

DRAFT

ENVIRONMENT AND LAND TENURE IN A TRANSITIONAL PASTORAL ECONOMY: THE
CASE OF MONGOLIA¹

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Introduction

Global environmental change and the problems of transition in formerly socialist economies are two of the most pressing concerns in contemporary world development. These twin concerns are more closely related than it might appear. In both cases, successful management of the process of change turns on the design, implementation and sequencing of policies appropriately tailored to suit the circumstances in question, rather than the adoption of simple blueprints. But there are also important lessons to be learnt from experience gained in different geographical contexts. For example, the lessons of 'structural adjustment' in low-income African economies during the 1980s have much to offer Mongolia, the central Asian states of the CIS, and other formerly socialist developing countries. Similarly, better understanding of the role of customary institutional mechanisms in African dryland management, and of the ways development policies operate either to support or constrain them with more or less destructive social and environmental consequences, offers insights that are no less relevant to central Asian pastoral societies. This chapter examines a case in which the twin concerns of economic transition and environmental change are brought together, and focuses on the role of formal and informal institutional mechanisms that mediate between them in the domain of land tenure.

In 1991, 70 years after the Bolshevik-inspired revolution which brought the world's second communist regime to power, Mongolia embarked on the privatisation of its agricultural collectives as part of the overall liberalisation of the economy. By far the most important sub-sector within agriculture is pastoral livestock husbandry, which in 1990 accounted for 73 per cent of gross output in agriculture². The pastoral collectives, having existed since the 1950s, are now being transformed into limited companies with their members as the principal shareholders and joint stock owners.

Agriculture remains the most important sector of the economy, accounting directly for 20 per cent of national income and 30 per cent of national employment³, and indirectly for a further significant share of national income and employment in agricultural product processing and marketing. Non-food raw materials (especially wool and hides) and food and raw materials for food (especially livestock) averaged 24 and 20 per cent respectively of total exports by value over the decade 1980-90⁴. Perhaps even more important in the straitened circumstances following the cessation of CMEA credits and cheap food, fuel and spare parts imports from the former USSR is the contribution of domestic agriculture to food supply. The full extent of informal meat trading, especially to small rural towns, is only now being realised in the context of the slowly emerging market economy, as it was 'uncaptured' by the former system of state procurement for livestock products and therefore invisible (Sloane et al. 1991). The phrase economic 'transition'¹ implies a greater degree of continuity than is in fact the case: Mongolia is currently experiencing a shock so severe that it threatens economic collapse. A conservative estimate of the overall impact of this shock puts the expected decline in real national income by 1992 in the order of 30-35 per cent (Government of MPR 1991a, p4).

Given the importance of agriculture in all these respects - output, employment, foreign exchange earnings and domestic food supply - it is vital that the transition to the market economy take place as smoothly as possible, with the minimum of disruption to producers and consumers. Ideally, this would most likely be achieved by means of carefully sequenced, incremental reforms that safeguard those aspects of the existing system that at least function adequately - including those aspects that previously went unrecognised - rather than a wholesale effort to wipe the policy slate clean. But with a major ideological transformation of the kind taking place in Mongolia, the CIS and Eastern Europe, there are strong political pressures on those in government to react over-zealously against the old system. Privatisation is being carried out with great enthusiasm in Mongolia, but there is a danger that the modalities of particular economic sectors will be overlooked⁵.

In the extensive or pastoral livestock sector, unpredictable environmental fluctuations (drought, snow, frost, fire, predators) demands institutional mechanisms for spreading and managing the risk to individual herders of heavy livestock mortality. Under the previous centrally planned system, this was achieved through collective forms of resource allocation *at* brigade, cooperative and provincial levels that served to shift the major burden of risk from individual herders to the state. It involved, for example, large-scale movements around the country of fodder crops, labour and other agricultural inputs from areas of surplus to areas of deficit at critical moments, particularly during the harsh winter-spring period. Subsidies to agriculture accounted for an average of 30 per cent of the total transfers and subsidies bill over the period 1986-90, of which transport of winter fodder accounted for an average of 31 per cent over the same period⁶. This was achieved at considerable cost to the national budget and was possible only with substantial concessionary aid from the former USSR (Kaser 1991, Milne et al. 1991).

It is less often acknowledged that certain informal, customary institutional mechanisms persist *at* local level as a carry-over from feudal times before the Revolution, which also play a role in resource allocation and risk-spreading at local level. Although the complex issue of risk and risk management in the pastoral economy is not the primary concern of this chapter, there are important overlaps with the land tenure question. Policy considerations in respect of risk management more generally (Mearns & Swift 1991), and its implications for herd management at household level (Mearns 1992b), are dealt with elsewhere. This examination of the role of customary pastoral institutions in regulating access to key resources at local level is based on recent field research findings and on historical data in the limited literature. The intention is to help anticipate the likely impacts of proposed land tenure reforms and other changes in property legislation, and to suggest ways of fine-tuning these policy reforms in the interests of both productivity in the pastoral economy and the sustainable management of Mongolia's extensive pasture lands.

Environmental management in drylands: recent theoretical advances

Four pivotal and related themes emerge from recent literature on pastoralism and dryland management, based on detailed empirical research in sub-Saharan Africa. Each has relevance for the Mongolian case.

First is an emphasis on non-equilibrium conditions and ecosystem dynamics (Ellis & Swift 1988). In tropical and subtropical drylands, rainfall variability and other episodic events control both plant and animal populations, which are therefore subject to unpredictable fluctuations according to annual shifts in the amount, timing and spatial distribution of rainfall and other climatic variables. This

finding may well apply equally to drylands outside the tropics, not least in central Asia (Togtohyn 1992, CSCPRC 1992). Grazing systems in unpredictably varying environments may therefore be in constant disequilibrium, in which case it is no use devising management strategies that falsely assume the existence of some 'average' set of conditions. Instead, the management of non-equilibrium grazing systems requires an ability to respond quickly and flexibly to short-term swings in feed supply, and the provision of credit, insurance or other forms of safety net to dampen the economic impact of unavoidable environmental fluctuations (Behnke 1992).

Just as the first theme stresses temporal variability, so the second emphasises the spatial heterogeneity of ecological resources in grazing systems. This heterogeneity applies on different spatial scales from the regional down to the local, as well as varying between seasons. Animal movements - seasonal and annual, local and long-distance, by both wild and domestic herbivores - exploit this variability. Drawing on work in 'patch ecology', this observation highlights the strategic economic as well as ecological role during periods of stress of high value, key resources - such as localised, moist depressions in the landscape, or riparian forests - rather than aggregate resource availability (Scoones 1991).

Third, following from the first two themes, is an emphasis on mobility and flexibility in management responses to unpredictable environmental variations. Herders in low external-input pastoral systems need to be mobile to permit access to different ecological niches at different times, exploiting spatial heterogeneity and seasonal variation. They also need to be able to respond flexibly during periods of stress (or opportunity). Although the possibility of some environmental hazard (or fortuity) is usually known, its precise timing and spatial incidence are unpredictable. Flexible management responses involve either an intensification in the use of 'regular' key resources, or the exploitation of alternative key resources, as a means of minimising the risk of severe livestock mortality.

The fourth theme concerns the land tenure correlates of mobility and flexibility. Customary institutional arrangements tend to be adapted to the non-equilibrium nature of local ecosystem dynamics, and serve to regulate access to key resources at critical moments (Ellis & Swift 1988). While they may be under threat or have lapsed altogether due to inappropriate state policies towards pastoralists, or through unequal competition with other interest groups in the political economy, the existence at some time or other of such informal institutional mechanisms for regulating resource access is probably the rule rather than the exception in nomadic pastoral systems⁷. This finding contradicts the 'tragedy of the commons' argument which, based on a failure to distinguish common pool from open access resources, gave rise to the misleading policy implication that only under state or private ownership of rangelands could their sustainable management be ensured (Hardin 1968).

The important role of local, customary institutions in mediating between environmental change and human manipulations of the environment is too often overlooked in the literature on environmental change (Leach & Mearns 1991). Seen from a development policy perspective, this implies a need to address the factors that enable or constrain effective local management strategies, rather than to devise burdensome, externally-imposed initiatives that may reduce rather than enhance herders' control over their own livelihoods. Many well-documented precedents exist in African dryland management and development. The lessons from this experience are no less relevant to the Mongolian case, despite a very different history and political economy, and suggest that national policy reforms need to recognise and build on customary land tenure arrangements rather than seek to supplant them.

The Mongolian case

Mongolia has a total land area of 1.6 million sq. km. - about half the size of India - at an average altitude of 1,580 metres above sea level; 60 per cent of the land area lies between 1,000 and 2,000 m.a.s.L. Figure 1 shows the distribution of the major ecological zones, ranging from dry Gobi desert in the south to Alpine tundra and Siberian taiga in the north; their percentage shares of total land area are shown in Table 1.

FIGURE 1 DISTRIBUTION OF ECOLOGICAL ZONES

Table 1 Ecological zones By area

zone	area (%)
alpine tundra	4.5
mountain taiga	3.8
forest steppe	23.3
steppe	25.9
desert steppe	21.5
desert	15.4
interzonal and lakes	5.1
total	100

Source: Sloane et al. (1991)

The climate is characterised by extreme continentality, with very low winter temperatures, high summer temperatures in some areas, and a short growing period. There are only 80-90 frost-free days per year in the mountain and forest steppe zones, and up to 130 in the Gobi where available moisture is a limiting factor. About 90 per cent of precipitation falls during the growing season (Togtohyn 1992) but rainfall is low and erratic. Average annual precipitation is between 100mm and nearly 400mm, declining along a rough gradient north to south, but over 44 years for which there are continuous records, the north of the country experienced up to 6 years of successive drought and the south up to 14 successive drought years (Academy of Sciences MPR 1990). Much of the sporadic precipitation is lost to evapotranspiration and cross-boundary surface flow. Apart from drought, frost, snow and steppe grass fires, climatic hazards also include intense, desiccating spring winds that pose a serious threat to young animals during the breeding season, and to fragile soils exposed following the long winter (Government of MPR 1991b). Overall, climatic stress on agriculture is high, but the precise temporal and spatial pattern of particular environmental hazards is unpredictable.

