OPEN SOCIETY FORUM

THE FUTURE OF NOMADIC PASTORALISM IN MONGOLIA

Public Perception Survey

Ulaanbaatar
2004

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OPEN SOCIETY FORUM

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REASONS FOR PRESENTING THE STUDY RESULTS TO THE READER

With a purpose to support policy research activities in order to raise its significance and enhance its quality, in 2003-2004 the Open Society Forum selected over ten research topics, one of which is concerned with nomadic pastoralism development. A public perceptions survey on the "Future of nomadic pastoralism in Mongolia" presented to the reader is one of several studies, which examined such questions as further development of nomadic pastoralism in natural and climatic conditions of Mongolia, possible alternatives for herders to maintain their livelihood at appropriate level, whether Mongolian would keep the traditional lifestyle if they had other choices, ways of changing the herder household economy from its present state of sustenance economy and developing it into an industry.

The goal of the survey was to study public perceptions on the present condition of nomadic pastoralism and its future trends, so the reader has an opportunity to get acquainted with herders' aspirations, their needs, difficulties faced by them, ways to overcome these difficulties and herders' ideas and perceptions about the future. This study is published for the benefit of policy makers, general public, civil society institutions, researchers, students, donors, who are all participants in decision- making process as well as for everyone interested in this subject.

Not only herders, but also researchers and nomadic pastoralism experts, who make their own contribution to nomadic pastoralism took part in the survey.

We would like to express our gratitude to the research team of the Mongolian Intensive Agriculture Association "AGRO-DEVSHIL" headed by L. Erhembayar, who successfully implemented this project on commission from the Open Society Forum, thus providing an opportunity to present the survey results to the reader.

We would gladly accept your comments on the contents and quality of the survey at osf@soros.org.mn

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Executive Director,
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INTRODUCTION

Depending on the specific features of crop cultivation and livestock breeding in a given year, agricultural production accounts for 20.7-30% of our country's Gross Domestic Production (GDP), in which animal husbandry accounts for 79.9%[1] of total agricultural production and comprised 30% of total produce exported from our country according to 2002 data.

As well as being a basic source of providing the population with food such as meat and dairy products and providing processing industries with raw materials, the industry employs about 30% of the total population of working age, i.e. over 389,800[2] people are engaged in this industry.

That is why livestock breeding and the social problems of the population engaged in this sector have been in the focus of attention of the Mongolian Government, donor countries and international organizations.

The main goal of the contactor and implementer of the survey on *'The Future of Mongolian Pastoralism'* will have been achieved, if the Final Report succeeds in giving all organizations and individuals who make decisions, implement policies and conduct research on the future development of the animal husbandry sector and living standards of herders, with objective information on the sector's present situation, its future trends and the opinions of herders opinions on this subject.

The research team believes that the study on *'The Future of Mongolian Pastoralism'* is a unique and innovative work, for on the basis of the opinions of the herders themselves, local administrations, livestock breeding experts and researchers it has examined such numerous issues as the assessment of herders' living standards by the herders themselves; herders' ideas about their future; the biggest problems encountered by herders; the most important social, material, and industrial needs of herders; the opinions of herders on activities and measures taken by the Government for development of animal husbandry; herders' concerns; the income situation of herder households; satisfaction from their work; their views and interests on other than herding ways of earning a living and the existence of any barriers on the way to realize their choice; together with the herders' ideas on what should be done for the development of animal husbandry.

The team believes that the results of this study, which reports herders' opinions, will become an important resource for the Government and public organizations in policy development, decision-making and implementation in the field of the future development of animal husbandry.

The team expresses their deep gratitude to the Open Society Forum of the Mongolian Open Society Institute that initiated this research, financed it and provided the opportunity for its publication.

[1] State Statistical Yearbook for 2003, No.12

[2] Livestock, domestic animals and fodder census, National Statistical Office (NSO), April 2003

Members of the research team of the Mongolian Intensive Agriculture Association 'AGRO-DEVSHIL' who carried out the survey on *'The Future of Mongolian Pastoralism'* commissioned by the Mongolian Open Society Institute are:

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CONTENT

CHAPTER 1

RESEARCH METHODOLOGY

1.1. Justification and background of the survey

As Mongolia started its transition to the market economy, the collective farms and State enterprises were disbanded, livestock was privatized, and over 190,000 barely surviving *'hot ail'* (herder households) with very low economic capacity appeared. The *hot ails* were not psychologically prepared and lacked the economic capacity for dealing independently - without external assistance - with difficult but vital problems of pastoral livestock breeding such as: fodder procurement, building of pens for animals, and migration to winter pastures. Although 13 years have elapsed since the start of the transitional period, still there is a lack of study on the adaptation of herders to the new market conditions and of the changes in their psychological and economic capacity of living in market conditions.

Mechanized dairy farms, and cattle, pig, poultry farms with purebred highly productive animals, which could have become a basis for intensive animal husbandry, were transferred to entities such as cooperatives and companies with no market experience and low economic capacity. As a consequence, the capital assets did not transfer to reliable owners, but were basically left unattended and declined. Issues of livestock selection and breeding, increasing the productivity per unit, and improving fodder procurement required innovative solutions in the new social and economic conditions. Questions of examining new ways for intensification of animal husbandry, and of studying the opinions of herders working in this sector, have become important issues.

Changes in society such as globalization, development of information and communication technologies, privatization, and the transfer of livestock to herders have deeply reformed the mentality and lifestyle of herders.

Mongolia's transition to a market economy has created many new needs in people's lives - electricity, television, new machinery and equipment, mobile phones, new diets, cosmetics, quick access to information etc. New questions have arisen: *"Can subsistence livestock breeding meet the growing needs and consumption of population?" "Can the herders with less than 200 livestock who make up 88% of total herder households[3] hope for satisfactory living standards if they continue to engage in livestock breeding?" "If not, what shall they do?" "Do they desire other alternative choices for sustaining their livelihood?"*

Statistical data show that herders lack opportunities for accessing education and health care services. According to 2000-2002 data, maternal mortality in rural areas is double that of urban areas, infant mortality is 46% higher, and the mortality rate of children of under-5's is 39% greater. In the majority of *soums* and *bags* children's foreign language knowledge and computer literacy level is extremely poor, there is a lack of teaching staff, and more than 40% of the total of 329 *soums* do not have a link to the central electrical grid. The issue of eliminating the existing backlog of education and health care services problems is still unresolved.

Herders' labor productivity is, in our view, one of problems that need to be studied. In the 10 years since the transition from the command central economy to the market economy the number of herders has increased and a trend has emerged that the number of animals per herder has decreased, therefore there is an urgent need to study the problem.

There is also a need to study herders' perceptions on the volume and output of capital investment and assistance from donor countries and organizations to the Mongolian animal husbandry sector; the herders' knowledge of and information on the issue. Although

[3] Livestock, domestic animals and fodder census, National Statistical Office (NSO) April 2003

in the last decade the UN, World Bank, IMF, Tacis, European Union, Asian Development Bank and other international agencies, as well as donor countries such as the USA and Japan, have allocated substantial resources on projects to alleviate rural poverty and support rural development, there exists no information on herders' opinions on the project results.

Therefore it is timely than the Soros Foundation and the Open Society Forum of Mongolia has become aware of the abovementioned urgent issues existing in the livestock breeding sector of Mongolia and decided to carry out the research project on the *'The Future of Mongolian Pastoralism'*.

Our research team considered that the study on present condition and future development of pastoral animal husbandry should start from a survey on perceptions of herders, animal husbandry experts and researchers on the issues.

1.2 Survey goals

The goals of this survey are: to study the perceptions of representatives of different social groups, especially herders, on the present condition of Mongolian animal husbandry and its future development; to compare the results of the survey with the Mongolian Government's legal and economic policy in this field and its implementation, as well as with projects and activities implemented by the donor countries and international agencies; to provide factual materials and develop recommendations that can be used at policy development and decision-making level in livestock breeding development.

1.3 Survey objectives

To achieve the goals of the survey, several objectives were put forward; links between them and causes were summarized and analyzed by means of analytical methods; evaluations were made and recommendations developed. Such basic indicators as the age group, work experience, education, number of livestock owned and living standards of herders and other respondents, the geographic zone and economic region of their residence were taken into account and the survey findings were differentiated according to these indicators.

1.3.1 Present condition of pastoral livestock breeding

The effect of animal husbandry on Mongolian economy, policies developed and decisions made by the Government and *Ih Hural* in order to develop animal husbandry and their implementation, involvement of international organizations, the present condition of livestock herding, fodder production, veterinary services, selection and breeding were studied comparatively with herders' perceptions and secondary data.

1.3.2 The main subjects of ownership relations: possession of pastures, wells and animal pens

The survey studied herders' attitudes towards the present condition of possession and use of pastures, wells and animal pens, which are the main subjects of ownership relations. The herders' views on the problems that need to be solved in the future were studied and recommendations on the future trends in this field were made.

1.3.3 To determine the present status of labor organization in livestock production and its future trends

In the frame of this objective were determined such indicators as the current labor productivity of herders, the number of animals per herder, and their labor efficiency.

1.3.4 To determine herders' perceptions on improvements to the legal environment

The survey determined the herders' perceptions on laws and regulations currently operative in livestock breeding and their implementation, and summarized herders' opinions on the required future legal environment.

1.3.5 To learn about effect of radical changes in environment and climate on livestock breeding

The survey examined changes in the structure of pastures and plant composition caused by radical climatic and environmental changes, their effect on livestock production, perceptions of herders on changes in the pasture structure and plant composition, observations and conclusions of researchers. An overview was developed of climatic changes by climatic zones and regions for the next 40 years.

1.3.6 To determine problems and obstacles encountered in livestock breeding

The survey studied herders' perceptions on the arduous labor in livestock production and ways to facilitate it. For instance, issues examined included: problems encountered in use of pastures, procurement of feed and fodder, animal pens and water points, animal productivity and its selection and breeding, rearing of young animals, opportunities to sell products and ways to solve these problems.

1.3.7 To study satisfaction of herders

The survey looked at the satisfaction of herders in three aspects: satisfaction with livestock breeding activities; satisfaction with the living environment; and satisfaction with social services. In the frame of this objective herders made an attempt to evaluate their satisfaction with livestock breeding, their own living environment and social services. This information shall become valuable material for use in decision-making in the field of livestock industry development.

1.3.8 To study herders' income and expenditure and herders' perceptions on income

The survey compared herders' satisfaction with the present condition of their income and expenditure in accordance with their income level and priority needs (tuition fees of children, purchase of power generators and equipment etc.).

1.3.9 To rank herders' needs and expectations

The survey defined herders' expectations and needs using such indicators as: livestock husbandry activities; living environment; social relations/healthcare; schooling; mass media and information; communications; and legal environment. Also taken account were: infrastructure; market environment; and material conditions of a cooperative, household, or *hot ail* (several families camped at 1 site). By achieving this objective, we ranked herders' needs and determined the main expectations and needs of the herders.

1.3.10 Rational methods of livestock breeding

The survey clarified the opinions of herders and other social groups on the present system of livestock breeding and its future development, and on the livestock insurance issue.

1.3.11 Public and herders' perceptions about herders' livelihood: herders' objectives for the near future

The survey studied herders' ideas about improvement of their livelihood, finding new sources of income, engaging in additional business activities or supplementary farming, opportunities for generating income in rural areas and how herders use these opportunities, plus herders' thoughts on their children's future. Herders responded to such questions as *"Will herders still engage in herding in the future?"*, *"Will herders leave herding in case if there are other alternatives for sustaining their livelihood?"*, *"What are your goals in the near future (1-2.5 years)?"*

1.4 Research methodology

1.4.1 Research methods

The following methods were used to achieve the goals and objectives put forward in the study:

1. Sociological research methods; and
2. Focus group discussion method.

SPSS software was used to process statistical data collected by means of random sampling.

As a small part of herders covered by the sociological study did not answer the questions according to instructions or sometimes left some questions unanswered, the number of respondents to each question differs slightly from the total number of survey respondents (by 10-30). However we do not consider that this will affect the overall findings of the survey.

