

**POLICY ALTERNATIVES FOR
LIVESTOCK DEVELOPMENT
IN MONGOLIA (PALD)**

A Research and Training Project



August 1991

Working Paper No.2

**Transformation of a Pastoral
Economy: a local view from
Arhangai and Dornogobi
Provinces**

Report of a field-based training course and
survey using rapid rural appraisal techniques

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LIST OF ABBREVIATIONS

BAFI	(aimag) Board of Agriculture and Food Industry
cm	centimetres
CMEA	Council for Mutual Economic Assistance
IAE	Institute of Agricultural Economics (Mongolia)
IDS	Institute of Development Studies (UK)
FAO	United Nations Food and Agriculture Organisation
ha	hectares
kg	kilogrammes
km	kilometres
lu	livestock unit (sheep equivalent)
mn	million
MoA	Ministry of Agriculture, MPR
MPR	Mongolian People's Republic
RIAH	Research Institute of Animal Husbandry (Mongolia)
UK	United Kingdom
USSR	Soviet Union

EXCHANGE RATE

Prior to June 1991 US\$ 1.00 = tugrig 7.10
 After June 1991 US\$ 1.00 = tugrig 40.00

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GLOSSARY OF MONGOLIAN TERMS

<i>aimag</i>	province
<i>airag</i>	fermented mare's milk
<i>deel</i>	national costume
<i>ger</i>	felt tent, household
<i>gol</i>	river
<i>khainag</i>	yak-cow crossbreed
<i>khesag</i>	team
<i>khojar</i>	salt (soda) lick
<i>khoshun</i>	pre-Revolution feudal fief
<i>naadam</i>	national holiday and festival of three games (11-14 July)
<i>negdel</i>	agricultural cooperative
<i>nuur</i>	lake
<i>otor</i>	rapid moving of animals between pasture areas to put on weight in summer
<i>sum, sumun</i>	administrative district
<i>suur, suuri</i>	herders' base camp(s)
<i>tal</i>	steppe, wide valley
<i>tasag</i>	seasonal team for dairying (in summer)
<i>tsagan sar</i>	literally, 'white month': the Mongolian New Year (date varies from mid-Jan to mid-Feb)
<i>uul</i>	mountain
<i>xot ail</i>	traditional unit of social and economic organisation at local level
<i>zoder</i>	fist-sized, handmade ball of fodder

Plant species names

<i>borshawug</i>	a small Gobi shrub
<i>ders</i>	<u><i>Achnatherum splendens</i></u>
<i>humul</i>	<u><i>Allium mongolium</i></u> (a wild onion species)
<i>moring sharilj</i>	long Gobi grass species
<i>mukhoo owus</i>	vegetation community of short grasses
<i>sulhir</i>	medicinal plant, used against liver infection
<i>taan</i>	<u><i>Allium polyrhizum</i></u> (a wild onion species)
<i>zogs</i>	<u><i>Phragmites communis</i></u> (a reed grass)

INTRODUCTION

Mongolia is embarking on the liberalisation of agriculture as part of its overall programme of economic transformation. The major part of the agricultural sector is extensive livestock husbandry or semi-nomadic pastoralism, organised principally through the agricultural cooperatives or *negdels*.

The purpose of this joint Mongolia-UK policy research and training project is: (i) to build social science research capability in Mongolian research institutions; (ii) to provide a description and analysis of the Mongolian pastoral livelihood system, focusing especially on production and distribution issues at household and local level; and (iii) to generate information and skills to facilitate policy choices to be made in the next five years, and monitor changes already underway. The three year project focuses mainly on the *negdels*, since they make up the largest part of the rural economy, although reference will also be made to other agricultural enterprises and economic sectors.

The main research themes included in this project are: (i) household production and marketing strategies, and vulnerability; (ii) seasonality, animal nutrition and grazing management; (iii) land and natural resource tenure; and (iv) risk and risk management. Secondary research themes include: (v) raising productivity; (vi) livestock and livestock product marketing; and (vii) managing the economic transition. Important guiding principles behind this project are to consider the environmental sustainability of economic reforms; and their differential impacts between ecological zones, between richer and poorer households, and between different household members.

The project is being carried out by a joint UK-Mongolian research team drawn from the three cooperating institutions: the Mongolian Research Institute of Animal Husbandry (RIAH), the Mongolian Institute of Agricultural Economics (IAE), and the Institute of Development Studies (IDS) at the University of Sussex, UK.

This working paper documents the findings of the initial phase of fieldwork during July-August 1991. This phase included the training of Mongolian team members in fieldwork methodology, especially the techniques of participatory or rapid rural appraisal. The fieldwork was carried out in Arhangai province or *aimag*, representing the forest/mountain steppe ecological zone; and Dornogobi aimag in the Gobi zone. The research consisted primarily of case studies of two brigades, one in each aimag, with extensive semi-structured interviewing conducted at household level, and supplementary interviews at aimag and *negdel* levels. Of the research themes listed above, attention during this phase focused on the first four.

Institutional linkages

The present project has been designed and is being carried out so as to complement the policy-related work of other projects currently underway in Mongolia's agricultural sector:

- (1) The FAO-funded Agricultural Management Project, based in the Ministry of Agriculture, arose from a perceived need to strengthen the management of agricultural enterprises. Its activities include the development of computer-based information systems; the training of trainers in farm management; and the improvement of farming techniques and management on model farms. The project covers the whole agricultural sector, but by its nature concentrates on Mongolia's state farms.

(2) During early 1991 RIAH completed the first phase of a socioeconomic study of income and employment in the Mongolian herding economy, designed in conjunction with the present project. This survey is being conducted with households in four sample districts or *sumun* in each of three ecological zones: steppe (Tov, Bulgan and Arhangai aimags), forest/mountain steppe (Arhangai, Ovorhangai and Bulgan aimags), and Gobi (Dornogobi aimag). Data are being collected in each season on household income and expenditure, herd composition, labour distribution, and use of local services, with supervised questionnaires administered using recall methods and participant observation.

(3) Since its inception in February 1991 IAE has begun research on three themes with policy implications: agricultural marketing; land evaluation; and household production. In connection with the last of these, IAE is conducting a field-based survey at household level of inputs and outputs associated with animal husbandry. This covers 10 sample households in each of five zones: Dornogobi, Zavhan, Hentii, Sukhbaatar and Hovd.

The research sites under the present project are selected in order to complement both the RIAH and IAE sample surveys. In addition to research coordinated with all three of these projects, regular workshops for senior Mongolian decision makers in the agricultural sector will be held in cooperation with the FAO Agricultural Management Project. The purpose of these workshops is to provide policymakers with first-hand information from field research, and to consider the likely implications of alternative policy choices.

Conduct and objectives of research

Phase 1 of this project involved initial training of the Mongolian research team members in fieldwork methodology. This concentrated on the use of participatory or rapid rural appraisal techniques, by means of in-field training to facilitate 'learning by doing', following an introductory workshop. A list of the research team members is given in Appendix 1, and the timetable of research and training activities in Appendix 2. Appendix 5 summarises the rapid rural appraisal approach. The background document compiled for the introductory workshop in field research methods is available separately, in both English and Mongolian (Working Paper No.1).

At the first training workshop, in research objectives, it was decided to focus attention during the initial fieldwork on the two broad themes: (i) household production and marketing strategies, risk management and vulnerability; and (ii) seasonality, grazing management and natural resource tenure. The following checklist of issues was identified to guide semi-structured interviewing in the field:

(i) Household production and marketing strategies, risk and vulnerability

- seasonal labour profiles (men, women, children)
- fungibility of women's' labour between productive/domestic activities
- income / expenditure patterns
- simple demographic indicators
- income in-kind (production for own consumption, barter transactions, gifts)
- vulnerability related to differential asset position of households
- asset management: marriage and inheritance, herd ownership
- food security
- access to services (and potential changes with higher cost recovery)
- herd species composition
- herd management strategies

(ii) *Seasonality, grazing management, natural resource tenure*

- pasture use and management
- identification of key grazing resources
- patterns of production seasonally
- patterns of migration seasonally
- animal condition
- fodder availability, supply sources and costs
- criteria/ rules of access to key resources
- disputes over access to grazing or other key resources
- conflict resolution
- historical patterns and changes

The programme of research and methods used in each of the two zones followed a broadly similar pattern. First, interviews were held with officials at aimag level (in Tsetserleg, Arhangai; and Sainshand, Dornogobi), from both the aimag administration and aimag supreme council of negdels. This was to introduce the research team and outline the purpose of the project, and to acquire aimag level statistics, local maps and other secondary information. Similar interviews were carried out with sum and negdel level officials in the sumun centres (Zaanhoshoo, Ih Tamir sum, Arhangai; and Ulaan Uul, Erdene sum, Dornogobi).

Field research was concentrated in a single brigade within each negdel: Hukh Nuur brigade in Arhangai, one of five brigades in the negdel of Ih Tamir sum, consisting of 88 households; and Tsagan Hutul brigade in Dornogobi, one of two brigades in the negdel of Erdene sum, consisting of 75-100 households. The research team camped near or stayed overnight with herding families in their *ger*, which permitted interviews to be carried out well into the evening, at times when herders are less busy. The team divided into pairs or groups of three to conduct semi-structured interviews or participatory diagramming sessions with individual herding men and women or small groups of herders.

The first methods to be used in each brigade were generally wealth ranking, and participatory mapping and transects. The wealth rankings - designed to understand wealth by local reckoning, and to produce a simple classification of households in each brigade into wealth classes - then assisted in 'stratifying' the brigade for later semi-structured interviewing on a range of issues, for which it is important to understand household background. Such purposive sampling, a key element of rapid rural appraisal methodology, enabled the team to explore the diverse range of circumstances that prevail among herding households, and to begin to understand the different needs and priorities of poorer and better-off households.

Participatory mapping and transects were used by the team to gain a general introduction to each brigade, and to begin to identify grazing and other key resources, patterns of seasonal migration etc. The large distances involved in covering transects through brigade territory required some members of the research team to travel on horseback, which made for extra conviviality in interviewing the herders they met along the way. Covering transects was one of the ways in which the team made conscious efforts to avoid talking with only the more visible and accessible households, as it forces one to leave established roads and tracks.

Interspersed with in-field workshops for discussion of emerging key issues among the research team, the checklist of issues was covered as far as possible within time and logistical constraints, using the following methods: semi-structured interviewing; diagramming of labour distribution, production and other seasonal variations;

preference ranking exercises (eg. of fodder species, of animals); historical analysis, especially of local ecological change; and basic income and expenditure surveying, including income in-kind estimates, using recall methods with households selected from each of the wealth classes identified in the wealth rankings. A detailed list of semi-structured interviews and diagramming sessions with herders and local officials is given in Appendix 3.

BACKGROUND TO THE PASTORAL ECONOMY

The rural economy is dominated by production from the five major species: horses, cattle (including yak), camels, sheep and goats. Total animal population is currently (as of year end 1990) at a near-record level of 26 million, but has been stagnant at around 23-25 million for a number of years. The economy is characterised by a complex mix of private and collective production and marketing activities. Other than state farms, the negdels are the main organisational framework through which rural production and marketing takes place. The agricultural sector accounts for about a third of Mongolia's total workforce; of this proportion, some three-quarters are livestock herders.

All of the rural population have been members of negdels (or state farm employees) since the late-1950s. The territory of the negdel (or state farm) is normally the same as that of the *sum* (district), the administrative unit of the state below the level of the aimag. Total population in each sum includes negdel members (or state farm employees) and their families, plus employees of the sum, including administrators, teachers, health workers, etc. and their families, normally living in rural towns (sum centres).

The negdel has mainly economic functions (produce marketing, input supply and supply of consumer goods), while the sum is responsible for services, including schools, and medical and veterinary care. The negdel also provides services to its members, including transport for nomadic moves (by tractor or lorry), additional labour during peak periods, and animal fodder and mineral supplements.

Negdels are sub-divided into brigades (or in some cases, teams, *khesag*); seasonal dairying *tasag* may be formed during the summer. Brigades are made up of *suuri* (base camps), the basic livestock production unit, consisting in general of one to four households which cooperate in daily activities. Animals belonging to the negdel are allocated to the brigades and *suuri*, and production targets (number of young animals, quantity of dairy products, hair and wool, and meat) are set, according to the annual state procurement order. These targets have tended to be at or near the maximum production potential of each *suur*, leaving little room for surplus production.

Suur size depends largely on natural resources available locally and labour within the household. In the Gobi it is extremely rare to find a *suur* larger than a single family, and in those cases usually includes elderly or retired relatives unable to live independently, or a female-headed household also related by blood or marriage. In the forest/mountain steppe zone, *suuri* of 3-4 households are not uncommon, and may not be kin relations.

The traditional precursor of the *suur* was the *xot ail*, generally a larger grouping of 5-15 families, keeping herds of diverse species and ages. The larger *xot ail* would tend to be composed of poorer families. As with *suuri* today, the household composition of the *xot ail* varied from season to season. In a particularly harsh winter, for example, a household might negotiate to join a *xot ail*, when it would benefit from additional labour in relation to herd size. Generally speaking, *ails* would split up into

small groups, often individual families, during the winter months. Membership of the *xot ail* would be restricted, according to criteria including the numbers of animals a family brought with it, available labour, and the boundaries of pasture lands. In pre-revolutionary Mongolia, movement was restricted within individual *khoshun* (fiefs - the antecedent of the *sum*) making up the four main aimags, of which there were about a hundred.

Until very recently, *negdel* members were paid a monthly wage for their labour, with bonuses or deductions according to whether targets were exceeded, met or underfulfilled. There was some specialisation of tasks in that the *suur* was generally allocated only one species of animal - and perhaps even a single age class - by the *negdel*; earlier attempts at a much greater degree of labour specialisation have now been abandoned.

In addition to the animals they are allocated by the *negdel*, households also own private animals, usually including the full range of animals. Households look after their own animals at the same time as the *negdel* animals in their charge, and can dispose of the products as they want. They can consume them, or sell them to the *negdel*, to state enterprises, or to other individuals (for example, in *sum* centres).

Disputes over land tenure are apparently relatively rare in Mongolia. Until recently they were settled in the first instance by the *khesag* chief, who would also decide questions of local land allocation. In the case of more serious disputes, especially in drier years in the Gobi zone, the dispute had to be taken to be settled at *negdel* level. The *negdel* zootechnician would advise on the technical aspects of a dispute, as an 'expert witness', while the final decision would rest with the *negdel* committee, headed by the *negdel/ sum* chairman (a state appointee). The other members of the committee would be *xot ail* or *suur* leaders, experienced herders chosen by the *negdel/ sum* chairman, usually according to their performance in socialist competition.

Overall, the zootechnician was responsible for allocating grazing land, reviewed from one season to the next according, for example, to the distribution of winter or spring shelters, or of wells and other water points; and according to the number and species of *negdel* animals in the care of each *suur*. Individual herders can request particular grazing areas, and prior to any move will make reconnaissance visits to establish pasture quality. Ultimately however, the decision rested with the *negdel* chairman.

Recent policy reforms

Important changes in the organisation of rural production and marketing have already taken place over the last few years:

(i) Until 1989 a head limit applied to private herds, of 50 animals per household in most of the country, and 75 per household in the Gobi. In early 1990 these limits were increased to 75 and 100 animals respectively, but have since been abolished altogether.

(ii) In the major reforms of 1990 the structures and functions of the *negdels* and the state administration were formally separated at all levels from the *sum* to national level. Overall responsibility for the *negdels* has been transferred away from the national Ministry of Agriculture to the Supreme Council of *Negdels*. At local level too, while the Chairman of the *sum* was also Chairman of the *negdel*, since 1990 these offices are now held by different people. Each *sum* now has an environment officer whose responsibilities include the settlement of land disputes. Recent

administrative staff cuts have cost many local level (eg. brigade) zootechnicians their jobs.

(iii) Different systems of leasing livestock from the negdel to individual suuri were introduced on a small scale from 1988. A rapid growth in take up of lease agreements took place during early 1991, so that now almost all herders (certainly in Arhangai and Dornogobi aimags) now manage negdel herds according to such leasehold arrangements. The usual length of lease agreement is 5 years; some are of 2 years. Other herders prefer or are encouraged by the negdel to enter into a 'simple agreement', negotiated for a single year. The terms of the lease still stipulate annual production targets, but terms of payment have been altered to reward herders according to the degree of risk taken.

Instead of being paid a monthly salary, herders holding lease agreements are entitled directly to all of the income from livestock and livestock products (sold to the negdel or, once targets are met, privately), as well as to all animals over and above the 2 per cent annual increment in numbers that is due to the negdel (1 per cent in the case of camels). Leased animals are subject to a unit lease charge, and total lease income is subject to the usual negdel and state taxes. Herders can, if they wish, take a monthly advance on their annual expected income, usually amounting to not more than 70 per cent of total lease income.

(iv) As of January 1991, a number of important price changes affected the economy. The state procurement order for livestock and livestock products has been retained for a further year, while a significant proportion of consumer goods trade has been liberalised. Apart from the deregulation of some prices, all remaining controlled prices and state salaries were doubled. Rationing was introduced for a number of foodstuffs and consumer goods.

In June 1991 the tugrik was devalued against the dollar, from an official rate of US\$1=7.1 tug. to US\$1=40.00 tug. (parallel market rates reached \$100=130 tug. in early July 1991), raising the domestic cost of imports. Fuel prices quadrupled in July 1991. This was in response to the requirement since January 1991 for all CMEA member countries to settle trade in hard currency at world market prices. Mongolia imports all its fuel from USSR.

(v) Many of the services previously provided free or at nominal cost by the negdel or sum now have to be paid for by individual herders. This includes transport for nomadic moves, hay and fodder supply, supplementary labour, and veterinary drugs and treatment. The real costs of providing these services has increased to the negdels themselves, not least owing to the increase in the price of fuel.

Implications of policy reforms

Taken together these reforms have major implications for the organisation of production at local level, and provide pointers as to the likely implications of the more sweeping changes to be introduced from September 1991 and especially during 1992:

(i) An important effect of the new lease agreements between negdels and their members, although they increase rewards for individual achievement, has been to shift the burden of risk, previously carried by the negdel (and ultimately the state), onto individual herding suuri.

Until recently, a high level of offtake of animals was made possible by herd structures that were relatively specialised at suur level, including a high proportion

of breeding females and therefore young animals during the spring. These animals are most at risk from severe and unpredictable climatic fluctuation. To make this possible the negdel invested heavily in shelters and stockyards, and provided feed supplements and labour assistance during the critical winter/spring period.

Most herders have now begun to switch to a more diverse, less risk-prone herd structure, and choose to look after the full range or at least several different kinds of animals in agreement with the negdel. The move away from species specialisation at suur level also has profound implications for household labour organisation, since different species, as well as different age classes, need to be herded separately, which demands more labour. Households in which labour constraints are more severe are able to take a smaller total number of animals in their lease agreements with the negdel.

(ii) A major reason for adopting this more risk-averse household production strategy is the introduction of local cost-recovery, or increase in the cost of the local services that are so essential to herd survival during critical seasons and especially harsh years. This means herders are seeking to return to ways of providing these services for themselves, for example by managing and using local fodder plants and increasing local hay production, and by keeping work animals for transport purposes.

(iii) Recent price changes have led to a worsening of the terms of trade faced by individual herders. Particularly in remote areas, where poor infrastructure exacerbates supply constraints and where access to more lucrative private markets for meat, herders' incomes have not increased in line with the real increase in the cost of the goods and services they need to buy. Although state procurement prices have increased, so that negdel members' incomes have risen in nominal terms, they have not increased in line with consumer goods prices and the cost of essential services.

There is evidence that this trend began last year. The near-record total number of animals reached by the end of 1990 can largely be explained by the fact that herders chose not to sell, preferring to wait in anticipation of higher producer prices in the near future. There is currently a real danger of alienating herders as a result of this problem in the 'sequencing' of reforms. Many already deeply distrust the motives of the government in liberalising the economy.

Planned policy reforms

Beginning in September 1991 the negdels are to be privatised, along with all other state enterprises and assets. The preparatory work for privatisation was already underway at the time of field research in Arhangai and Dornogobi, including sum level census enumeration and the valuation of all assets. In addition, the negdel chairmen visited all their members at this time to explain and discuss with them the proposals for privatisation agreed in a special session in June 1991 of the National Supreme Council of Negdels.

During August-September 1991 all Mongolian citizens will be issued with two vouchers redeemable in the two state privatisations: big and small. The big privatisation, covering all productive industries and major infrastructure, will proceed by share-issue. Every Mongolian citizen has received a non-transferable voucher worth 7000 tugriqs, which they are entitled to exchange for shares in the particular enterprise in which they work. The small privatisation covers smaller enterprises such as retail outlets and canteens, and assets such as animals and

vehicles. For this vouchers worth 3000 tugrigs have been issued, which can either be sold or used in asset sale auctions.

The negdels fall into both privatisations. The precise pattern and pace of privatisation will vary from aimag to aimag, but the general guidelines agreed by the National Supreme Council of Negdels are as follows. Thirty per cent by value of all negdel animals, wells, stockyards, shelters and other assets should be redistributed in the first instance to negdel members, in accordance with the length of service in the negdel. A further 10 per cent of negdel assets will be redistributed to all inhabitants of the sum, including administrators, teachers and others living in the rural towns. This is most likely to take the form of animals, the most easily divisible of negdel assets. This redistribution is covered by the small privatisation, for which the 3000 tugrig voucher is to be used. This is roughly equivalent to 18 sheep, at the current open market price of about 550 tugrig per sheep.

The remaining 60 per cent of the negdel's assets will be taken over by a new enterprise formed as a limited company to replace the former negdel. Negdel members will use their big privatisation voucher to buy shares in the new company, and will retain their existing and new lease agreements on the company's animals. They may leave the company if they wish, but it is expected that most will not do so. The non-adult children of negdel members are not considered negdel members; their vouchers may be exchanged on their behalf for shares in other state assets such as sumun shops or small factories. Some existing negdels may not form viable, profit-making companies. In this case it is possible that a larger proportion of assets may eventually be privatised; some (negdel) enterprises may be expected to collapse.

Besides the privatisation of negdels and other enterprises effectively under state control at present, the state procurement order will cease to operate from January 1992, when agricultural marketing will be fully liberalised. To facilitate this process, an agricultural commodities board is being established, with a former First Deputy Minister of Agriculture as its Head, and commodity brokers are being trained in the theory and practice of marketing.

Other policy reforms under consideration at present are the introduction of grazing fees, and a scheme to penalise those who are deemed to have used land improperly. Preparatory work to evaluate land under various uses in order to set land values is being carried out by the State Institute of Land Management in cooperation with IAE. The details of these proposals have not yet been made available.

ARHANGAI PROVINCE

Arhangai aimag (province) is made up of 16 negdels, plus one state farm and an inter-negdel agricultural organisation. The latter organisational form operates using pooled resources from the aimag's negdels and was intended to produce vegetables for the aimag. In practice it has not been very successful in this respect; it now also keeps animals.