Mobility

With some 26 million head of domestic livestock, average stocking density in Mongolia (28.0 sheep-based livestock units per sq. km.) is half that in Chinese Inner Mongolia (55.2 lu/km²) (CSCPRC 1992, p142). The apparent abundance of grazing on Mongolia's extensive pasture lands masks seasonal, regional and local bottlenecks in meeting animal feed requirements. The main seasonal constraint is

during the harsh winter-spring period when pasture grasses first dry off, then become covered by snow or die back. The risk of livestock mortality around this period has been partially offset, firstly by investments over recent decades in fixed capital such as winter and spring shelters and stockyards, and in labour and fodder supplements during times of contingency.

At the level of particular provinces (*aimag*) or districts (*sumun*), differences in aggregate animal feed availability exist according to the area of open pasture available within the administrative region, the overall stocking density, and the extent of local combined fodder crop and hay production. The order of magnitude of variation in the forest steppe ecological zone can be illustrated with data from Arhangai province. Table 2 summarises this data by district, grouped into three classes according to availability of open pasture per livestock unit⁸.

TABLE 2 PASTURE AVAILABILITY & FODDER PRODUCTION, ARHANGAI

Class 1 districts (2 or more hectares of open pasture per livestock unit) tend to lie in the mountainous areas of the South, South-West and Centre of the province. In these narrow mountain valleys, there is relatively less open pasture than in the lower lying steppes of the East and North of the province; the apparently more abundant pasture per livestock unit reflects lower overall livestock densities. Class 3 districts (1.2 hectares of open pasture per livestock unit or less), in the drier steppe area in the East of the province, have relatively higher livestock densities.

FIGURE 2 FODDER PRODUCTION & PASTURE AREA, ARHANQAI

Figure 2 shows combined fodder production per livestock unit in the 16 districts within the three pasture availability classes. On average, relatively more fodder is produced in those districts with less open pasture per livestock unit (class 3). These lie in the eastern steppe areas, more suited to arable production. In the mountainous South and West, less fodder can be produced, as illustrated by Chuluut, Hangai and Ih Tamir districts.

At this level then, assuming no mobility of herders between districts, aggregate animal feed constraints are more severe in some districts than in others. In Hotont district for example, a group of herders explained that it was only possible to obtain 22 of the 60 fodder units (of 2.5 kg) they require per sheep during the winter months (Mearns 1991b, p11). This implies that certain collectives have a greater need than others to import fodder or hay supplements during times of seasonal stress (see Table 2). This can be considered a measure of the traditional need for mobility to secure sufficient grazing, in the absence of fodder imports from neighbouring districts or provinces. The assumption of no mobility between districts is relaxed below.

The second means to ensure that animal nutritional needs are met is the mobility of herding families between ecological niches, exploiting detailed local knowledge of the dynamics of grazing resources⁹. Patterns of nomadism vary from region to region according to the interrelated variations in climate, ecological productivity and topography. In Hovd province in western Mongolia, straddling the high Altai mountain range, nomadism tends to follow a clear two-season rhythm of transhumance between valley bottom and mountain pastures, with differences in daily herding movements from season to season.

In the province of Dornogobi in the much drier desert steppe zone, herders move at least a dozen, and often twenty or more, times a year, and move over considerably larger areas. During the summer *otor*, herders need to move their

animals relatively quickly over long distances, and moves are made every two or three weeks. Small and large stock are herded separately according to their different capabilities for speed. The *otor* is important to allow the animals access to sufficient grazing for them to put on weight (Purev 1991). In these areas it is not possible to identify a regular pattern of movement between pastures from one year to the next. Flexibility of movement is essential to take advantage of unpredictable annual as well as seasonal fluctuations in resource availability.

In Arhangai province, in the forest steppe zone, nomadism tends to be restricted to four main seasonal moves each year. In this case, the annual grazing cycle is much more predictable than in the desert steppe zone, and is restricted to a considerably smaller area. Figure 3 illustrates the broad pattern of seasonal movements between pastures for Hukh Nuur brigade, one of the four brigades that make up the pastoral collective in Ih Tamir district.

FIGURE 3 HUKH NUUR BRIGADE GRAZING CYCLE, ARHANGAI

Spring is the only time of year the entire brigade lives in the same general area; almost all the spring shelters (with yards for young animals) and pastures lie along the North Tamir river. From here, the brigade divides into its two *tasag* for dairying during the summer months: one *tasag* to Sharbolgin Tal; the other to Hanuy river. Towards the end of the summer when annual milk quotas have been delivered to the collective (at the *tasag* centre), the nomadic encampments move to new pastures to complete milking to meet domestic needs during the late summer¹¹. Hanuy Gol *tasag* moves back to the North Tamir valley; half of Sharbolgin *tasag* do the same, while the other half moves to high summer pastures near the lake (Hukh Nuur). From their autumn pastures, within which they may make two moves of the base camp in a difficult year, all nomadic encampments move to their own winter shelters in the deeper, more sheltered valleys of the area. In total, each family encampment makes between 4 and 6 moves a year: generally one per season (Mearns 1991b).

This generalised grazing cycle for a single brigade is an aggregation of the individual and overlapping grazing cycles for each family-based encampment, known as its *nutag* or 'family territory' (Szynkiewicz 1982). There are 88 herding families in Hukh Nuur brigade, 57 of whom customarily spend the early summer at Sharbolgin Tal and 31 by Hanuy river. At these times of the year, individual herding families join together to perform various tasks in the agricultural calendar and form one large *nutag*. This 'closed', relatively predictable cycle can be contrasted with the *nutag* for nomadic encampments in Dornogobi province in the desert steppe zone, which vary so much from year to year and overlap to such an extent that the pattern is 'open' and indeterminate. Whereas Hukh Nuur brigade in Arhangai moves over an area of approximately 300 sq. km., Tsagan Hutul brigade territory in Dornogobi covers an area more in the order of 3000 sq. km., and the summer *otor* takes herders of large stock 400-500 km northwards into the steppe grasslands of Hentii and Sukhbaatar provinces.

Flexibility

Year on year variations in resource availability are also highly significant. The results of a simulation analysis of the control of precipitation over steppe plant biomass production for Tumentsogt district of Sukhbaatar province during the period 1966-83 are shown in Figure 4, and show clearly that rainfall is the determining factor for primary productivity (Togtohyn 1992, p3)¹². Total animal numbers for Dornod and Sukhbaatar provinces were found to vary by 15 per cent about the mean over the period 1950-90, owing to management and environmental factors (ibid., p4). Environmental factors were found to be the

most important reasons for high livestock mortality, including heavy or wet snow, high wind speeds and cold, driving rain.

FIGURE 4 SIMULATED PLANT BIOMASS PRODUCTION, TUMENTSOGT

This level of temporal variability within the steppe ecological zone can be expected to be at least matched, and probably exceeded, in the desert steppe and desert zones. It is the unpredictability of fluctuations in the ecological factors controlling livestock production that demands that herding practices need not only to be mobile but also flexible.

In a risky, unpredictably varying environment such as the desert steppe zone, key resources tend to be reserved for difficult periods, whether droughts during the growing season, or relatively harsh winters. The most important key resources include moist depressions in the landscape with preferred pasture grass species such as *ders* (*Achnatherum splendens*) and *zags* (*Phragmites communis*), both traditionally used for making hay; surface soda licks (*khojar*); saxaul tree groves; and patches on the windward side of certain hills that are known for protection against *dzud* incidence. A *dzud* is when snow falls, melts and then re-freezes, preventing access to the grass beneath by domestic herbivores. Areas where the wind prevents snow from collecting are favoured during such times. Examples of the use of and movement between key resources by herders of Tsagan Hutul brigade, Erdene district, Dornogobi province, give an insight into the flexibility of natural resource tenure arrangements that is so vital to dryland management.

In the West of Tsagan Hutul brigade territory is an area of sand dunes, which features the sandy hill areas of Shardow and Hardow; surface water springs in an area known as Burden Bulag; and an important grove of saxaul (*Haloxylon ammodendron*) at Dulaani Gobi (meaning 'warm place'). This whole area is avoided during the summer when it is too hot and dry, but provides valuable emergency grazing and browse during difficult winters. The area takes its name from what once amounted to 108 natural springs, some of which have now dried up as a result of dune migration. The area was always an important source of water, and recently the collective has trucked in supplementary water supplies when needed. Burden Bulag is particularly valued for the warmth and shelter provided by the dunes in winter. It was particularly important in the harsh winter of 1986-87 when snow covered the whole of the rest of the brigade territory to a depth of 30-40 cm, and a number of families moved into the area. This winter followed a very dry summer, during which animals had failed to achieve the expected improvement in condition. Informants explained that those who moved to the key resource area of Burden Bulag suffered relatively lower livestock mortality than families who did not move into this area¹³.

Many key resources reserved for contingencies may not be preferred during 'normal' times, and may become congested during times of stress, but at least they ensure herd survival. Saxaul, for example, is a useful source of browse for camels but not for other animals. Even for camels, saxaul can generally be browsed only during a rainy spring period when young green shoots emerge. By the summer the leaves are too dry. During a very hard winter however, when snow covers the ground, camels may browse it as a last resort. Saxaul has other uses too: small stock use it for shade from the sun in the summer. Some families cut it for fuel, but this is strongly disapproved of, especially by older herders in Tsagan Hutul brigade who are concerned that this key browse resource is becoming depleted. Normally only the dead wood would be used, but it takes a practised eye to tell a living tree apart from a dead one during a winter following a dry summer, when they all appear white¹⁴.

Land tenure arrangements

In principle, the mobility of herders has always been restricted to the administrative regions in which they live. In feudal times prior to 1911 when Mongol autonomy from the Chinese Qing Dynasty was achieved, ordinary herders were serfs bound to particular geographical fiefs known as *khoshuun*, of which there were about 100 (Szynkiewicz 1982, Bawden 1989). The pre-1911 administrative boundaries are shown in Figure 5, and compare with the contemporary administrative boundaries shown in Figure 6. The *khoshuun* were at a geographical scale lying between that of today's provinces (*aimag*) and districts (*sumuri*). Each of the 100 or so *khoshuun* covered a larger area, on average, than each of today's 370 districts.