1.4.2 Guiding principles of the survey

The following principles were observed to make the survey as objective as possible:

- To involve many social groups. When the team developed the research methodology, it was planned to study not only perceptions of herders, animal husbandry experts and administrative workers on the present condition of animal husbandry and its perspectives, but also those of the general population in *aimag* and *soum* centers and settlements and the urban population. However, during the process of piloting the research methodology, it was observed that general population in *soum* centers, towns and settlements were either not interested or lacked knowledge on the present condition of animal husbandry and its future. Therefore many refused to participate in the survey. This led to wasting of time and effort and would have resulted in collection of data irrelevant to achievement of our goals. Therefore the team agreed to view the perceptions of herders, animal husbandry experts and local administrative workers as public perceptions. The field research was implemented in following way: the team gave the respondents an opportunity to address the issues in their own way, made them fill in the questionnaires on their own, gave some general clarifications to issues they did not understand, and assisted respondents of low literacy level by writing down their answers.

- To strive to reflect the real situation. Subjects covered by the study were selected by their ability to represent the most probable real conditions by the least sets with regard to their number, size, geographic location, regions and zones. The issue of reflecting distinctive features of the vast territory of Mongolia, its nature and climate and its economic features is explained in detail in the methodological part named 'the Object of Study'. To render the representative balance of the survey more objective, along with the method of random sampling, a method of deliberate sampling was used with regard to the average

statistic indicators of an area. For instance, data on the number of livestock and living standards of certain herder households were provided by the *soum* and *bag* governors of the areas selected for the study. Then, on the basis of data analysis, were selected some groups of herder households to participate in the study. Other herder households in the area were selected randomly. However, age, sex and education level of herders covered by the survey were not selected deliberately.

- **To select an objective unit of measurement**. In evaluating herders' living standards, the number of livestock owned by the household, which is their main source of income, was used as a unit of measurement. However taking into account such issues as differences in the number of family members, or different ratio of cattle and sheep and goats when the total number of livestock was the same, such indicators as **'number of livestock per member of the household in *bog* (i.e. in sheep and goats) and income per member of household'** were selected for use in the survey. This played an important role in receiving objective, valid survey results. As herders' attitudes towards any issue were affected greatly by their household income level and number of livestock, it was necessary to use these indicators in the survey. In calculating the number of livestock per household member, the team used the following method. First, on the basis of the *End of Year Livestock Census 2002* data (A account), the total number of current household livestock was determined by calculating the changes in the number of livestock since the Census. The total number of livestock was notionally transferred to sheep by counting 1 camel or 1 horse as 7 sheep; 1 cow as 6 sheep; and a sheep or goat as 1 sheep. Then, the total number of livestock in sheep units (*bog*) was divided into the number of household members, to determine the number of livestock per household member in terms of sheep units.

For example, let us determine the number of livestock per one household member in a household with 6 family members and 170 livestock (5 camels, 10 horses, 15 cattle, 80 sheep and 60 goats). First, we transfer the total number of livestock into 'sheep equivalent units' (*bog* units): the number of livestock (in *bog* units) = 5 (camels) x 7, +10 (horses) x 7, +15 (cattle) x 6, + 80 (sheep) + 60 (goats) = 335 *bog* (sheep equivalent units). Next, the number of livestock per household member was calculated: NLPHM[4]= 335/6 = 56 *bog.*

In calculating the annual income of a herder household, the survey took into account such data as dairy and meat products consumed by the household and their cost according to the local market prices, cost of sold products according to their own report and the average market prices.

In calculating the livestock productivity, the survey took into account the norms of productivity for given livestock with regard to its breed, age and other factors plus the herders' own report.

To calculate the income per capita, the annual income of a herder household was divided to the number of household members.

To determine monthly income per capita, the annual income per capita was divided equally between 12 months.

1.4.3 Subjects selected for the study

In selecting the subjects of the study, the team took into account economic regions as well as the geographical position and specific natural and climatic features of the territory of the country. When processing the primary survey materials and making conclusions, in most cases data were grouped by economic regions, but in some cases they were grouped by geographic position of the area. *Aimags* are grouped into economic regions on the basis

[4] The number of livestock per one household member

of their similar position, market relations, natural and climatic conditions, infrastructure. But in some cases there is little justification for such grouping, for instance to regard Selenge and Umnugovi *aimags*, which both are included in the Central Economic Region, as areas with similar conditions.

The following *aimags* representing Mongolian Altai, Hangai, Hentii mountain valleys, forest, steppe and Gobi zones, regions close to cities and settlements, agricultural and economic regions were selected for the study:

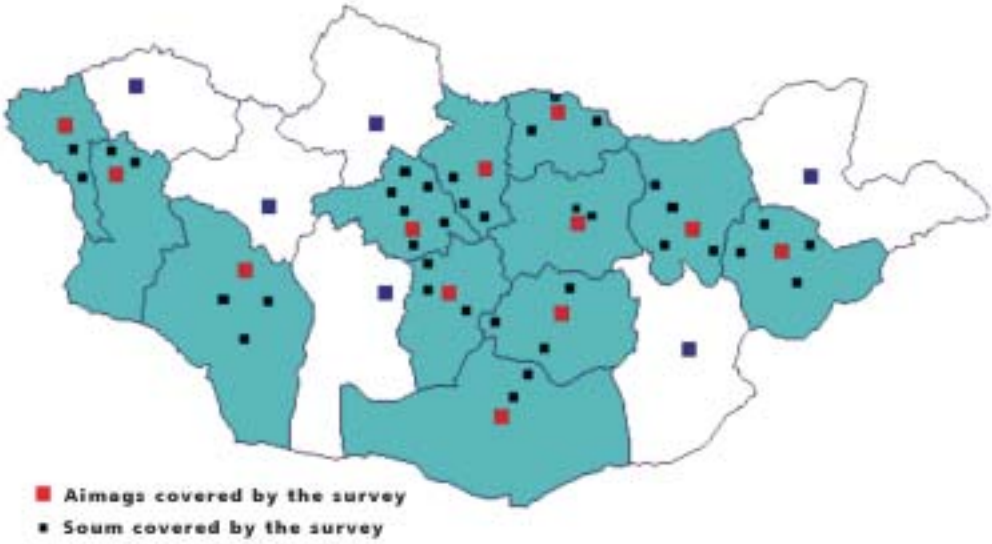
- Eight *soum*s were selected in Hovd, Govi-Altai, Bayan-Ulgii *aimags* representing the mountainous areas of Altai and the Western Economic Region. The mountainous region of Altai covers a territory over 2,000 km long from Umnugovi to Bayan-Ulgii *aimags* combining features of Altai, Gobi and steppe zones. *Soums* selected in Govi-Altai *Aimag*, which is located in the central part of a group of mountains belonging to the Altai mountain range, are representative not only the neighboring Bayanhongor and Zavhan *aimags*, but also have similar aspects of environment, climate and animal husbandry that can represent the Western Economic Region with Gobi and steppe zones. *Soums* selected in Hovd and Bayan-Ulgii *aimags* are representative of the distinctive environment, climate and territorial conditions in Uvs and Bayan-Ulgii *aimags*.
- Ten *soums* in Arhangai and Bulgan *aimags* were selected to represent the Hangai mountain range territory, forest-steppe zone and the Hangai Economic Region. The selected *aimags* are representative of the Hangai, forest steppe, and steppe zones of Uvurhangai and Huvsgul *aimags*, which are located in this region, having similar natural and climatic conditions, and use the same herding methods and technology.
- Eight *soums* in Tuv, Selenge, Dundgovi and Umnugovi *aimags* were selected to represent the agricultural and intensive livestock breeding region, Gobi and steppe zones, the Central Economic Region. *Soums* selected in Tuv and Selenge *aimags* have such distinctive features as wide use of intensive animal husbandry methods and well-developed infrastructure, while *soums* selected in Dundgovi and Umnugovi *aimags* are representative of general trends in the Gobi and steppe zones.
- Eight *soums* in Hentii and Suhbaatar *aimags* were selected to represent the Hentii mountain range territory, steppe zone and the Eastern Economic Region. The selected *aimags* and *soums* are representative of natural and climatic conditions of steppe, Hentii mountains and the Eastern Economic Region.
- The 21st Horoo of Songinhairhan District (former Partisan State farm) was selected to represent the Ulaanbaatar region. Before the 1990's this was a district which provided the capital city with milk and had a number of intensive dairy farms. There are still many private enterprises and individuals with livestock, who are engaged in dairy farming there, so it can represent livestock production in areas close to the city.

1.4.4 The scope of research

A total of 34 *soums* in 12 *aimags* plus the territory of 1 district were selected. Each *soum* was selected to be representative of a group of *soums* similar to each other by virtue of their natural and climatic conditions, infrastructure and market development.

Aimags and soums covered by the survey

Figure 1



A map developed by the team of the survey on 'The Future of Mongolian Pastoralism'.

A sociological study was conducted by using questionnaires in two different directions in order to study herders' perceptions and those of experts and sector management workers.

The scale and scope of work can be gauged by the fact that two different types of questionnaires were developed to conduct the sociological study:

- A questionnaire for 773 herders of selected *soums* and areas with 50 questions and 680 permutations of answers; and

- A questionnaire for 234 experts and management workers with 11 questions and 117 permutations of answers.

In total over 123,600 indicators were processed with the use of SPSS software.

The research team talked individually to 773 herders covered by the study, and explained or clarified some questions that the herders did not understand, but herders themselves filled in the questionnaires.

Aimags and soums selected for the survey

Table 1

Geographic zones and Economic Regions	Aimags	Households in study	Soums
Western Economic Region Altai mountainous zone	Hovd, Govi Altai, Bayan Ulgii	37 110 63	Hovd, Buyant, Biger, Tsogt, Tseel, Haliun, Deliun, Tolbo.
Hangai Economic Region Hangai mountain range territory, forest steppe zone	Arhangai, Bulgan	183 67	Erdenebulgan, Uginuur, Tsenher, Undur-ulaan, Erdenemandal, Hairhan, Dashinchilen, Gurvan bulag, Saihan, Saihan-ovoo.
Central Economic Region, agricultural and intensive animal husbandry region, Gobi and steppe zone	Dundgovi, Umnugovi, Selenge, Tuv	53 41 38 33	Delgertsogt, Huld, Tsogt-Ovoo, Hanhongor, Hushaat, Huder, Batsumber, Jargalant.
Eastern Economic Region Hentii mountain range territory, steppe zone	Suhbaatar	34	Burentsogt, Tumentsogt, Asgat, Baruun-Urt, Bayanhutag, Jargalthaan, Tsenhermandal, Murun.
Ulaanbaatar Region	Ulaanbaatar	33	21st horoo, Songinhairhan district (ex-Partisan State farm)
TOTAL	**11 *aimag*s + capital city**	**773**	**34 *soums*, 1 district.**

To calculate indicators such as the number of livestock per household, their income and expenditure, we selected the herders in such a way that one herder represented one household. That is for the part of the survey on the changes in number of livestock per household, their income and expenditure represents herder households.

To compare the results of the sociological study and clarify the meaning of some questions, focus group discussions on the present and future of animal husbandry were conducted in 5 *aimags* among 15-20 herders, in total among 100 herders.

At the end of the survey, the answers to the questionnaires were analyzed in relation to the number of livestock owned by respondents, the living standards of the household, education, profession, *soum* and *aimag* of residence, zones and regions. Over 400 tables and diagrams were drawn. To make the report as lucid and brief as possible, 69 tables and 39 figures were selected for inclusion in the main body of the report and 28 tables were inserted in Appendix 1.

In order to develop the research methodology and pilot the sociological survey questionnaires, the team worked in Taragt, Batulzii, Tugrug *soums* of Uvurhangai *Aimag*. However the research materials from these *soums* were used to upgrade the questionnaires and improve the research methodology and are not included in the final report.

1.4.5 Representativeness of the study

The field research of the survey on *'The Future of Mongolian Pastoralism'* covered 55% of the total of 20 *aimags* and 10.4% of the total of 326 *soums*. In selecting *aimags* and *soums* for the study, many indicators such as natural and climatic conditions, economic zones, infrastructure, livestock distribution and its diversification were taken into account and the principle of representation by similar features was followed, so the research team considers the representativeness of the survey to be quite high with regard to the selection of areas.

For the selection of *aimags* and *soums* to be covered by the study, use was made of such indicators as nature and climate of Mongolia; the Altai, Hangai, Gobi and steppe zones; economic regions; development of market relations; representation of other *aimags* and *soums* by the selected *soums*. The selection is described in detail in section 1.4.3 of this report. In each of the 34 selected *soums* were selected 20-25 herder households (totaling 773 households) plus 3-5 management workers and experts by combining random sampling and deliberate selection in order to represent the average households and ensure the representativeness of the study. Over 60 management workers, livestock breeding experts and researchers were selected from the capital city and 3-5 managers and experts were added from *aimag* centers of each *aimag* covered by the survey - in total 234 management workers, livestock breeding experts and researchers participated in the survey.