The aimag lies to the North of the Hangai mountain range; the sumun territories of the forest/mountain steppe zone in the South and West of the aimag are oriented along a number of deep mountain valleys, and have little arable land. The northern and eastern sumun lie in the steppe zone, and include cereal cropping.

Table 1 summarises some basic statistics for the negdels in the aimag, including population, asset holdings and the average wages of herding families in 1990. Figure 1 compares mean herder wages and per capita asset holdings for all 16 negdels. Asset holdings per capita vary widely between the negdels, while average herder wages vary less from negdel to negdel.

During 1990 there was a marked outmigration of families from urban areas to rejoin the negdel in Ih Tamir as herders. Some 120 families left Zaanhoshoo, the sum centre; Tsetserleg, the aimag centre; and even Ulaanbaatar, to move back into herding as members of the negdel they or their families had left since its formation in 1959. This number is equal to 20 per cent of the number of the then existing families of negdel members in Ih Tamir (580), and almost 10 per cent of the total number of families in the sum (1272).

In most cases, these families moved so as to be sure of their entitlement to a share in the negdel's assets on privatisation during autumn 1991. Even more families had wanted to rejoin the negdel, but the negdel Chairman had refused them. Other possible reasons for moving included the increasing difficulty in urban areas in obtaining basic foodstuffs, many of which herders can at least provide for themselves; and growing public sector job redundancies.

Household income variations

Household income data were gathered from various sources in the course of two periods of fieldwork in Arhangai. Aimag level statistics giving sum or negdel averages by employment category, were cross-checked during field visits in two sumun (Ih Tamir and Hotont) and the state farm (Tubshirulich). A detailed study was carried out of a single brigade in Ih Tamir sum, including a small income and expenditure survey based on a thorough wealth ranking (see below).

Across the aimag, the salary levels of negdel/ state farm and sum officials for 1990 were similar, ranging from around 900 tugriqs per month (10800 tug/year) for negdel and sum Chairmen down to around 500 tug/mth (6000 tug/yr) for college-trained agronomists, zootechnicians, veterinary officers and mechanics. University-trained economists, accountants and engineers earn around 800 tug/mth.

These data compare with the average annual wages of herders shown in Table 1 and Figure 1. For herding families however, the negdel wage represents a relatively small proportion of total income: usually a half or less. Besides other state benefits, production from private herds accounts for often a similar proportion of income, in the form of income in-kind (see Figures 4-7 below). On the state farm in Tubshirulich, the 1990 average monthly income of crop growers was 828 tug. (9940 tug/yr), which is actually higher than most local administrators and professionals,

FIGURE 1.

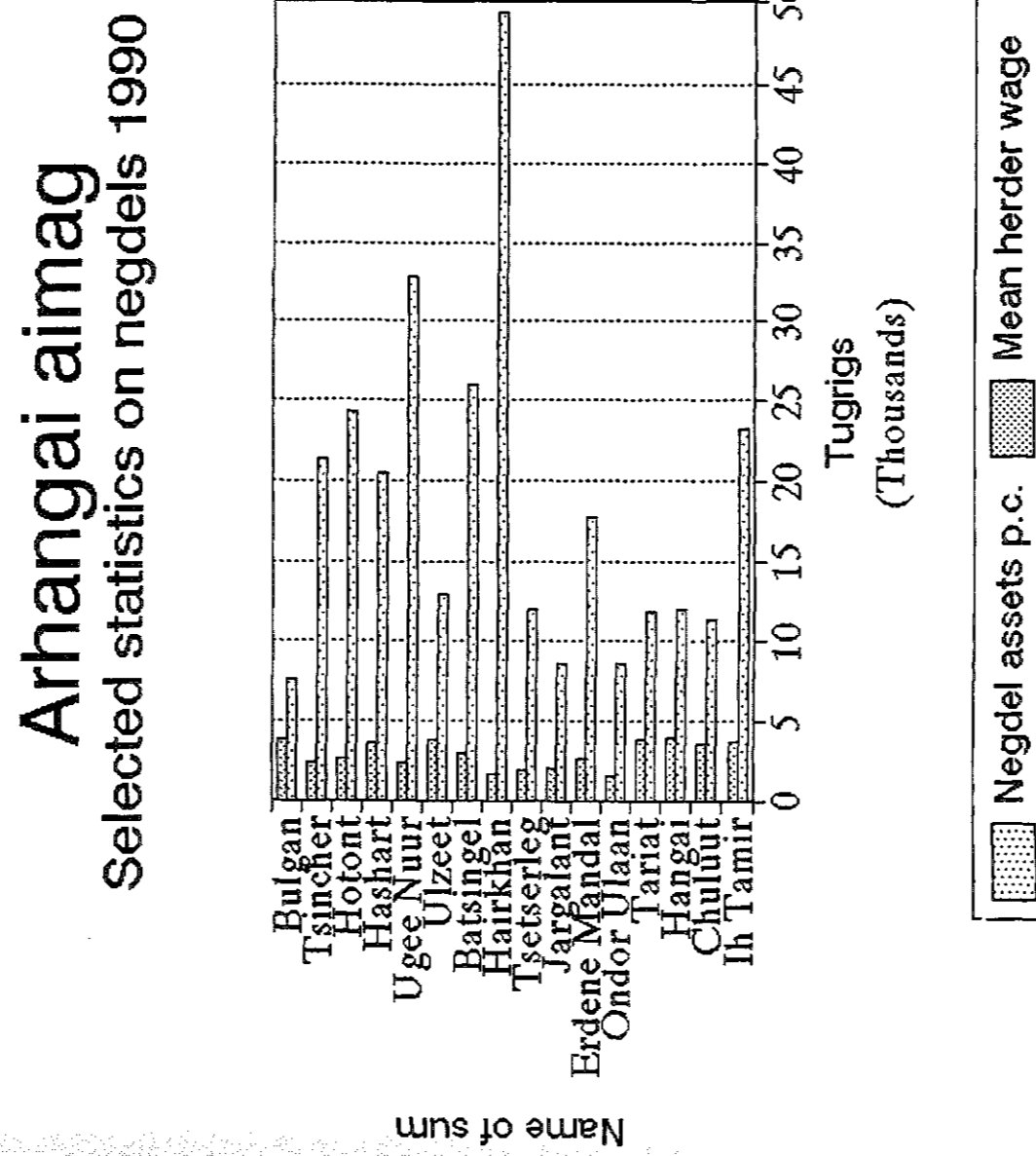


TABLE 1.

ARHANGAI AIMAG: NEGDEL STATISTICS 1990 (at 1990 ('old') prices where relevant)							
Name of sum	Total population of sum	'Urban' population	Number of negdel members	Total assets by value ('000 tug.)	Value of negdel animals ('000 tug.)	Value of total assets per member (tug.)	Average annual income of herders (tug.)
Ih Tamir	5213	3091	637	14816	3632	23259	3650
Chuluut	3196	1291	867	9871	2983	11386	3583
Hangai	3826	1903	1084	12917	4448	11916	3977
Tariat	5371	1971	1044	12306	5368	11787	3919
Ondor Ulaan	4431	2797	1175	10202	4065	8682	1604
Erdene Mandal	4333	2063	794	14007	3889	17641	2657
Jargalant	3920	1638	788	6780	2456	8604	2081
Tsetserleg	3410	1719	980	11742	3207	11982	1969
Hairkhan	3371	1950	600	29632	2873	49387	1632
Batsingel	3485	1848	641	16648	3952	25971	3033
Ulzeet	2820	1106	1061	13721	3756	12932	3851
Ugee Nuur	2565	1344	423	13881	3011	32814	2409
Hashart	3720	1528	1082	22170	4214	20490	3617
Hotont	4782	1935	856	20808	4414	24308	2644
Tsincher	4426	1645	765	16321	3501	21335	2380
Bulgan	2041	1140	863	6560	2187	7602	3873
Tubshirulich (state farm)	3632	2652					2809
Tsetserleg town	20212	20212					
Negdel averages	3807	1811	854	14524	3622	18756	2930
Aimag totals	84754	51833	13660	232382	57957		

Sources: Arhangai Aimag Supreme Council of Negdels; Arhangai aimag administration

and certainly higher than the wages of negdel herders. By contrast, the state farm's own herders earned a considerably lower average wage of 233 tug/mth (2800 tug/yr), although they (to a greater extent than crop growers) are able to earn additional income from their private herds.

Livestock holdings and herd composition

Figure 2 shows the share of total livestock numbers in the aimag by category (eg. negdel, private etc). Some 92 per cent are held by negdel members, in both their private and negdel-owned herds. Detailed data by negdel on overall herd composition are not included here, but summary statistics calculated from these illustrate some important trends over the period of recent organisational changes within the negdels. Most notable among these changes is the introduction and widespread adoption between 1988 and 1990 of lease agreements governing negdel livestock.

Overall, total negdel livestock numbers for Arhangai aimag increased by 2 per cent between the end of 1988 and the end of 1990, while private livestock numbers increased by 28 per cent. By the end of 1990, when a near-record number of animals was reached in the country as a whole, Arhangai had a total of 1.5 million animals, 200,000 (15 per cent) more than at year-end 1988. This was confirmed both by individual herders and by aimag level administrators to be a direct consequence of the relatively low meat prices offered by the state, and the expectation of higher prices to come during 1991. Herders simply chose to keep more of their private animals until prices became less unfavourable.

Further evidence of this behaviour is provided by the breakdown of total animal numbers into individual species. Sheep are the species most favoured for meat production. The number of private sheep increased by 35 per cent 1988-1990, while the number of negdel sheep (decisions to dispose of which are governed by the negdel and ultimately the state procurement order) increased by only 3 per cent. On average, private holdings of small stock (sheep and goats) increased by 36 per cent, and large stock (horses and cattle) by 17 per cent. The number of horses owned by negdels in Arhangai actually declined by 8 per cent 1988-1990.

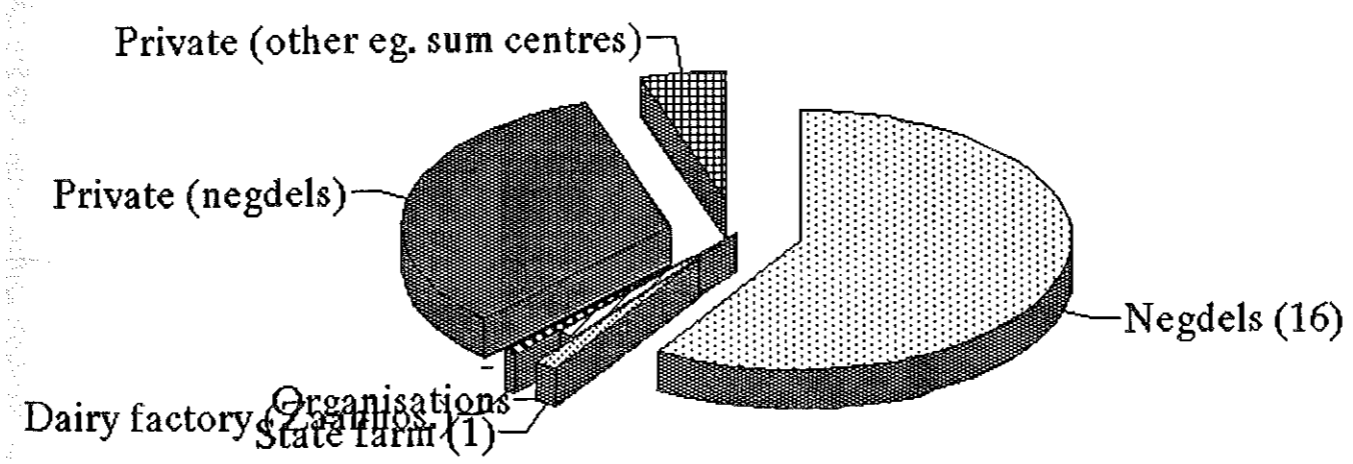
Small but significant changes also took place between 1988 and 1990 in breeding stock as a share of negdel livestock herds across the aimag. The share of breeding females declined by an average of 3 per cent across all species, from 52 per cent to 49 per cent. The greatest percentage decline was in small stock: from 57 per cent to 54 per cent for ewes; and from 50 per cent to 45 per cent for female goats. This change accompanies a shift in the way risk is perceived and managed at suur level. The following observations were confirmed in discussions with several herders in Ih Tamir and Hotont sumun.

Over this period a relatively higher share of the burden of risk inherent in livestock husbandry, especially in the mountain/forest steppe zone with its very harsh winter-spring season, began to be shifted from the negdel to individual suuri. The adoption of lease agreements governing negdel animals has generally implied a shift to a more diverse (less risk-prone) herd structure at suur level. The trend seems to have become even more marked during 1991, although data are not yet available to corroborate this. Since different species have different husbandry requirements, this implies an increase in overall demand for (family) labour at suur level. Both for this reason, and the fact that young and pregnant animals are more vulnerable to harsh climatic fluctuations, it has therefore become necessary to reduce breeding stock in relative terms.

FIGURE 2.

Arhangai aimag Share of total livestock by category

1990 total: 1,496,249



Pasture and fodder availability

Table 2 presents data on the availability of open pasture and the production of fodder (both hay and combined fodder crops) in the 16 sumun of Arhangai aimag. The sumun are grouped into three classes according to the availability of open pasture per livestock unit (sheep equivalents). Broadly speaking, this classification also has a geographical basis.

Class 1 includes those sumun with 2 or more hectares of open pasture per livestock unit. They tend to lie in the mountainous areas of the South, South-West and Centre of the aimag. In these mountainous areas, there is relatively less open pasture than in the lower lying steppes in East and North of the aimag; the apparently more abundant pasture per livestock unit reflects lower overall livestock densities. The only exception is Hairkhan sum in northeastern Arhangai, in which there are relatively fewer animals than elsewhere in the East of the aimag.

Class 3 includes those sumun with 1.2 ha/lu or less of open pasture, all of which lie in the drier steppe area in the east of the aimag, and where livestock densities are relatively high. Class 2 is the intermediate class. Hotont is the only sum in that class that does not lie in the northern or northwestern areas of the aimag, where ecological characteristics bridge the gap between the mountain areas of the South and South-West and the steppe areas of the East.

Figure 3 shows fodder production per livestock unit for each sum within these three broad classes. On average, relatively more fodder is produced in those sumun with less open pasture per livestock unit (Class 3). These lie in the eastern steppe areas, more suited to arable production. In the more mountainous terrain of the South and West, less fodder can be produced; this is illustrated clearly by Chuluut, Hangai and Ih Tamir sumun. The exceptions within the classes are again Hotont and Hairkhan, which produces a lot of fodder per livestock unit owing to relatively low livestock numbers.

In Hotont sum, it was explained by a group of herders that it was only possible at present to obtain 22 of the 60 fodder units (=2.5 kg) they require per sheep, during the winter months. Each suur has gradually become used to the grazing and haymaking areas it uses customarily, and herders expect to use the same areas following privatisation. "There is no sense in changing a system that we have evolved over a long period of time, and which works", one herder explained.

Views on organisational change

Most of the herders interviewed in Arhangai were against the abolition of their negdels, although they also believed that they are institutions in need of reform. Generally they value the security of income provided by the negdel, as well as the provision of services (especially during difficult periods) and inputs, and their marketing functions. Many believed that privatisation would be bound to widen the gap between rich and poor, and expressed fears for the prospects for poorer herders. However, many also thought poorer herders are poorer only because they are 'lazy' or inexperienced herders.

Avirmed, a 78-year old herder in Hotont sum, Arhangai, used to be a Buddhist lama. Around the time of the Revolution, he remembered, the poorest people had no animals at all; they lived near the large monastery that was in the east of Arhangai, where they were bound to work. Horses were especially favoured animals then, and the richest herders had around 10,000 horses. Avirmed fears the re-emergence of

TABLE 2.

ARHANGAI AIMAG: PASTURE AVAILABILITY AND
FODDER PRODUCTION BY NEGDEL (1990)

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 purchas- from other sumun (tonn
Class 1: Th Tamir						
Chuluut	122245	1223	10.0	335074	2.7	4
Hangai	105430	480	4.6	291011	2.8	7
Tsincher	178141	1333	7.5	566394	3.2	40
Bulgan	93804	1372	14.6	226690	2.4	47
Ondor Ulaan	79434	1129	14.2	220428	2.8	47
Hairkhan	138277	2241	16.2	280152	2.0	47
	76405	4407	57.7	198032	2.6	
Class 2: Tariat						
Erdene Mandai	163248	2754	16.9	302251	1.9	784
Jargalant	143411	3031	21.1	277827	1.9	4
Tsetserleg	101381	677	6.7	160464	1.6	5
Hotont	138754	2264	16.3	214854	1.5	
	146183	4129	28.2	193342	1.3	
Class 3: Batsingel						
Uizeet	193069	2650	13.7	229568	1.2	
Ugee Nuur	119824	2660	22.2	142090	1.2	
Hashart	154251	2912	18.9	111361	0.7	
	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:

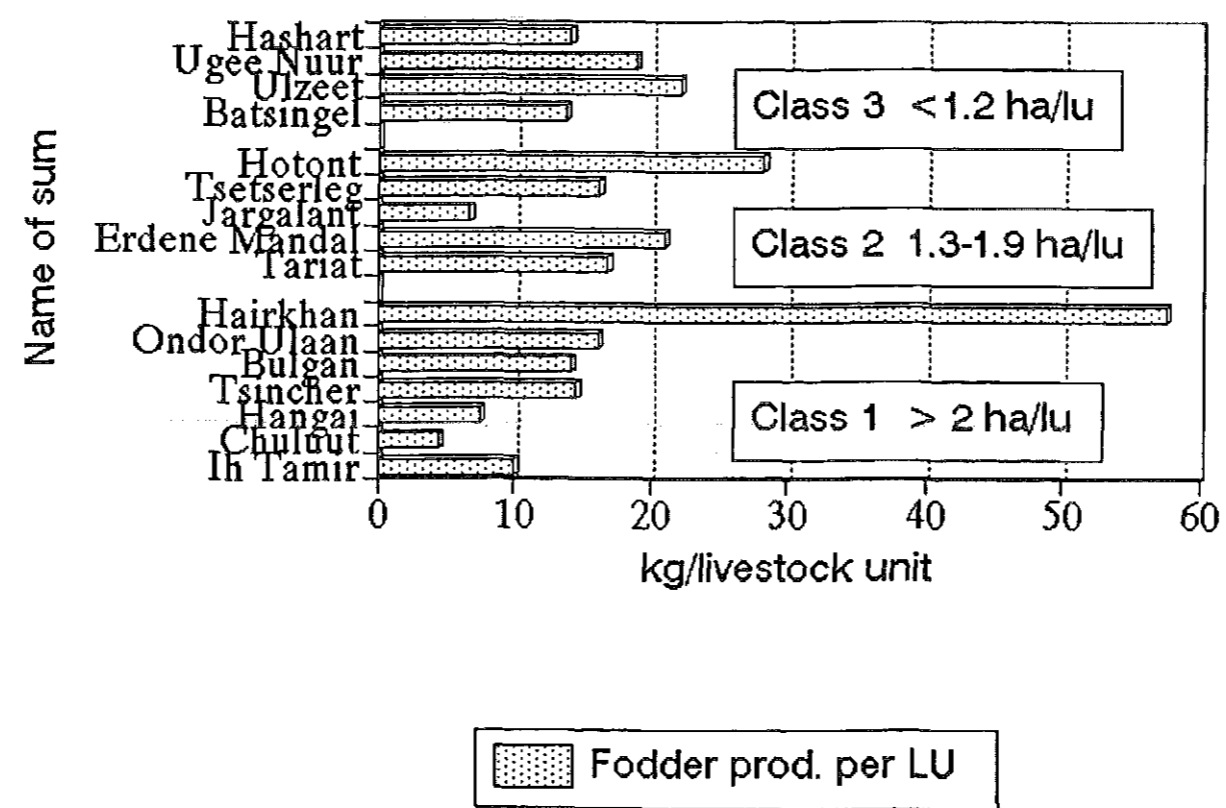
Class 1: >2 ha/1u (South, South-West & Centre of aimag)

Class 2: 1.3-1.9 ha/1u (North & North-West of aimag)

Class 3: <1.2 ha/1u (East of aimag)

FIGURE 3.

Arhangai aimag Fodder prod. & pasture area by sum



such inequalities under privatisation. He believes "we should not abolish the negdel but make gradual changes to improve the way it runs. We should learn from our past mistakes. Look what happened during the 1930s when nearly all the monasteries were destroyed."

The prospect of retaining more individual control over management decisions seemed to a number of herders to be an attractive one. In particular, most herders interviewed were pleased to be able to get animals of all four species (horses and cattle, sheep and goats) from the negdel. The existing lease agreements are regarded as a transitional stage on the way to full privatisation and redistribution of negdel animals, and which assists herders to make the adjustment. But some felt the lease system did not go far enough and that the pace of privatisation should be accelerated. For example, under a lease agreement, it is not possible to dispose of the animals as one wishes. One herder of Hotont sum had requested some camels for transport to be included in his lease agreement, but the negdel had not given them to him. Under privatisation, he looked forward to being able to keep camels.

The labour implications of the shift towards more diverse herd structures seem to favour the persistence or even re-emergence of more traditional organisational units at local level. A small xot ail in Hotont sum illustrates the benefits of this informal traditional institution to its members, which help to explain its persistence. Alga (aged 40), Avirmed (78) and Purevjav (53) are three heads of suuri, each consisting of just one family, that have come together during summer and autumn in 1990 and again in 1991. Each of them, like all members of their negdel, have their own winter and spring shelters near which they live separately during those seasons. Purevjav is considered the xot ail leader.

Until they adopted lease agreements this year (1991), the negdel generally allocated about 500 animals to a single suuri to look after. This was very difficult to manage, Purvejav explained, even with species-specific herds, because each family simply did not have enough labour. Each of the three suuri now has animals on lease from the negdel, but they still choose to pool their labour for herding and communal tasks including shearing wool and clipping hair, moving, and haymaking. All three believe they and their families can perform these tasks much more efficiently together than they could on their own, especially now that their herds are more diverse, even if they are also smaller. Between them the three herders now lease 370 sheep and goats, 93 horses and 43 cattle from the negdel. They expect to continue this form of cooperation following privatisation.

Take haymaking, for example. Under arrangements introduced this year, negdel members can either make their own hay, in which case they are paid by the negdel for doing so; or they can arrange for the negdel to provide it for a certain charge. The three herders benefit both from the added efficiency of making hay cooperatively, and from the payment they receive from the negdel for doing so.

Profile of Hukh Nuur brigade

Hukh Nuur brigade is the southernmost, and the most isolated from the sumun centre (well over 100 km away), of the five brigades in Ih Tamir sum. It borders onto Bayanhongor aimag to the south, where the Hangai mountains reach over 3500 metres altitude. The brigade territory is centred on the deep valley of the North Tamir River, which rises from its sources in the surrounding mountains, including the lake from which the brigade takes its name.