FIGURE 5 ADMINISTRATIVE MAP PRE-1911

FIGURE 6 CONTEMPORARY ADMINISTRATIVE MAP

Comparison with the distribution of ecological zones (Figure 1) reveals that, on the whole, herders in the larger *khoshuun* before the Revolution stood a better chance of gaining access to a range of ecological niches than their counterparts today, who are nominally restricted to particular districts. Where ecological zones form broad East-West belts across the country - as they do in the South - the *khoshuun* were orientated roughly North-South so as to incorporate areas of different ecological potential. The geography of Mongolia's feudal *khoshuun* is therefore analogous to that of English parishes from medieval times which, on a more local scale, were orientated with the landscape in such a way as to permit their parishioners access to upland and lowland pastures, hilltop woodlands etc, within a single parish.

Despite the official line that members of a given pastoral collective use only those pastures lying within their own district boundaries, local level field research reveals many instances where this is informally relaxed in practice. For example, of the two summer dairying *tasag* that comprise Hukh Nuur brigade in Ih Tamir district, Arhangai province, one customarily spends the early part of the summer next to Hanuy river, lying entirely in the neighbouring district of Chuluut. Similarly, as a contingency measure during very hard winters, a group of 3-5 yak and *khainag* (yak-cow crossbreed) breeding families from Ghalut district in the neighbouring province of Bayanhongor customarily use winter shelters in Hukh Nuur brigade territory. Three of these families are now related by marriage to their host families in Hukh Nuur, which has further strengthened this informal arrangement (Mearns 1991b).

It is likely that customary land tenure arrangements of this kind have long predated contemporary administrative boundaries, and have antecedents within the former *khoshuun* structure. Patterns of pasture use in Mongolia have evolved over decades or longer, and leave very little room for 'random' or non-negotiated moves. They represent tightly defined rather than 'free' grazing, even where they build in a considerable level of flexibility, as in the desert and desert steppe zones. Informal land tenure arrangements at this 'intermediate' level have neither been dictated by feudal lords or administrative authorities, nor are they chaotic. Rather, they are customarily ascribed (Szynkiewicz 1982).

At the more localised level of individual, day-to-day herding decisions, equally carefully regulated patterns of pasture use and rotation exist. These include, for example, night grazing reserves; corridors along which herds are moved between the night corrals at the encampment and the daytime pastures; and divisions between near and distant pastures (Purev 1991). Near pastures may be reserved

for new-born young, grazing following the evening milking, night grazing for saddle horses, and for contingency grazing. Distant pastures include bad weather reserves that are sheltered, relatively enclosed so that animals cannot easily scatter and become lost, and with a good vantage point for observation. At the most local level too, controlled rather than open access is the general rule.

Informal, customary land tenure arrangements may begin to come under threat with changes in state policy or with investments in fixed capital that effectively raise the value of the land or of particular key resources. This is illustrated by the ongoing dispute between herders of Orgön and Erdene districts over a valued upland desert steppe area known as Argalin Uul, Dornogobi province. This key resource area, falling within Orgön district, is important to herders from Tsagan Hutul brigade in Erdene district during periods of drought. Although the area has good grazing, the limiting factor had always been water, and it used to be used only as a last resort. To overcome the water supply problem, borehole wells were sunk in the mid-1970s, which subsequently led to an increase in the incidence of disputes between herders in the neighbouring districts. In the dry summer of 1991, families in Orgön district felt that those from Erdene should be made to pay a fee for using the area (Mearns 1991b).

Referring to the tightly meshed use of pastures in Mongolia, Szykiewicz remarks that "such a potentially conflict-generating situation in practice caused virtually no friction, as may be deduced from a collection of 18th century laws., which envisaged penalties for theft of stock, improper use of wells, for camping on burial sites of prominent persons, but knew no such term as improper use of pastures" (1982, p23). He suggests that conflict was avoided because the principles of grazing were universal, and the timing of base camp moves was carefully staggered. While this was true under the extremely low external-input conditions pre-collectivisation, the above case study illustrates how such informal, customary arrangements can break down with increasing levels of investment in fixed capital and land improvements.

The danger has never been more pronounced than at the present time that with economic liberalisation, access to resources in the Mongolian pastoral economy could become much more socially unequal. Customary land tenure arrangements of the kind described here did not guarantee perfectly equal access among herders, but it is likely that they at least ensured a degree of relative equity (Mearns 1992a). Two kinds of change are now possible with the privatisation of the pastoral collectives and their operation as financially-autonomous enterprises.

The first is that access to customarily used resources across district and provincial boundaries - lying outside the jurisdiction of individual limited companies - becomes much more difficult to negotiate. Since economic resource allocation decisions will be made at the level of the individual limited company rather than at national state level, as was the case in practice under the command system, all such arrangements will have to be formalised and financed on a full-cost basis.

Local officials and herders in Dornogobi province, for example, expressed grave concern that the summer *otor* of large stock from Dornogobi into the steppe grasslands of Hentii and Sukhbaatar provinces may no longer be possible if financially-weak, individual limited companies in Dornogobi have to pay a fee to all those companies in neighbouring provinces through whose territories their herders need to pass. Until 1991, ultimate responsibility for such negotiations rested with provincial authorities, with technical assistance from central Ministry of Agriculture staff¹⁵. Similarly, some collectives in Dornogobi province are used to making arrangements to use land in neighbouring, more northerly provinces

for hay-making, given the difficulty of growing hay in the less ecologically productive desert steppe zone. The collective in Delgerekh district in north-eastern Dornogobi, for example, has been using an area of 5000 hectares for this purpose in Bayanhotig district of Hentii province, from which it harvested around 700-1000 tonnes per year. From 1992 however, the limited company in Delgerekh will have to pay for this at full economic cost (Mearns 1991b, p24).

The second potential change in the transition to the market economy is that certain key resources may be selectively privatised, to the benefit of a few powerful individuals or interest groups within any single limited company. The earlier experience of Inner Mongolia is instructive in this regard. Decollectivisation during the early to mid-1980s led to a rapid increase in economic inequalities among herders. Those who previously held positions of power in the local Han Chinese-dominated bureaucracy were often able to manipulate the situation to their own advantage, and effectively 'capture' or gain a controlling influence over allocation decisions around key resources (Sneath 1991). The overemphasis in contemporary Chinese state policy on aggregate animal numbers rather than on animal productivity led to a rapid increase in the total number of small stock, but without provisions for the continued regulation of access to grazing resources. In the absence of appropriate land tenure arrangements, pasture lands in many areas became severely degraded.

In the case of Mongolia, it is unclear quite how far informal bargaining has played a role in local procedures of resource allocation. No recent, detailed anthropological research has been carried out on the actual mechanisms by which resource allocation takes place in practice, and the extent to which this represents a combination of formal, administrative allocation and informal bargaining. At least until 1991, well-respected herders were elected or popularly chosen to represent the interests of their local brigade members on the management committees of their collectives - much as they would have done prior to collectivisation - alongside the chairman (*darga*), deputy chairman and other state-appointed officials of the collective.

Seasonal pasture allocation under the command system up to 1991 was formally decided at the level of the collective management committee, although in practice this tended to 'rubber-stamp' customarily evolved patterns of the kind described above. The usual procedure was that the leader of each nomadic encampment (*suur*) would inform the *darga* of their preferred sites from a range of possible options - following reconnaissance visits to assess pasture quality, availability of water and minerals - and on the basis of these bids the management committee would decide which *suuri* would go where, and when. However, it is during instances of dispute that the composition of the management committees and the effective power of local representatives becomes important. With current economic and administrative reforms, resource allocation at local level is in a state of flux, and even near-anarchy in some places where it is unclear what local interest groups hold effective power.

Anecdotal evidence from the district of Bulgan in Hovd province revealed how far the authority of the local *darga* and his management committee had been undermined by the late summer of 1991. The district lies at the ecological boundary between the Gobi desert and the Altai mountains in western Mongolia. During late September, herders customarily come down from the surrounding mountain pastures following harvesting of the crops in the collective's arable fields, to graze their animals on the stubble and along the river in the wide, fertile valley. In 1991 however, a large group of herders came down early to the valley floor before the harvesting had been completed, ignoring a public warning from the *darga* that anyone doing so would be heavily fined¹⁶.

The potential 'capture' of strategically important resources, with negative consequences for equity, economic productivity and environmental sustainability, may be guarded against if appropriate provisions are made for this in the reform of land tenure policy.

Customary institutions

The land tenure arrangements discussed above take place within a matrix of social and administrative institutions. Evidence suggests that patterns of pastoral mobility and flexible resource access in Mongolia have been achieved in practice through a hybrid system of customary and formal mechanisms, operating at different scale levels. With the transition to a market economy, there are signs that certain historical institutions are re-emerging, as the functions they performed prior to collectivisation are once again being left to groups of individual herders to fulfil.

Table 3 summarises the general attributes of some of the most relevant institutions.¹⁷ They each have many functions other than the regulation of land tenure, which is not their primary purpose. A comprehensive review of their character would be out of place here, but an indication is given of their past, present or potential roles in the domain of land and natural resource tenure.

TABLE 3 MONGOLIAN PASTORAL INSTITUTIONS

Prior to collectivisation, the *khot ail* was the most basic unit of residential social organisation outside the family. It represented the spontaneous cooperation of between 2 and 20 families, who settled in the same *nutag* area, and assisted each other in various economic activities such as the repair and cleaning of shelters and stockyards, well-digging and maintenance, shearing sheep, fulling felt, and hay-making and other forms of fodder preparation. Membership was sometimes, though not necessarily, based on kinship. Although it had some ritual functions, the principal role of the *khot ail* was economic (Szyrkiewicz 1982).

Most important was mutual assistance with herding. Each family's herds would include both large and small stock: cattle, horses and camels (in desert and desert steppe areas) or yak (in forest steppe and mountain areas), sheep and goats. Given their different feed requirements, domestic livestock are most efficiently herded in groups of a single species, and even a single age-class, but very few families would have sufficient labour within the household to be able to herd all such groups separately (Mearns 1992a). Spontaneous cooperation of a group of families enables them to pool both their herds and their labour, and achieve economies of scale with a more efficient division of labour in herding.