The households in the study were selected to be close to the national average in terms of their living standards and the number of livestock owned, in order to add to the representativeness of the survey. On the whole, the number of livestock owned by the households covered by the study and its correspondence with the national average is the main indicator of the representativeness of the study.

The number of livestock owned by the households covered by the study is comparison to the national average in Table 2.

The Table shows that the difference between the number of livestock of households covered by the survey and the national average is at most 3.6%, which illustrates a quite high representativeness of the study.

Livestock owned by herders compared with 2002 national average

Table 2

Number of livestock	2002 national average*		Herder households in study		Difference
	Housholds	% of total	Households	% of total	
Total	243, 234	100.0	773	100.0	-
<10 livestock	33,183	13.6	117	15.1	1.5%
11-30 livestock	42,796	17.6	123	15.9	-1.7%
31-50 livestock	36,165	14.9	102	13.1	-1.8%
51-100 livestock	55,905	23.0	207	26.8	3.6%
101-200 livestock	46,051	18.9	126	16.3	-2.6%
201-500 livestock	25,313	10.4	74	9.5	-0.9%
501-999 livestock	3,160	1.3	16	2.1	0.8%
>1,000 livestock	661	0.3	8	1.1	0.8%

CHAPTER 2

PRESENT CONDITION OF ANIMAL HUSBANDRY

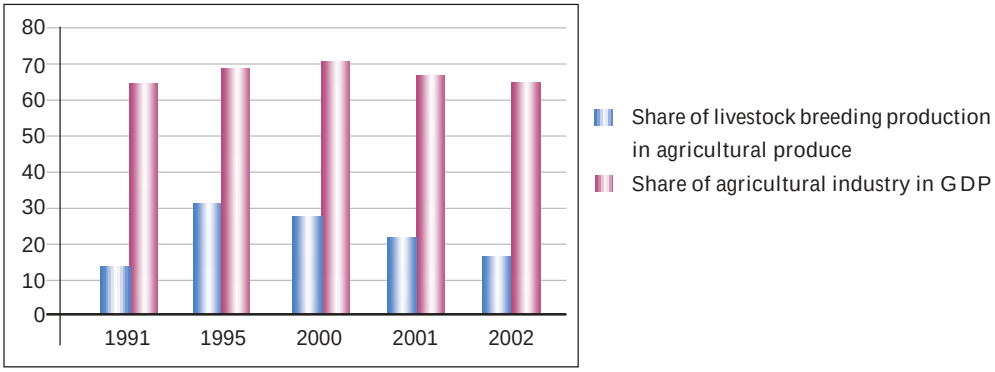
In defining the present situation of animal husbandry in Mongolia the team studied the opinions of herders and experts on such complex issues of livestock breeding as: the impact of the livestock industry on Mongolian economy in the last decade; changes in the number of livestock; measures undertaken by the Government agencies to develop the animal husbandry sector and expenditure in this field; influence of the legal environment on animal husbandry; current State of herding; fodder procurement, selection and breeding work; and the effect of climate on livestock husbandry. The team also collected secondary source materials and conducted a comparative study.

2.1 Animal husbandry is Mongolia's main economic sector

As discussed, agriculture - and especially animal husbandry - is one of the main economic sectors in Mongolia. The role of agriculture in the economy of the country is demonstrated in Figure 2. According to Figure 2, the role of agricultural sector in the economy has a trend of decline starting with 2000. Whereas in 1995 the agricultural sector accounted for 38% of GDP, by 2002 it had declined to 20.7%. This is related to the fact that the number of livestock has decreased by over 30% in the 1999-2001 interval.

Share of agricultural production in GDP

Figure 2



Economic growth support and poverty reduction strategy (2003, Tokyo, Japan), p-112

Our research team studied how the State budget of Mongolia is allocated among the various economic sectors and which part of the budget is taken up by the animal husbandry sector, using the example of the last 2 years (see Table 3).

Budget allocation in 2003-2004

Table 3

Indicators	2003 plan /million MNT/		2004 draft budget /million MNT/	
	Total	%	Total	%
Expenditure and net loans	579,976.8	100.0	661,188.4	100.0
General services	105,789.7	18.2	124,693.6	18.9
Social services	311,932.6	53.3	358,901.5	54.3
Power supply	16,316.5	2.8	20,136.9	3.0
Agriculture	12,733	2.2	15,755.6	2.4
Mining, industry, construction	2,891.5	0.5	3,556.2	0.5
Transport, communications	20,747.9	3.6	24,324.1	3.7
Other expenditure	135,084.8	23.3	144,628.2	21.9
Adjusting services	-37,657.9	-6.5	45,995.1	-7.0

The 2004 draft budget of Mongolia.

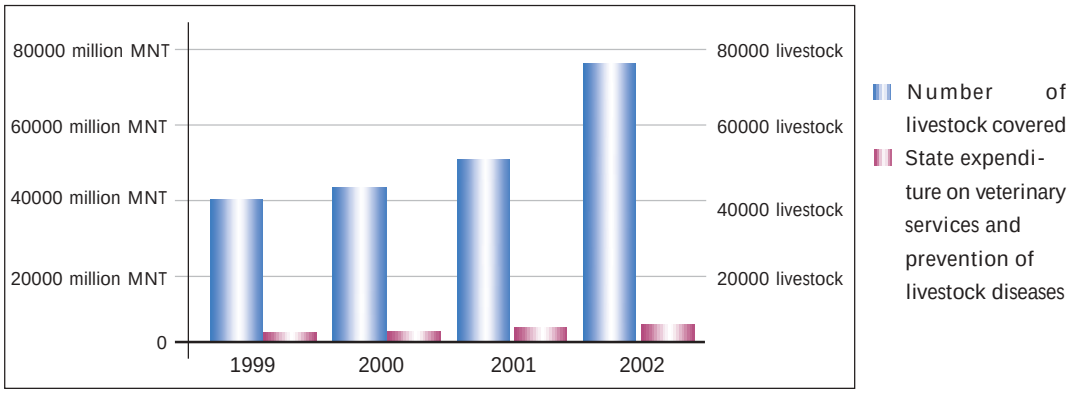
Although the share of agriculture and animal husbandry in the GDP is 6% to 16% greater than that of the transport, communications and power supply sectors it receives 4-8 billion MNT less expenditure than these sectors. This is related to the fact that animal husbandry is better adapted to natural conditions and requires less investment, but on the other hand it is evidence that the Government has not paid sufficient attention to resource allocation and capital investment in this sector in recent years.

The major share of the 15.75 billion MNT allocated from the State budget under the authority of the Ministry of Food and Agriculture in 2003-2004 was spent on salaries of officials, running costs and service expenditure, whereas only a small part of it was spent on activities for development of animal husbandry. For instance, an investment of 180 million MNT was made in livestock selection work at national level in 2003, and it is planned to invest 140 million MNT in 2004 for this plus 50 million MNT for development of intensive animal husbandry[5]. Planning a budget expenditure of 140 million MNT in one year for selection and breeding work at national level is insufficient for establishing even one intensive husbandry farm. In 2004 the capital investment in the agricultural sector accounted for only 0.7% (320 million MNT) of the total capital investment of the State budget, while 69.9% of total capital investment was allocated in the infrastructure sector.

However from Figure 3 it can be seen that in a period since 1990 the legal coordination of provision of veterinary services and prevention of livestock diseases has been adapted to market conditions and the budget and expenditure on veterinary services and activities on prevention of livestock diseases has been growing steadily.

Government expenditure on veterinary services and activities on prevention of livestock diseases

Figure 3



Mongolian Veterinary Magazine, No.6 (53), Ulaanbaatar 2003, page 22.

2.2 Changes in livestock number, herd structure and location

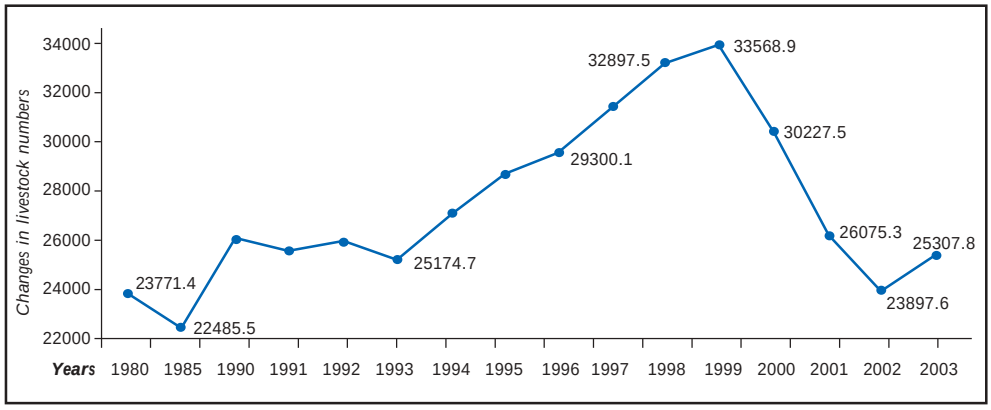
At the end of 2003 Mongolia has 25.3 million livestock including 255,600 camels, 1,958,6000 horses, 1,784,300 cattle, 10,706,200 sheep, 10,603,400 goats. Our research team has studied the changes in the last 10 years of the growth of livestock numbers in Mongolia.

Graph 4 shows that over a 10-year period the total number of livestock in Mongolia has been unstable, and has fluctuated from **decline-to-growth and growth-to-decline.**

[5] A draft of a Law on Budget of Mongolia 2004, presentation of a draft budget, UB, 2003

Changes in total number of livestock (1980 to 2003)

Figure 4



Mongolian Statistical Yearbooks (UB 1985, 1990, 1995, 2002) of the National Statistical Office (NSO).

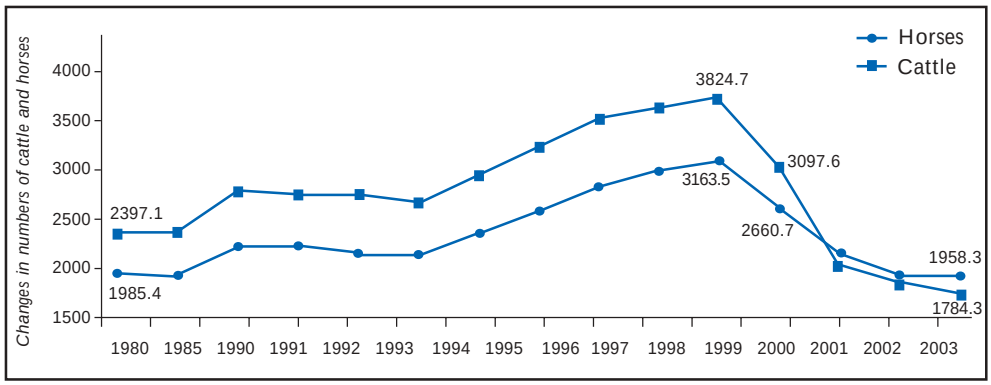
Such unstable growth of livestock depends on many factors, among them weather conditions are the main factor which affects pastoral livestock breeding. For instance, in the years 1983, 1993, 1999-2002 the number of livestock decreased which is due to severe weather conditions (*dzud*) that occurred in these years.

Since 1999 due to such natural disasters as droughts, *dzud*, storms, heavy rains, heat or severe colds, the number of livestock sharply declined. Drought and *dzud* occurred in successive years from 1999 to 2002 and covered 60-70% of the whole territory of Mongolia. As a result, 11 million livestock perished, and in total 12,000 herder households lost their livestock and source of income.

Whereas in 1999 there were 3.1 million horses in Mongolia, by 2002 the number had fallen to 1.9 million, i.e. the number of horses declined by 1.2 million or 38%. In the same period the number of cattle decreased by 47% from 3.4 million to 1.8 million (see Figure 5)

Changes in the number of cattle and horses

Figure 4



The number of sheep also fell from 15.2 million to 10.7 million. The number of goats has been about 4.9 million in 1980 and then grew steadily to 11 million in 1999, but commencing in 1999 declined to 9.7 million in *dzud* years. However, the loss of goats has been proportionally less than for other livestock (see Figure 6).