The brigade consists of 88 households which, at the time of the research team's visit during the early summer months, were divided into two dairying tasag. The largest of

these, at Sharbolgin Tal, comprised 51 households living within a 5 km radius of the tasag centre in the relatively wide valley of the Urd ('source') river. At the tasag centre is a centrifuge for the separation of the full milk fat for butter manufacture at the dairy factory in the sum centre.

The remainder of the brigade (31 households) made up Hanuy Gol tasag, living during the early summer along the Hanuy River, actually in the territory of the neighbouring sum, Chuluut. Given the mountainous terrain, it is a drive of 160 kilometres between the two tasag of the brigade during early summer. For logistical reasons the research team stayed in and focused on Sharbolgin tasag, although the entire brigade was covered by the wealth ranking and other research methods.

Wealth differences

Contrary to popular belief in Mongolia, wealth differences between herding families within negdels are often considerable. In order to investigate this, a wealth ranking exercise was conducted with three informants according to the card sorting method¹. Each informant, on separate occasions, sorted into piles cards marked with the names of the heads of all 88 households in the brigade, according to their own view of local wealth status categories. Taking the average of the informants' ranking scores for each household, this produced a categorisation of brigade families into six wealth classes, in terms of locally important criteria, as well as throwing up other interesting information.

Table 3 shows the outcome of the informant card rankings, listed in ascending order of average ranking score from richest to poorest. Correspondence between larger or smaller individual informant ranking scores shows the 'closeness of fit' between the informants' views, as to which households are poorer or richer respectively. Conversely, discrepancies between informant ranking scores indicate households over whose wealth status the informants disagree.

For all informants, as would be expected, numbers of private animals were an important indicator of wealth. In Hukh Nuur brigade, herders with 90-100 animals are generally considered to be very rich, while the poorest have 30 animals or less. Middle herders may have 50-60 animals, and richer herders 70-80. Private herd composition is also regarded as significant. Richer households have relatively more horses and cattle (large stock), and poorer households a relatively higher proportion of sheep and goats (small stock). The richest also have stallions, a large number of milk mares, and 10 or so dairy cattle. The poorest will only have a single dairy cow, if at all, and no milk mares, only transport horses.

Consistently mentioned wealth indicators also included number and quality of saddles; quality of material used for making *deel* (national costume); furniture (although two informants remarked that the differences between families are not great in this respect); and bank savings. The latter ranged from 'none', in the case of poor households, through 'maybe' and 'probably' for middle households, to 'definitely' for the richer households, although in no case enough to buy a motorbike. Possession of valuables was mentioned by the informants, but it seems very few families in Hukh Nuur brigade own any. "Nobody uses expensive snuff here", the research team was told; only one woman has a gold ring, and only the richest herders have silver decorations on their best saddle and horse brideware.

¹ Barbara Grandin (1988), 'Wealth ranking in smallholder communities: a field manual', IT Publications. The method is explained in detail in Working Paper No.1.

TABLE 3.

WEALTH RANKING: XEX NUUR BRIGADE, IH TAMIR SUMUN, ARHANGAI AIMAG

Position	Household No.	Informant ranking scores			Average ranking score	
		INF 1	INF 2	INF 3		
1	25	25	20	17	21	Wealth class 1
2	54	25	20	17	21	
3	78	25	20	17	21	
4	*44	25	20	17	21	
5	51	25	20	17	21	
6	41	25	20	17	21	
7	72	25	20	34	26	Wealth class 2
8	69	25	40	17	27	
9	73	25		34	30	
10	70	25	20	50	32	
11	53	25	40	34	33	
12	8	25	40	34	33	
13	60			34	34	
14	38	50	20	34	35	
15	46	25	40	50	38	
16	43	25	40	50	38	
17	36	50	20	50	40	
18	35	50	20	50	40	
19	40	25	80	17	41	
20	74	50	40		45	Wealth class 3
21	*31	50	40	50	47	
22	1	100	40		47	
23	80	50	40	50	47	
24	48	50	40	50	47	
25	*42	50	40	50	47	
26	21	50	60	34	48	
27	39	75	40	34	50	
28	82	50	60	50	53	
29	9	75	40	50	55	
30	65	75	40	50	55	
31	61	75	60	34	56	
32	26	50	60	67	59	
33	19	50	60	67	59	
34	66	50	80	50	60	
35	28	75	60	50	62	
36	3	75	60	50	62	
37	6	100	40	50	63	
38	45	50	80	67	66	
39	4	75	60	67	67	
40	37	100	20	84	68	
41	81	75	80	50	68	
42	76	100	60	50	70	
43	57	100	60	67	76	Wealth class 4
44	50	100	60	67	76	
45	58	100	60	67	76	

46	79	100	60	67	76
47	5	100	100	34	78
48	27	100	60	84	81
49	77	100	60	84	81
50	13	100	60	84	81
51	59	100	80	67	82
52	32	100	80	67	82
53	55	100	80	67	82
54	83	100	80	67	82
55	88	100	80	67	82
56	*10	100	80	67	82
57	7	100	80	67	82
58	29	100	80	67	82
59	18	100	80	67	82
60	23	100	100	50	83
61	89	100	100	50	83
62	68	100		67	84
63	67	100	60	100	87 Wealth class
64	84	100	80	84	88
65	64	100	80	84	88
66	87	100	80	84	88
67	85	100	80	84	88
68	63	100	80	84	88
69	20	100	80	84	88
70	49	100	80	84	88
71	56	100	80	84	88
72	34	100	100	67	89
73	22	100	100	67	89
74	33	100	100	67	89
75	86	100	100	67	89
76	52	100	80	100	93 Wealth class
77	30	100	80	100	93
78	12	100	80	100	93
79	2	100	80	100	93
80	71	100	80	100	93
81	16	100	80	100	93
82	11	100	80	100	93
83	24	100	80	100	93
84	17	100	80	100	93
85	47	100	100	84	95
86	15	100	100	84	95
87	*14	100	100	84	95
88	75	100	100	100	100

Note: * indicates households for which detailed income and expenditure data available

Wealth indicators also included food and other consumption patterns. From their private herds, richer households are able to slaughter two large animals for food supply through the winter, while poorer households have to buy a large animal or half an animal from the negdel for winter meat supply. Poorer households, equally, do not produce a surplus of milk for sale; only enough to meet their own needs.

In general however, it was remarked that consumption between households was no longer a good indicator of wealth status, since actual supply of purchased foodstuffs and consumer goods has become a major problem for everyone. This was the most common complaint of families in Hukh Nuur brigade, which lies far from the state trade outlets in Zaanhoshoo, the sumun centre. A local mobile shop, run by the negdel, was operating from a lorry in Sharbolgin tasag, but this year it had almost nothing to sell. Even in Zaanhoshoo, supplies were very limited. Almost everyone would like but is unable to buy candles. Soap, tea, matches, cigarettes, children's clothes and shoes were other commonly mentioned items. As the elderly herder Jamyansuren put it, "What use is money to us? It is only paper. We need candles and other things to live properly."

Besides asset levels and consumption patterns, stage in the family lifecycle is clearly an important factor behind wealth status. This is related to asset levels; it takes many years to build up large private herds. Equally, there is a much higher incidence of indebtedness among younger herders. But within this broad theme there was disagreement as to who were the poorest, according to the informant's own wealth standing and stage in the lifecycle. From Table 3, the highest informant ranking scores in wealth classes 5 and 6 are given to the same household by all three informants only in one case: household no. 75.

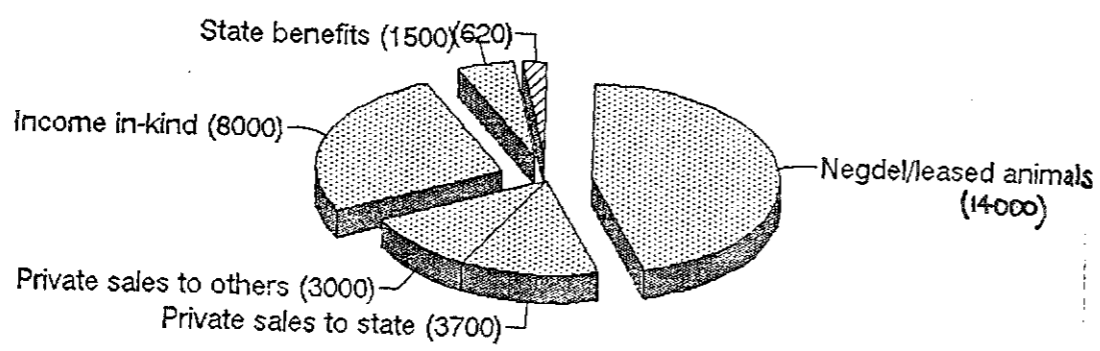
For the first and third informants, poor households included all newly established households with very few private animals: young, inexperienced herders; young men returning from national service; and all those in debt to the negdel for failing to meet production targets. Also included are about five families who have newly joined the brigade in 1991, having left Zaanhoshoo and other towns (including Ulaanbaatar) to take up herding. More families had wanted to join the negdel, but had been refused because they were unable to satisfy the negdel chairman that they had close family connections in the sum. Purev's (INF 1 in Table 1) 'poorest' card pile was by far the largest; he would not divide it further. The third informant (INF 3), Sambonyam, aged 70, also made a very large 'poor' pile at first, but later divided it into three.

Purev, himself among the richest in the brigade according to the wealth ranking, sits on the negdel management committee. He reported that an exceptional meeting of the negdel committee last year decided to forgive the debts of the poorest households, including a group of about 30 households in Hukh Nuur brigade. They were also given 30 young sheep and goats each, in recognition of the difficulties they faced under economic reforms. At the same time discussions had begun to take place locally as well as nationally on whether negdels should be disbanded altogether. The negdel decision seemed to be at least in part a 'political' gesture by negdel management to earn the favour of members who would be likely to lose out as a result of the higher economic risks they face under first leasehold tenure of animals, and later privatisation.

For the second informant, a younger herder named Gambaatar, the poorest households tended to be elderly couples or elderly female-headed households (male mortality rates appeared, and were later confirmed, to be substantially higher). Gambaatar considered these households to be unable to live independently. A number of the household heads are also ill and otherwise physically disabled; the poorest household of all (no. 75) is headed by Avid, an old blind woman.

FIGURE 4.

Household No. 44: Batsagaan
Annual income 1991 (tugriks)
Total 30820 tug.



Household No. 44: Batsagaan
Annual expenditure (tugriks)
Total 22796 tug.

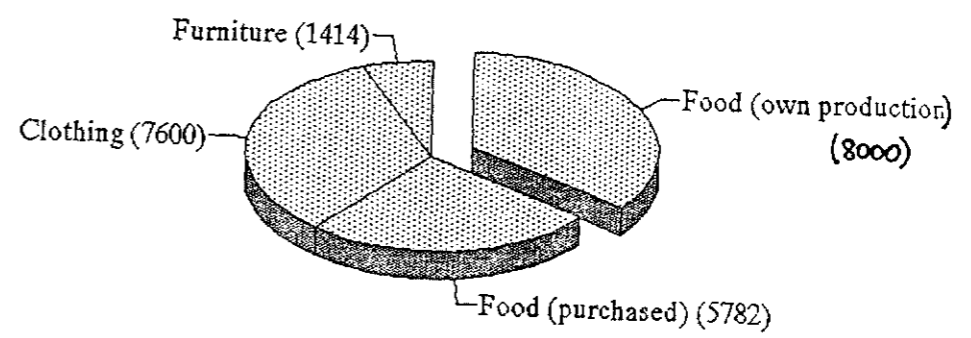


TABLE 4.

	Household No. & Name of Head of Household									
	44. Batsagaan tugrik	%	31. Baysa tugrik	%	42. Dashnyam tugrik	%	10. Tchantsal tugrik	%	14. Ochirbat tugrik	%
INCOME (1991)										
Negdel/leased animals	14000	45	14000	52	10550	48	8917	66	3700	33
Private sales to state	3700	12			370	2	505	4	1500	13
Private sales to others	3000	10								
Income in-kind	8000	26	8900	33	11200	51	4100	30	6000	54
State benefits	1500	5	3100	12						
Other	620	2	820	3						
Total	30820	100	26820	100	22120	100	13522	100	11200	100
EXPENDITURE										
Food (own production)	8000	35	8900	38	11200	56	5258	73	6000	59
Food (purchased)	5782	25	5600	24	6371	32	1924	27	2322	23
Clothing	7600	33	8900	38	2451	12			1892	19
Furniture	1414	6								
Total	22796	100	23400	100	20022	100	7182	100	10214	100

Box: income in-kind price equivalents (at open market prices given by herders)

	quantity	value (tg)	quantity	value (tg)	quantity	value (tg)	quantity	value (tg)	quantity	value (tg)
Sheep (avg.550 tg)	4	2400	2	800	6	3300				
Goat (avg.500 tg)	1	300			1	500			5	3000
Cattle (avg.2500 tg)	1	2600	1	2600	1	2500			1	500
Horse (avg.2000 tg)			1	1500	1	2000	1	2600	1	2500
airag (avg.3-5 tg/litre)	300	1500								
milk (2 tg/litre) (summer price)	600	1200	600	2400	300	1500				
Total value		8000		8900		11200		4100		6000

FIGURE 6.

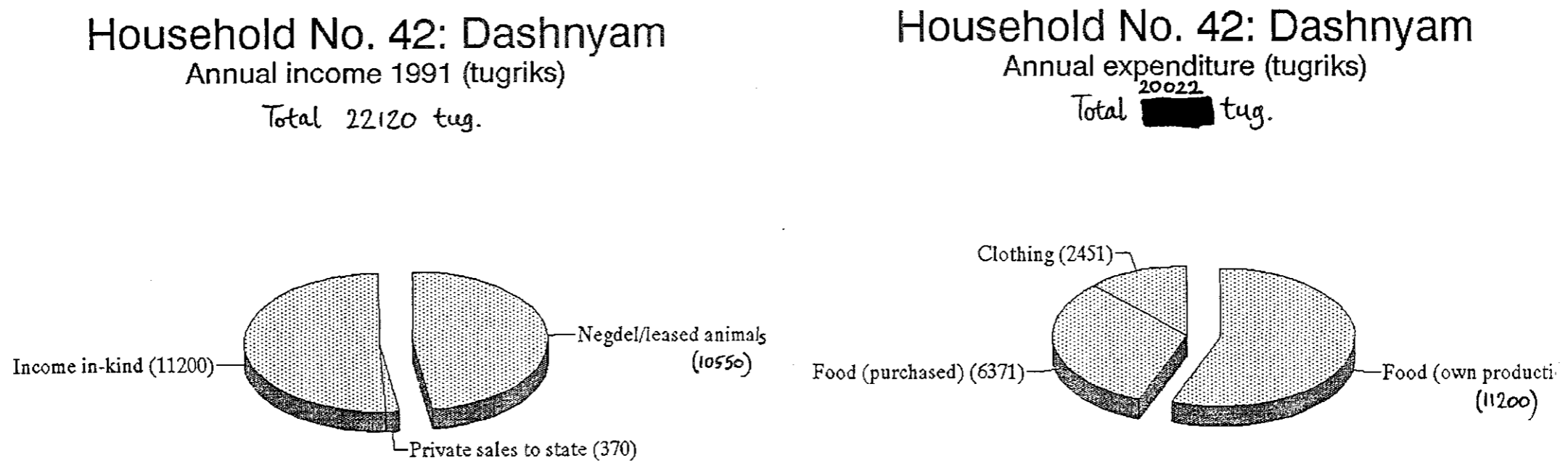


FIGURE 5.

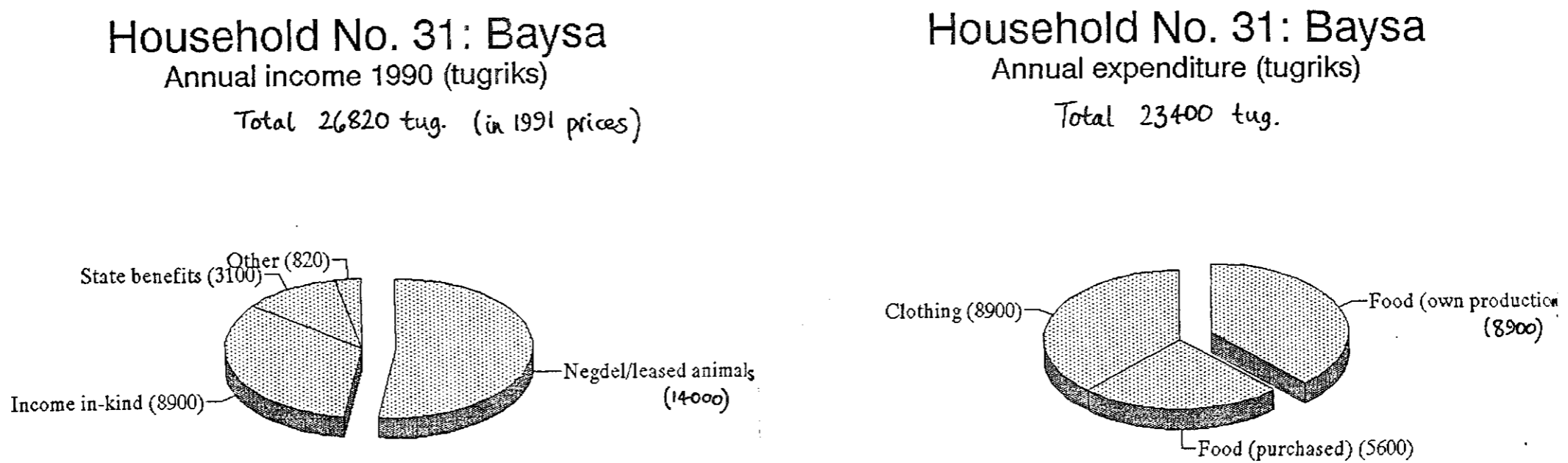
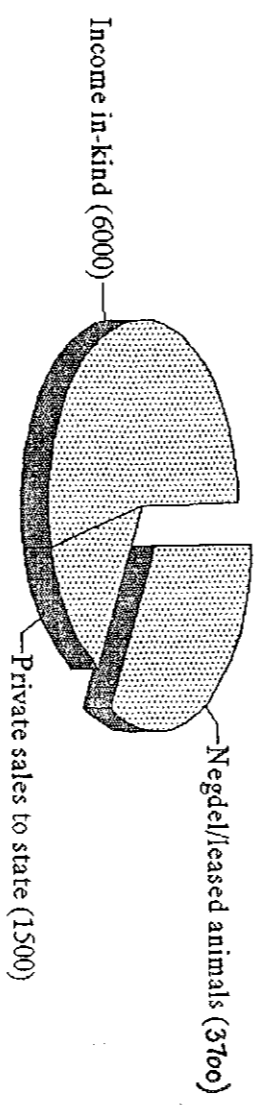
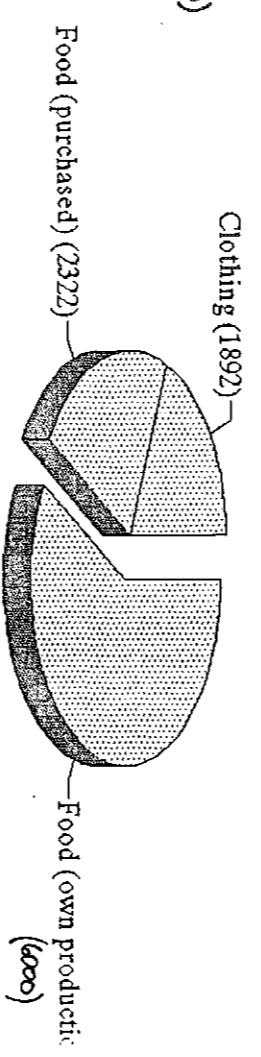


FIGURE 7.

Household No. 14: Ochirbat
Annual income 1991 (tugriks)
Total 11200 tug.



Household No. 14: Ochirbat
Annual expenditure (tugriks)
Total 10214 tug.



On the basis of the wealth ranking, several households were selected for a rapid informal income and expenditure survey using recall methods, and including estimates of income in-kind. The latter principally includes production for consumption within the household. This is also counted on the expenditure side as 'food (own production)'. The data are summarised in Table 4 together with the price equivalents used for calculating income in-kind estimates, and presented graphically in Figures 4 to 7. 'Household number' is an arbitrary figure, and corresponds to that used in the wealth ranking; these households are marked in Table 3. Most income data are for 1991, since households had already received all the income they expected from the negdel for 1991 at the time of survey. Income data for 1990 are expressed in 1991 prices for purposes of comparison. It is emphasised that these household data are not claimed to be representative of their respective wealth classes; they are given here simply for purposes of illustration. What they do show is the broad income and expenditure patterns of households known to be at the richer and poorer ends of the scale, within Hukh Nuur brigade.

Grazing resources

Figure 8 shows the annual grazing cycle for Hukh Nuur brigade, drawn during a semi-structured interview with Mandlhai of Sharbolgin tasag, indicating the broad pattern of seasonal movements between pastures. 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 summer months: one tasag to Sharbolgin Tal, the other to Hanuy Gol. Towards the end of the summer when annual milk quotas have been delivered to the negdel (at the tasag centre), the suuri move to other new pastures to complete their own milking during the late summer months. Hanuy Gol tasag moves back to the North Tamir valley; half of Sharbolgin tasag do the same, and the other half moves to high summer pastures near the lake (Hukh Nuur). From their autumn pastures, within which they may make two moves in difficult year, all suuri move to their own winter shelters in the deeper, more sheltered valleys of the area. In total, each suuri makes between 4 and 6 moves a year: generally one per season.

Figure 9 shows the approximate (maximum) distances from the suuri that animals are taken to pasture, during the different seasons. Generally, 4-5 km from the suuri is the furthest distance, during the autumn, although occasionally, in a particularly harsh winter, it may be necessary to drive small stock up to 10 km to graze on mountain tops where the wind prevents more than a few centimetres of snow accumulating. The closest pasturing to the suuri is during the spring when young animals are reared, demanding extreme vigilance.

Figure 10 shows a transect through the brigade territory, indicating particular pasture characteristics. There are two transects for the eastern section (one through Sharbolgin tasag, the other through the brigade centre), which join up for the western section. The principal purpose of walking - or in this case riding on horseback - a transect in a rapid rural appraisal, is to force the research team to explore parts of the locality off the beaten track or otherwise less visible, and in doing so to try and avoid some of the most common biases in conventional field surveys.

At several points along the way, the researchers met herders they might not otherwise have met, with whom semi-structured interviews were held; for part of the way, herders rode with the researchers and were able to point out things of interest. A key issue that emerged from these discussions concerned the small influx of

families from towns to the brigade. Some local herders feared that this would place too much pressure on local grazing resources, especially during the spring, although they admitted it was too early to say for certain.