With collectivisation, a high degree of planned task specialisation was introduced at local level in the pastoral economy. The nomadic encampment (*suur*) was the most basic unit of organisation of the socialist economy, comprising between one and four families, and superseded the traditional *khot ail*.¹⁸ The head of each *suur* was allocated animals of a single species belonging to the collective, which he was paid a salary to breed and look after, in return for delivering on various annual production quotas for meat, milk, hides, wool, hair etc. Although each *suur* also had its own (limited) private herds with a more diverse species structure for meeting domestic consumption needs, herders under collectivisation became specialist camel breeders, horse breeders, cashmere wool producers, etc. (Mearns 1991a). The *suur* built on the traditional *khot ail* in some respects, although cooperation in production and management was imposed from above by

the collective - and ultimately the state - rather than emerging spontaneously in response to herding requirements at local level.

With the transition to a market economy and the privatisation of collective herds, there is evidence that the *khot ail* is re-emerging, as individual herding families once again prefer to keep herds of a diverse species and age structure. For example, three *suuri* in Hotont district, Arhangai province, first came together as a *khot ail* during 1990 when the collective introduced lease agreements over its animals. Faced for the first time in 30 years with a degree of choice over the composition of their collective herds, they opted for smaller but more diverse herds. Between them the three herders now lease 370 sheep and goats, 93 horses and 43 cattle from the collective. They choose to pool their labour for herding and communal tasks including shearing wool and clipping hair, making nomadic moves, and hay-making, all of which they claim to be able to perform more efficiently together. Take the case of hay-making, for example. Under arrangements introduced during 1991, collective members could either make their own hay, in which case they are paid by the collective for doing so; or they can arrange for the collective to provide it for a certain charge. The members of this *khot ail* benefit both from the added efficiency of making hay cooperatively, and from the payment they receive from the collective for doing so (Mearns 1991b, p12)¹⁹.

Herd diversification is a response to the fact that the burden of risk in the pastoral economy is being shifted away from the state and back onto individual herders under privatisation (Mearns 1992b). Many herders are finding it important to return to pre-collectivisation forms of local-level cooperation to achieve economies of scale in herding and to help manage the risk of unpredictable environmental fluctuations. The *khot ail* is the informal institution within which such spontaneous cooperation takes place. It is likely that with its re-emergence, the leadership structure of the *khot ail* will also begin to reassume some of its former role in pasture land allocation and arbitration of disputes at the local level.

Adjacent *khot ail* or contemporary *suuri* often tend to form communities, particularly in the mountain and forest steppe regions of northern, western and central Mongolia where ecological productivity permits a more tightly restricted *nutag* than in the eastern steppes or in the desert steppe and Gobi desert areas in the South. Such an institution - of a higher order than *khot ail* but lower than *khoshuun* or the collective - is of a scale that compares with the contemporary brigade, the sub-brigade 'team' (*khesag*), or seasonally functional *tasag* (eg. for dairying). Prior to collectivisation this was known as a *bag*. Its boundaries are sometimes difficult to bound territorially but often have topographical determinants. Szykiewicz (op. cit.) describes this intermediate-level, customary institution as a 'valley order community' (*nigen gotiin ail*, or 'yurts of one river'), which is related to summer camping habits near water sources.

A good example is provided by the two dairying *tasag* that make up Hukh Nuur brigade of Ih Tamir district in Arhangai province, whose territory or large *nutag* is shown in Figure 3. Similarly, the contemporary brigade of Tsagan Hutul, in Erdene district, Dornogobi province, was made up of two *khesag*, each based on a former *bag*. It is at this level that particular hay-making or fodder meadows are reserved, and at which a level of informal cooperation is found in settling grazing questions, organising search parties for lost animals, and tying up mares for the ritualised process of milking (Szykiewicz, op. cit.). For example, in the former *bag* of Duruwilj, Tsagan Hutul brigade, an area was customarily reserved for use by members of the *bag* as a fodder meadow. Nutrient-rich root species such as *taan* (*Allium polyrhizum*) and *humul*

(*A.mongolium*) were collected and combined with fresh grass into fist-sized fodder balls known as *zoder*. The hand preparation of fodder had been on the decline since the collective began to provide fodder, but herders commented that the increasing cost of obtaining fodder from the collective was driving them to revive this practice, organised at the level of the 'valley order'¹ institution (Mearns 1991b)²⁰.

Szynkiewicz (op. cit.) comments that the contemporary brigade frequently coincides with one or two 'valley-level' groups, despite differences in characteristics. At least until 1991, the *khesag* was a formal unit of collective organisation of an order lower than the brigade. At various times over recent years, attempts have been made to abolish this 'intermediate' tier of administration in the interests of cost-saving. In Erdene district of Dornogobi province, for example, as part of a general programme of staff redundancies from January 1991, Duruwilj *khesag* was amalgamated with Tsagan Hutul *khesag* to form Tsagan Hutul brigade. Each brigade now only has one full-time employee, the brigade chief; formerly each *khesag* had 3-4 employees. Despite such attempts to abolish *khesag*, the customary, economic and social functions of 'valley order communities' continue to be necessary, not least including their role in settling local disputes over land tenure. It is perhaps for this reason that formal institutions at this intermediate level appear to be more enduring than their superficial administrative functions alone would indicate. They also incorporate many aspects of functionally important customary institutions, and seem to perform a valuable regulatory role in land and natural resource management.

One other 'intermediate level' institution is widely believed to be relevant in understanding historical forms of pastoral nomadism in Mongolia. Only brief comment is appropriate here. The *kuriyen* was a large, principally military unit of over 2000 men (Szynkiewicz, op. cit.). It is generally accepted in the literature on Mongolian history that the *khot ail* and the *kuriyen* were the two 'modes of nomadism' until the formation of Chinggis Khan's empire around the 10th-11th centuries AD (Isono 1989). However, there is some dispute whether the *kiiriyen* was ever a permanent, pastoral institution in peacetime, playing a role in everyday nomadic activities. Isono (ibid.) suggests not, based on a review of historical textual sources and on the technical grounds that it is unlikely that such a large group could exist as an economic unit of pastoral production rather than of consumption. It is more likely that the term *kuriyen* referred to the circular form of arrangement of encampment for purposes of defence during migrations or military operations²¹. Isono's explanation is convincing, and is further supported on the technical side by the argument that mobility and flexibility are essential to pastoral management in an unpredictably varying and therefore risky dryland environment. The *kuriyen* would indeed appear to be too large an institution to survive as a permanent unit of pastoral production and resource management under such conditions in Mongolia.

On the brink of the transition to a market economy, public and specialist discussion is taking place in Mongolia on the possible revival of certain traditional institutions and practices in animal husbandry. The popular demand for a revival of the *khot ail* and the herding of all five animal species within each *ail* is borne out by the fact that this at least is beginning to happen of its own accord. A specialist veterinarian recently showed from field research the considerable extent to which seasonal nomadic moves in 18 districts of Ovörhangai province are still based on traditional herding practices (Togooch 1991). Taking the view that the economic reforms of 1991-92 point towards changes in the administrative sub-divisions of Mongolia, Togooch proposes a return to the *khoshuun*, to be achieved by amalgamating the country's existing

370 districts into about 185 larger administrative units. He argues his case on several grounds, including:

- (i) the reduction of risk, by increasing the flexibility of pasture and water resource use;
- (ii) enabling access to a potentially wider range of ecological resources;
- (iii) greater opportunities for returning to the *khot ail* system at local level, and for leasing land to groups of herders as well as to individuals;
- (iv) more possibilities for using old winter/spring camps and better pasture utilisation, thereby reducing the threat of local conflicts over resources; and
- (v) the potential for large administrative cost savings.

The contemporary province of Ovörhangai, for example, was made up of 8 *khoshuun* and some small non-administrative divisions prior to 1921. These were amalgamated to form 4 large *khoshuun* between 1921 and 1924. Togooch proposes a return to the latter, and makes specific suggestions as to boundary changes for that single province (*ibid.*). The view that a return to the *khoshuun* administrative unit would make both economic and ecological sense is also supported by other Mongolian agricultural and ecological specialists (eg. Togtohyun 1992).

*Land tenure policy:*²

Until late 1991 all land in Mongolia was owned by the state. Access to open pasture has always been free of charge. Under the new constitution, provision is made for private land ownership and land taxation. This could include open pasture as well as urban land, land under arable cropping, and land under other uses such as mining.

In agriculture, different systems of land tenure have different implications for production and for land management. A range of possible tenure options exist between state ownership at one extreme, and individual private freehold tenure at the other. The major objective should be to ensure the long term sustainability of productive forms of land management. Both over-exploitation and under-exploitation of pasture land have environmental implications which ultimately represent a constraint on sustainable livestock production. The dangers of overgrazing are clearer, but under-grazing too can lead to an ecological succession in the grassland vegetation community which reduces pasture productivity.

In Mongolia, privatisation is expected to lead to a shift from the present situation where in the pastoral cooperatives some 70 per cent of animals are collectively owned and over 20 per cent privately owned, to a situation where only 20 per cent of animals are cooperatively owned and 80 per cent are in private hands (Sloane et al. 1991). Such a large increase in private livestock ownership on public land needs to be accompanied by a well-developed system of organisational control of pasture use and allocation if it is not to lead to a 'tragedy of the commons' scenario of over-exploitation. Whatever land tenure system is now devised, however, it must retain the capacity for flexibility.

If privatisation leads to the individual private ownership of fixed capital assets such as the winter and spring shelters that are already individually used in

most areas, then this could be expected to lead to virtual private freehold tenure of winter and spring pastures. The problem with freehold tenure is that it 'freezes' access to land, making it very difficult to maintain the flexibility of access that is so important for the management of ecological risk. The danger is that control over key resources becomes concentrated in the hands of wealthier herders, at the expense of others who are denied access during times of need.

Much of the evidence from fieldwork in Arhangai and Dornogobi provinces on mobility and flexibility in land use points to the importance of local customary arrangements governing access to land, as shown by some of the cases mentioned above. These arrangements always supplemented the administrative system of allocation, both in pre-Revolutionary Mongolia and under the central command system more recently. They even seem to have ensured success in cases where the administrative system alone might have prevented flexibility of movement at the risk of higher livestock mortality.

With privatisation and the move away from state allocation of resources, new kinds of formal support need to be found for land rights. Available evidence suggests they will be more likely to achieve the objective of sustainable but productive land management if they build on customary land tenure arrangements that have evolved over many years to allocate pasture resources in a relatively sustainable manner. Table 4 summarises eight guidelines for the design of formal resource rights systems that aim to ensure economically productive, environmentally sustainable and socially equitable forms of land management (Young 1992). These guidelines give an indication of the range of issues that need to be covered in a formal land law with these objectives in mind.