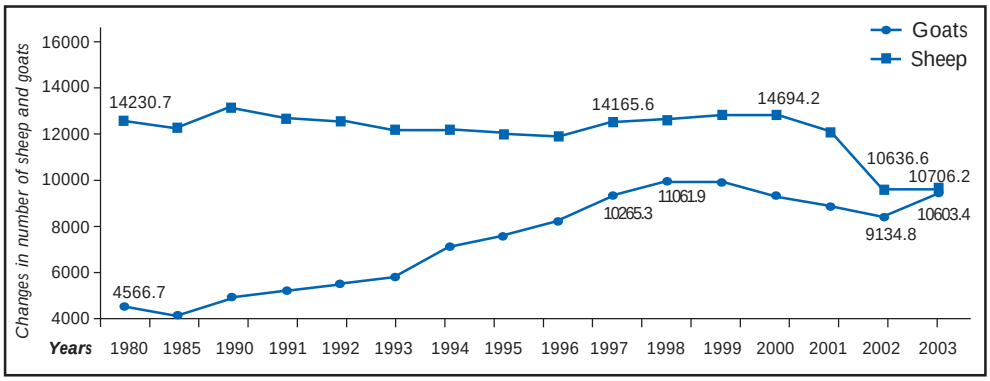
The fact that goat numbers have grown can be explained by the increase of cashmere prices that has occurred since 1985. One factor is the relatively small loss of goats in *dzud*

and drought as goats are good at feeding on such bushes as *Goat hargana* that grow above the snow in the Altai mountainous areas, and they are even able to graze in pastures with scarce, short, poor grass in summertime.

Mongolia lost 29% of its total livestock in the years 1999 to 2002 with severe weather conditions. Another factor that can affect reports on the real number of livestock is the proper objective of the livestock census.

Changes in the number of sheep and goats

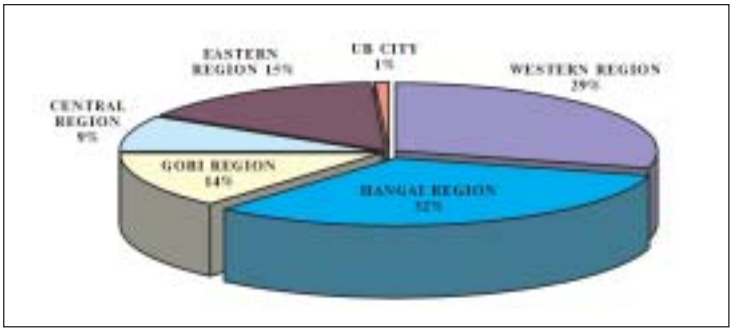
Figure 6



Distribution of livestock: of total livestock 32% is located in Hangai Region, 29% in the Western Region, 15% in the Eastern Region, 14% in the Gobi Region, and 9% in the Central Region (see Figure 7).

Distribution of livestock *(by Economic Regions)*

Figure 7



'Presentation of results of livestock, domestic animals and fodder census 2003', NSO, UB 2004, page 10.

The distribution of livestock between the different Economic Regions has not changed much in the last few years, but the number of livestock in the Western Region and Hangai Region has declined by 1% while the number of livestock in the Eastern Region has grown by 2%.

Goats have increased their share of the national livestock herd from 20% to 42% in the period since 1990 whereas the share of other types of livestock has declined by 1-16% (see Figure 8).

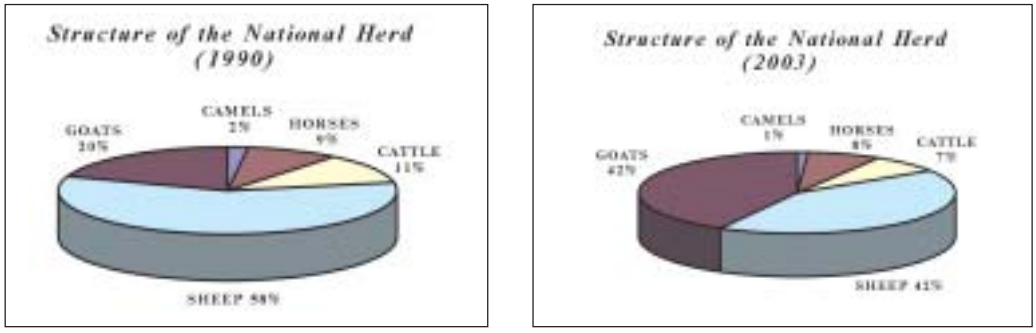
The declining share of camels, horses and cattle in the total herd is attributed by herders and livestock experts to such causes as:

- not using camels as a means of transport;
- slaughtering camels for consumption as prices for camel flesh reach 180-200 thousand MNT per camel;

- growth of prices for horse-hides up to 20,000 MNT;
- theft of horses in far pastures and slaughtering them for consumption;
- *dzud* and drought causing a sharp decline in horse numbers in the last few years; and
- decline in cattle numbers due to *dzud* and drought and their slaughtering in large numbers for consumption.

Comparison of herd structure: 1990 and 2003

Figure 8



As Dulam, a herder from Hovd *Aimag,* remarked, the main cause of the increase in goat numbers is that herders derive income not from slaughtering goats, but from combing cashmere and wool from goats. Experienced herders also claim that during *dzud* cattle and horses are the first to perish, then sheep die and finally the goats are the last to die.

2.3 Livestock projects with international assistance

In a period of over ten years, 35 projects involving total financing of 145.7 million USD have been implemented in the agricultural sector with the assistance of foreign investors and donor countries. In 2003, 15 projects involving total financing of 115.37 million USD were being implemented. If we look at the current projects by sectors, 4 projects totaling 13.4 million USD are being implemented in animal husbandry, a further 6 projects totaling 48 million USD are being undertaken jointly in the animal husbandry and crop cultivation sectors, 2 further projects of 50.2 million USD are being implemented in food processing, and 1 project of 3 million USD is concerned with cooperative development[6].

We would like to note that possibilities to access exact information about project implementation process and its results are meager, and Government agencies and NGO's, that are implementing projects are not interested in giving open access to this information, so we were short of data.

Projects implemented in livestock husbandry sector were concerned with:

- restocking herders with livestock, poverty alleviation;
- support of veterinary services privatization;
- research on reduction of risks in animal husbandry, provision of necessary equipment to herders;
- research on rural development issues; and
- training of general public.

In 1991-2001, donor countries and international organizations provided Mongolia with assistance, aid and loans in amount of 4 billion 953 million MNT, of which 6.2% (308 million USD) worth of capital was invested in the agricultural sector. The fact that

[6] Ministry of Food & Agriculture introduction at Meeting of Mongolian Donor countries in Tokyo, UB, 2003.

the Mongolian Government has paid the least attention to the development of animal husbandry is proved by the data presented in Table 4.

Donors' aid and assistance 1991-2001, by sectors (in million USD)

Table 4

Sector	Official Development Assistance	Loans	Aid	Total	%
10 economic sectors	511.98	216.21	296.12	1024.31	20.7%
Transport sector	404.89	311.54	93.35	809.78	16.3%
Technical assistance	368.2	162.44	205.76	736.4	14.9%
Power sector	253.41	130.52	122.9	506.83	10.2%
Human resources	234.67	14.32	220.34	469.33	9.5%
Industry sector	195.71	142.14	53.58	391.43	7.9
Macro economy	188.19	90.28	97.91	376.38	7.6
Other	165.51	148.92	16.6	331.03	6.7
Agriculture sector	154.4	38.99	115.42	308.82	6.2%
TOTAL	**2476.9**	**1255.02**	**1221.97**	**4953.89**	**100%**

"Effectiveness and contributions of offisial development assistance for Mongolia" (2003 Tokyo, Japan) p-11-13

Table 5 is a collation by the research team of the responses of herders, animal husbandry experts and local management to the question ***"Your thoughts on projects and activities implemented by international organizations in the field of animal husbandry"*** Of all herders covered by the survey, 27.1-36.7% replied that projects and activities are not directed towards the solution of relevant issues, their accessibility to the public is low and their effectiveness is unsatisfactory. Only 14-20% of animal husbandry experts and management workers gave positive evaluation of international aid and assistance activities and 49.5-55.3% answered that they are not satisfied with the effectiveness of the projects and activities and their ability to focus on important issues or else selected the answer *"I don't know".*

It shows that experts and management workers approach goals, accessibility, effectiveness of projects and other activities more critically and are not satisfied by them.

Projects and activities implemented by international organizations in animal husbandry: opinions of herders, experts, managers

Table 5

Indicators	Category of survey participants	Fully approve	Approve some of them	Fully disapprove	Do not know	Total
Projects focus on important problems	herders	42.6%	9.7%	27.1%	20.6%	100%
	experts & managers	20.9%	19.5%	40.9%	18.7%	100%
Accessibility to community	herders	42.4%	20.5%	31.1%	6.0%	100%
	experts & managers	14.2%	39.9%	36.7%	9.2%	100%
Effectiveness of projects	herders	48.7%	12.7%	28.5%	10.1%	100%
	experts & managers	16.6%	28.1%	36.4%	18.9%	100%

The following question was put to animal husbandry experts, researchers, management workers: ***"What directions of animal husbandry development need to receive the international organizations' resources?*** *(Rank by the importance and circle up to 3 answers)"* and the responses are summarized in Table 6.

The research team in their study made wide use of questions with a number of possible answers. Respondents were asked to select 2-3 answers and rank them in order of their significance. We should emphasize that it is quite difficult to express the results of the

questionnaires in a manner understandable to readers.

In order to make the results of questions with multiple answers ranked by significance more understandable, we decided to explain certain terms used for description of such findings on the example of the question: ***"What directions of animal husbandry development need to receive the international organizations' resources?*** *(Rank by the importance and circle up to 3 answers)":*

- **The number of participants:** the number of persons who participated in the study. We mention this term specifically to remind the reader that the number of participants and the number of answers are two different terms.
- **The number of answers:** as one participant can select up to 3 answers, the number of answers is always larger than the number of participants and the highest number of answers can exceed that of participants by a factor of three. Since there are different ways to solve a problem in real life, it was deemed insufficient to permit only one answer to a question and it was important to provide an opportunity to rank the answers selected from the given versions in order to define correctly the nature of the response.
- **Share from total participants:** The answer *"To improve livestock breeds"* is one of the 8 given answers. Of 225 survey respondents, 128 (56.9%) selected this answer. The percentage of this indicator cannot be in the end 100% because one participant chose not one, but up to 3 answers. If we agree that each issue should be approached from different aspects to make a correct decision, the indicator of "share from total participants" is a relevant indicator that should be used in the study. This answer is ranked differently as first, second or third rank. For example, of 128 persons who selected the answer *"To improve livestock breeds",* 52 ranked it as of first, 43 ranked it as second and 33 ranked it as of third significance. We can see also what is the share of each rank from the total participants.
- **Share from total answers:** as mentioned earlier that there were 225 respondents to the question ***"What directions of animal husbandry development need to receive the international organizations' resources?"*** *(Rank by the importance and circle up to 3 answers)".* These persons submitted a total of 672 answers. The indicator "share from total answers" should reach 100% by the sum of each answer. The percentage of each rank from total answers can also be determined.
- **Ranking of answers:** when answering a question, respondents selected up to 3 answers and ranked them in order of their significance. For example, of 128 persons who selected the answer *"To improve livestock breeds"* to the question ***"What directions of animal husbandry development need to receive the international organizations' resources?*** *(Rank by the importance and circle up to 3 answers)"*, 52 ranked it as of first, 43 ranked it as of second and 33 ranked it as of third significance. Of the total of 672 answers, the answer *"To improve livestock breeds"* with first rank holds 7.7%, which shows that participants give this answer the greatest significance.
- We hope that the reader has now a general understanding of questions with multiple answers and ranking of selected answers as questions and answers of such type are used widely in our study.

Of the total animal husbandry experts, researchers, management workers who responded to the question ***"What directions of animal husbandry development need to receive the international organizations' resources?*** *(Rank by the importance and circle up to 3 answers)"* 56.9% replied that it should be improvement of livestock breeds; 47.1 improvement of water supply; 46.7 % improvement of herders' livelihood and solution of social problems. These are the highest indicators. Table 6 shows how the management, experts and

researchers ranked their answers in terms of importance.

For instance, the answer *"improve livestock breed"* was selected as of 1st or 2nd rank by 95 respondents (42.2% of total respondents), which is the highest indicator. The answer *"Improve water supply, increase the number of wells"* was ranked 1st and 2nd by 77 respondents (34.3% of total respondents) which makes it the second by significance.