Another issue of major concern to a group of herders met along the way was mortality of sheep from attacks by wolves. In one night, one suur lost 100 sheep out of a total flock of 450 - almost a quarter of the flock. The wolf hazard ranked more highly even than the risk of severe climatic fluctuations for this group of herders. They complained that it was impossible to obtain bullets with which to shoot the wolves. Much of the information gained from the transect exercise is included in the text rather than in the transect diagram.

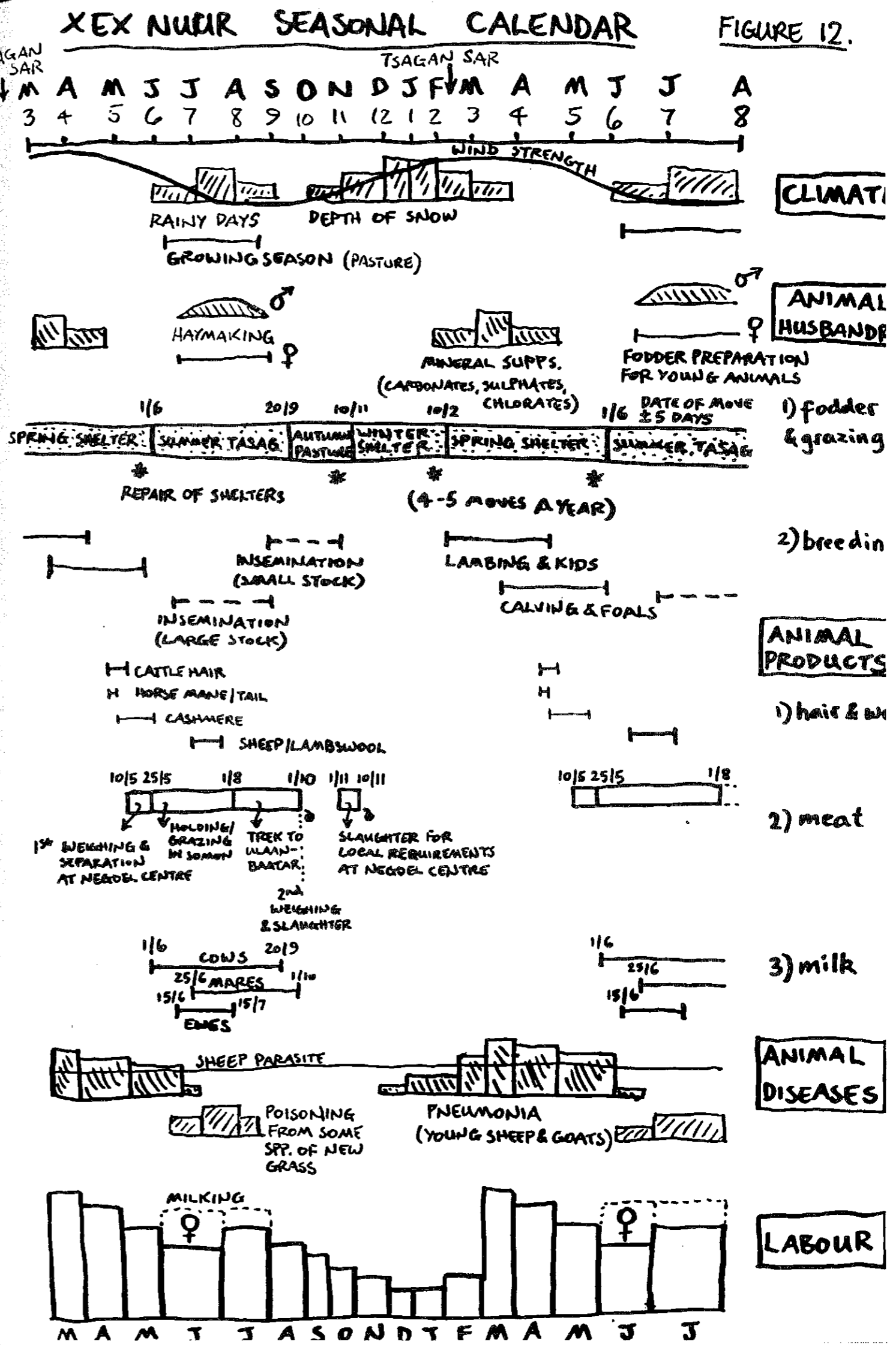
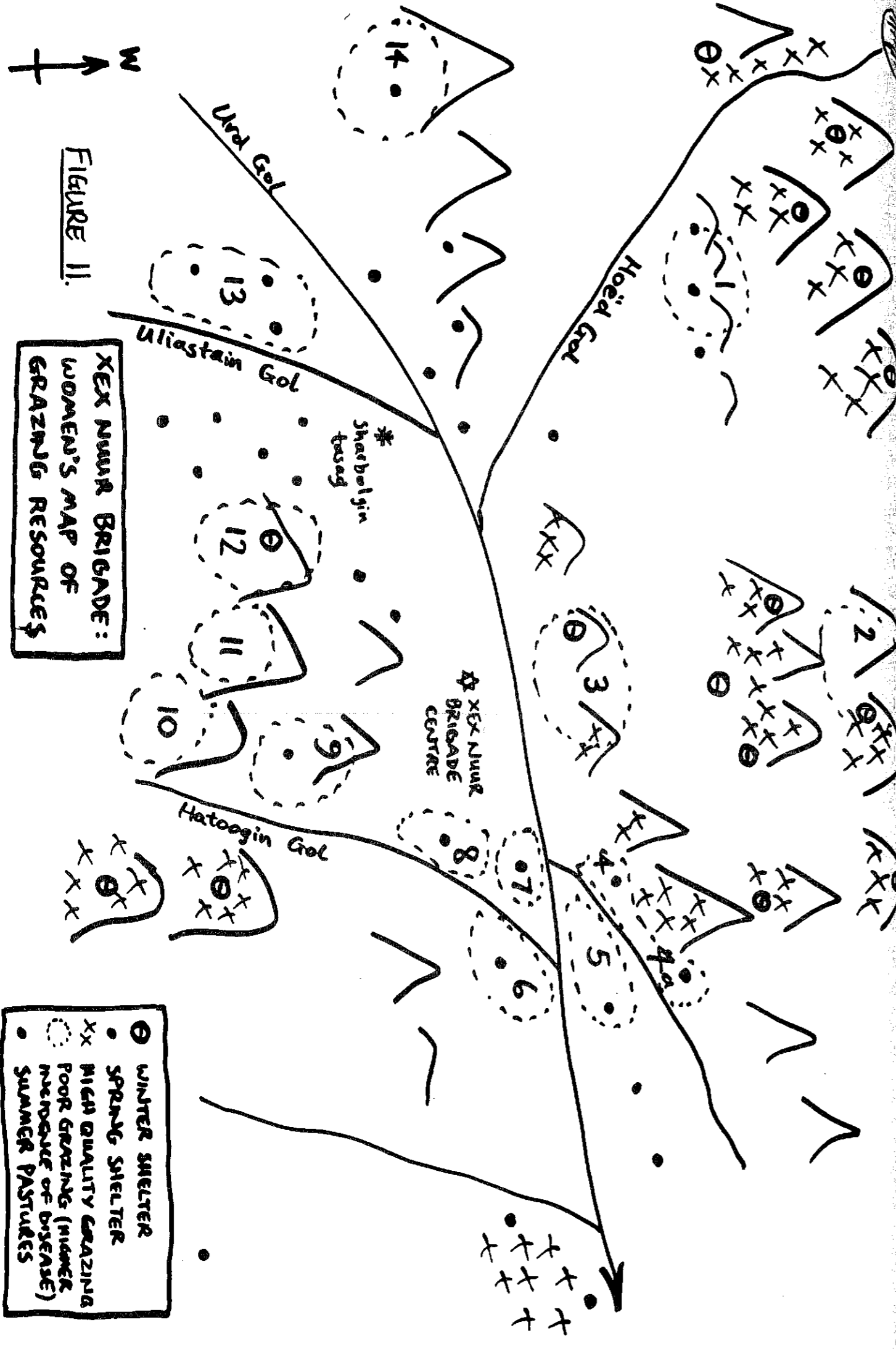
Figure 11 is a map of the brigade resources drawn by a group of women, including Gundegmaa, the former brigade zootechnician, and includes specific information about particular grazing areas and the incidence of animal diseases. The other informants were Altanshagai, Tsovoov and Tsetsegmaa. Many of the poor grazing areas indicated are spring grazing areas, when there is particular risk of animals becoming poisoned from over-eating the new growth of certain grasses (see the seasonal calendar, Figure 12). A key is given below to the numbered grazing areas.

Key to Figure 11: Women's map of grazing resources

<u>Name of area</u>	<u>Comments</u>
1. Nairin Ix	(poor grazing)
2. Ulaan Halzain Dawar	bad for rearing young animals after lambing
3. Hisani Bolang	increased incidence of sheep parasite
{4. Baichgarin Bolang	unsuitable for pregnant animals
{4a. Awarni Bolang	
5. Arlin Tarich	increased incidence of sheep parasite
6. Marat Bolang	unsuitable for pregnant ewes. Calves sometimes die. Spring shelters too old
7. -	increased incidence of sheep parasite
8. Hatoogin Sair	calves sometimes die
9. -	sometimes poisoning from new plant growth
10. Sharbolag	poisoning of sheep
11. Tsohyoo Tolroi	low fertility
12. Mandlin Owoo	increased incidence of sheep parasite
13. -	calves sometimes die (eg. high mortality 1989)
14. -	(poor grazing)

A pairwise preference ranking exercise was conducted with two male herders to compare the territories of the five brigades in Ih Tamir sum on the basis of their pasturing qualities. The principal purpose of preference ranking is to gain an understanding of the criteria local people use to distinguish a given set of items. In this case the team began to gain an insight into what characteristics of pasture areas herders consider to be important. The revealed order of preference was as follows:

1. Xaan Ondor
2. Hukh Nuur
3. Tayhar
4. Bort
5. Bugat



Xaan Ondor territory is favoured because it is large and there is no difficulty with water supply at any time of year. The grazing is generally good, especially of the 'thin' type that is preferred for small stock. There is a relatively large area suitable for harvesting hay, and local hay supply is consequently good. There is relatively little snowfall in Xaan Ondor. Shelter from the wind is possible, although the North Tamir valley is wide enough at that point to provide plenty of steppe pasture.

Hukh Nuur also compares favourably with most brigade territories in Ih Tamir. Pastures are generally considered to be good and water supply is plentiful. The narrow, deep valleys of the North Tamir's tributaries provide good shelter from the wind and snow during the winter, and are relatively 'warm'. On the negative side, the narrow valleys provide little suitable space for hay production, and during the winter, it is very cold in the wider valley of the North Tamir river. This corresponds with the transects shown in Figure 10.

Land and natural resource tenure

That there is not an abundance of pasture in Hukh Nuur brigade territory can be illustrated by a dispute that took place about 20 years ago. Minzhur, the chairman of Ih Tamir sum and negdel between 1962 and 1976, had wanted the negdel to grow wheat, but there was no suitable land within the existing territory. In 1969 he proposed to change the boundary between Ih Tamir and the neighbouring sum, Bulgan, to give Bulgan sum an area of pasture land lying in Hukh Nuur brigade territory in exchange for an area of flat valley bottom land to the north, between Zanhoshoo and Tsetserleg, that he believed to be suitable for growing wheat. The land he wanted to acquire for Ih Tamir would have become part of Tayhar brigade territory. He was forced to back down in the face of strong opposition from herders in Hukh Nuur. This attitude might also help explain the fears of some herders in Hukh Nuur that the recent influx of families to take up herding in the brigade could place too much pressure on local grazing resources.

Formal 'rules' of administrative land tenure in Mongolia suggest that herders only use pastures and other natural resources (eg. surface minerals) lying within their own sum territories. But informal arrangements can take place across sum boundaries to ensure access to resources, as the residence during the summer of Hanuy Gol tasag in Chuluut sum demonstrates. This is also true even across aimag boundaries. During very hard winters, a group of 3-5 yak and khainag/cattle breeding families from Ghalut sum in Bayanhongor aimag customarily use winter shelters in Hukh Nuur brigade territory. They come to join suuri in Hukh Nuur; three families in Hukh Nuur are now related by marriage, which has further strengthened the customary arrangement.

Seasonal production calendar and labour distribution

Figure 12 indicates the main seasonal pattern of production in Hukh Nuur brigade, along with variations in climate, incidence of animal diseases, and labour (taken from Figure 13). Tsagan Sar (literally 'white month') marks the beginning of the Mongolian year, and soon after it is the period of peak labour demand during the lambing season. This is also the time of highest mortality among young sheep and goats from pneumonia, and the time of peak demand for mineral supplements for animals provided by the negdel. There are no surface mineral deposits in Hukh Nuur; soda is brought in by negdel truck from other parts of Ih Tamir, neighbouring sumun, or Bayanhongor aimag.

Supplementary animal feed is prepared during the summer months for feeding to animals at the winter and spring shelters. This task is divided between men and women, with men (and boys) making hay using scythes, and women preparing cut grass fodder by hand to feed to young animals in the spring. They tear the grass and form it into small balls. After harvesting, hay is carried to and stacked in the winter shelters and stockyards.

The date of moves between seasonal pastures are given quite precisely, since these are the dates - and five days either side - on which the negdel makes available transport to Hukh Nuur brigade for those who require it.

Figure 13 adds more detail on the seasonal distribution of labour for men, women and children. For women, and to some extent men, this labour profile distinguishes between directly 'productive' labour involved in animal husbandry, and domestic or reproductive labour tasks. The seasonal pattern of women's domestic labour demand appears to be the inverse of that for productive labour, with sewing added to the year-round domestic and reproductive work during the least busy winter months. Men's domestic work responsibilities are the collection of firewood, and the preparation of skins for general leatherwork.

The purpose of distinguishing between productive and reproductive or domestic labour tasks is to illustrate that women are less readily able to switch their labour between these categories. They are therefore less able to take advantage of any new economic opportunities as a greater degree of private enterprise becomes possible.

It should be emphasised that these diagrams show relative variations only; it is not possible to compare overall labour demand between women and men. The original diagrams themselves were drawn by or together with the informants listed. The major difference between men's and women's seasonal labour profiles is during June and July when for women the milking season is at its height. Children are included to the extent they are not at school. Their assistance is particularly valuable during the busy spring lambing and calving season, and to a lesser extent during the summer months; at both these times of year they have school holidays.

Marketing

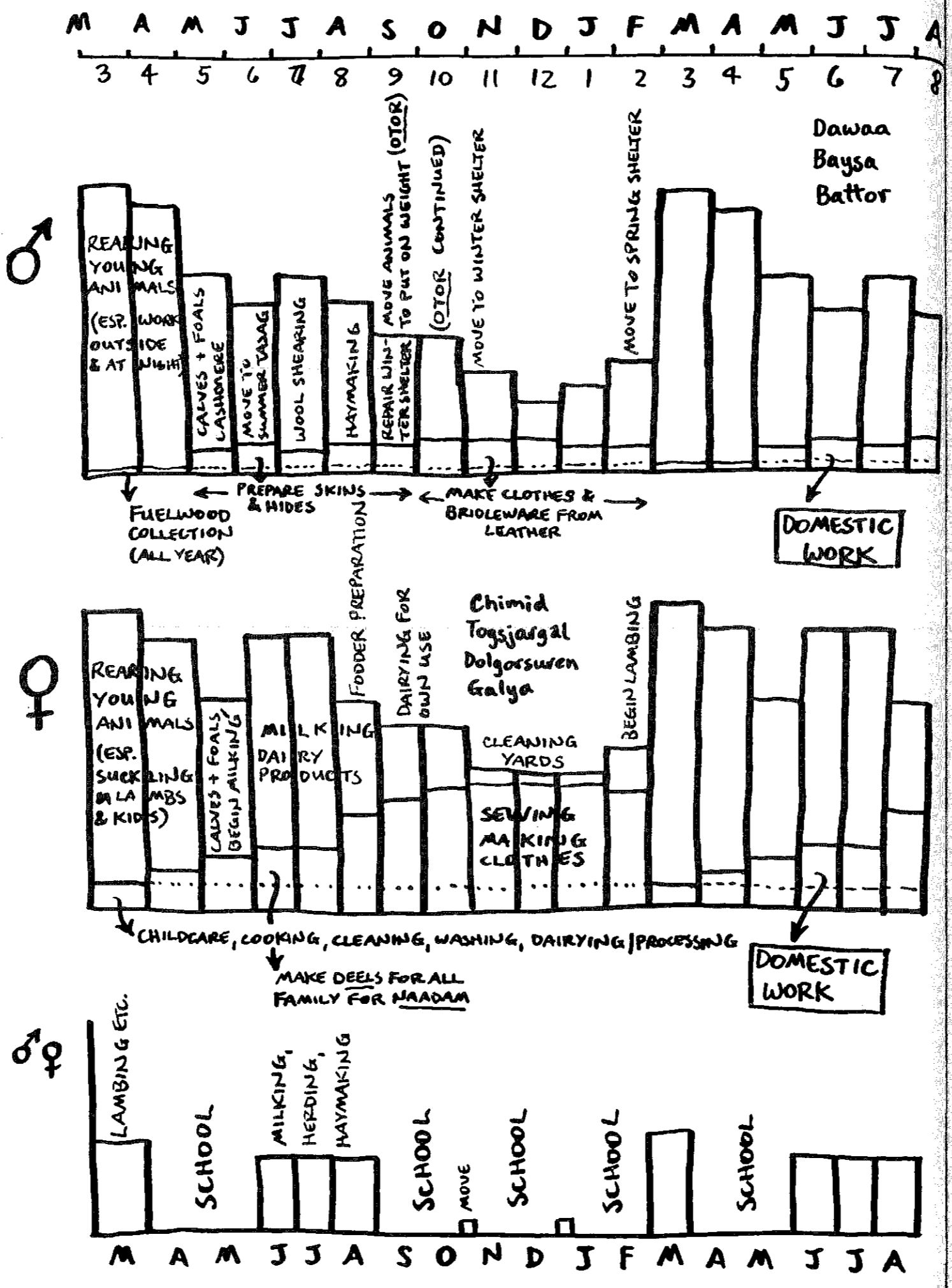
At present virtually all marketed production in the brigade is sold to the state (via the negdel's collection and distribution facilities), from private as well as negdel herds. There are practically no other marketing opportunities. The only exception is the possibility to sell animals to other individuals, normally for meat, as shown by the rich herder Batsagaan's income sources for 1991 (see Figure 4).

All products included in the state procurement order are due for delivery to the negdel on various dates during the year. For example, 70 per cent of the annual meat target must be delivered between 15 May and 1 June, with the remaining 30 per cent due in September. All milk is delivered during the period of stay at the dairying tasag (1 June until the annual quota has been delivered - 1 September at the latest). Cashmere is due for delivery during at the end of April or during May; cattle hair at the end of April; sheep wool at the end of July (see the seasonal production calendar, Figure 12).

A semi-structured 'focus group' discussion on marketing was held with a group of herders at Hukh Nuur brigade centre when they gathered there to deliver the annual quota of wool from their negdel flocks of sheep. On delivery, the herders were paid per kilogramme of wool, according to quality, and the wool was immediately bailed up using a semi-mechanical bailer. They would sell wool from their private flocks to

FIGURE 13.

XEX NUUR LABOUR CALENDAR (respondents)



the negdel too, since no other markets for raw wool exist, but this would take place at a later date.

In Hukh Nuur, very few herders choose to take a monthly advance on their expected annual income from animals leased from the negdel. This is because there is virtually nothing, even in the sumun shops in Zaanhoshoo, to spend their money on.

The herders were very dissatisfied that while public sector salaries generally were doubled in January 1991, many of the fixed state procurement prices for herders' animal products were increased by a smaller amount. For example, pure fleece sheep wool was purchased at 7.20 tugriks/kg in 1990, and 10.20 tug/kg in 1991; mutton fetched 2.30 tug/kg in 1990, and 3.60 tug/kg in 1991.

At the same time, many herders now take fewer animals in their lease agreements than they were allocated by the negdel previously, so that their overall income from the negdel has not increased by as much as they had expected. This is not always by preference; several herders had been unable to lease as many animals as they wanted, owing to the recent influx of families from the sumun centre and other towns to take up herding in Ih Tamir. The lower than expected rise in incomes, coupled with the very poor supply of consumer goods in state shops and steeply rising costs and erratic supply of consumer goods sold by private entrepreneurs, accounted for much of the local herders' deep concern for the future following privatisation.

Three older herders - Baldorj, Jamyansuren and Banzeragcha - felt it would be far better if they could trade their produce directly for consumer goods in barter exchange. The problem, they explained, was that trade outlets would not accept goods in payment. The state shops were not permitted to, and private entrepreneurs would accept only tugriks. Small items like matches and candles, they accepted, needed to be paid for in tugriks, but they thought it should be possible to purchase larger items (around two-thirds of consumer goods purchases, by value) such as a new ger or a good deel, for meat.

Of each herder's negdel income, 35 per cent is paid in taxes, deducted by the negdel from each payment at source. Of this, 80 per cent is handed over by the negdel directly to the sum to cover state taxes. Total annual tax revenue in Ih Tamir is around 2 million tugriks, of which 400,000 tugriks are retained by the negdel.

Views on economic and organisational changes

Many herders evidently value highly the services the negdel has provided free of cost until recently, especially assistance with fodder provision during winter/ spring, and assistance with transport for moving suur between and within pasture areas. Several herders commented that, having become accustomed to such assistance from the negdel, they are no longer able to provide these services themselves as they would like to do, now that the negdel must charge increasing costs.

In some cases it would require a period of a few years for herders to build up the necessary assets again within the suur. For example, accustomed as they are to being able to use the negdel tractor or lorry for moving, few herders have the necessary stock of transport animals to do the job themselves. During early 1991 a charge of 2 tugrig per tonne/km was introduced for moves using negdel vehicles by the negdel in Ih Tamir. Following the four-fold petrol price increase on 15 July 1991, several herders expressed fears that they might not be able to afford to use negdel vehicles.

In other cases, the necessary skills have been forgotten. The making of ger felt was given as an example to illustrate the point. Almost no-one can now make felt by hand in the traditional manner, since they have been buying factory-made felt for so long. Within the negdel, fodder supply is another example. The negdel now provides fodder from fodder farms within the aimag, and herders have had no need to manage and cut natural fodder grass species as they used to. Many have never acquired the local knowledge of particular fodder grasses or areas where fodder can be cut without the risk of poisoning their animals. They would like to re-learn these skills now however, in view of the increasing cost of fodder from the negdel.