TABLE 4 GUIDELINES FOR RESOURCE RIGHTS SYSTEMS

Table 5 summarises the main provisions of the Mongolian draft Land Resources Law, drawn up during 1991 in preparation for the process of economic transition (Government of MPR 1991b). A comparison of these provisions with the guidelines shown in Table 4 highlights several points of agreement and some areas where further constructive changes might be proposed for open pasture land.

TABLE 5 MONGOLIAN DRAFT LAND RESOURCES LAW 1991

The rights and responsibilities of land users are set out in the Land Resources Law, which meets the criterion of specification. However, it is not clear whether this refers to individual land users or to groups; empirical evidence suggests that many of these rights are best regulated at the level of groups of herders. Rights are also separable, at least in the sense that rules for the use of certain key resources are specified separately from those governing the land they may lie on. Transferability is allowed for, although it is not clear whether rights over separate sets of resources rather than rights over land parcels as a whole may be transferred. The Land Resources Law allows for land leasing which, together with land quality inspection and certain other provisions, has the potential to meet the criteria of both investment and environmental security.

The main points of discrepancy between the draft Land Resources Law and the guidelines in Table 4 are on financial security, equitability and environmental security. At present it is stated only that land users should compensate the state for the violation of land laws. However, financial security for land users would require the symmetrical provision that they also have the right to full compensation for investments made, in the event that their tenure rights be terminated at any point. The criterion of equitability - for example, to prevent the concentration of ownership in a way that leads to inefficient or

unsustainable resource use - could more successfully be met by leasing land to groups rather than to individuals. Finally, the environmental sustainability criterion suggests the need for some mechanism for ensuring the right to roll-over existing rights, provided the land users meet their obligations.

The issues and research findings discussed in this chapter have important implications for future land tenure policy in Mongolia. Several practical policy choices are outlined here, together with their likely implications.

1. Free access to land with administrative regulation

The option of continuing to allow free access to pasture land with administrative control 'policed' by existing district-level environment officers is closest to the existing system. Local environment officers were newly appointed to district administrations during their reorganisation in 1990-91.

However, disputes over access to key resources can be expected to become more common and more difficult to settle at a local level under a system with a much greater share of private livestock ownership than at present. An attempt to 'police' this by a purely administrative means of allocation and arbitration including, for example, powers to impose fines, could be expected to arouse resentment from herders. Experience in a wide range of countries has shown that administrative land resource policing of this kind tends to be socially repressive and even environmentally damaging. It encourages behaviour that maximises individual benefits (eg. over-grazing of key resources) while avoiding social responsibility (eg. neither respecting customary rights, nor paying fines).

2. Strengthen customary land tenure arrangements in statutory legislation

An alternative policy option is to formalise and strengthen existing customary land tenure arrangements by means of statutory legislation (cf. Lane & Swift 1989). The proven success of customary arrangements for allowing flexible access to grazing resources both on a regular basis and during times of hardship suggests that they should form the basis of a land tenure policy for Mongolia's extensive open pastures.

With an increase in private livestock ownership on public land however, this system will be stretched too far without being strengthened by a formal system of allocating land rights and providing ultimate recourse to arbitration through law courts where necessary. The guidelines shown in Table 4 indicate that a wide range of issues need to be formalised in this process, beginning with the detailed specification of rights and responsibilities on the part of all land users.

A number of practical questions then arise in working out such a policy. First is whether land rights are allocated to individuals or to groups of herders. For the land tenure system to retain a degree of flexibility in response to the risk of unpredictable environmental fluctuations, group rights in land are preferable.

Second, the size of the group to which land rights are allocated. An important principle is that the more risky is the area in ecological terms, the larger should be the group in which land rights are vested. For most areas of Mongolia, evidence points to the existing brigades as being the most appropriate size of group. In the riskier Gobi desert steppe and desert zones, brigade territories are anyway larger. In recent administrative changes, many brigades are being consolidated from former *khesag* which further supports the view that the brigade is the most appropriate size of group for practical land management purposes-

The third question is in what form to allocate land rights. The two most likely alternatives are either to charge a grazing fee alone, or to issue land leases which could include a charge for grazing rights.

3. Grazing fees

Grazing fees could be levied on all herders within the limited company that replaces a pastoral collective. This observes the economic logic of charging individuals for the use of common resources from which they benefit. It also has the advantage of providing the limited company with a source of revenue from which it can continue to fund capital investment in land (eg. fixed assets such as wells or stockyards and shelters). The major problem with a grazing fee system is that on its own it would provide no equitable means of allocating pasture resources at group (eg. brigade) level. It could be open to abuse by individuals who could afford to 'buy' the rights to the best land.

4. Land leasing

Leasing of grazing land to a group (eg. brigade) of herders is a policy option which can potentially combine the advantages of security of tenure with flexibility in land allocation and environmental sustainability. The resource-tax principle of a grazing fee could be incorporated by charging a lease fee based on the relative value of the land. This already finds a precedent in the lease agreements covering collective livestock that were introduced during 1990-91 as an interim step towards full privatisation (Mearns 1991b). The details of working out such a system of land leases include decisions on the length and type of lease, what the lease covers, and any other provisions deemed necessary.

The length of the lease, and whether it is of a fixed term or on a rolling basis, are conditions which determine the degree of security provided by the lease. Tenure security is desirable because it provides incentives for leaseholders to manage land conservatively. For example, a rolling 20-year lease with review at 5-year intervals would combine the objectives of security and sustainability, as shown in Figure 7. Provided the leaseholding group meets its obligations on maintaining land quality, subject to five-yearly review on the part of the state, it should have the guaranteed right of first refusal to have the lease rolled-over. If the group decides to give up its right to have the lease rolled-over, it should have the right to full financial compensation. This avoids the incentive with non-renewable, fixed-term leases for the resource user to over-exploit the resource for maximum individual gain before the term of the lease expires (Young 1992).

FIGURE 7 ROLLING LEASE RESOURCE RIGHTS SYSTEM

It needs to be decided whether the lease should cover grazing land alone, or also include the use of any fixed assets on the land such as shelters or wells. To be effective, leases would have to include such fixed assets, albeit separately specified. Other means to ensure flexibility could be built into the lease system. For example, arrangements providing for reciprocal access to key resources between neighbouring limited companies or between neighbouring brigades could be authorised within the terms of the lease. The state could draw up leases with individual limited companies for their entire existing grazing territory, and the limited company would in turn negotiate sub-leases with particular groups of herders at the brigade or similar level.

Conclusion

The Mongolian economy at the start of the 1990s has embarked on a structural transformation of unprecedented proportions. In the pastoral livestock sector, the twin imperatives of managing the economic transition and ensuring economically and environmentally sustainable production over the longer term are most clearly brought together in the area of land tenure. The strong possibility of economic chaos and the threat of severe pasture land degradation are most likely to be avoided by adapting proven existing or traditional management practices in ways that are consistent with the emergent market economy.

The evidence presented in this chapter suggests that, in practice, land tenure arrangements under the centrally planned economy in Mongolia until 1990-91 probably always represented a hybrid of customary and command mechanisms. Customary land tenure arrangements and their institutional correlates have a proven track record for ensuring the mobility and flexibility that is so vital to sustainable dryland management in the pastoral livestock sector. Such mechanisms are no less relevant or important today than they have been in recent history.

The successful liberalisation of Mongolia's pastoral economy will require a lot more than appropriate land tenure policies alone. For example, correctly targeted agricultural output and input price reforms designed to provide the right mix of incentives to producers, and active state involvement in catalysing private fodder-producing enterprises, insurance and other risk-management institutions, are all essential to the successful management of the transition. However, owing to its potential role for ensuring sustainable and productive natural resource management, appropriate land tenure policy - including formal support to proven customary arrangements - may hold the key to the environmental dimensions of the transition.

Notes

¹ This chapter draws on field research carried out during 1991 and funded by the UK Overseas Development Administration, the Ministry of Agriculture, Fisheries and Food (UK), and the Esmée Fairbairn Charitable Trust. The views expressed are those of the author and do not necessarily carry the endorsement of the funding institutions. An earlier version of this paper was presented at the IBG Annual Conference in Swansea, January 1992, in the Developing Areas Study Group session on 'Development in Marginal Environments'.

² Calculated from World Bank (1991), Table 7.1, based on data from State Statistical Office, Mongolia. Less than 1 per cent of the total land area is arable. For an overview of the historical evolution of the Mongolian herding economy and its collective organisation under central planning see Mearns (1991a).

³ World Bank staff estimates for 1990 based on data from State Statistical Office, Mongolia. Source: World Bank (1991), Tables 1.1 and 2.2.

⁴ Calculated from World Bank (1991), Table 3.6a, based on data from State Statistical Office, Mongolia.

⁵ The views expressed here should not be read as an argument against privatisation, or for slower privatisation. Indeed, in some respects the transition to a market economy is not going ahead quickly enough. The contention is rather that government has a vital role to play in facilitating the emergence of appropriate market institutions both during and beyond the period of transition. For example, the liberalisation of meat output prices without the active promotion of private enterprises producing essential inputs such as fodder is likely to lead to severe bottlenecks in livestock production. Although the market may well respond to meet the demand for agricultural

inputs, as well as to provide private-sector herd insurance against risk, this is likely to take some time without active encouragement on the part of the state (Mearns S Swift 1991).

⁶ Calculated from World Bank (1991), Table 5.4, based on data from Ministry of Finance, Mongolia, and The World Bank.

⁷ A number of thorough empirical studies now exist for sub-Saharan Africa that document the importance of pastoral mobility and flexibility, and customary institutional arrangements around land and natural resource tenure. See for example, Dyson-Hudson and McCabe (1985); Moorehead (1991).

⁸ The district (sum) is the administrative level at which the former pastoral collectives (*negdel*) - now limited companies - were organised.

⁹ Space prevents a fuller discussion here of the issue of local technical knowledge. Some relevant empirical data are included in Mearns (1991b).

¹⁰ This diagram was drawn during a semi-structured interview with Mandlhai of Sharbolgin *tasag*, July 1991 (Mearns 1991b).