When answers given in Table 6 are summarized, animal husbandry experts, researchers, local management workers suggest that in order to develop livestock breeding, foreign assistance and loans should be directed towards the following issues in the following order of priority: ***improving livestock breeding; improving water supply; increasing the number of wells; improving pastures and hay fields; introducing new technologies for product processing; and improving herders' livelihood and solving their social problems***. If the answer *"improve hayfields, provide fodder reserve"* can be viewed as similar to the answer *"improve pastures"*, it can be seen that has a high priority is given to the suggestion to allocate foreign assistance and loans provided for development of livestock breeding first of all in improving ***pastures – hayfields - fodder reserve*.**

What directions of animal husbandry development need to receive the international organizations' resources?

Table 6

Answers	Rank of answers	Number of answers	% share of total answers	% share of total 225
Improve hay fields, provide fodder reserve	1	39	5.8	17.3
	2	27	4.0	12.0
	3	22	3.3	9.8
	Total	**88**	**13.1**	**39.1**
Improve pastures	1	34	5.0	15.1
	2	35	5.2	15.6
	3	19	2.8	8.4
	Total	**88**	**13.1**	**39.1**
Improve water supply and increase the number of wells	1	33	4.9	14.7
	2	44	6.5	19.6
	3	29	4.3	12.9
	Total	**106**	**15.8**	**47.1**
Improve livestock breeds	1	52	7.7	23.1
	2	43	6.4	19.1
	3	33	4.9	14.7
	Total	**128**	**19.0**	**56.9**
Introduce new technologies for product processing	1	18	2.7	8.0
	2	26	3.9	11.6
	3	35	5.2	15.6
	Total	**79**	**11.8**	**35.1**
Improve herders' livelihood, solve their social problems	1	35	5.2	15.6
	2	23	3.4	10.2
	3	47	7.0	20.9
	Total	**105**	**15.6**	**46.7**
Develop rural infrastructure	1	15	2.2	6.7
	2	24	3.6	10.7
	3	31	4.6	13.8
	Total	**70**	**10.4**	**31.1**
Other	1	1	0.1	0.5
	2	5	0.7	2.2
	3	2	0.3	0.9
	Total	**8**	**1.2**	**3.6**
GRAND TOTAL		**672**	**100.0**	**100.0**

If we look at how the animal husbandry experts, researchers, local management workers ranked the priority directions which should receive foreign assistance and loans for project resources, the largest share of respondents (23.1% of total respondents) view that *"improving livestock breed"* is of the highest importance, while only 6.1 % of total

respondents ranked *"development of rural infrastructure"* as first priority.

Note: *Whereas in the previous years financing from the international agencies (loans, assistance) was mostly directed towards solution of social problems of those who worked in livestock breeding, in order to at least ease the difficult situation of herders at that time, alleviate poverty, at present a need has emerged to accumulate resources in order to follow the global trends in increasing the ability of livestock breeding sector to endure risks, and improving livestock productivity.*[7]

2.4 Government policies and activities in animal husbandry: herders' opinion

2.4.1 Legal environment in livestock breeding: herders' opinion

Since establishment by the Mongolian Government Resolution of a special "Office to provide veterinary and breeding services" in 1923, the Government has developed numerous laws and regulations on the development of animal husbandry and organized work on their implementation.

Some laws and policy documents on animal husbandry approved by the State *Ih Hural* and followed by herders at present (2004) are mentioned below:

Main Directions of Government Policy towards Rural Development. This document is the first one that made livestock breeding based on private property the State guideline.

Law on Protection of Livestock Gene Pool and Health. This provided legal basis for operation of professional State agencies in charge of animal husbandry issues at national, *aimag* and local level, financed by the State and includes many Articles on protection of gene pool and health of Mongolian livestock.

Law on Land. This provided a legal basis for public proprietorship of pastures and hayfields.

The Government is implementing these programs in animal husbandry:

- National Program on Improvement of Livestock Quality and Breeding Work;
- Program on Support of Intensive Animal Husbandry Development;
- National Program on Livestock Health;
- National Program on Protection of Livestock from Natural Disasters;
- Program on Cooperative Development;
- Project on Fodder and Hay-2001;
- Subprogram on Elite Sires;
- National Program 'White Revolution'; and
- National Water Program.

The team put a question to herders, animal husbandry experts and management workers ***"Are laws and regulations related to animal husbandry satisfactory?"*** and summarized the answers in Table 7.

Adequacy of laws and regulations on animal husbandry: public assessment

Table 7

Employment		Satisfactory		Average		Unsatisfactory		Don't know		Total	
		qty	%	qty	%	qty	%	qty	%	qty	%
Herders		154	20.9	63	8.5	376	51.0	144	19.5	737	100.0
Management workers, animal husbandry experts and researchers		7	3.2	23	10.6	117	53.7	71	32.5	218	100.0
From them	Local governorsand heads of Citizens Representative *Hural*	-	-	4	6.0	37	55.2	26	38.8	67	100.0
	Animal husbandry experts and researchers	7	4.6	19	12.6	80	53.0	45	29.8	151	100.0

[7] Ch. Gombojav, PhD., researcher at the High Mountain region Animal husbandry Research station

Of the survey respondents, 51% of herders, 53.7% of animal husbandry experts and researchers, and 55.2% of local management workers replied that they are not satisfied at all with laws and regulations related to animal husbandry.

Herders' opinions on the laws and regulations that do not satisfy them were recorded and studied in relation to the relevant legislation. The results are considered in section 2.4.2 of this report. 19.5% of total herders answered that they did not know if laws and regulations related to animal husbandry are satisfactory - and this answer did not depend on the herders' education level or age.

It is necessary to emphasize that livestock husbandry experts, researchers, local management workers who selected the answer *"Do not know"* observed that their choice of this answer is not because of lack of familiarity with laws and regulations, but because they are not sure or cannot say if these laws and regulations satisfy present requirements. Moreover, of management workers who are in charge of implementation of regulations at local level, 17.4% evaluated regulations as average, 55.2%-as unsatisfactory, and 38.8% as difficult to say anything and no one answered that they are satisfactory.

The result of the public perception survey showed that the laws and regulations on livestock breeding do not satisfy people's expectations or needs, nor do they coordinate social relationships.

Based on this situation, a need has emerged to upgrade and reform the laws on livestock breeding in line with market relations, to promote the laws and regulations.

Although the general public is not satisfied by present laws and regulations on livestock breeding, it was interesting to study how they evaluate their implementation.

The evaluation of implementation of laws and regulations on livestock breeding by herders, local management workers, livestock breeding experts, researchers is presented in Table 8.

Implementation of laws and regulations on livestock breeding: public assessment

Table 8

Employment	Satisfactory		Average		Unsatisfactory		Don't know		Total	
	qty	%	qty	%	qty	%	qty	%	qty	%
Herders	200	27.9	134	18.7	325	45.3	58	8.1	717	100.0
Livestock husbandry experts, researchers, management workers	10	4.5	64	29.0	126	57.0	21	9.5	221	100.0
TOTAL	210	22.5	198	21.1	451	48.0	79	8.4	938	100.0

From Table 8 we can see that 45.3% of herders, 57% of livestock husbandry experts, researchers and local management workers evaluated implementation of laws and regulations on livestock breeding as unsatisfactory, which is the highest indicator.

8.4% of total respondents replied they **did not know**. Although laws and regulations on livestock breeding do not fully satisfy the management and experts, they evaluate their implementation more positively. For instance, 21.1% of total respondents find implementation to be average and 22.5% find it to be satisfactory.

2.4.2 Improving the legal environment in livestock breeding: herders' opinion

The team made notes in herders' interviews on obstacles caused by the present legal environment and made an attempt to express their views with regard to provisions of relevant laws. In order to determine herders' and experts' opinions on the legal environment of livestock breeding, methods such as focus group discussions, observations and interviews were used.

Law on Land

It is difficult to regard the present condition of pastureland usage as fair and equal. Although there is a legal provision that the *Soum* Citizen Representative *Hural* should determine the fees for use of hayfields per 1 hectare, and the *Soum* Governor makes a decision on the use of hayfields by certain individuals and entities, and should coordinate their activities, those who manage to make hay before others, or those who have more resources and assets, or those who own cooperatives and companies established on the basis of the former enterprises and State or collective farms of the given *soum*, tend to use hay fields and engage in hay and fodder business.

If the pastures close to towns and settlements are not transferred into possession of herders or farmers who shall pay certain fees or taxes, pastures that are used as common land due to their closeness to the market become extremely overgrazed.

Of total administrative workers and agricultural experts covered by our study, 70.6% consider it is necessary to provide opportunities for sustainable business activities of individuals and enterprises engaged in intensive livestock breeding by transferring pastures in their possession or ownership. Opportunities for meeting such needs are extremely limited under the Law on Land. For instance, the local Citizens Representatives *Hural* can only make a decision about allowing use of land by a herder under contract.

The fact that herders pay income tax depending on the number of their livestock, but do not pay fees for use of pastures, reduces responsibility for the effect of human activities on the pastures, which are the source of the livestock industry, and reduces the value of pastures.

It is necessary to adopt new regulations on selecting individuals and enterprises who are allowed to use hay fields to procure hay, following fair and equal principles, on the basis of a tender with certain conditions. An agreement that will create an interest in using the hay field for a long period of time, improving hay yield, irrigating and protecting the land, should be made and a special tax policy should be developed.

Aimag, capital, *soum* and district borders, as defined in Article 8 of the Law on Land are not understood by herders as they are described in the Law, and herders only formally know and follow the *aimag* and *soum* borders.

Although joint remote reserve rangelands between *aimag*s are classified as Land for Special Use, they are used as usual pastures. At the present, there is no specific coordination in this issue and every herder who reaches that pasture has a right to use it. That is why these regional pastures and hay fields are only exploited, and there is lack of any activities on their improvement and effective use and management.

The plan on land organization at *soum* and local level, which is developed according to the Article 52.1 of the Law on Land, is not developed on a scientific basis with regard to the effective distribution of pastures, their use in rotation to let some pastures recover for a period, but follows a typical pattern which causes overgrazing of pastures close to infrastructure and markets.

Widespread phenomena in all areas close to *aimag* and *soum* centers are: overgrazing of pastures in the season of plant blossoming and seeding; reduction in the number of plants that provide good nutrition to livestock; and domination of weeds.

Information on, and knowledge of, the scientific approach to the use of pastures is insufficient among staff of the local State institutions.

Although implementation of the Article 52.2 of the Law on Land is important for effective use of pastures and improvement of plant structure, its implementation is extremely insufficient and in general people are not used to following this Article.

Article 52.5 of the Law on Land is providing an important and necessary legal environment for the future development of Mongolian livestock breeding. If the Article is

implemented fully in real life, then the interest of individuals and enterprises in making investments in breeding highly productive livestock will increase.

The main conflicts and disputes in herder relations are related to the issue of pasture use. It is a very difficult problem to decide who is overusing the pasture or who is not able to use the pasture in full measure, as it is used as common land. Moreover, responsibilities and punishment for the individuals responsible for breach of regulations on pasture use do not provide legal conditions for prevention of such conflicts. It is vital to solve the problems of use and transfer of pastures into possession of individuals and enterprises, especially in the Central Region where intensive livestock breeding can be developed.

Intensive migration to urban areas is one of the reasons for high risks for individuals and enterprises engaged in intensive livestock breeding in the present conditions of sharing pastures as common land. This situation is also a reason for lack of interest from individuals and business entities in making investments in intensive livestock breeding.

Although *soum* governors make agreements between themselves to allow herders to move between *soum*s to winter camping sites during natural disasters such as drought and *dzud*, the issue of land fees for use of land in *soum*s is not coordinated by any regulation. All taxes for livestock are paid in *soum*s where it is registered, but not in *soum*s where herders spent the winter. Local and *soum* administration put forward a request for payment of fees for the use of pastures not in the *soum* where the herder resides permanently, but in the *soum* where he herds his animals.

Herders and agricultural experts have following thoughts on some necessary changes in the Law on land:

- To determine the amount of fees for use of pastures depending on Economic Regions, development of infrastructure, remoteness from cities and settlements.
- To fix a low tax for livestock productivity, and higher fees for use of pastures.
- To promote the Article 52.5 of the Law on Land, which supports fencing of pastures, planting of fodder crops and other intensive methods of livestock production to investors, to make the Government provide opportunities for realization of the Article.
- Although the governor of an *aimag* or *soum* has a right to make a decision on who and how should possess the pastures within the *aimag* or *soum* borders, he/she does not have opportunities for realization of their right, so the Government should pay attention to this issue.
- To carry out a study on the ways of use and possession of inter-*aimag* remote reserve rangelands and hayfields of the State fodder reserve, to provide legal environment for effective pasture management relations.
- In order to use pastures effectively and increase effectiveness of pastures it is necessary to charge fees for possession and use of pastures. In the pastures close to market, sheep and goat herds are not appropriate and it is important to determine what payment should be paid for herding certain kind of livestock in certain pastures.
- To organize work on implementation of the Article 52.4 of the Law on Land in *soum*s and rural areas, to determine pastoral and settled livestock breeding zones in the territories of each *aimag* and *soum*, to provide opportunities for capital investment in livestock breeding.
- To solve the problem of effective use of territories in neighboring *aimag*s, *soum*s and joint reserve pasturelands during such natural disasters as droughts and *dzud*, to settle fees for use of pastures in that time in a clear, flexible way.

