, in the case of the Moiyunkum to Sary Arka migration huge numbers of animals would have been on the move together, and the maintenance of wells and other infrastructure was financed by the state. In post-Soviet Kazakstan private farmers have found themselves very much on their own, and it would appear that most of the collective structures which have lingered since the reforms are now breaking up.

The kind of structure which eventually emerges as the norm in Kazakstan will determine future stock mobility. Migration, and in particular the very longer distance movements depend either on people with large amounts of capital at their disposal, or on groups such as extended families with access to 'free' (family) labour, not for the migration itself but for other activities which support it.

SUMMARY

In order for private farmers to be able to conduct long distance migrations today, they must have access to a *zimovki*, a barn, and a vehicle. They need to have enough animals to make migration both necessary, and worth the cost. The wells both in seasonal pastures, and on migration routes must be maintained, especially deep wells with pumps, for which farmers would also need to supply petrol. They also need enough labour at their disposal to produce winter feed, market animals, and maintain all the assets needed to support the migration.

At present these conditions apply to very few individuals in Kazakstan, and the longer remote pastures remain empty, the less likely it is that they will be used again in the near future as much of the infrastructure has already fallen into disrepair. The great majority of Dzhezkazgan *oblast*

(which is larger than the UK) remains totally devoid of stock, and this land cannot be used for anything other than livestock raising. Vast areas of land are also empty in other *oblasts* where sown agriculture is impossible, and in a country where there are, at present, very few ways of making a living, this seems like a waste of resources. However, it may be true that in the economic conditions of the present pastoral economies in remote areas are simply non-viable, and the location and character of stock rearing in Kazakhstan will become more and more dependent on transport links and markets rather than the ecological factors which have defined it in the past.

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