¹¹ From 1992, following the disbandment of the state procurement system and the privatisation of the collectives in the form of limited companies, it is unclear whether collectively organised tasks such as milk marketing will continue along similar lines and whether, therefore, seasonal movements will continue to follow the same observed pattern.

12

Owing to a lack of data, the simulation could be corroborated against observed plant biomass production only for the two years 1982-83, but gave a reasonable approximation of observed data for those years (Togtohyn 1992, Figure 4).

¹⁴ Interviews with two herders of Tsagan Hutul brigade, Band and Tovdendorj, August 1991.

Interview with Bavoo of Tsagan Hutul brigade, who used to specialise in breeding camels for the collective, August 1991.

Interview with Hunkhur, Secretary of Dornogobi Provincial Administration, and Batbilig, Chief Economist, Dornogobi Province, Sainshand, August 1991.

¹⁶ Sean Hinton, University of Cambridge, personal communication, September 1991.

¹⁷ The distinction between contemporary/formal and customary/informal institutions is a rough approximation rather than a rigid categorisation. For example, some of the contemporary/formal institutions have customary antecedents, and some of the historical institutions are formal administrative units rather than customary structures. Reference is made only in a comparative sense to the formal institutions of the socialist state - the nomadic encampment (*suur*), brigade, collective (*negdel*) and province (*aimag*) - up to 1991; the nature and functions of the latter are discussed elsewhere (Mearns 1991a).

18

An attempt was made in the 1940s to turn the *khot ail* into a formal administrative unit. Like forced collectivisation in the 1930s, this failed, partly because internal leaders were appointed alongside the traditional leader (*akh*) and charged with socially divisive responsibilities including tax collection and disseminating political propaganda (Szykiewicz 1982).

19

²⁰ Group interview with Purevjav (aged 53), Avirmed (78) and Alga (40), July 1991. Purevjav is acknowledged to be the *akh* (leader).

²⁰ Interview with Nyadag, a 61-year old woman of Duruwilj, August 1991. The fodder meadow was identified by walking a landscape transect.

21

Indeed, the word *kuriyen* is closely related to the modern Mongolian words *khuree* (meaning 'circle') and *khoro* ('town district' or 'committee') (Szykiewicz 1982).

22

This section draws substantially on material contained in an earlier project working paper (Mearns & Swift 1991). The research findings and policy implications were presented to a workshop for senior agricultural policy-makers in Mongolia in September 1991, and drew a large measure of support.

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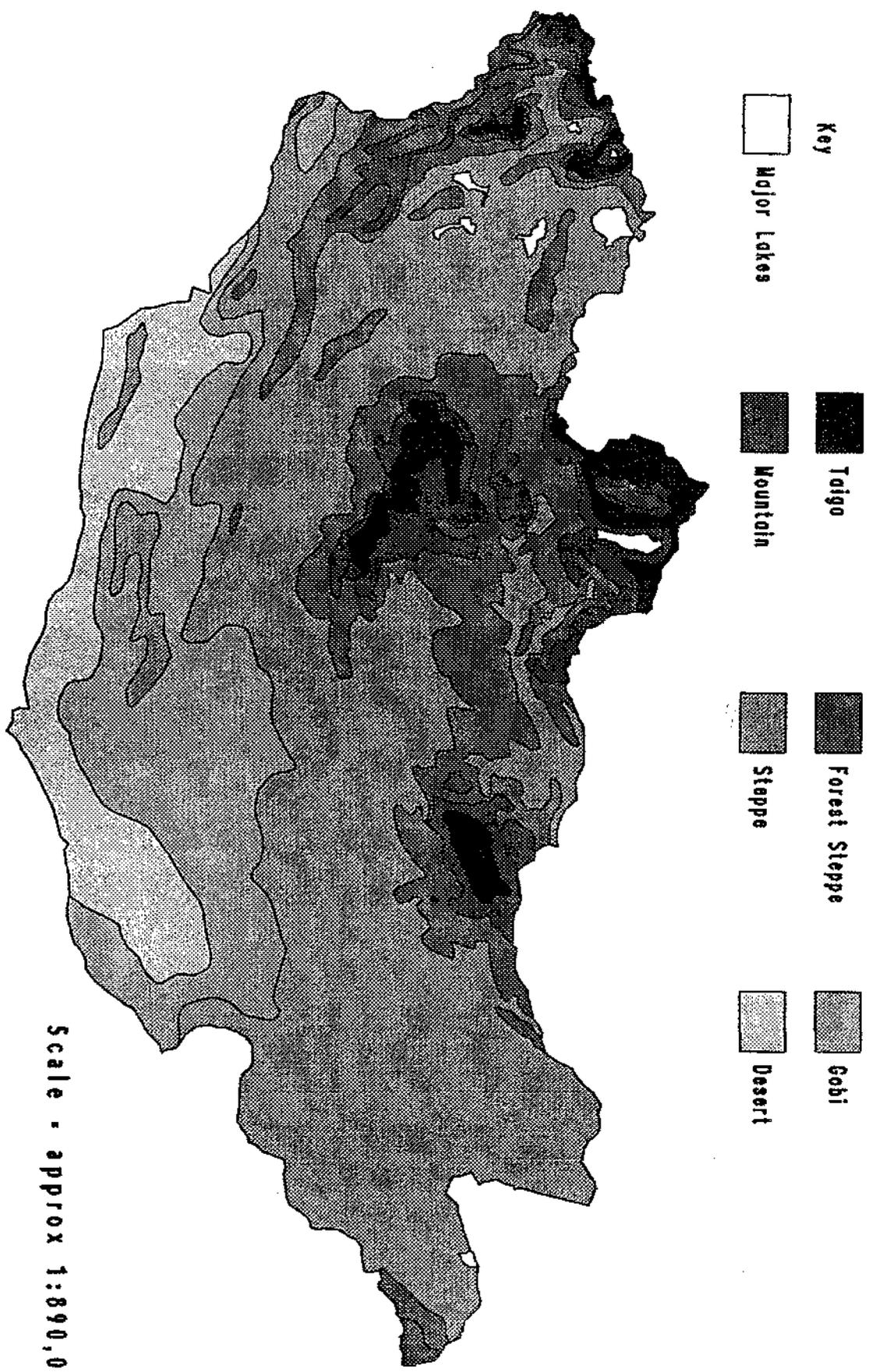
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Figure 1 : Agroecological Zones of Mongolia



Scale - approx 1:890,000

TABLE 2

ARHANGAI AIMAG: PASTURE AVAILABILITY FODDER PRODUCTION BY NEGDEL (1990)
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	Name of sum	Total animals (sheep equiv. units)	Total fodder production (tonnes)	Total fodder per livestock unit (kg)	Area of open pasture ('000 ha)	Pasture area per livestock unit (ha)	Hay purchases from other sumun (tonnes)
Class 1:	Ih Tamir	122245	1223	10.0	335074	2.7	
	Chuluut	105430	480	4.6	291011	2.8	4
	Hangai	178141	1333	7.5	566394	3.2	7
	Tsincher	93804	1372	14.6	226690	2.4	40
	Bulgan	79434	1129	14.2	220428	2.8	47
	Ondor Ulaan	138277	2241	16.2	280152	2.0	47
	Hairkhan	76405	4407	57.7	198032	2.6	
Class 2:	Tariat	163248	2754	16.9	302251	1.9	784
	Erdene Mandal	143411	3031	21.1	277827	1.9	4
	Jargalant	101381	677	6.7	160464	1.6	5
	Tsetserleg	138754	2264	16.3	214854	1.5	
	Hotont	146183	4129	28.2	193342	1.3	
Class 3:	Batsingel	193069	2650	13.7	229568	1.2	
	Ulzeet	119824	2660	22.2	142090	1.2	
	Ugee Nuur	154251	2912	18.9	111361	0.7	
	Hashart	212610	2999	14.1	248889	1.2	294
	Negdel averages	135404	2266	17.7	249902	1.9	

Source: Arhangai Aimag Statistical Office

Note: 'Classes' refer to pasture availability:

Class 1: >2 ha/lu (South, South-West & Centre of aimag)

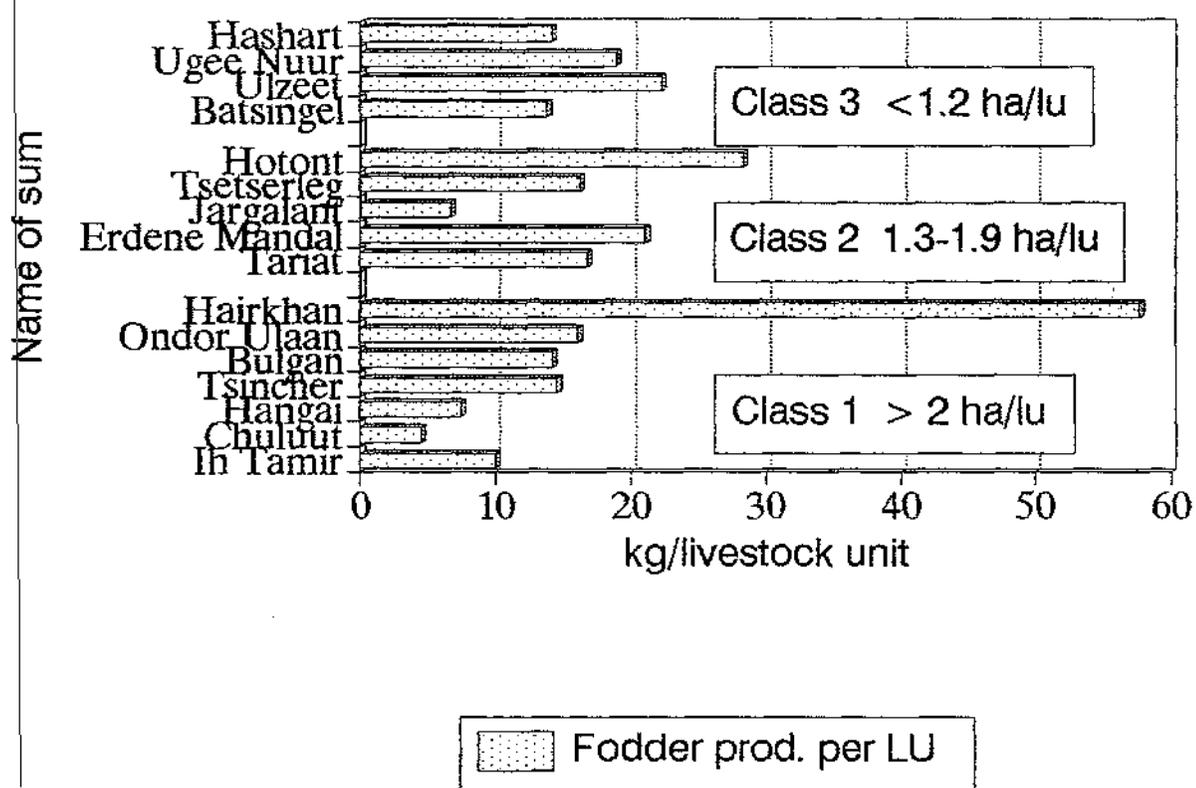
Class 2: 1.3-1.9 ha/lu (North & North-West of aimag)