Law on Land Fees

The present estimates of fees for use of pastures have not taken into account the market importance and productivity of the given pasture, so such conditions have not yet been created whereby individuals and organizations would determine the value of pastures and take responsibility for them.

Moreover, as Part 1 of Article 8 of the Law exempts herder households from fees for use of pastures, it leads to legal conditions, when pastures are used carelessly, are neglected and undervalued. On the contrary, Part 6 of Article 8 that exempts from fees the possession and use of fields planted with fodder crops, creates favorable conditions for intensive development of livestock breeding.

Land fees should vary depending not only on the number of livestock but on productivity of pastures and their remoteness, and the amount of fees can be used as a tool for coordination of pasture use, their distribution and turnover.

Elimination of Part 1 of Article 8 of the Law on Land fees means that the fees for use of pastures will be paid, but the income tax in livestock breeding can be reduced.

There is a need to look at the issue of improving the plant structure of the pastures, their fencing and protection, support of initiatives from individuals and organizations on the organized use of pastures, and to examine the possibility of exempting such pastures, crop fields and hay fields from fees for possession and use.

Law on Cooperatives

An amendment to the Law on Cooperatives made in December 2002 added an Article that allows cooperatives to conduct loans and savings activities, which gave an opportunity to accumulate cash from the herders, loan each other money with livestock as collateral, enter market relations and take a responsibility for market activities. However, our study shows that herders do not use this opportunity.

The main reason for underdevelopment of cooperatives among herders is the lack of professionals who can manage and lead herders in conducting joint activities, and in using internal resources and solving problems of market relations with joint effort. That's why it is necessary to conduct training among herders on legal issues and general market relations in order to speed up the cooperative activities.

Criminal Code

Herders consider that the newly approved Criminal Code, according to which criminals who steal property up to 1.5 million MNT are not imprisoned, but fined or detained for a short time, encourages thieves. There are many herder households with less than 100 livestock and even if all their animals were stolen, they would cost less than 1.5 million MNT. A fact that a person who stole all of somebody's household property is not imprisoned, but only detained and fined is not to the liking of the herders. During focus group discussion with herders of Jargalant *Soum* in Tuv *Aimag* herders openly expressed such views as *"I don't care if other's livestock is stolen as long as it's not mine"*, *"There is no other way as to pretend that we know nothing, because thieves can steal my livestock after they come out of jail"*. Therefore herders suggest that to solve that problem, we need to change provision 1 of Article 145 of the present Criminal Code according to which a person, who stole property estimated for less than 1.5 million MNT is fined the amount of 150,000-1,500,000 MNT or has to work at mandatory works for 100-250 hours without paying fines, i.e. is detained for 1-3 months. Everyone who steals should be sentenced to imprisonment.

Law on Support of Employment

According to this Law, of total 4 billion 534 million MNT allocated from the Employment Support Fund, 130.0 million MNT was allocated to provide unemployed and people actively seeking employment with a professional orientation course, consultations and information; 1 billion 31 million MNT was allocated for retraining; 276 million MNT for support of employers; and 959.7 million MNT for public activities.[8]

None of the unemployed in the herder households among 770 herder households covered by the study has been involved in abovementioned activities, conducted by the State to support employment. In reality there is a basis to claim that only one person capable of labor is employed in households with less than 100 *bog* of livestock. But the fact that all members of herder households are considered to be employed is a reason for the inability of herders to access such support provided by the Law. On the other hand, herders lack any information on this Law. Furthermore, as activities on support of employment are carried out mostly in *aimag* centers, herders are not able to get any support in this field.

According to Article 4 provision 2.1, which states *"not to discriminate citizen on the basis of their nationality, ethnicity, language, race, age, sex, wealth, education, social status, religion or views"*, all Mongolian citizen should enjoy equal access to support from this Law. That is why the Ministry of Labor and Social Welfare and the Ministry of Food and Agriculture should organize policy activities to provide herders with these services, to conduct training in order to educate herders on the Law on Cooperatives and the Law on Business Enterprise, as well as provide information on progressive methods of livestock herding and technology of small enterprises.

Law on Hunting

According to Article 7, hunters should get a license from the Environment Inspector and the *soum* governor at the *soum* center, then after the hunt go back to the *soum* center to check their 'bag' with the veterinarian and get sanitary services and in the end get special documentation from the Environment Inspector about the origin of the game, after which they can sell it, which creates a lot of red tape. Herders, who use hunting for income generation, view that these numerous stages should be eliminated and those legal provisions that are not implemented in reality, should be invalidated.

2.4.3 Government programs, projects and activities in animal husbandry: herders' opinion

In order to study herders' opinions on programs, projects and activities implemented by the Government to develop animal husbandry**,** the team put forward a question ***"Your opinions of work undertaken by the Government in animal husbandry?"*** to 728 herder households and the results are summarized in Table 9.

Work undertaken by the Government in animal husbandry: herders' opinion

Table 9

Evaluation	Age group of herders										Total	
	18-25		26-35		36-50		51-60		Over 60			
	qty	% share	qty	% share	qty	% share	qty	% share	qty	% share	qty	% share
Completely satisfied	24	49.0	58	29.7	75	26.2	30	28.3	25	27.2	212	29.1
Satisfied by some works	5	10.2	17	8.7	39	13.6	12	11.3	11	12.0	84	11.5
Completely unsatisfied	12	24.5	84	43.1	116	40.6	38	35.8	29	31.5	279	38.3
Do not know	8	16.3	36	18.5	56	19.6	26	24.5	27	29.3	153	21.0
TOTAL	49	100.0	195	100.0	286	100.0	106	100.0	92	100.0	728	100.0

[8] Employment Agency Report 2003

Of herders-respondents to the survey, 29.1% answered *"completely satisfied"*, 11.5% *"satisfied by some works"*, 38.3% *"completely unsatisfied"*, and 21% answered *"don't know"*. (See Table 9).

Herders' evaluation of programs, projects and activities implemented by the Government in order to develop animal husbandry did not vary much with their *aimag* of residence, Economic Region and standard of living.

2.5 Status of livestock breeding and selection: perspectives

Since establishment by the Mongolian Government resolution of the 'Office for provision of Veterinary and Breeding Services' in 1923 until 1990's, 17 breeds of Mongolian livestock, 4 breed groups, 5 breeding groups and 15 elite herds have been developed as a result of the hard work of herders and experts, breeding and selection work on scientific basis and natural selection.[9]

Along with improving the quality of local Mongolian livestock were bred in the country pure-bred highly productive cattle of milk or meat breed, or of combined milk and meat: German black and white breed, Russian black and white breed, Simmental breed, Alatau breed, Steppe red breed, meat breeds such as Hereford and Kazakh white head breeds. Crossbreeding work was successfully organized and urban population was provided with milk and dairy products all year round.

Since the 70's, 40 dairy farms with 200, 400, 800, 1200 cows were established and by 1989, 19,600 pure-bred and cross-bred milk cows were bred and 46 million liters of milk were produced per year, with a productivity of 2,558 liters of milk per cow.

A deep frozen sperm station was established in the 1980's, and in the period from 1980-1990, 1,005,800 doses of sperm were produced from 82 bulls. Of them 505,600 doses were used in artificial insemination and as a result 127,800 cows calved, and 103,400 calves were reared.[10]

These facts are evidence of successful breeding and selection work prior to the 1990's. Unfortunately, since 1990 due to mistakes in the process of privatization no effort was made to keep the dairy farms or their structure and to continue the activities, so the farms were disbanded and eliminated.

The quality of breeding work organized on scientific basis in order to improve the productivity of local Mongolian cattle has declined sharply since the 1990's. Our research, observations and information from different sources show that in recent years there has been no other work done to improve Mongolian livestock gene pool and breeding with the exception of a small amount of pilot work on cross-breeding of pure bred cattle of meat breed with Mongolian cattle in Tsagaan Nuur *Soum* of Selenge *Aimag* and in Tumentsogt *Soum* and Dadal *Soum* of Hentii *Aimag*; and work on transplantation of embryo in order to improve quality and output of Mongolian cashmere goats. On the contrary, the number of pure and crossbred animals reared in previous years has decreased sharply and they are at the point of extinction.

The number of purebred and crossbred animals grew rapidly until 1990, but has declined every year since 1990. For instance, in 1990 there were 80,500 purebred cattle, while in 2000 the livestock census counted only 29,100 purebred cattle. (see Table 10).

[9] Employment Agency Report 2003

[10] D. Jadamba and G. Deeshin *'Livestock breeding and selection in Mongolia in the 20th century'* (UB 2003), p.9

Changes in the number of purebred and crossbred animals

Table 10

Years	Cattle			Sheep			Goats		
	Purebred	Crossbred	Total	Purebred	Crossbred	Total	Purebred	Crossbred	Total
1962	5.3	12.8	18.1	53.6	782.7	836.3	0.5	10.9	11.4
1970	6.8	54.1	60.9	69.4	1222.2	1291.6	1.6	48.9	50.5
1980	28.0	97.7	125.7	156.0	1145.0	1301.0	40.6	249.8	290.4
1990	80.5	117.9	198.4	33.6	837.4	871.0	91.9	336.0	427.9
2000	29.1	106.4	135.2	588.5	760.1	1348.6	113.9	243.1	357.0

D. Jadamba and G. Deeshin 'Livestock breeding and selection in Mongolia in the 20th century'(UB 2003), p.33.

Although Table 10 shows that 135,200 purebred and crossbred cattle were counted in 2000, experts think that in reality the number of purebred cattle at that time was less than 50,000. This discrepancy is due to the fact that purebred and crossbred cattle is not really counted, but its number is based on the approximate data submitted by the *soum* livestock expert, who did not see the animals, but slightly reduced the number of cattle on the A balance of the previous year. That is why it seems on paper that the pure crossbred herd has reduced only slightly.

According to official statistics, the number of pure crossbred sheep and goats has grown in the last decade. We think that in reality their number has declined. In general, it is impossible to know the number of pure crossbred animals based on livestock census results, as it is not objective, moreover, the livestock censors, who are not livestock breeding experts, cannot distinguish by sight between purebred, crossbred cattle and local Mongolian breeds.

The main reason for the declining number of pure bred and cross bred herds is that such animals need costly feed, warm pens, and have special requirements for their care. In our opinion, the seeming increase in number of purebred and crossbred sheep only shows that the livestock census is conducted inadequately. There are certain facts that show that the number of pure crossbred sheep has declined, their quality has fallen and there is a reverse breeding back to local Mongolian specifications. This is related also to the price of fine wool.

According to a thousand-herd owner Ayurzana, Yuruu *Soum* of Selenge *Aimag*: *"We used to breed the fine wool sheep of Yuruu breed. But in recent years we set a Mongolian buck on our sheep. The lambs by Mongolian bucks are more resilient, need less feed, and are cheaper to breed. In general, most locals in this part started using Mongolian bucks".*

In the last two years the number of farmers engaged in dairy farming on a small scale has increased and as a consequence the market price of purebred cattle has gone up. Since 2003 there is a trend of emerging interest in capital investment into breeding of pure bred and crossbred cattle. For example, 2 years ago an American established a small dairy farm with 20 Alatau-Mongolian crossbred cows in Batsumbur *Soum* of Tuv *Aimag*. Although the farm is small, it is a modern intensive dairy farm adapted to our country conditions. Warm winter pens for cows are built cheaply of local wood, fodder and hay are prepared according to certain norms, so this is a model farm which provides milk throughout the year, is not dependent on natural conditions, uses pastures in summer, but keeps animals at the farm in winter and spring seasons. Soon 3 local households have established such farms based on this model. After that 6 households from the nearby 21st Horoo of Suhbaatar District (the former Partizan State Farm) have established such farms. At present there are over 50 such small farms in the environs of Partizan and Batsumbur *Soum*.