Negdel staff cuts have given rise to further organisational changes within the brigade. Hukh Nuur brigade zootechnician and veterinary officer were both made redundant during June 1991. Some herders felt this decision was regrettable, since they were useful for contingencies during difficult periods (albeit principally labour assistance), and because a number of herders want to begin cutting local fodder grasses again, about which the zootechnician could offer specific advice. Many herders however thought the benefits of these employees to the brigade did not warrant their cost to the negdel. Direct cost-recovery has now been introduced for local veterinary services by the sum, including the cost of drugs previously provided free to herders by the negdel. The system is so recent, no-one knows exactly how it will operate or what the real costs will be. Control of infectious diseases will still be administered by the state.

Summary of key issues identified in Hukh Nuur

- * very poor consumer goods supply
- * deteriorating terms of trade for herders as liberalised consumer goods prices rise more quickly than state purchase prices for livestock products
- * absence of alternative market opportunities in more remote areas
- * new system for leasing of negdel animals, coupled with direct cost-recovery for negdel services, increases individual responsibilities of all herders. This rewards risk-taking by better-off and more successful herders, but increases the vulnerability of poorer herders to ecological and economic risk
- * recent influx of families from towns to take up herding could place additional pressure on local grazing resources
- * various possible reasons for families leaving towns to become herders: (i) difficulty of life in towns with food rationing and poor consumer goods supply; (ii) staff redundancies within aimag and sumun/negdel administrations; (iii) desire to establish entitlement to share in negdel assets in anticipation of privatisation

DORNOGOBI PROVINCE

Table 5 summarises some basic statistics for 1990 on the 12 negdels in Dornogobi aimag, covering population, assets, income and expenditure. Figure 14 shows the mean annual salary (as opposed to total income) of the herding members of each negdel, at 1990 prices, compared with total per capita assets of the negdel. While there was relatively little variation in mean herder salaries (3000-5000 tugrigs), negdel per capita asset holdings as of 1990 varied considerably, in the range 7000-17,000 tugrigs. As far as can be assessed, profitability has also varied widely between negdels.

The significance of the latter is in relation to negdel privatisation. All negdel members are entitled to a 10,000 tugrig share in existing negdel assets, by value, in the privatisation, including both asset redistribution and share-issue in remaining assets. But at 1990 prices, the total per capita asset stock by value of two of Dornogobi's 12 negdels amounted to less than 10,000 tugrigs.

Data from Dornogobi Aimag Supreme Council of Negdels suggest total negdel asset holdings for the aimag at current (1991) prices amount to 504 million tugrigs. This breaks down roughly as follows: animals, 415 mn; fixed assets, 75 mn; and current/operating capital 11 mn. Under privatisation, the redistribution of 30 per cent of this total will give each negdel member in Dornogobi additional assets (most likely in the form of animals, since livestock herds are easily divisible) worth an average of 11,400 tugrigs.

The 618,900 animals in Dornogobi are made up of: 53,000 camels; 41,000 horses; 32,000 cattle; 377,000 sheep; and 116,000 goats. Of these, 552,361 (89 per cent) belong to the negdels. These figures suggest that an average of 20 animals per herder are currently in private hands. Of the negdel animals, the 30 per cent which are to be redistributed by the end of 1991 - a total of 165,700 - would give each negdel member in the aimag on average 38 additional animals. Redistribution will take place according to length of service of each herder with the negdel, but all sum inhabitants - not just negdel members - will receive some animals.

Economic and organisational changes

The Gobi zone in general has been favoured by government policy, at least until this year. The salaries of officials were 10-15 per cent higher than elsewhere in the country to compensate for what has always been considered a 'hardship posting'. Central government mandates were also issued during difficult years for other aimags and institutions in Ulaanbaatar to assist with fodder supply and labour supplements. The prices paid for camel products have also tended to be relatively high, which has had the effect of favouring the Gobi disproportionately, where camel breeding - although declining - is still concentrated.

The Chairman of the negdel in Erdene sum, Dashnyam, believes these policies were sound, but that the move towards full cost recovery for fodder imports will place an intolerable burden on negdels in Dornogobi. Research and development should now be devoted to ways of growing fodder crops within the aimag itself, he believes, to save on the high costs of transport.

The lease system was introduced in 1988 to all 12 negdels in Dornogobi aimag, on an experimental basis. Since January 1991, all herders in the aimag now have some form of lease agreement with their negdel. In some cases these are 'simple

FIGURE 14

Dornogobi aimag Selected statistics 1990

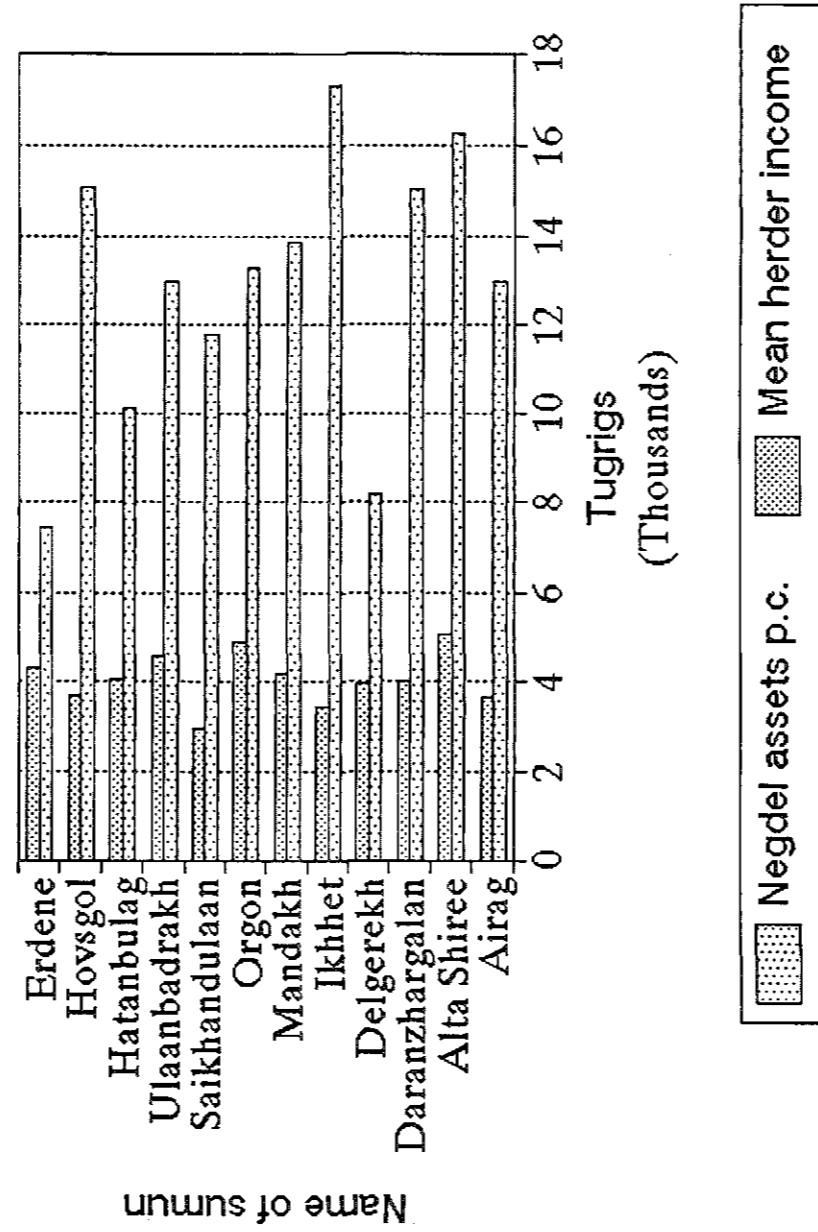


TABLE 5.

DORNOGOBI AIMAG: NEGDEL STATISTICS 1990
(at 1990 ('old') prices where relevant)

Name of sumun	Total population	Total no. negdel animals	Total assets ('000 tug.)	Value of assets per capita (tug.)	Total income ('000 tug.)	Income from animal husbandry ('000 tug.)	Total expenditure ('000 tug.)	Expenditure incurred in animal husb. ('000 tug.)	Average income of all members (tug.)
Airag	987	46142	12802.1	12970.7	3195.3	2971.2	2968.5	2746.9	4285
Alta Shiree	973	56777	15791.8	16230.0	3632.1	3296.5	3691.0	3413.3	5442
Daranzhargalan	987	45487	14830.1	15025.4	2801.1	2521.9	2328.1	2053.3	4500
Delgerekh	1404	55544	11525.7	8209.2	2787.8	2649.2	2426.5	2205.8	4550
Ikhhet	623	35321	10755.9	17264.7	2389.0	2036.8	1873.4	1404.9	3849
Mandakh	1313	40502	18190.4	13854.1	3750.5	3174.4	4343.7	3353.3	4783
Orgon	831	39788	11047.0	13293.6	2959.0	2861.2	2944.7	2829.1	5069
Saikhandulaan	1034	33601	12185.1	11784.4	3214.9	3117.8	3491.0	3238.6	3461
Ulaanbadrakh	1144	50795	14828.4	12961.9	4276.0	4116.2	3648.4	3487.1	4945
Hatanbulag	1720	64867	17467.4	10155.5	4970.1	4193.5	4146.4	3570.8	4684
Hovsgol	997	42927	15042.3	15087.6	3366.4	3155.5	2487.9	2251.8	4102
Erdene	1212	40610	9004.7	7429.6	2944.2	2781.0	2857.2	2615.6	4772
Negdel averages	1102	46030	13622.6	12360.7	3357.2	3072.9	3100.6	2764.2	
Aimag totals	13225	552361	163470.9	12360.7	40286.4	36875.2	37206.8	33170.5	4537
Of which:									
- herders	3252								
- other workers	1071								
- total members	4323								
mean family size	3								

Source: Dornogobi Aimag Supreme Council of Negdels

agreements' of one year's duration rather than full 2- or 5-year leases.² The proposals for privatisation follow those agreed nationally: 30 per cent by value of negdel animals will be redistributed for private ownership among their members by the end of 1991, 10 per cent to other inhabitants of the sum, and the remaining 60 per cent will remain under leasehold tenure. The following year, a further 20 per cent will be privatised, leaving 40 per cent of the original total of negdel animals under existing or new lease agreements. There are no plans at present to subdivide the negdels into smaller units following privatisation. It is expected that all existing negdels will become limited companies under privatisation.

Many herders in the aimag are opposed to full privatisation of negdel animals and other assets, for two principal reasons. First, they are accustomed to and value the assistance of the negdel during 'normal' periods of seasonal difficulty, and during especially dry years or harsh winters. Second, many parts of Dornogobi aimag are far from major markets for meat and other livestock products. The poor infrastructure means local herders are unlikely to face the same private marketing opportunities as herders closer to the main urban centres.

The proposed economic and organisational changes will have significant tax and other cost recovery implications. The existing (1991) tax structure for Dornogobi aimag is as shown below, expressed as a percentage of total lease income earned by each herder:

<u>State taxes</u>	%
State procurement tax	3.9
State allowances	6.1
Social insurance*	3.2
Social services*	2.3
(Subtotal)	(15.5)
<u>Negdel taxes</u>	
Repair of wells	1.9
Veterinary/sanitation	0.3
Safety equipment	1.0
Fuel	2.0
Transport of hay	1.8
Fodder reserve	0.9
Vehicle depots	1.9
Trekking animals to slaughter	2.0
Management	8.0
(Subtotal)	(19.8)
Total	35.3%

* includes cultural services, canteens, hot water, buses, hairdressers etc.

² Appendix 4 is an English translation of the standard lease agreement form for the negdel of Erdene sum.

The total income tax of 35 per cent (of income from negdel lease agreement) is expected to be substantially reduced next year (1992), principally because the cost of many services will be directly charged to those who use them, rather than paid for out of negdel taxation. This includes, for example, the costs of transport for nomadic moves of suuri, repair of winter and spring shelters, and veterinary drugs. A number of other items on the negdel side will be included under 'management', which will be reduced overall to 7 per cent. This is made possible because of staff cuts; the current average of 30 paid employees per negdel will be reduced to only 4. Provided state taxes remain unchanged at 16 per cent, total income tax for 1992 is expected to be around 23 per cent.

Fodder constraints

The major production problems in the Gobi zone in general are those caused by dry and unpredictable climatic conditions. Almost no hay or fodder is produced in Dornogobi, and the aimag must import its annual requirements from other aimags. Of all aimags, Dornogobi has the smallest percentage share of its total land area under arable crops (0.1 per cent). The lowering of the water table in many places, and the drying up of wells, makes it even more imperative to import fodder. Hay and fodder are imported from February to July. Some 20,000 tonnes of natural hay are brought from Sukhbaatar aimag to Dornogobi by road each year, together with 500-600 tonnes of fodder crops. In the past, fodder supplies have been transported by rail via the USSR from Selenge and Dornod aimags; this is reportedly no longer possible on economic grounds.

Financing arrangements are divided between the state and the negdels: the negdel pays for the hay and fodder it orders each year while, at least until this year, the state provides for its transportation from the point of production to the negdel. In a particularly harsh year, when winter feed supplements are necessary, the total fodder bill for a negdel will typically come to 2-3 million tugriqs. Three negdels in Dornogobi currently have bank reserves of no more than 1 million tugriqs. If this winter (1991-92) is a harsh one - as the superstitious say it will be, for the Year of the Monkey - many negdels will need to borrow substantially from the state to pay for fodder imports at rapidly increasing costs.

In winter 1986-87, snow covered the whole of Dornogobi aimag, and a central state order was issued to Selenge aimag to provide assistance. The Selenge aimag Board of Agriculture and Food Industry (BAFI) was instructed to deliver to Dornogobi, without charge: 1000 tonnes of hay, 1000 tonnes of mixed fodder, 1000 tonnes of wheat stalks, and 3000 cubic metres of firewood. In addition, Selenge had lent Dornogobi aimag 28 tractors for 2 months, for clearing pastures. This illustrates how, until very recently, resource allocation decisions were made at central state level. The major burden of risk in animal husbandry was clearly carried by the state.

Land and natural resource tenure

During the summer months animals need to be moved on relatively rapidly from one pasture area to the next to put on weight. This is known as *otor*. In order to gain access to sufficiently good pastures, the summer *otor* takes herders of large stock from the extremely dry south of Dornogobi 400 or 500 kilometres northwards into the steppe grasslands of Hentii and Sukhbaatar aimags. This is supervised at present by representatives from the Ministry of Agriculture (MoA) and the aimag

³ Data given by Shombodon, former Chief of Selenge aimag BAFI, now Senior Research Worker at RIAH and member of research team for present project.

administrations. Following privatisation MoA will no longer become involved, and there are fears in Dornogobi aimag that agreements to allow otor across aimag boundaries will become much more difficult to negotiate.

Given the difficulty in growing hay in Dornogobi, some negdels have previously made arrangements to use land in neighbouring aimags for harvesting hay. The negdel of Delgerekh sum in north-east Dornogobi, for example, has been using an area of 5000 ha for this purpose in Bayanhotig sum of Hentii aimag, from which it has harvested 700-1000 tonnes a year. From 1991 however, Delgerekh negdel would have to pay for this privilege at full economic cost.

Profile of Tsagan Hutul brigade

Tsagan Hutul is the more northerly one of the two brigades of 'Amdralin Zam' ('Road of Life') negdel in Erdene sum. Erdene sum lies in south-east Dornogobi, bordering onto China, and straddles the railway line between Ulaanbaatar and China. Until the end of 1990, the negdel was divided into three khesag: Yunshu, Duruwilj and Tsagan Hutul. From January 1991, as part of the general programme of staff redundancies, Duruwilj khesag was amalgamated with Tsagan Hutul to form Tsagan Hutul brigade, and Yunshu khesag was renamed Yunshu brigade. Each brigade now has only one paid employee, the brigade chief; formerly each khesag had 3-4 employees.

During 1990, 16 families had left the sumun centre at Ulaan Uul to join the negdel as herders. A further 4 families had come back to Erdene from Ulaanbaatar to take up herding. Up to the time of the research team's stay in Erdene, one more family had joined the negdel during 1991, having left Sainshand, the aimag centre. Of all these new herding members, one had already given up and returned to the city.

The negdel in Erdene sum is one of the poorest negdels in Dornogobi, according to available statistics (see Table 5); it has the lowest per capita total asset share of all the negdels in Dornogobi (7000 tugriqs), although the mean herder salary for 1990 is about average for the aimag at 4200 tugriqs (see Figure 14). For 1990, gross income of the negdel totalled 4.3 million tugriqs, of which 1.3 mn was profit. The negdel's bank reserves total 1.2 mn tugriqs. For 1991, profits are expected to drop to around 0.6 mn tugriqs.

At the beginning of 1991, the negdel had 40,660 animals, comprising: 3005 camels, 2468 horses, 2502 cattle, 23402 sheep, and 9283 goats. There are 136 suuri in the negdel, almost all of a single household; each suur looks after on average 300 negdel animals. Rearing of young animals is below target this year, and a smaller than usual increase in total animal numbers is expected by the end of 1991 (exact figures are unavailable). This illustrates the shift to a more risk-averse herd composition (with fewer breeding females) at suur level as the burden of risk is now carried by individual suuri rather than the negdel/state. There is real concern on the part of the negdel administration that it will be unable to afford the necessary fodder imports for the next winter/spring season.

The key decisions regarding privatisation of the negdel will be made following a special general meeting on 20 August 1991. The proposals to be put to the members were that 3 large stock and 7 small stock would be redistributed for private ownership to all negdel members. This would leave 28,000 animals, of which 10 per cent would be redistributed to other inhabitants of the sum, and the remainder would remain under lease agreements.

One younger herder, Ravjir, came to Erdene 4 years ago from Bayanhongor aimag, having been attracted by the incentives offered by the state to increase numbers of herders in the Gobi zone. He was given some animals, a ger and about 3,000 tugrigs to help him become established. Now however, he is planning to return to Bogd sum in Bayanhongor, where his mother was a negdel member, because he believes he will receive nothing in the privatisation of the negdel in Erdene. Priority is to be given to founder members of the negdel and their descendants; on these grounds Ravjir does not qualify in Erdene but believes he will in Bayanhongor.

Ravjir has saved enough money to buy an old tractor from the negdel at Erdene, which will give him another means to earn a living if he is unable to acquire enough animals. He is worried that he will not be able to sell his 20 private camels in Erdene when he comes to leave, since local herders may well receive as many private animals as they can look after during the privatisation. He cannot take the camels with him to Bayanhongor.

Given the very dry conditions of southern Dornogobi, population densities are low. The territory of Tsagan Hutul brigade covers some 368,000 ha, or an average of almost 5000 ha (50 sq km) for each of the 75 households included in the wealth ranking. The large distances between individual suuri meant the research team had to travel continuously during the fieldwork period in a broad circuit from one suur to the next, staying with families in their ger at night.

At the time of the research team's stay in the brigade, during the summer months of otorgoz grazing, suuri tended to cluster in groups according to the distribution of wells, with perhaps 5-10 km between suuri, and 30-40 km separating each cluster. The first part of the fieldwork was based in the generally lower-lying (and drier) territory of the former khesag of Tsagan Hutul to the West; the second part in what had been Duruwilj khesag, separated by the railway line.

Wealth differences

Table 6 shows the results of the wealth ranking carried out in Tsagan Hutul brigade, this time with four informants, again using the card sorting method. This produced 4 main wealth classes, each of which further divides into two parts. It was important to include informants from both former khesags of the brigade: Duruwilj and Tsagan Hutul. Since they were amalgamated only this year, and since distances are in any case considerable, close cross checking was necessary with the informants to ensure they knew all the households in the other part of the brigade.

Discrepancies between the informant ranking scores were more common in Tsagan Hutul compared with the wealth ranking in Hukh Nuur, Arhangai. This is unsurprising, given that suuri are within closer proximity of (and presumably better known to) each other for much of the year in Arhangai. But the discrepancies also show real differences of opinion between the informants.

Household no. 73 for example, ranked 39th overall, is headed by a widowed, elderly woman. Although she is in fact wealthy in terms of numbers of private animals, her lifestyle is spartan, which led three of the four informants to award a low or relatively low score. The other informant, Batdilger (INF 3 - household no.53, ranked 58th) - himself a relatively poor (younger) herder - placed a high priority on numbers of private animals as a wealth indicator. He awarded household no.73 a high score for this reason, although he did make particular mention of the problems

⁴ The divisions between wealth classes are determined by 'natural breaks' in the distribution of average ranking scores.

WEALTH RANKING: TSAGAN HUTUL BRIGADE, ERDENE SUMUN, DORNOGOBI AIMAG

TABLE 6

Position	Household No.	Informant ranking scores				Average ranking score	
		INF 1	INF 2	INF 3	INF 4		
1	(6)	25	17	20	34	24	Wealth class 1a
2	50	50	17	20	17	26	
3	35	50	17	20	17	26	
4	38	50	34	20	17	30	Wealth class 1b
5	11	50	34	20	17	30	
6	47	25	67	20	17	32	
7	17	50	50	20	17	34	
8	8	50	50	20	17	34	
9	*39	50	34	20	34	35	
10	28	50	34	20	34	35	
11	(2)	25	67	20	34	37	
12	7	50	67	20	17	39	
13	21	50	50	20	34	39	
14	32	50	34	20	50	39	
15	54	50	67	20	34	43	Wealth class 2a
16	36	50	67	20	34	43	
17	14	25	17	40	100	46	
18	5	50	50	20	67	47	
19	31	75	84	20	17	49	
20	15	75	84	20	17	49	
21	26	75	84	20	34	53	Wealth class 2b
22	56	50	84	20	67	55	
23	51	50	84	20	67	55	
24	*23	50	67	20	84	55	
25	48	50	84	40	50	56	
26	46	50	84	40	50	56	
27	74	25	84	100	17	57	
28	33	75	84	20	50	57	
29	75	75	84	20	50	57	
30	16	50	84	40	50	58	
31	69	75	84	40	34	58	
32	41	75	84	20	67	62	Wealth class 3a
33	44	75	84	20	67	62	
34	20	75	84	20	67	62	
35	68	75	100	40	34	62	
36	(18)	100	67	20	67	64	
37	40	75	84	80	17	64	
38	45	50	84	60	67	65	
39	73	75	100	20	67	66	
40	(2)	75	84	40	67	67	
41	65	75	84	40	67	67	
42	*64	75	84	60	50	67	
43	37	75	84	60	50	67	
44	9	75	84	60	50	67	
45	63	75	84	80	34	68	
46	42	75	84	40	84	71	Wealth class 3b
47	3	75	84	40	84	71	
48	(5)	75	84	60	67	72	
49	55	75	84	60	67	72	
50	4	75	84	80	50	72	
51	(66)	75	84	60	67	73	
52	27	100	84	80	34	75	
53	13	100	84	80	34	75	
54	24	100	84	100	17	75	
55	30	75	84	60	67	75	
56	1	75	100	60	67	76	
57	70	75	84	80	67	77	
58	72	75	84	80	67	77	
59	58	75	84	80	67	77	
60	10	75	84	80	67	77	
61	*53	75	84	80	67	77	
62	59	75	84	80	67	80	Wealth class 4a
63	2	75	84	80	67	80	
64	61	100	100	20	100	80	
65	19	75	84	100	67	82	
66	29	75	84	80	100	85	
67	*49	100	100	40	100	85	
68	60	75	100	100	67	86	
69	34	75	84	100	84	86	
70	67	75	84	100	100	90	Wealth class 4b
71	*22	75	84	100	100	90	
72	62	100	100	80	84	91	
73	12	100	84	100	84	92	
74	43	100	100	100	84	95	
75	25	100	84	100	100	96	

Note: * indicates households for which detailed income and expenditure data and lease agreement forms are available
 () Ringed numbers indicate households with known cases of children permanently absent from school.

faced by female-headed households, principally related to labour constraints. Another example is household no. 61, ranked 62nd, to which Batdilger awarded a high score because although the head of household is an elderly man living alone and simply, he also has many animals.