Class 3: <1.2 ha/lu (East of aimag)

FIGURE 2

Arhangai aimag

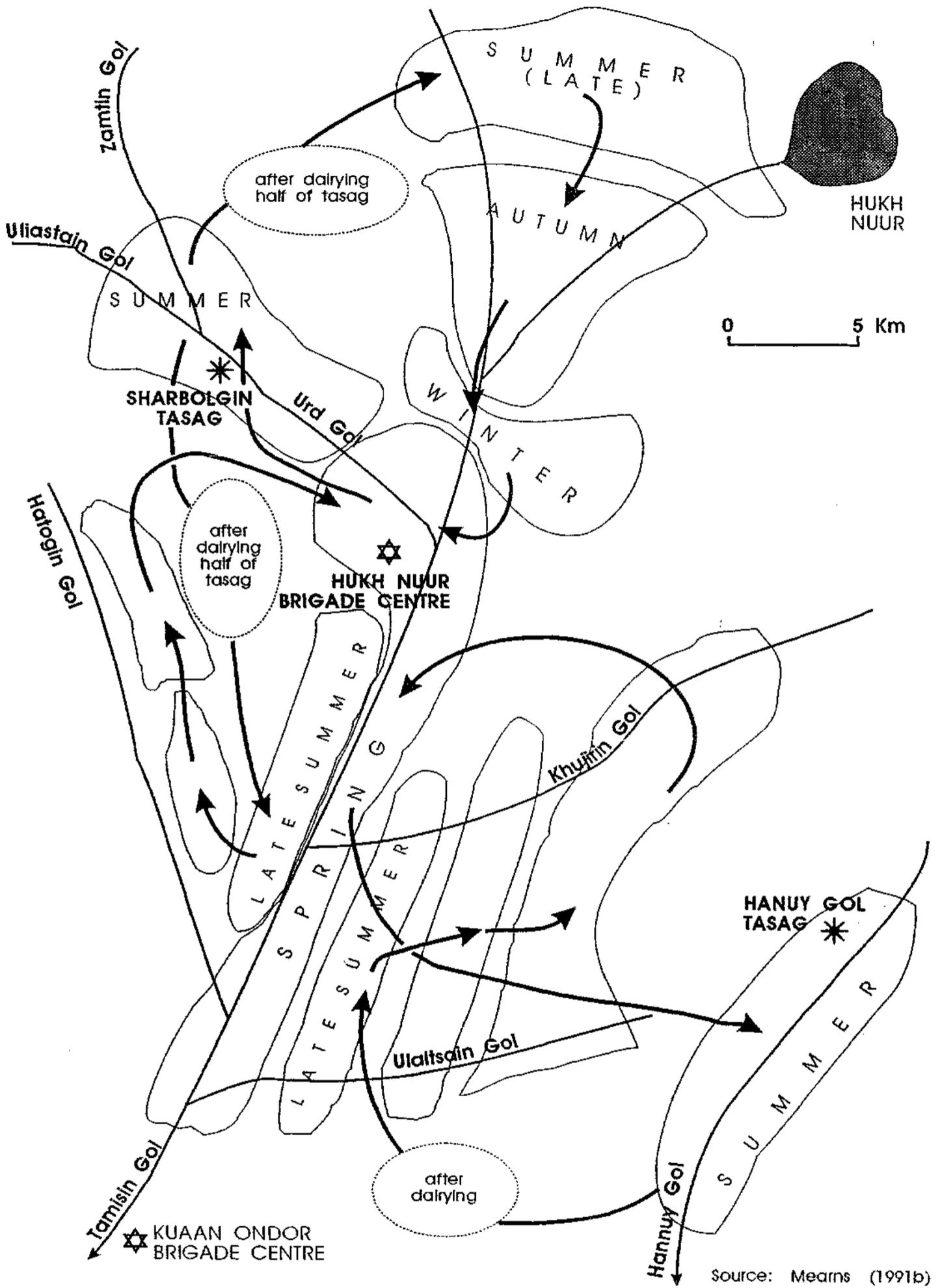
Fodder prod. & pasture area by sum



Source: Mearns (1991b), based on data from
Arhangai Aimag Statistical Office

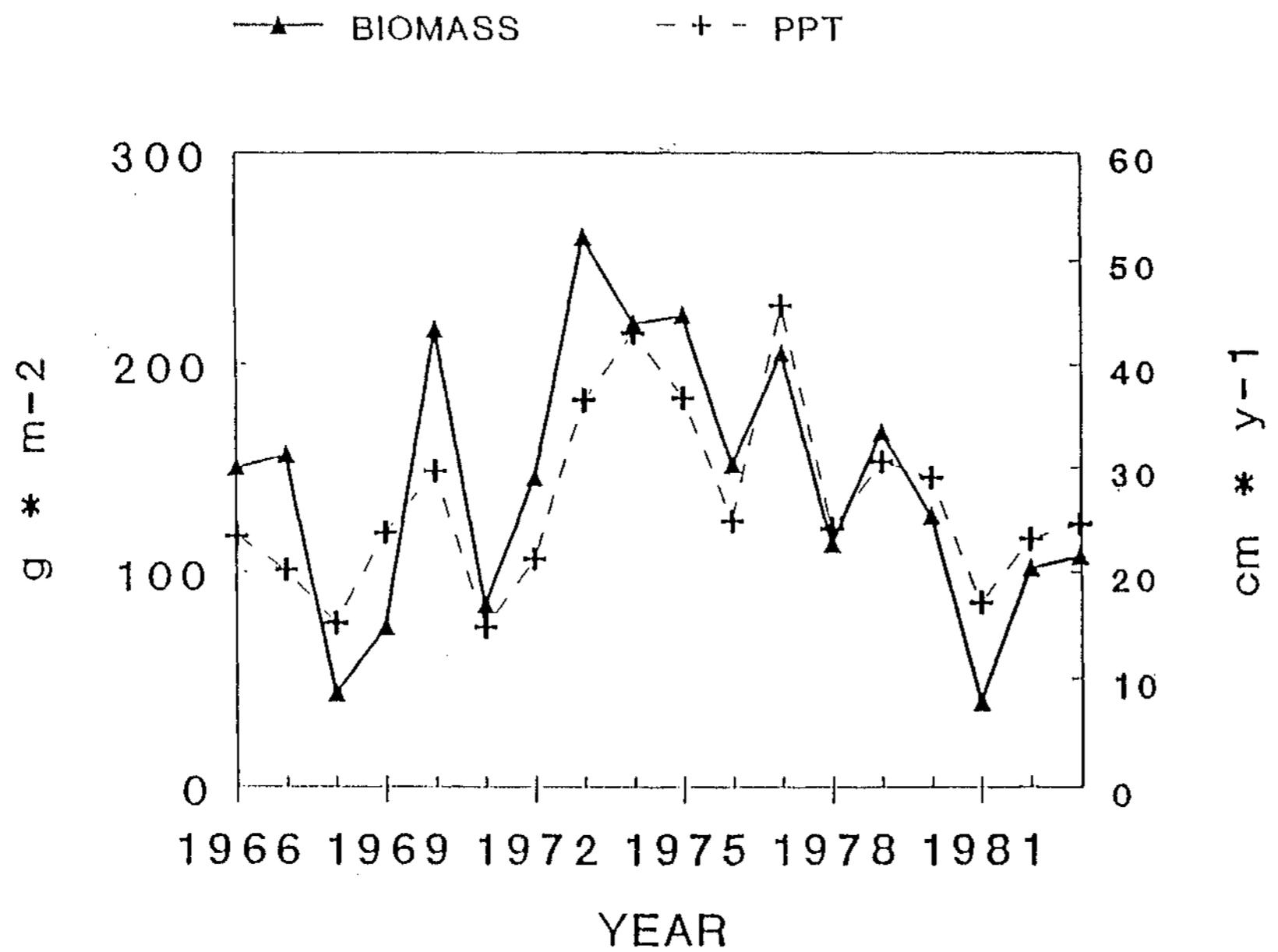
FIGURE 3

ANNUAL GRAZING CYCLE: HUKH NUUR BRIGADE, ARHANGAI PROVINCE



Source: Mearns (1991b)

Figure 4 SIMULATED PLANT PRODUCTION
TUMENTSOGT



Source: Togtuhyn (1992)