This example shows that if new successful methods and forms of running a livestock breeding enterprise adapted to local conditions are introduced to set up a model enterprise,

herders are interested in intensification of livestock production, and in introducing new methods of work. It is necessary in the future to improve livestock breeds, increase productivity per animal in Mongolia, and in order to do that we need to import highly productive sires, semen and embryos from abroad and increase investment in this field.

2.6 Herding technology

Before 1990's in Mongolia there existed pastoral, settled and semi-settled forms of livestock herding.

Local Mongolian livestock is kept and fed all year around at pastures without supplementary feed. Lambing livestock and young animals are given small amounts of hay, bran and granulated feed in spring. In Arhangai, Bulgan, Tuv, Uvurhangai, Huvsgul, Hentii *aimags* a semi-settled method of herding was often used, when purebred and crossbred cattle was given supplementary feed in winter and spring. Dairy farms close to Ulaanbaatar and Darhan did not herd livestock at pastures in winter, but fed them hay, fortified and succulent fodder. Semi-fine and fine wool sheep of Yuruu, Hangai and Orhon breeds were herded on pastures, but fed supplementary feed and lambing ewes and lambs were kept in closed warm pens. Special pens and other buildings were built - the material basis for herding was established.

The survey findings show that at present settled herding technology has disappeared. Over 50 small dairy farms in Tuv *Aimag*, Selenge *Aimag* and Ulaanbaatar have used semi-settled technology since 2001, but on the whole only pastoral herding technology is dominant at present in Mongolian livestock breeding.

In future it is necessary to change herding methods, to teach methods of settled and semi-settled herding (especially to individuals engaged in livestock breeding close to towns and settlements), and to strengthen the material basis and fodder reserve.

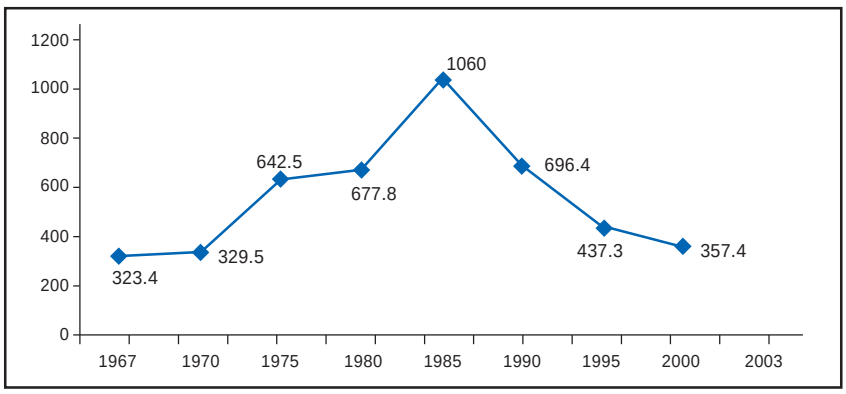
2.7 Livestock feed production

Livestock feed production in Mongolia reached its highest level in 1985, and started declining in the 1990's.

Mixed and granulated feed production quickly developed in 1970-1990 and 172,200 tons, 78,800 tons and 57,500 tons of granulated feed were produced in 1976, 1980 and 1990 respectively. In 2000, only 1,100 tons of such feed were produced.[11] While during 1980-1985 an average of 80-200,000 tons of silage fodder crops to feed milking cows was planted, from 1990 work on planting fodder crops has been basically non-existent.

Total amount of feed production *(in thousand tons of feed units)*

Figure 9



[11] Statistical Yearbook for 1980, 1985, 1990 and 2002.

Since 2000 small private business entities have been established in Selenge, Hentii and Dornod *aimags* that are engaged in procurement of hay on the basis of special agreements. These entities are getting specialized in activities in this field. But there are different obstacles, such as issues of ownership and use of hayfields by the herders, which are not clear to this day. Due to these issues, herders are not interested in protection and improvement of hayfields, and they lack the equipment for hay preparation.

At present, apart from small amount of bran produced by flour plants, production of granulated, succulent and mixed fodder, and planting of fodder crops, has been basically non-existent since 1990.

There is a need to increase the volume of fodder production by using different methods, such as providing entities and individual households in the Central Region and areas close to Ulaanbaatar with opportunities to cultivate fodder crops: by exempting them from fees or reducing the amount of fees paid by entities and individuals who invest in protection and restoration of pastures and cultivate fodder plants, and providing them with financial assistance.

2.8 Conclusions

1. Although the amount of resources allocated from the State budget on activities in field of veterinary and prevention services has increased in the last years, investment in, and activities on, the introduction of modern technologies in livestock breeding, and intensification of breeding and selection work has dropped since 1990 and is in a state of decline.

2. The structure of the national herd has changed substantially in the last decade. For instance the share of goats in the national herd has increased from 20 to 42%, whereas the share of other animals has fallen by 0.4-2 times.

3. Of herders in the survey, 27.1-36.7% replied that projects and activities implemented by international agencies are not directed towards the solution of relevant issues, their outreach to public is low, and their effectiveness is unsatisfactory. Furthermore 49.5-55.3% of animal husbandry experts and management workers answered that they are not satisfied with the effectiveness of the projects and activities and their ability to focus on important issues, or they selected the answer *"I do not know"*. It shows that experts and management workers view goals, accessibility, effectiveness of projects and other activities more critically and are not satisfied.

4. The survey results show that animal husbandry experts, researchers and local management workers suggest that investment, projects and activities to be implemented in this field should be directed in the following order of priorities: improving the use of pastures and the strengthening of fodder reserves; improving livestock breeds; and improving the water supply of pastures.

5. Measures undertaken by the Government in the last decade during transition from the centrally-planned to the market economy were directed towards improvement of livestock health, disease prevention, repairing of wells, restocking in order to solve social problems of herders and improve herders' livelihood, maintaining professional animal husbandry institution system financed by the State budget and other priority issues. But in future the Government investment policy and other policies and activities should be defined more clearly to develop Mongolian livestock breeding according to global trends of animal husbandry development.

6. The fact that current laws and regulations on livestock breeding are not meeting the needs of social development is illustrated by the results of the public perception survey. For instance 51% of herders, 31% of *aimag* and *soum* management, 40.2% of livestock husbandry experts and researchers, and 28.2% of the general public answered that they are

not satisfied with the present regulations. That is why the State and community organizations need to work actively in the near future on the creation of a favorable legal environment in livestock breeding.

7. It is necessary to organize work on presentation and promotion to herders of new laws and regulations in animal husbandry. This need is obvious from the fact that 30% of *aimag*, *soum* and *bag* management, 20.8% livestock husbandry experts and researchers, and 19.6% of herders answered *"don't know"* to the question "*How do you evaluate laws and regulations on animal husbandry?".*

8. Breeding and selection work in Mongolia has declined greatly over the past ten years and the number of highly productive pure and crossbred animals has sharply decreased.

9. There is a need to conduct a livestock census of purebred and crossbred animals once every 3 years at national level. At present, interest has emerged among individuals and private enterprises to invest in breeding of pure and crossbred animals at professional level, and to increase their productivity. The Government should support this trend with tax policy, investment incentives, introduction of new methods and technologies, establishment of model enterprises, and provision of loans on favorable terms.

10. Since 1990 the number of purebred and crossbred livestock has declined, warm pens for livestock have deteriorated and fodder procurement activities have declined. Settled and semi-settled herding methods and technologies have basically disappeared in Mongolia and only pastoral livestock herding is now dominant.

11. Livestock feed production has declined in Mongolia in recent years. Feed production plants have closed down and the production of granulated, fortified and mixed fodder has stopped, planting of fodder crops for silage has disappeared and demand for livestock fodder is met only by natural hay preparation and bran production that is a secondary by-product of flour plants. In the near future there is no hope for a revival of fodder production activities or the appearance of new and different kinds of livestock feed.

12. It is necessary to reduce taxes to those entities that are engaged in fodder production, to provide them with loans on special terms, and for the 0.6-1.0 billion MNT provided annually year from the State budget for procurement of a State hay reserve to be reallocated to the establishment of a free market system as a basis for reliable fodder production.

CHAPTER 3

PASTURES, PENS AND WELLS: SUFFICIENCY AND USE

Herders' property relations are basically connected with livestock, pastures where it can be herded, pens and fences for animals, winter camping sites and wells. A herder enters into different social relations through links to different property such as livestock, pastures, animal pens and wells in their everyday life. That is why we studied: herders' and experts' opinions on the sufficiency of pastures, wells and water supply, animal pens and fences; herders' and experts' thoughts on use, possession and ownership of pastures; the legal basis for possession of pastures by herders; and also the present situation with settling disputes over pastures.

3.1 Sufficiency of pastures, hayfields, wells and animal pens: herders' opinion

We asked the herders ***"What is the sufficiency of your pastures, wells and animal pens?*** *(by different seasons of the year)"* and the responses were grouped according to the Economic Region and the number of livestock owned by a household. Of the 749 herder households who responded to the question, 62.9-64.8% noted that there are not enough animal pens, 27.8-34.3% that pastures are insufficient, 31.8-39.2% that wells and water supply are insufficient, and 15.3% that hayfields are insufficient (see Table 11).

Sufficiency of pastures, wells and animal pens (herders' evaluation)

Table 11

Property	Season	Sufficient		Average		Not sufficient		Total	
		qty	%	qty	%	qty	%	qty	%
Pastures	Winter, Spring	193	25.8	348	46.5	208	27.8	749	100.0
	Autumn, Summer	133	17.8	360	48.0	256	34.3	749	100.0
Water wells	Winter, Spring	234	31.2	276	36.9	239	31.9	749	100.0
	Autumn, Summer	140	18.7	315	42.1	294	39.2	749	100.0
Animal pens	Winter, Spring	89	11.9	189	25.2	471	62.9	749	100.0
	Autumn, Summer	72	9.6	192	25.6	485	64.8	749	100.0
Hayfields	Autumn, Summer	431	57.6	203	27.1	115	15.3	749	100.0

In considering these herders' opinions on wells, animal pens and hayfields, the research team made an attempt to focus by Economic Regions on the reasons why some respondents consider some of these to be insufficient.

Sufficiency of pastures

27.8-34.3% of herders in the survey answered that pastures are insufficient.

44% of herders in the Eastern Economic Region replied that there are not enough pastures in winter and spring, and 56.4% of them noted shortage of pastures in summer and autumn, which is the highest indicator among all *aimags*.

In recent years the number of steppe mice in Hentii *Aimag* and Suhbaatar *Aimag* has greatly increased and they destroy pastures; and in areas with good pastures, water is in short supply.

In Central *Aimag* and Dornogovi *Aimag* and in areas close to the capital, where water supply and pasture capacity is good, herders from nearby areas spend the winter with large numbers of livestock, using these areas as reserve pastures, and in summer most local herders move there to be closer to water points.

These are the main reasons why herders in these *aimag*s note a shortage of pastures.

Of herders in the Ulaanbaatar Region, 52.6% replied that there are not enough pastures in summer and autumn, which is directly linked with a fact that in summer not only local herders, but a large number of herders from nearby areas move to the territory of summer camps of urban dwellers in order to sell them milk and dairy products.

Sufficiency of pastures, wells and animal pens: herders' opinions

Table 12

Indicators /%/		Hangai Region	Western Region	Central Region	Eastern Region	UB Region
Sufficiency of pastures (Winter, Spring)	1 - *sufficient*	31.6	26.3	26.2	8.3	47.4
	2 - *average*	41.8	50.2	53.0	47.7	15.8
	3 - *insufficient*	26.6	23.5	20.8	44.0	36.8
	Total:	100%	100%	100%	100%	100%
Sufficiency of pastures (Summer, Autumn)	1 - *sufficient*	19.6	14.8	26.5	3.0	26.3
	2 - *average*	49.3	50.7	51.2	40.6	21.1
	3 - *insufficient*	31.1	34.5	22.3	56.4	52.6
	Total:	100%	100%	100%	100%	100%
Sufficiency of wells (Winter, Spring)	1 - *sufficient*	47.9	23.6	20.2	26.4	21.1
	2 - *average*	27.7	40.9	44.2	43.4	21.1
	3 - *insufficient*	24.4	35.5	35.6	30.2	57.8
	Total:	100%	100%	100%	100%	100%
Sufficiency of wells (Summer, Autumn)	1 - *sufficient*	26.1	9.7	21.0	16.0	26.3
	2 - *average*	39.4	44.9	38.3	49.0	26.3
	3 - *insufficient*	34.5	45.4	70.7	35.0	47.4
	Total:	100%	100%	100%	100%	100%
Sufficiency of animal pens (Winter, Spring)	1 - *sufficient*	6.1	21.9	9.9	9.7	5.3
	2 - *average*	21.5	25.7	26.5	28.2	15.8
	3 - *insufficient*	72.4	52.4	63.6	62.1	78.9
	Total:	100%	100%	100%	100%	100%
Sufficiency of animal pens (Summer, Autumn)	1 - *sufficient*	7.0	14.1	7.7	10.9	5.3
	2 - *average*	20.0	26.7	34.0	20.8	10.5
	3 - *insufficient*	73.0	59.2	58.3	68.3	84.2
	Total:	100%	100%	100%	100%	100%
Hayfields (Summer, Autumn)	1 - *sufficient*	48.6	62.4	73.1	46.2	57.8
	2 - *average*	31.6	26.1	16.2	31.7	21.1
	3 - *insufficient*	19.8	11.5	10.7	22.1	21.1
	Total:	**100%**	**100%**	**100%**	**100%**	**100%**

This trend to overuse pastures is widespread close to the market, roads and communications, water and wells; thereby exceeding the capacity of the pastures. This becomes the main reason for the further overgrazing and deterioration of pastures. Due to overgrazing of pastures, 30% of pastures close to the city are covered by such weeds as sagebrush that cattle do not eat.