The richest and poorest households in the overall wealth ranking are also instructive for the broad agreement between their respective informant ranking scores. The richest of all (no.6) is headed by Gawoo, several times acclaimed a national champion herder. The poorest (no.25) is headed by a widowed, older woman, who left the sum centre with her four children to take up herding only last year, 1990.

In Tsagan Hutul, herders thought locally to be the richest usually have around 200 private animals. The second class of richer herders usually have at least 100. One old couple included in this class have 300 animals, but no children to inherit them. The poor-middle and poor herders generally have 70-100 and 30-60 animals respectively.

Besides private animal herds, jewellery and other gold or silver valuables are the most important local indicators of wealth. Richer herders all have old, handmade silver jewellery with precious stones, and have three or more silver drinking bowls. Perhaps most important of all is to have elaborate silver decorations on one's saddle and brideware. Many families in the second group also have silver and gold.

Furniture is not normally a good wealth indicator, since herders with few animals may have a lot of good furniture, and herders with little furniture may well be among the largest owners of livestock. On the other hand, a few of the rich households have a motorbike or a Honda generator. The use of expensive material (especially Chinese silk) for making *deel* is also considered to be a sign of a wealthy household.

Some very interesting criteria in distinguishing wealth groups emerged with one informant when he was urged to subdivide a large pile. The informant divided a large pile of middle herders into two, the major difference between them being that the group of higher status were articulate, and "have friends in high places: they can get help whenever they need it". In addition, this group, as well as richer herders, are able to get credit from other individuals. For example, if they need to use transport urgently they may do so and pay (with animals) later.

Lifecycle stage once again emerged as an important factor in wealth status of household. Recently established households are generally poorer. Many of these include inexperienced or 'lazy' herders who, while not necessarily materially poorer, lacked respect and therefore 'wealth status' generally. Two informants specifically mentioned the problems of large, young families; these tend to be poorer, because their consumption needs are higher, while they have too little labour to manage comfortably.

By comparison with Hukh Nuur brigade in Arhangai, herders in Tsagan Hutul appear on average to be considerably better off in terms of numbers of private animals, and possession of silver and gold valuables. Dornogobi is a more risky environment than Arhangai, both ecologically and - given the low level of inputs - economically. Keeping large numbers of animals is an important strategy for spreading risk and therefore reducing vulnerability to sudden setbacks during particularly difficult years. On the other hand, keeping large numbers of animals adds to the labour constraint.

Availability of labour

One of the key issues identified in Tsagan Hutul brigade as a major production constraint was the availability of labour. In order to test the hypothesis that the availability of family labour is related to household wealth status, simple demographic data on brigade households were obtained from sum records, that could be compared with the wealth ranking.

Figure 15 presents graphically the available data on this relationship. It shows average total household size in each of the four broad wealth classes identified in the wealth ranking (Table 6), and of this total, the average proportion of the household defined here as full working members. These data demonstrate that poorer households (locally defined) are larger on average than richer households in Tsagan Hutul brigade; and that by comparison with better-off households, a smaller proportion of total members of poorer households contributes fully to family labour supply. Within the richest group of households, approximately two-thirds of household members are full working members, while this proportion falls to about a half among poorer households. On average then, poorer families have larger families but less available labour - or more dependent household members - than richer families.

For example, Enbish has been a camel herder for the last 5-6 years; before that he kept horses. He switched to camels because they are less labour intensive. This is an important consideration for Enbish, since of his 6 children, the eldest is still only 9 years old and attends school. For relatively long periods he can let the camels graze freely, watching them using half a pair of binoculars.

In 1989, Enbish was allocated 300 camels by the negdel, which he said was simply too many for him and his wife to cope with. A particular difficulty is clipping camel hair and wool. This job takes at least two people: one to hold the camel down, the other to clip. Last year (1990) Enbish took only 160 camels from the negdel; this year (1991) he has 120 camels on lease, together with 8 horses for transport. As Enbish explained, "I don't think about the income side; I take just as many animals as I can look after. My children are too young still. 120 camels is about my limit."

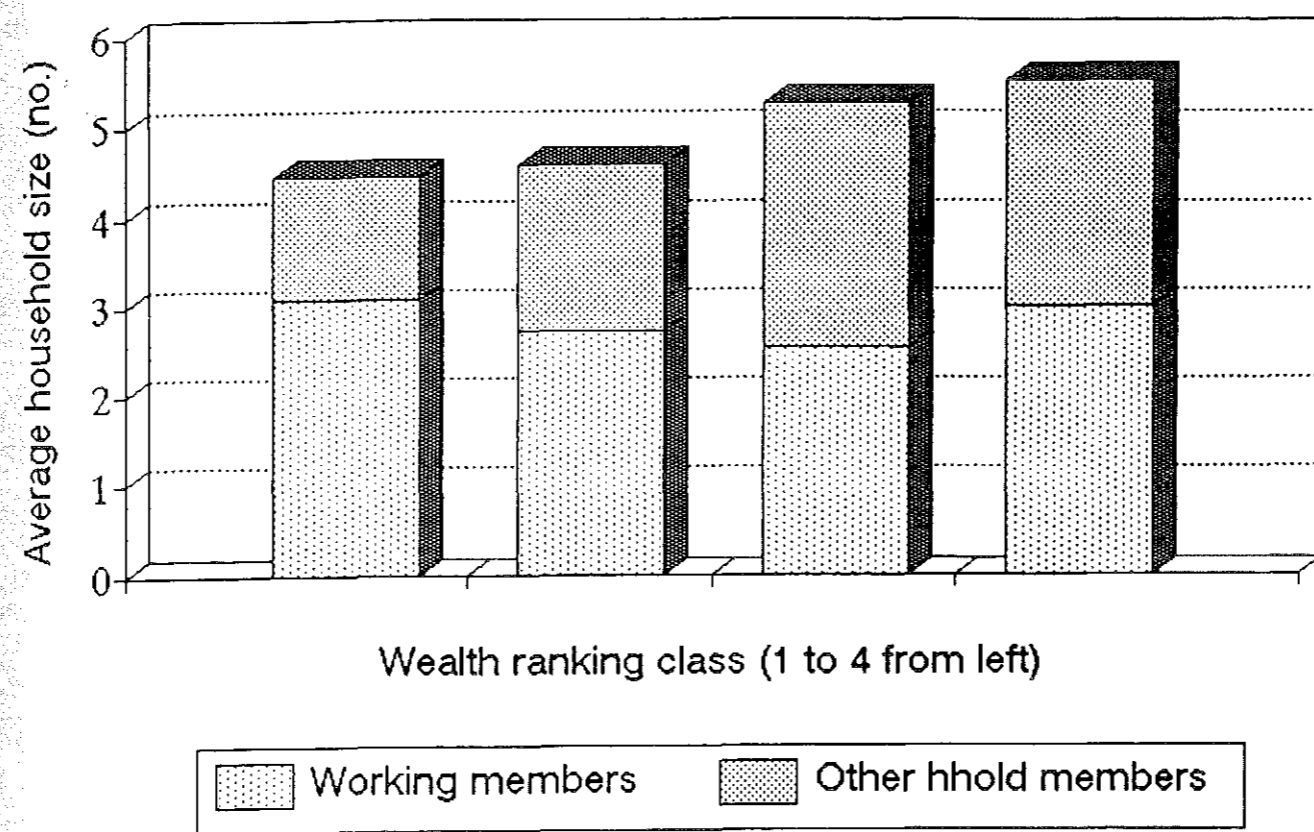
In order to gain a deeper insight into the relationship between availability of labour and household wealth status, data were obtained from households and from sumun middle school records on known rates of absenteeism among schoolchildren from herding families. Reported cases of those known to have left school altogether are a small proportion of total absenteeism, which would include erratic attendance at school.

The available data indicate that boys from five families have left school permanently to stay at home to help with herding. For ease of reference, the numbers of these households are ringed on the wealth ranking, Table 6. The boys were counted for the purposes of calculating available labour (see Figure 15) as working members. According to the wealth ranking, the boys tend to come from richer rather than poorer households. This suggests that the boys stay at home precisely because their families have many animals, and therefore need all the labour they can get.

⁵ From data on household composition, it was assumed that all children over 15 years of age contribute fully to family labour. In households with dependent elderly relatives, those older than 70 years of age were discounted as full working members of the household. People older than 70 years of age but living independently were considered full working members of their household.

FIGURE 15

Tsagan Hutul Brigade, Dornogobi Wealth ranking & labour availability



Watering animals, especially during the summer months, and fetching water for family consumption, is extremely time consuming. Up to three or four hours a day are spent watering animals at this time, despite the fact that herds of large stock are usually accustomed to going to wells for water without having to be closely herded. Even unattended herds seem to observe their own code of conduct at wells, with horses, camels, and cattle each taking their turn in an orderly fashion. Each well has a well operator (paid a certain amount by the negdel for carrying out this duty), who waters any animals coming to the well. He can watch through binoculars from his ger for approaching animals. Children often perform the task of bringing water for the family from the well, usually using camels with large metal churns slung either side.

Added to the time required to water animals, nomadic moves during the summer months of otor grazing are themselves very labour-intensive. Fortunately schoolchildren are at home to help at this time. Small stock and large stock need to be herded separately, as the distances they can cover in a day are different; this demands more labour. The hotter the summer, the shorter the distance that can be covered in a day, and the longer each move takes. The move away from species-specific negdel herds under the new lease agreements exacerbates this constraint. Reciprocal arrangements between suuri are common, where friends or relatives move at different times and help each other out.

Figure 16 shows the seasonal distribution of labour for men and women separately. The busiest time of year for both men and women, as in Arhangai, is the spring young animal rearing season. Women, again like those in Arhangai, are also busy during the summer months with milking. Unlike Arhangai, men are busier during the otherwise slack winter months repairing their winter shelters. This is a more labour-intensive task because the shelters in Tsagan Hutul are often constructed of stone rather than wood. The additional burden of watering animals - twice a day during the summer - is taken on primarily by men, with the help of boys, but by all family members as necessary. Household fuel in the Gobi is normally animal dung, collected from stock pens and other areas surrounding the suur where the animals sleep at night; the task of collecting it falls to women, or to girls.

The practice of using labour assistants from the sum and aimag centres during spring was begun in 1978 in Erdene. The salary costs of assistants have always been deducted from herders' salaries, except in unusually hard years when national institutions of all kinds volunteer their own workers to assist herders free of charge. Labour assistants would normally stay in a separate ger from the family they were assisting, provided by the negdel, and provide their own food. It is thought unlikely in future that herders will use labour assistants during harsh seasonal periods to the extent they have been used in the past, owing to steeply rising costs generally faced by herders.

Lease agreements

Appendix 4 is a translation of the standard lease agreement for 'Amdralin Zam' negdel in Erdene sum.

Under the terms of his 5-year lease agreement, the camel herder Enbish must deliver an annual increment of 1 per cent on his negdel camels. But he hopes to be able to raise 80 additional camels for himself during this period. Since Enbish has a large family, he does not have to pay any taxes on his private animals. The negdel permits 10 animals (in large stock equivalent units) per household member tax free. Enbish has private holdings of just 30 sheep, 10 horses and 8 cows.

TSAGAN HUTUL LABOUR CALENDAR (respondents)

A A M J J A S O N D J F M A M J J A
 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8

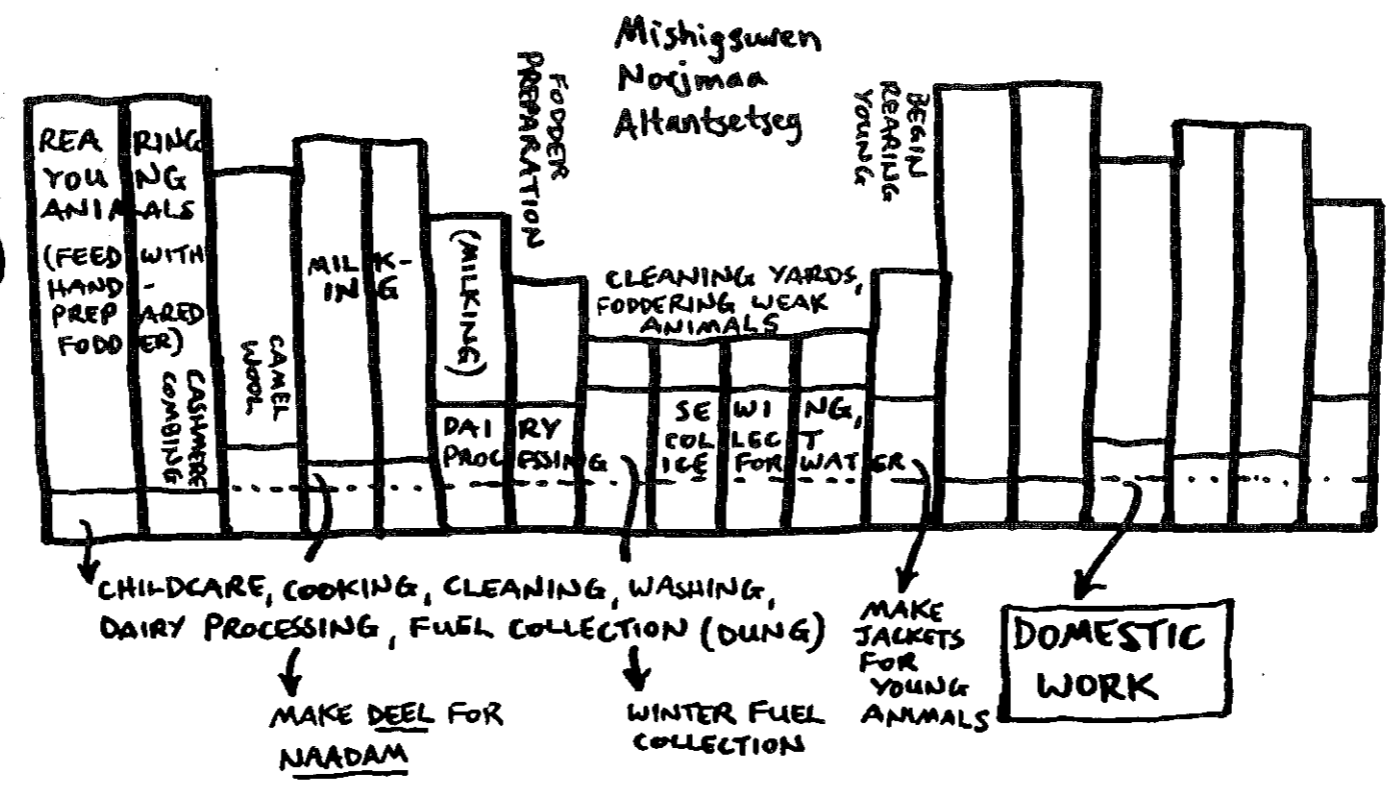


FIGURE 16.

Enbish leases 8 horses as well as 120 camels, but does not have to pay taxes on these as they are for transport only. Over the five years, he could exchange these horses each year for other horses from the negdel if he wanted to. As the horses are not kept for breeding, annual increments do not apply; he simply returns 8 horses after 5 years, and pays 20 tugriks/year lease charge on each horse.

The lease system is not suitable for all kinds of production. Meat production cannot be organised in this way. Tovdendorj has specialised recently in mutton production for the negdel. In 1989 the negdel gave him 400 lambs and 150 goat kids to look after. The following year (1990), all the goats were delivered to the negdel for meat, and this year (1991) all the 2-year old sheep, also for meat. No other products were delivered; there was no time this year to take the sheep wool, for example.

Income, expenditure and marketing

From the wealth ranking, households were selected in each wealth class for a rapid, informal income and expenditure survey. Again, this makes no claims to be representative but is useful for illustrative purposes. In Table 6 the households included in the survey are marked with an asterisk (*) against the household number. The income and expenditure data are summarised in Table 7, and presented graphically in Figures 17 to 22, from richest to poorest. In this case, both income and expenditure data are taken for 1990 (ie. before most herders held lease agreements), and quoted at 1990 prices.

Figures 17 to 22 illustrate several points of interest. For the champion herder Gawoo (Figure 17), almost a third of his income for 1990 - as much as his negdel wage - came from 'prizes', including prizes from horse racing as well as an exceptional state bonus. 'State benefits', where indicated, refer to state pension or child allowances. Tovdendorj (Figure 19) - formerly Tsagan Hutul khesag chief - did rather well in 1990, having been paid by the negdel for looking after a large herd of sheep prior to its redistribution under lease agreements to other herders, and having sold a good number of his private animals, also to the negdel. Supplemented by his savings he was able to make a number of large purchases, including a motorcycle, diesel generator, and a new ger.

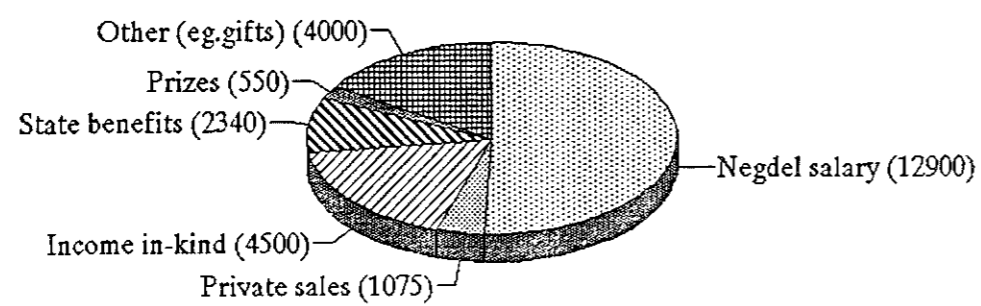
Most sales from private herds in Tsagan Hutul brigade - as in Hukh Nuur, Arhangai - are to the negdel/state, as in the case of Tovdendorj's private sales in 1990. Other opportunities are provided by individuals, usually resident in Ulaan Uul, the sumun centre; and individual traders who come by rail from Sainshand, the aimag centre, or from Ulaanbaatar, to purchase meat locally. This is a good market, as prices are considerably higher than state purchase prices. Enbish sold a cow last year to an old man living in Ulaan Uul, for 1000 tugriks. He used this income towards the purchase of rice, flour and other foodstuffs. He also sold the skins/ hides of the animals he slaughtered for the family's own consumption needs to the state trade outlet in Ulaan Uul.

Some herders had heard that the negdel had been unable to sell its sheep wool to the state this year (1991), since the factories were 'already full'. The wool was sitting in storage in Ulaan Uul, the sumun centre, and the negdel risked losing money over it. Dornogobi aimag had tried to negotiate a direct sale to Hong Kong, but the cost of transport had been prohibitive.

The Chairman of the negdel, Dashnyam, confirmed that the negdel would like to increase its own private sales of members' products as a way of easing its financial difficulties. Although private market opportunities for meat exist - including local military establishments, research institutes and colleges - in 1991 the negdel is still

FIGURE 18.

Household No.39: Dorjhurul
Annual income 1990 (tug.)
Total 25365



Household No.39: Dorjhurul
Expenditure 1990 (total 20489 tugrigrs)

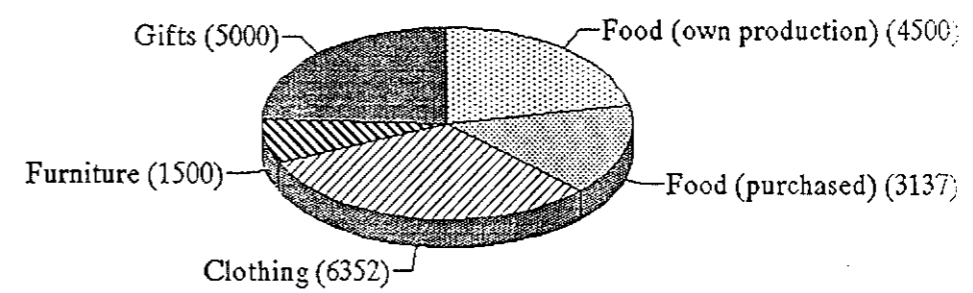
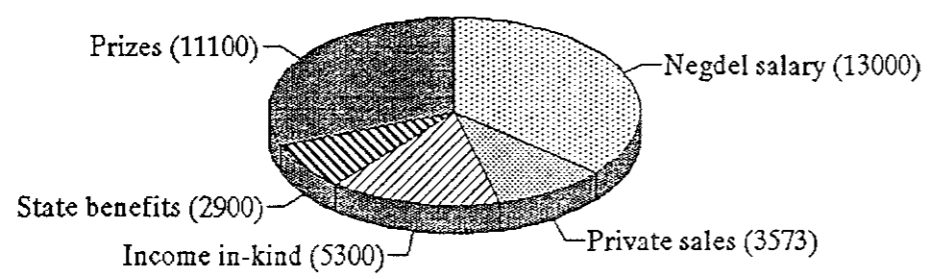


FIGURE 17.

Household No.6: Gavoo
Annual income 1990 (tug.)
Total 35873 tug.



Household No.6: Gavoo
Expenditure 1990 (total 19242 tugrigrs)

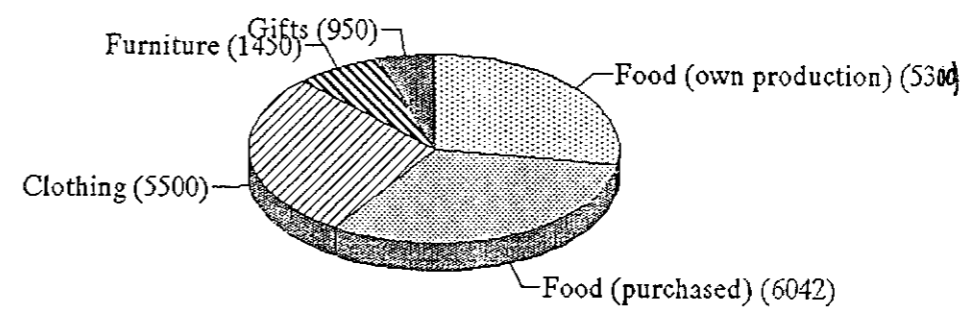
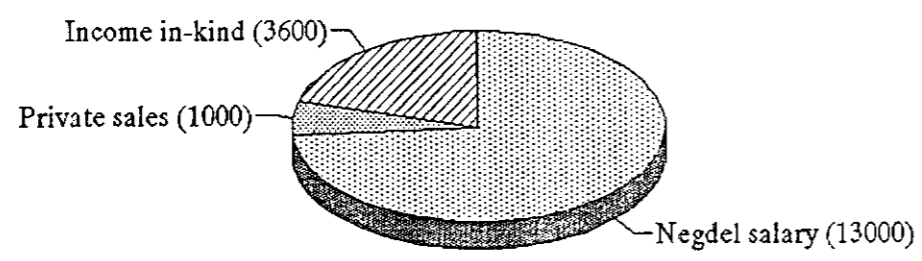


FIGURE 20.