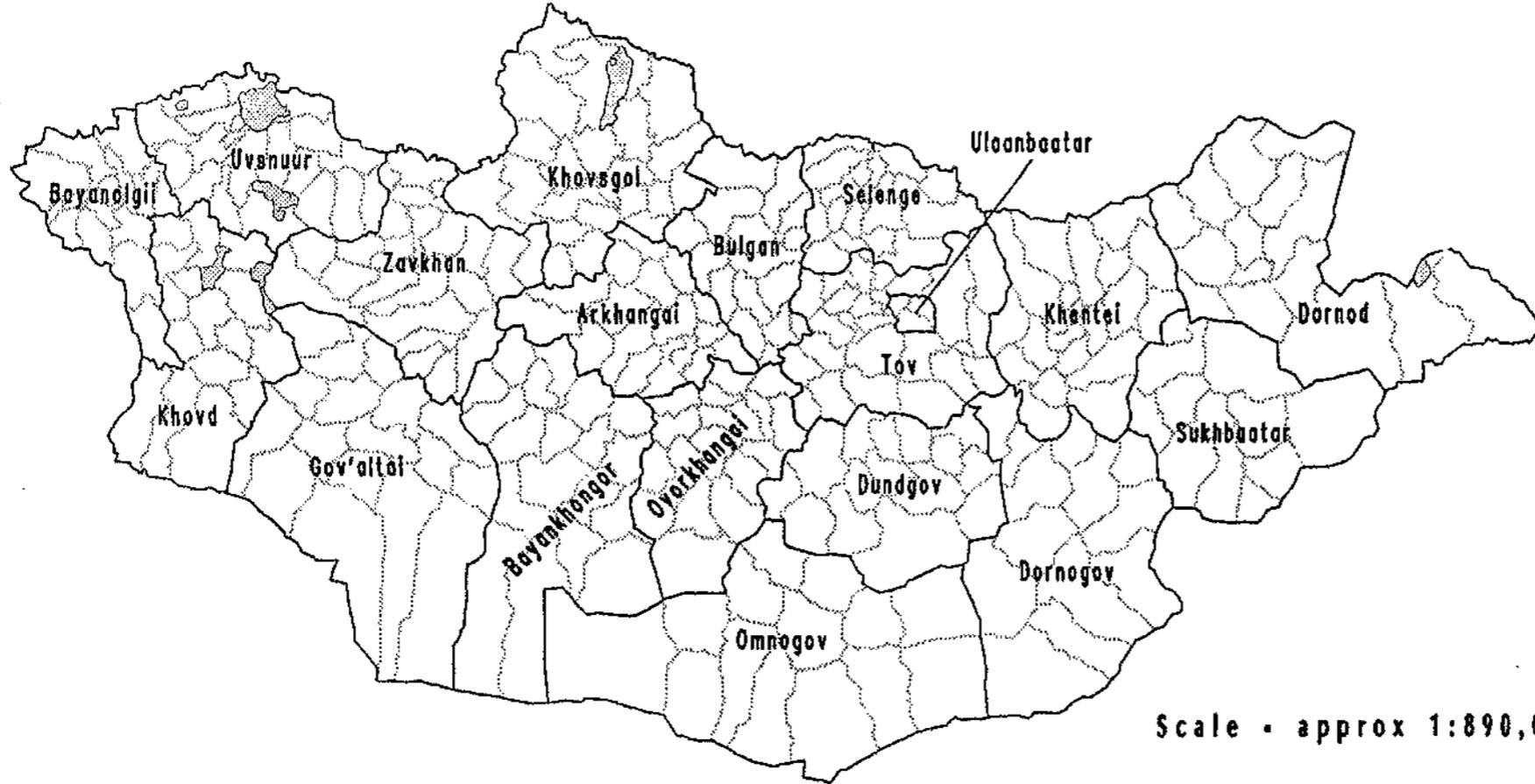
Figure 6 : Contemporary Administrative Regions of Mongolia

Key

— Province (Amag) Boundaries

..... District (Sum) Boundaries

Major Lakes



Scale • approx 1:890,000

TABLE 3
MONGOLIAN PASTORAL INSTITUTIONS

ATTRIBUTES	INSTITUTIONS				
Contemporary, formal	<i>suur</i>	<i>khesag</i>	brigade	<i>negdel</i>	<i>aimag</i>
Historical customary, informal	<i>khot ail</i>	<i>bag</i>		<i>küriyen</i>	<i>khoshuun</i>
Scale	nomadic		'valley'	district	province
Size (no. of households)	encampment			(collective)	→
	1-4	2-20	50-100	500-1500	>10,000
Degree of external agency in determining territorial boundaries					→
	very little				complete
Degree of closure, dominant direction of social ties	open		virtually closed		
	outward		inward		
Principal orientation of collective activities	economic		social, economic		political, representative, symbolic

TABLE 4

GUIDELINES FOR RESOURCE RIGHTS SYSTEMS

1. Full specification

All rights for use and obligations for compliance must be fully specified

2. Separability

Rights must be specified separately and not necessarily granted for all purposes within an area

3. Transferability

Each of the separate rights must be individually transferable to another person

4. Investment security

Political and legal arrangements must encourage resource users to make long-term, durable investments

** exclusivity*

Within the constraints set by obligations, rights must give one person or group exclusive rights to control the intensity of resource use and gain from that use

** political instability*

The political system responsible for enforcing resource rights must guarantee them whatever party is in power

** financial or collateral security*

Whenever rights are not re-issued, full compensation must be payable for all existing investments, including all actions designed to enhance productivity

5. Sustainability guarantee

All resource users who comply with existing obligations must have a guaranteed right of first refusal on any offer that may be made to existing and aspiring resource users

6. Environmental security

With specified rights for use granted by lease, a fixed review period should be built in. The term of the lease should be 3-4 times the length of the review period. Right to roll over or have the lease re-issued should accrue to existing resource users who comply with obligations. These criteria prevent incentive to 'use up' resources near lease-expiry date

7. Low transaction and administrative costs

Transfer and associated administrative and legal costs should be kept to a minimum

8. Equitable distribution

The only restrictions on transfer should be those necessary to ensure that resource rights do not move into agglomerations that promote inequitable or inefficient forms of resource use

Source: M D Young (1991, forthcoming), *Sustainable Investment and Resource Use*, Parthenon Press for UNESCO & CSIRO

TABLE 5 MONGOLIAN DRAFT LAND RESOURCES LAW, 1991
SUMMARY OF MAIN PROVISIONS

Aim: to provide policies for the regulation of land use and for the transfer of land to private ownership.

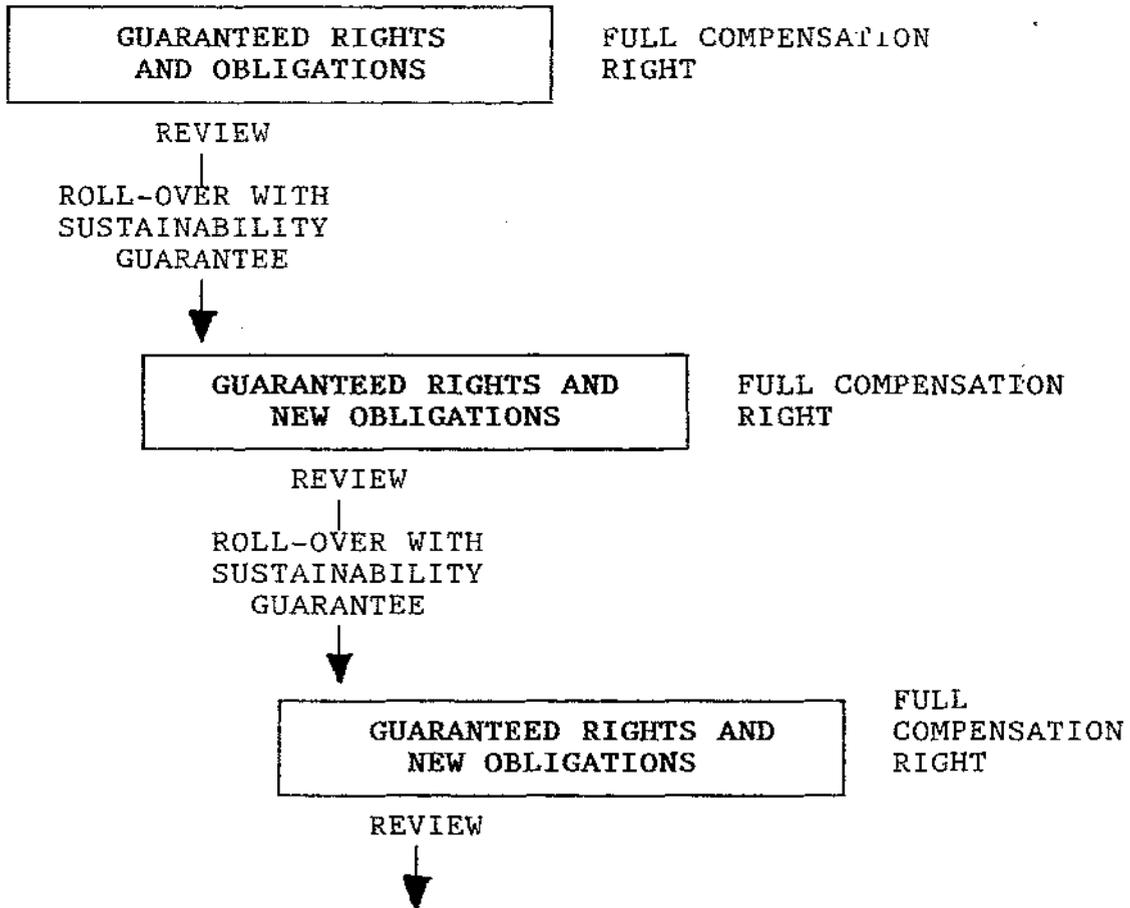
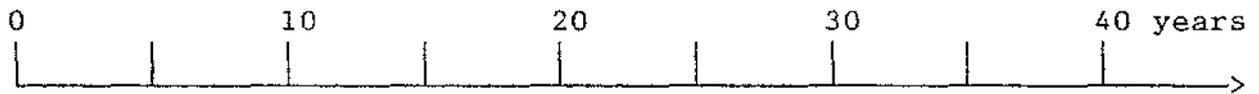
- * provides for *land leasing* by the state for periods of 15-60 years
- * allows for *transfer to* others unless land is damaged or used in a manner not allowed under terms of lease
- * sets out *rights* of land owners
 - to build on land
 - to grow trees and fruit
 - to mow hay
 - to graze animals
 - to transfer to descendants
- * sets out *rules for use* of certain state-owned natural resources on private/leased land eg.nuts, fruit, saxaul, surface mineral deposits
- * sets out *responsibilities* of land owners
 - to meet certain requirements regarding preventive measures against land degradation
 - to improve land productivity
 - to pay for use of state-owned resources on their land
 - to protect wildlife and natural habitats
- * establishes responsibilities of different tiers of government
- * establishes the right of the *state to inspect land quality* at 3-7 year intervals
- * provides *penalties* for violation of land laws and requires *compensation* to be paid
- * provides for certain state land *reserves* (for transport, state farms and related agriculture, some forest lands, tourist areas and parks, and for national defence)

Source: Government of Mongolia, Draft Land Resources Law, 1991

FIGURE 7

ROLLING LEASE RESOURCE RIGHTS SYSTEM

combining financial security, sustainability guarantee, and environmental security



Source: Young (1992)