Household No.64: Enbish
Annual income 1990 (tug.)
Total 17600 tug.



Household No.64: Enbish
Expenditure 1990 (total 14100 tugrigns)

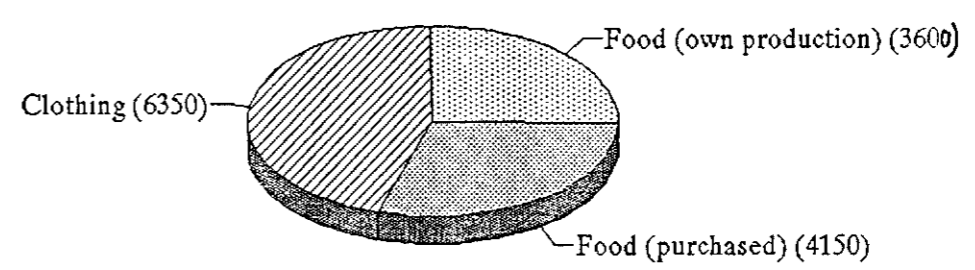
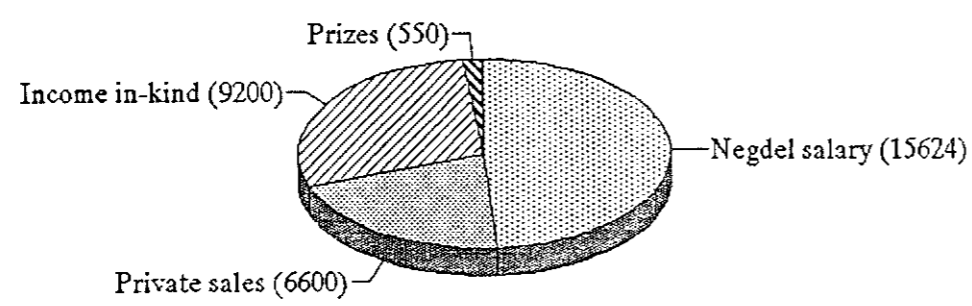


FIGURE 19.

Household No.23: Tovdendorj
Annual income 1990 (tug.)
Total 31974 tug.



Household No.23: Tovdendorj
Expenditure 1990 (total 28974 tugrigns)

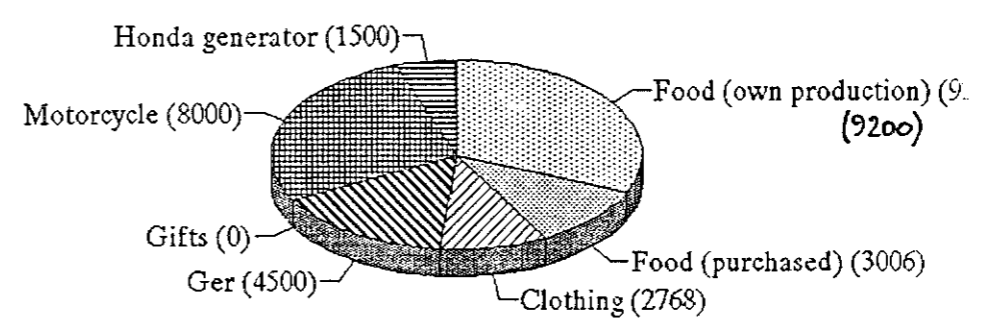
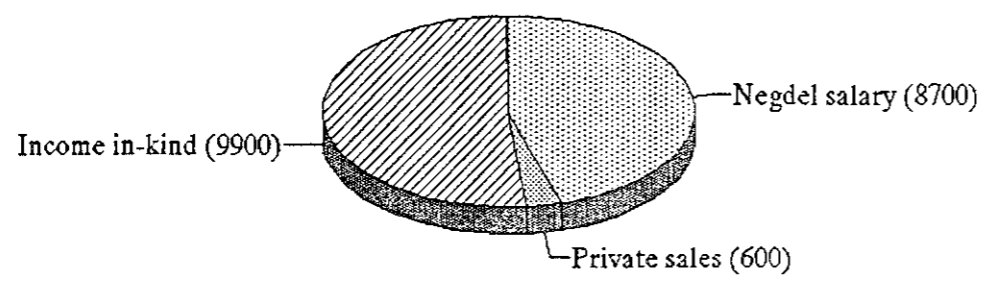


FIGURE 22.

Household No.49: Zondui
Annual income 1990 (tug.)
Total 19200 tug.



Household No.49: Zondui
Expenditure 1990 (total 13742 tugrigrs)

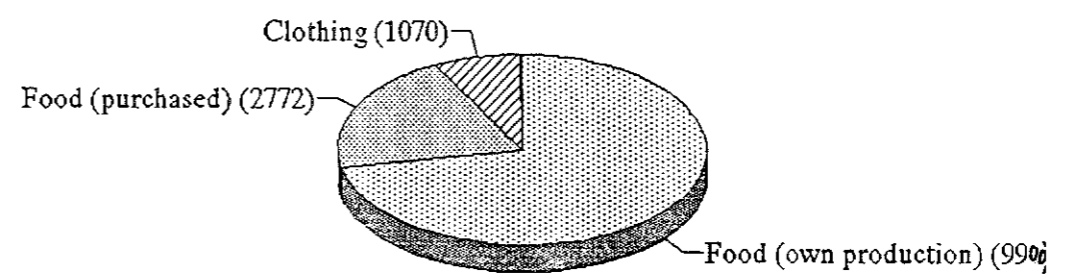
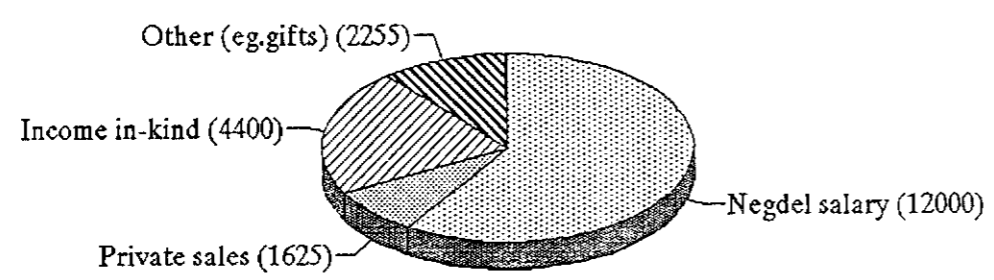
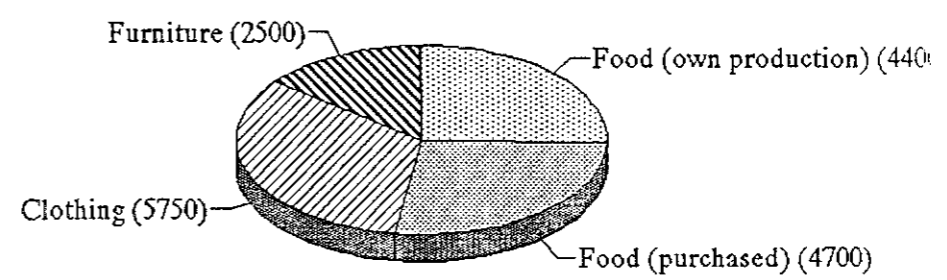


FIGURE 21.

Household No.53: Batdilger
Annual income 1990 (tug.)
Total 20280 tug.



Household No.53: Batdilger
Expenditure 1990 (total 17350 tugrigrs)



prohibited from selling privately by its obligations under the state procurement order.

Seasonal variations and stresses

The major events and seasonal variations in the production calendar are shown in Figure 23. Climate parameters vary considerably from one year to the next; the diagram represents a year in which both rainfall and snowfall are relatively high to indicate at what times most precipitation falls.

Most suuri make at least a dozen nomadic moves a year in this dry Gobi zone. Under such dry and variable conditions, flexibility and mobility are the essential characteristics of the pastoral management system, to ensure access to grazing resources over a large area. Mobility is most important during the period of summer otor for fattening animals, when moves are usually made every 2 or 3 weeks.

The difficult seasons in Dornogobi are spring and summer. Autumn and winter are not difficult by comparison, as there is rarely deep snowfall, and temperatures do not drop too low. There is not always snow during winter, which lasts from November to late February; fodder supplements are only necessary if the depth of snow exceeds 10cm. There was no snow last winter (1990-91), except two light falls in March 1991. During recent years, 1980, 1986-87 and 1989 had harsh winters with relatively high snowfall, especially in the North East of the aimag, where the snow reached 30-40cm in depth. Fodder supplements from the negdel were necessary in Erdene at least in 1986-87 and 1989; in 1986-87, the negdel was forced to spend all its bank reserves on fodder imports from Selenge (by train) and Sukhbaatar (by road).

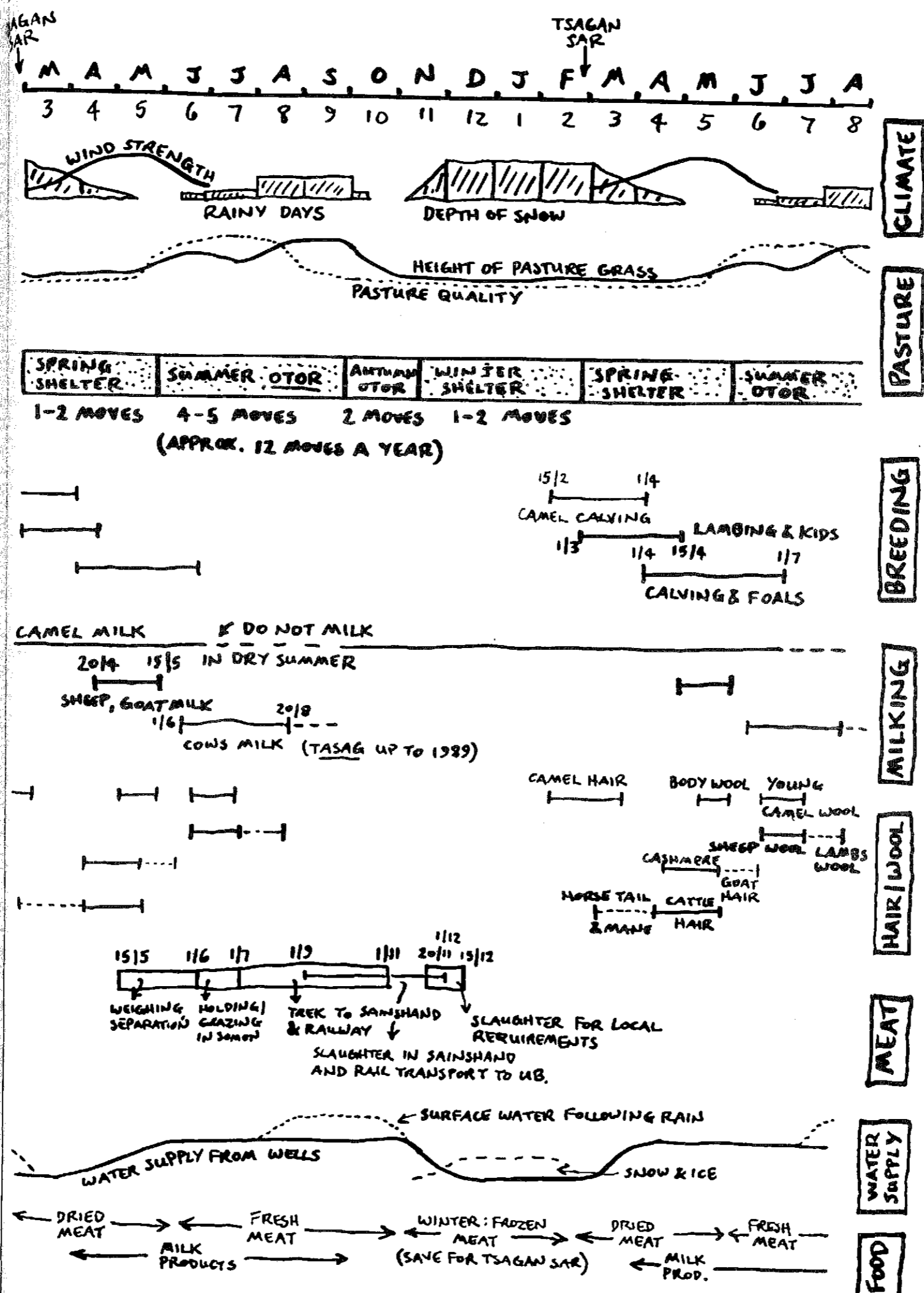
The negdel and state assist herders during periods of seasonal stress. Additional labour is brought in from the sumun centre, from military camps in the aimag, and even from institutions in Ulaanbaatar. They help, for example, by driving tractors to clear snow away from pastures so that animals can get at the grass beneath. They assist in feeding hay to animals, carrying hay to shelters, and making protective coats for young animals. The negdel provides transport to distribute hay to all those who need it.

Spring and summer are very dry indeed; what little rain there is often does not fall until late in the summer. Summer 1990 was dry until August, and 1991 is proving to be even drier: since a small amount of rainfall in June there has been no rain. Desiccating conditions during the very windy as well as dry spring cause discomfort to people as well as being dangerous for young animals.

The main difficulty during the months of summer otor, when animals are moved on very regularly between areas of open pasture, is water supply. Suur sites are determined primarily by the location of wells (handwells, hand- and diesel pump wells), and secondarily by surface water sources and salt/ soda licks (*khojar*). Many areas of good pasture, mostly upland Gobi steppe, are unusable simply because of the absence of wells or other water sources. August to November are the best months in Dornogobi; rain usually falls in August and September, when pastures improve dramatically, and although it is still warm, the worst of the summer heat is already over.

Herders in Tsagan Hutul brigade often do not milk camels during the summer months, as it is too dry. Camel herds have lower fertility compared with other large stock, given their longer gestation period. Herds are usually divided into two parts, calving in alternate years to ensure a near-continuous supply of milk. Similarly, no-

TSAGAN HUTUL SEASONAL CALENDAR FIG. 23.



one keeps milk mares in this area, as the mares need their milk to feed their foals during the dry summer. Consequently *airag* (fermented mare's milk) is not drunk at all in Tsagan Hutul; unlike summer hospitality in Arhangai where airag is almost a summer staple, milk tea is the usual drink. A number of herders have lobbied the negdel to remove from the lease agreement the stipulation to provide a quota of milk each year. With increasingly dry summers, they say, it is not possible to milk sheep either, since the lambs then risk dehydrating. They may refuse to deliver milk to the negdel altogether this year (1991), in which case it is difficult to see what sanction the negdel has to enforce the production target.

Natural resource tenure

In a risky environment like the Gobi zone, 'key resources' - valued areas of grazing, water supply etc - tend to be reserved for difficult periods, whether droughts or relatively harsh winters. Some brief case histories of how herders in Tsagan Hutul brigade have used these resources in recent years are presented below. These give an insight into the kind of flexibility in natural resource tenure arrangements that is vital to successful dryland management in the Gobi.

The usual pattern in negotiating seasonal moves, especially those involving crossing sum or aimag boundaries, is that each suuri informs the negdel Chairman of their preferred destination from a range of possible options - usually following a reconnaissance visit to assess pasture quality - and on the basis of these bids the Chairman decides which suuri will go where.

Until about 10 years ago, there was usually good pasture at least somewhere within the khesag's own territory. More recently, it seems that dry conditions have affected the whole area at the same time, so that negotiating moves into neighbouring administrative areas has become more common.

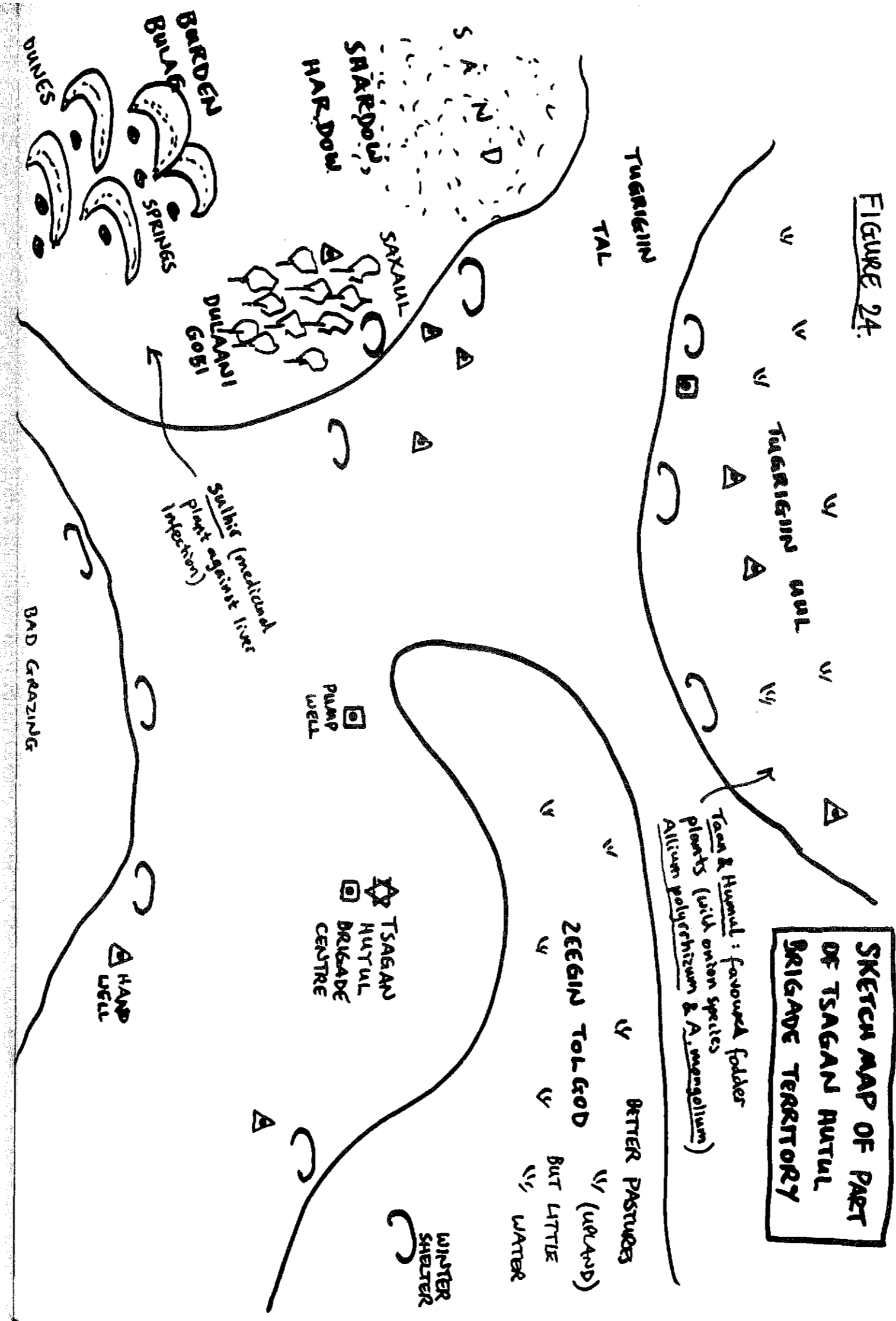
In the far west of Tsagan Hutul brigade territory is an area of sand dunes. This is shown on the sketch map of the former khesag area, drawn by Choisure and Tumurhoeg (Figure 24). The key resources in this area are the sandy hills of Shardow and Hardow; the surface water springs of the dune area known as Burden Bulag; and the saxaul tree (*Maloxylon ammოდendron*) grove of Dulaani Gobi (meaning 'warm place').

The whole area is avoided during the summer, when it is too hot and dry, but provides valuable resources during difficult winters, at which time the negdel would normally bring in water each day by lorry. Burden Bulag is particularly valued for the warmth and shelter provided by the dunes in winter. There used to be 108 springs in the area, between the dunes, from which the area takes its name. The natural migration of the sand dunes however, has now reduced these in number.

Band and Tovdendorj recalled that during the harsh winter of 1986-87 when snow reached a depth of 30-40 cm in much of Tsagan Hutul khesag territory, a number of suuri moved to this area of key resources. That winter however, there was high mortality of animals in this area, as the animals were already weakened by the previous dry summer.

The next summer (1987) was a dry one, and following high mortality the previous winter, the negdel arranged for the same group of suuri to move northwestwards into the neighbouring sum of Orgon for their summer otor. Pasture quality there is generally better on the higher ground near the sum boundary, known as 'Argalin Uul', as it is steppe-type grass rather than the very short grasses of Gobi vegetation communities. Herders from Erdene negdel interviewed at Argalin Uul explained

FIGURE 24.



that there had been a dispute over the use of this land between the two sumun since the mid-1970s when new wells were sunk to improve water supply here. Some families from Orgon sum believe the Erdene families that have been using this land should be made to pay a fee for doing so.

1989 was also a dry summer. That year another group of Erdene suuri moved to Ongon and Bayandelger sumun in Sukhbaatar aimag to take advantage of the better steppe pastures there. The aimag administrations were brought in to supervise this migration. In 1990, the rains came very late. Again the suuri left Tsagan Hutul on 15 July to spend their summer otol in Sukhbaatar aimag, but returned to Tsagan Hutul khesag once the rains arrived in August. They would have liked to have stayed, but the terms of the negotiation stated that they must return if the situation improved.

Saxaul is valued as browse for camels, but cannot be used by other animals. One experienced camel herder, Bavoo, explained that even for camels, saxaul is generally browsed only during a rainy spring when young green shoots emerge. By the summer the leaves are too dry. During a very hard winter, when snow covers the ground, camels may browse it as a last resort. Saxaul also has other uses: small stock use it for shade from the sun during the summer. Some families cut it for fuel, but this is strongly disapproved of, especially by older herders. Normally only the dead wood would be used; the difficulty is that 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 white.

Saxaul trees normally grow to around 40-50 cm in height; a few may grow to 1-2 metres. During a dry year they may not grow at all. Mortality of saxaul trees has been high during the last 3-4 years in Dulaani Gobi (see Figure 24). One possible explanation suggested by Bavoo is that wild mice, which gnaw at the roots of the tree and kill it, may have increased in numbers in recent years, assisted by the dry conditions.

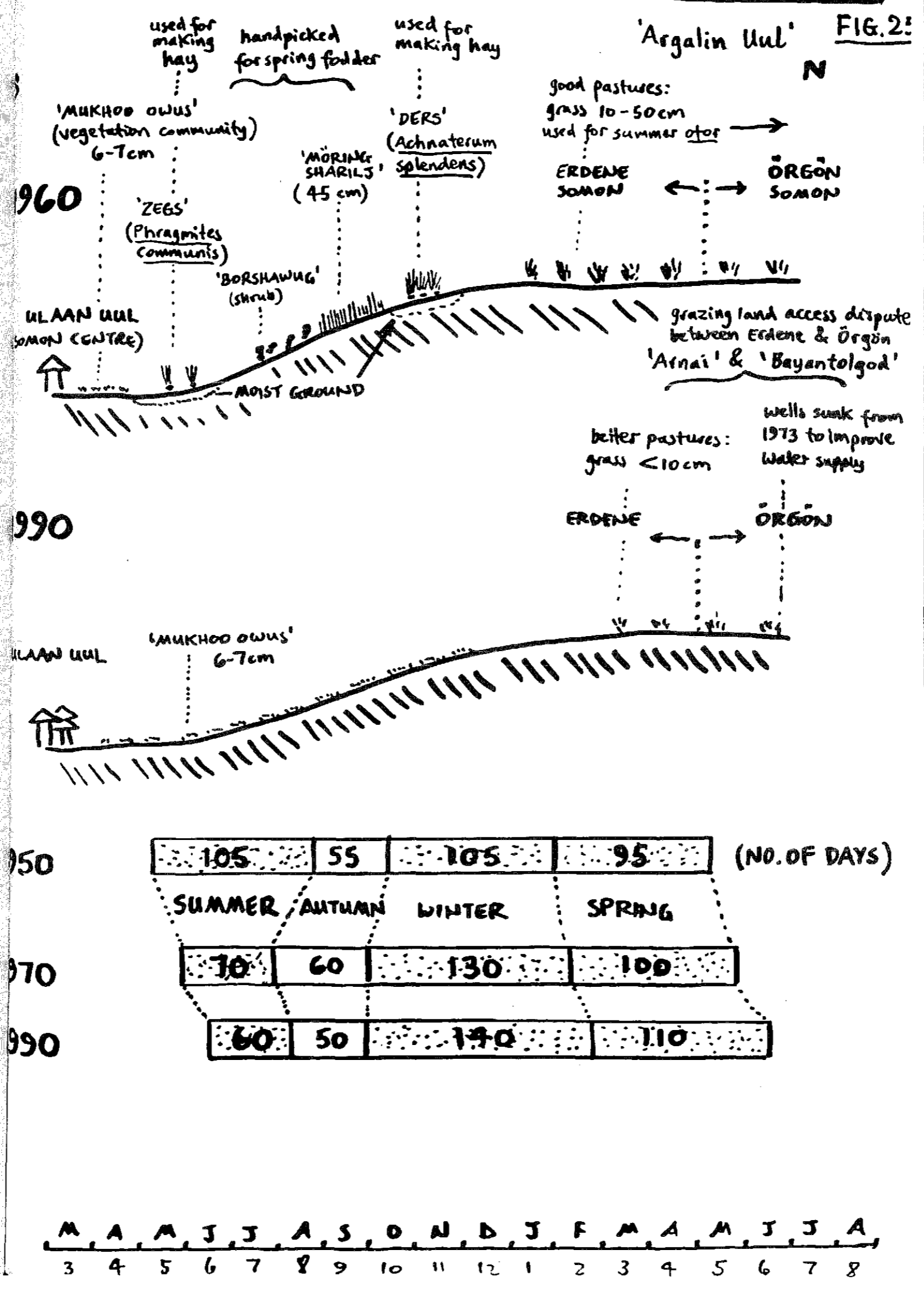
Ecological change

Historical information from elderly informants suggests that summers are becoming shorter and later and winter and spring periods longer in Dornogobi (see Figure 25). Summer is identified here with rainfall. One herder remembered that 40 years ago, summer used to begin when the spring snow melted, around mid-May. Now summer arrives much later, during mid to late June. He remembered how herders used to complain they never saw the sun; but "Now there is too much sun: we need more rain".

A small group of older herders had noticed quite perceptible changes over the last 30 years in the composition and distribution of vegetation communities in the northern part of Tsagan Hutul brigade territory, between the sumun centre (Ulaan Uul) and the border with Orgon sum. The information they gave is summarised in the 'historical transect' diagram shown in Figure 25.

Until around the time the negdel was created in 1959 it had been common practice for herders in this area to make hay from *ders* (*Achnatherum splendens*) and the deep-rooting reed grass *zags* (*Phragmites communis*), a lot of which used to grow in moist areas. Fodder was also handpicked, especially from the small shrub *borshawug*, and the longer grass *moring shariji*. It was not particularly good fodder, but served the purpose in the absence of anything better. The negdel later began to import fodder from elsewhere and the local preparation of fodder lapsed.

TSAGAN HUTUL: ECOLOGICAL & SEASONAL CHANGE



Some fodder for young animals is still prepared locally by hand. Women pick *taan* and *humul* (species of wild onion: *Allium polyrhizum* and *A. mongolium* respectively) which they form into fist-sized fodder balls known as *zoder*, together with fresh grass. Nyadag, a 61-year old woman in Duruwilj, remembers they would use about 1500 *zoder* a year 30 years ago. Now they may make about 500 a year. Not only do they rely more on the negdel for fodder supply, but it is also more difficult to find the *taan* and *humul*.

Over the last 20-30 years, these vegetation communities have given way to associations of much shorter grasses, known as *mukhoo owus*. Previously this had been concentrated around the sumun centre at Ulaan Uul, but it has now migrated and expanded northwards. The drier prevailing conditions over the last 10-20 years is the most likely explanation for the change; certainly fewer and smaller areas of wetland exist now, although herders believe this is because *zags* has declined, rather than the other way round.

The height of steppe grasses on Argalin Uul on the border with Orgon sum has also declined recently. Large herds of antelope could be seen at the time of the research team's stay near Argalin Uul. Local herders believe these have also increased in numbers in recent years, having migrated to Dornogobi from their usual grazing in Sukhbaatar aimag.

Summary of key issues identified in Tsagan Hutul

** labour constraint in herding:*

- (i) exacerbated by shift to more diverse herd structure under negdel lease agreements;
- (ii) associated with wealth status of household: poorer households have larger families but proportionately fewer working members;
- (iii) children being withdrawn from school to help with herding

** poor water supply:*

- (i) leaves many areas of otherwise good pastures unused, and (ii) time required for watering animals during the dry spring and summer further exacerbates labour constraint

** land tenure:*

- (i) need for flexibility in land tenure arrangements to persist to allow migratory responses at local level to ecological risk (eg. possibility of access during dry years to grazing resources or hay reserves in neighbouring sumun/aimags);
- (ii) likelihood that local negotiations over land tenure arrangements will become more difficult owing to both heightened significance of such arrangements as opportunity costs rise, and absence of clear authority as MoA no longer involved

** increase in local cost recovery for input and service provision has serious implications at negdel and suur levels:*

- (i) several negdels unlikely to be able to afford continued fodder imports from neighbouring aimags;
- (ii) unclear whether system of providing labour supplements from outside sum/aimag during harsh years can continue;
- (iii) rising costs to individual suur of frequent nomadic moves using negdel transport

** marketing:* as yet few opportunities exist for negdels to market produce through channels other than state procurement order

APPENDIX 1

List of research team members

1. Dorligin Shombodon	Senior Research Worker (Ag. Econ.), RIAH
2. Gelegjamtsin Narangerel	Research Worker (Ag. Econ.), RIAH
3. Urtnasangin Tuul	Research Worker (Zootech.), RIAH
4. Ayurdsanii Enkhamgalan	Scientific Secretary (Ag. Econ.), IAE
5. Buyanzin Myagmarzhav	Senior Research Worker (Ag. Econ.), IAE
6. Amilin Bayanjargal	Research Worker, (Ag. Econ.), IAE
7. Bekhbazarin Bekhsuren	Research Worker, (Ag. Econ.), IAE
8. Robin Mearns	Fellow (Environment/Rural Devpt.), IDS

APPENDIX 2

Research and training schedule

5 - 8 July	Workshop 1: Research objectives
15 - 17 July	Workshop 2: Fieldwork methodology
20 - 29 July	Fieldwork in Arhangai
30 - 31 July	Review workshop in Ulaanbaatar
2 - 11 August	Fieldwork in Dornogobi
12 - 13 August	Review workshop in Ulaanbaatar
26 - 31 August	Follow-up fieldwork in Arhangai

APPENDIX 3

List of semi-structured interviews held in the two aimags

WHEN	WHO	WHERE	OBJECTIVES/ TOPICS
Arhangai aimag			
Day 1	Mr Yadamsuren, Deputy Chief, Aimag Supreme Council of Negdels	Tsetserleg, aimag centre	Introduction to aimag, explanation of purpose of our visit
	Mr Algaa Mr Purevjav Mr Avirmed	Xotont sumun, 2nd brigade	Discuss privatisation, leasing; natural resource tenure
Day 2	Mr Legtseg Mr Bayarsaa	Ih Tamir sumun, near Hukh Nuur brigade centre	Consumer goods supply, produce marketing, lease
	Mr Tshantsal	Hukh Nuur brigade, Sharbolgin tasag	Mapping: grazing resources
Day 3	Ms Altanshagai Ms Gundegmaa Ms Tsovoo Ms Tsetsegmaa	Sharbolgin tasag, in ger	Mapping: grazing resources and animal diseases
	Mr Mandlhai	Sharbolgin tasag	Mapping: annual grazing cycle
	Mr Purev Mr Tscrenbaldzhir Mr Banzragtsh	near River Narin	Privatisation, natural resource tenure
	Mr Lutochir Mr Sundui Mr Batsagan Mr Mandlhai Mr Dashnyam	Sharbolgin tasag	Veterinary and breeding service
eve	Mr Batulгаа Mr Nergul	team camp	List of names of brigade members for wealth ranking
	Mr Purev Mr Gambaatar Mr Sambuunyam	Sharbolgin tasag, separate gers	Informant ranking of local wealth groups
Day 4	RRA teamwork	team camp	Review workshop
	Mr Natsagsuljee, former brigade veterinary officer	Sharbolgin tasag	Veterinary & breeding service, negdel staff cuts

eve	Ms Altansetseg	in her ger	Risk, pensions
	Mr Dalhrai	Sharbolgin tasag	Labour calendar
	Mr Badarch	Sharbolgin tasag	Seasonal calendar of
	Mr Batmunkh		production cycle; income
	Mr Dashnyam		and expenditure
	Mr Tumurbaatar	Sharbolgin tasag	Climate calendar
	Mr Gambaatar		
	Ms Gundegmaa	Sharbolgin tasag,	Seasonal production
	Mr Nachagsulje	one ger	calendar
	Mr Battor		
	Ms Dolgorsuren		
	Mr Davaa	in his ger	Labour calendar
	Ms Tugsjargal	Sharbolgin tasag,	Women's labour calendar
	Ms Chimid	in ger	
Day 5	Mr Batbold	in his ger	Household income & expenditure
	Ms Otgon	in her ger	" " "
	Ms Chimid		" " "
	Mr Bayanjargal	Sharbolgin tasag	Land tenure
	Ms Saran	in one ger	Social services, women's
	Ms Togtoh		labour distribution
	Ms Otgon		
	Mr Purev	brigade centre,	Focus group discussion on
	Mr Jaminsuren	for negdel annual	marketing
	Mr Baldorj	wool collection	
	Mr Batsagan		
Day 6	Ms Galya	Sharbolgin tasag,	Labour calendar (women)
		in her ger	
	Ms Ochirbat	in their ger	Income & expenditure
	Mr Tshantsal		
Day 7	Mr Purevdorj, Chief, Aimag Supreme Council of Negdels	Tsetserleg, aimag centre	Discussion of plans for privatisation of Arhangai negdels
	Mr Davadorj, Deputy Chief, Aimag Administ- ration, Arhangai	Tsetserleg	Discussion of plans for privatisation of agriculture in aimag

Dornogobi aimag

Day 1	Mr Hunkhur, Secretary of Dornogobi Aimag Hural Mr Batbilig, Aimag Chief Economist	Sainshand, aimag centre	Introduction to aimag, explanation of purpose of our visit
	Mr Ochir, Deputy Chief, Aimag Supreme Council of Negdels Mr Kharsuren, Negdel Council Chief Economist	Sainshand, aimag centre	Explanation of purpose of our visit, basic statistics on negdels
Day 2	Mr Purev, RIAH Asst. Research Worker (former brigade chief) Mr Barsandash, IAE Research Worker	Ulaan Uul, sumun centre	Introduction to brigade; list of names for wealth ranking
Day 3	Mr Tuvd Mr Chogbadrah	Tsagan Hutul brigade, west of sumun centre	Mapping
	Ms Naranzue Ms Uuganbayar Ms Oeziibayar	Tsagan Hutul brigade, west of sumun centre	Mapping; discussion of water availability and useful plants
	Mr Enebish	Tsagan Hutul	Wealth ranking
	Mr Batdilger	Tsagan Hutul south of brigade	Wealth ranking, income and expenditure
	Mr Tumurkuyag Mr Choisurem	Tsagan Hutul brigade	Mapping
Day 4	Mr Tuvdendorj	near sandy area in far west of Tsagan Hutul	Wealth ranking, income and expenditure
	Mr Zondul	by handwell near sandy area in west	Income and expenditure
	Ms Mishigsuren Ms Dugersuren	in ger, near saxaul grove	Labour calendar
	Mr Chimiddorj	in ger, near sandy area in west	Seasonal/ labour calendar
	Ms Bavuu	far west of Tsagan Hutul	Labour calendar, natural resource tenure

Day 5	Mr Ravjir	in ger, north of sumun centre	Discussion of privatisation
	Ms Altansetseg	north of sumun centre	Discussion of leasing system
	Ms Bazchimeg	area of former Duruwilj khesag	Migration, services provided by negdel
	Mr Choijamts Mr Gambaatar	Orgon sumun, disputed land	Historical analysis, natural resource tenure
	Ms Nyamad	Orgon sumun, disputed land	Ecological change, key resources
	Ms Sarangerel	close to sumun boundary	Human health problems
	Mr Sukhee	close to Duruwilj former khesag	Discussion of lease system
Day 6	Ms Norjmaa	former Duruwilj khesag area	Labour calendar, food
	Mr Bathurel	Duruwilj khesag centre (formerly)	Income & expenditure
	Mr Sugar	Duruwilj khesag	Wealth ranking
	Ms Myadagmaa	Duruwilj khesag	Fodder crops, migration,
	Ms Ulambayar, Nedgel Accountant	Ulaan Uul, sumun centre	Sample copies of lease agreements
	Mr Dashnyam Nedgel Chief	Ulaan Uul, sumun centre	Nedgel and privatisation
Day 7	Mr Gavoo	Ulaan Uul, sumun centre	Income and expenditure
	Mr Odsuren, Sumun Chief	Ulaan Uul, sumun centre	Outline of research programme, inspection of maps
	Mr Tseren, Sumun Secretary	Ulaan Uul, sumun centre	Census data
	Mr Batsenhu, Deputy Head Teacher (Middle School)	Ulaan Uul, sumun centre	Data on absenteeism of herders' children

Appendix 4: Translation of lease agreement form ⁶

"AMDRALIN ZAM" NEGDEL, TSAGAN HUTUL BRIGADE
HERDSMAN ... SURNAME ...
LEASE AGREEMENT BETWEEN SUUR AND NEGDEL

12 MARCH, 1991

CAMELS ..., HORSES ..., CATTLE ..., SHEEP ..., GOATS ..., TOTAL ..., OVER ...YEARS, ARE GRANTED FOR CARE BY THE ABOVE HERDSMAN UNDER THE TERMS OF THIS LEASE.

IT IS AGREED THAT THE NUMBER OF CAMELS WILL BE INCREASED BY 1%, AND OTHER ANIMALS BY 2%, IN EACH YEAR.

THE HERDSMAN IS ENTITLED TO 100% OF THE INCOME FROM ALL ANIMAL PRODUCTS. THE HERDSMAN IS ALSO ENTITLED TO DEMAND FODDER, VETERINARY DRUGS, AND TRANSPORT ASSISTANCE FROM THE NEGDEL, BUT HE IS LIABLE TO MEET ALL COSTS OF SUCH SERVICES HIMSELF.

UNDER THE TERMS OF THIS LEASE, THE HERDSMAN SHOULD DELIVER TO THE NEGDEL EACH YEAR 46 kg MEAT PER CAMEL, 10 LIVE HORSES IN EVERY 100, 50 kg MEAT PER COW, 25 kg MEAT PER SHEEP, 20 kg MEAT PER GOAT. HE SHOULD ALSO DELIVER THE FOLLOWING ANNUAL MILK TARGETS: 60 LITRES PER COW CAMEL, 50 LITRES PER MARE, 150 LITRES PER COW, 15 LITRES PER EWES, 10 LITRES PER FEMALE GOAT.

EACH YEAR THE HERDSMAN MUST MEET THE FOLLOWING TARGETS FOR HAIR AND WOOL PRODUCTION: 250 grammes HAIR PER LARGE ANIMAL, PLUS 300 g HORSE MANE, 50 g HORSE TAIL; 160 g GOAT HAIR, 279 g CASHMERE; 200 g FROM EACH CASTRATED RAM AND EACH RAM; 1000 g FROM EACH 1-YEAR OLD SHEEP, 1100 g FROM EACH EWES, 300 g PER LAMB; 6000 g WOOL PER MALE CAMEL, 5200 g PER 4-YEAR OLD CAMEL, 4250 g PER 3-YEAR OLD CAMEL, 3600 g PER 2-YEAR OLD CAMEL, 3000 g PER 1-YEAR OLD CAMEL.

IT IS POSSIBLE TO TERMINATE THE LEASE AT ANY TIME IF THE HERDSMAN SO DESIRES.

SIGNATORIES:

Negdel Chairman	Brigade Chief	Head of Suur
General Accountant	Zootechnician	Junior Herdsman
Deputy Economist		

⁶ On the reverse of this lease agreement is a blank table of accounts, listing all products and items of expenditure, which the herder can complete to calculate both planned and actual income and expenditure.

Rapid Rural Appraisal

1

Why use RRA?

To avoid the problems of long and costly formal surveys, including:

- too much data collected;
- irrelevant data collected;
- late and inappropriate results produced;
- too little/no participation by the local people.

To avoid the risks of quick and unstructured *development tourism* surveys, including:

- obtaining only a *snapshot* picture of the area or topic;
- relying heavily on previous assumptions;
- working without a framework to guide the collection and analysis of information.

To help overcome the biases of:

- meeting only the more accessible and well-to-do individuals and groups;
- looking for only the quantitative, apparent data, and missing the more qualitative, in-depth information and insights;
- dealing with the local population in a 'top-down' manner.

To encourage participation of local people in the process of development by:

- investigating local insights resulting in more effective research information being collected;
- involving local people in research and design so increasing commitment and empowerment.

2

What are the principles behind RRA?

· We can involve local people and increase participation and empowerment;

· We can learn from the local people, use local classifications and terminologies;

· We can limit the amount of information we collect (optimal ignorance);

· We can explore the range of circumstances, rather than get a statistical sample;

· We can investigate each issue in different ways and from different angles (triangulation);

· We can adopt an informal approach, and change it as we go (iterative);

· We can learn better in teams, with people from different backgrounds and with different areas of expertise (interdisciplinary);

· We can do much of the work in-the-field.

3

What are the techniques of RRA?

The RRA approach provides a *basket of choices* of different techniques. Any RRA exercise will make use of a particular combination of these techniques, depending on the available resources and the desired output. The choices include:

· **Secondary data review:** learning from existing official records, census reports, survey documents, maps, photographs, etc.

· **Direct observation:** looking first-hand at the conditions, the agricultural practices, the people, the relationships, the problems, etc.

· **Semi-structured interviewing:** informal discussions, based on a flexible checklist of topics. Respondents could be individual villagers or key informants (*people with specialist knowledge, for example the schoolteacher, village leaders, health officer*). Interviewing can be done with individuals or in groups. Taking casual notes during the interviews. A learning experience for the interviewer.

· **Group interviewing:** may be in focus groups (*for investigation of interest groups' or specialists' attitudes*) or open group workshops (*for general discussion or feedback*)

· **Diagramming:** producing diagrams, often in the field, to help communication and learning. For example maps, transects, seasonal calendars, flow diagrams, cartoons. Roughly drawn on paper or scratched on the ground.

· **Ranking:** Investigating decision-making preferences and *why* people make choices can be done in ranking games. Preference ranking, ranks items through pairwise comparison.

Please turn over ...

sons. Direct matrix ranking ranks decision criteria. Wealth ranking is a tool for investigating local perceptions of wealth and is a rapid way of stratifying the population.

- **Games and role playing:** playing learning games, such as adaptations of traditional board games (e.g. *the Ayo board to investigate attitudes, strategies and preferences*), futures possible (to find people's ideas for opportunities), and the Why? game (to find people's perceptions of the root causes of problems). Informal dramas by the RRA team, or the local people, or both, for communicating and learning, and stimulating discussion.
- **Stories and portraits:** as part of the report of the RRA, recording interesting stories told during the interviews, and describing *portraits* of households with interesting or unusual situations.
- **Workshopping:** brainstorming, analysis and presentation sessions in the field or in the meeting-room.

4

Who uses RRA?

- Anyone involved in development and research can; it is best carried out by local people.

5

Where has RRA been used?

- Mostly in less developed countries (but also in developed).
- Mostly in rural situations (but also in urban).
- Mostly in the agricultural field (but also in others, for example, economics, health, nutrition, forestry, energy).
- Mostly at the village level (but also as larger scale exercises).

6

When is RRA used?

The RRA approach can be used throughout the project cycle:

- When exploring an area to learn of the key problems and opportunities to help plan research or development projects (Exploratory RRA, for example Agroecosystem Analysis);
- When investigating one specific topic, question or problem (Topical RRA);
- When involving local people in research and planning (Participatory RRA);
- When monitoring and evaluating a research or development activity (Monitoring and Evaluation RRA);
- When dealing with conflicting differences between different groups (Conflict Resolution RRA).

7

Limitations of RRA

- RRA techniques are complementary to other research methodologies (statistical surveys, long term anthropological study etc).
- RRA techniques may be rapid, but the process of development is not.
- Participatory approaches to research may raise local expectations; follow-up is necessary.
- RRA techniques may not be cross-culturally transferable; they need to be adapted to local situations.
- Appropriate use of RRA techniques requires the training of facilitators and participants.
- RRA produces questions, hypotheses or 'best bets' for development - not final answers.