As it is clear that at present the herders, driven by market laws, will continue to overuse pastures located in favorable places, the issue of the proper use of pastures and their restoration should be discussed at the level of a **special Government policy** and substantial measures should be taken. Otherwise in the next 3-5 years, due to combined effect of human activities and warming of the climate, the pastures in Mongolia can deteriorate to an irreversible state and the country might face desertification.

Sufficiency of wells and water supply

Of total respondents of the survey, 31.8-39.2% consider water to be in short supply. Among them are herders of the Central Region, namely 70% of herders from Umnugovi, Dundgovi, and Tuv *aimags* replied that in summer and autumn the seasonal wells and water supply are insufficient, which is the highest indicator among all *aimags*. When the issue was examined closely, the problem was related to the fact that since 1990 engineered

and deep wells were left without proper maintenance and as a result the majority were now broken and disused.

Herders of the Govi *aimags* consider the sufficiency and availability of water supply and wells in summer to be nearly half that in winter. Govi herders always choose winter and spring camping sites in locations with open sources of water or wells nearby, and sometimes melt snow in winter to water livestock; while in summer they move in search of pastures with wells nearby in order to protect their winter campsites. Accordingly their answers on the sufficiency of water supply in different seasons are different.

It was observed by the team that while answering this question about water, herders thought only about watering livestock. They did not take into account public health or hygienic aspects of drinking water.

Of the herders in the Ulaanbaatar Region, 57.8% view water supply in winter and spring as being insufficient, a relatively high indicator. One of the reasons for such evaluation is that the majority of herders in areas close to Ulaanbaatar have to pay fees to the entity that owns the well in order to water livestock in accordance with special tariffs per head of herd. In the future there is a need to encourage the sinking of wells at pastures and to establish a system of incentives to herders who build wells with their own money - such as giving them the advantage of using or owning the pasture around the well.

Sufficiency of animal pens and fences

Of herders in the survey, 62.9-64.8% answered that there are insufficient pens and fences. This shows that this issue is the most acute. If looked at by Economic Regions, this issue is the most difficult in Ulaanbaatar Region, but in other Economic Regions the indicators are quite similar. In recent years the issue of building adequate animal pens and fences has been almost completely neglected, so not every herder household, especially the new herders, owns a pen at their winter or spring campsites, but temporarily uses pens and fences of other households. Animal pens and fences built before the 1990's have mostly deteriorated. When discussing building new pens, herders mentioned such problems as the need to secure transportation, manpower, arduous labor along with purchasing wood, stone, concrete and other building materials. Our original understanding that the insufficiency of pastures and water supply are the main problems encountered by herders has proved to be wrong and the research findings show that sufficiency of pens and fences is the most important problem.

Although in discussions the herders mostly mentioned insufficiency of pastures and water supply as their main problem, in reality insufficiency of pens and fences is the most important issue.

Sufficiency of hayfields

Of total respondents in the survey, 15.3% consider that hayfields are insufficient. The majority of herders consider that if hayfields are distributed properly and each herder household has its own field, there are enough of hayfields for every household.

3.2 Use and possession of pastures: herders' opinion

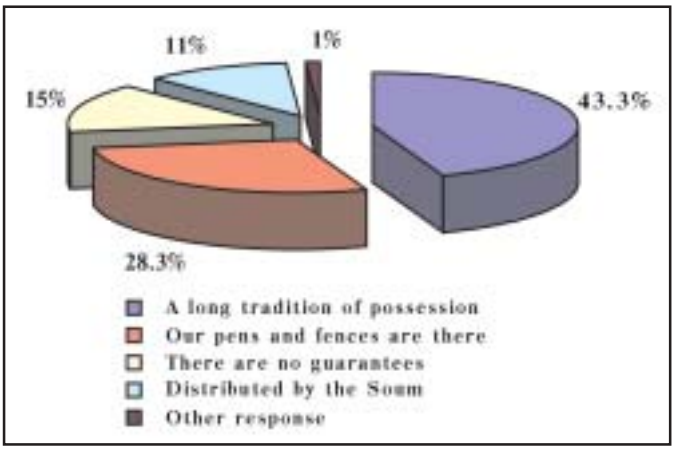
Article 52 of the Law on Land states that ***"in order to protect winter and spring camping sites and pastures from overgrazing and their further recovery, the aimag governor can let a part of pastures to be used by herders on the basis of an agreement on special conditions, taking into account traditions of pasture possession, land capacity and its potential, with approval of the common meeting of bag residents. "***

In order to clarify how the abovementioned Article is implemented in real life and how herders understand and realize their right to individual possession of winter and spring

camping sites, our team asked ***"What guarantees/secures your possession of winter and spring pastures?"*** (see Figure 10).

What secures your possession of pastures?

Figure 10



43.3% of herders who answered this question thought that the tradition of living on a certain piece of land to be the main proof of possessing winter and spring pastures in that area. This response accounted for the biggest share among replies.

Of total respondents, 28.3% answered that their animal pens and yards are the basis for claiming possession of certain pastures, while 15% answered that there is no guarantee for such a claims, and 11% replied that distribution of pastures by the *soum* or *bag* secures their possession.

The results of the survey show that with regard to the distribution of winter and spring pastures from the *soums* and *bags*, the involvement of local State institutions in activities to coordinate use and possession of pastures was insufficient. Distribution of pastures and coordination of their use is based on traditions, distinctive features of the area and pastures, and individual relationships between people.

3.3 Disputes over pastures: herders' opinion

Regarding the use of pastures, one of the main concerns for herders is about disputes over pastures. Such disputes are of seasonal character and become of real concern and a source of conflict in periods of moving to the summer, autumn, winter or spring camping sites, but herders mostly do settle these issues peacefully. Households located close to each other in summer and autumn camping sites follow the principle that pastures are common land, and as the Mongolian proverb says *"one can camp everywhere if there is a place to build a ger and eat wherever there is a room to poke your nose."* As pastures are nobody's individual property, but common land, people are concerned about the protection from overgrazing and proper use, but do nothing to address these concerns everyday life.

Responses to the question ***"Who can settle disputes over pastures?"*** were grouped by the age and education background of the respondents.

Of the respondents, 42.8% believe that the herders themselves can solve disputes over pastures, 39.2% believe that *soum* or *bag* governors can do this, 10.3% are confident that none of them can solve the problem and different other ways should be sought, and 5.3% consider that respected and influential people can settle the problem. When responses to the question were grouped according the age, Economic Region of residence and educational level of the respondents, no significant differences were discernable amongst the answers.

Who can settle disputes over pastures?

Table 13

Answers	Number of answers	% of total answers
"Soum and bag governors"	303	39.2%
"People respected in their area"	41	5.3%
"Herders themselves"	331	42.8%
"None of them can settle the problem, we need other methods"	79	10.3%
Other	9	1.2%
Did not answer	10	1.3%
TOTAL	**773**	**100%**

The higher the educational level of herders, the greater number of them believed that *soum* or *bag* governors are able to solve disputes (see Appendix).

3.4 Use, possession and ownership of pastures: herders' opinion

When herders were asked the question ***"What do you think on use and possession of pastures?"***, 77.1-77.5% of herder households answered that pastures should be in common ownership, 11.0-13.9% said that they should be used under contract and 4.0-9.3% consider that pastures should be owned privately (see Table 14).

Use, possession and ownership of pastures: herders' opinion

Table 14

Answers	Season	Higher		Vocational		Secondary		Primary		Total	
		qty	%	qty	%	qty	%	qty	%	qty	%
"Use as common land"	Winter, Spring	12	42.9	50	70	384	77.8	109	85.4	556	77.1
	Summer, Autumn	22	76	50	69	389	79	98	76.5	559	77.5
"Use under contract"	Winter, Spring	7	25	7	10	58	11.7	7	5.4	79	11
	Summer, Autumn	2	8	12	17	65	13.1	22	16.8	100	13.9
"Possess under contract"	Winter, Spring	2	3.6	3	4.5	6	1.2	2	1.5	12	1.7
	Summer, Autumn	0	0	1	1.6	19	3.9	5	4.2	26	3.6
"Individual ownership"	Winter, Spring	8	28.5	10	13	40	8.2	9	6.9	67	9.3
	Summer, Autumn	5	16	8	12	15	3	2	1.7	30	4
"Do not know"	Winter, Spring	0	0	2	1.6	5	1.1	1	0.8	8	0.9
	Summer, Autumn	0	0	1	1.5	5	1	1	0.8	7	1
TOTAL	Winter, Spring	29	100	72	100	493	100	128	100	722	100
	Summer, Autumn	29	100	72	100	493	100	128	100	722	100

Herders did not specifically differentiate between winter-spring and summer-autumn pastures when talking about the use, possession and ownership of pastures. However, it was observed that many herders thought that winter-spring pastures should be owned/possessed privately, while summer-autumn pastures should be in common use.

Of herders who want to own pastures privately, over 80% are herders engaged in dairy farming, residing close to the market. Herders with higher or vocational education are also more interested in having pastures in private ownership. It was observed that the majority of herders were cautious when talking about private ownership of pastures. Only 4-9.3% of them are interested in private ownership.

The same question was put to management workers, experts and researchers and the results are presented in Table 15.

Use, possession and ownership of pastures: management, experts and researchers opinion

Table 15

From of livestock breeding	"Share as common land"		"Use under contract"		"Possess under contract"		"Private ownership"		Did not respond		Total	
	qty	%	qty	%	qty	%	qty	%	qty	%	qty	%
Pastoral	160	71.1	16	7.1	29	12.9	9	4.0	11	4.9	225	100.0
Semi-settled	27	12.0	98	43.6	55	24.4	23	10.2	22	9.8	225	100.0
Settled	18	8.0	39	17.3	59	26.2	78	34.7	31	13.8	225	100.0

The majority of respondents (71.1%) answered that pastures should be *"shared as common land"* in circumstances of pastoral livestock breeding, and this accords with the opinions of herders - 77% of whom gave the same reply.

Of herders engaged in semi-settled livestock breeding, the majority (43.6%) selected the answer *"use under contract"*, while only 12.0% chose the answer *"share as common land"*.

However, if settled livestock breeding is in place, 34.7% of respondents consider that pastures should be in private ownership and 26.2% chose the answer *"possess under contract"*. It shows that with the transition to settled livestock breeding, the need emerges to solve the problem of pasture ownership by herders.

3.5 Conclusions

1. Survey findings show that the issue of sufficiency of pens and fences is the main problem. Of herders covered by the survey, 64.8% answered that there are not enough pens and fences. This situation shows that there is a need to pay attention to the issue of animal pens and fences. Coordinated use of pastures, especially remote pastures, can depend on the sufficiency of animal pens in this area.

2. The second problem that herders encounter in livestock breeding is the issue of water supply. Of respondents, 39.2% consider that there is shortage of water in summer and autumn seasons. When we look at the issue by Economic Regions, 70% of herders in the Central Region consider that in summer and autumn seasons wells and water supply are insufficient, which is the highest indicator among all *aimag*s.

3. 34.3% of herders covered by the survey concluded that pastures are insufficient. Sufficiency of pastures can be increased by irrigation work and creation of a legal environment for optimal use of pastures.

4. Herders conclude that the sufficiency of pastures and water supply differs depending on the seasons. For instance, in summer and autumn both pastures and water supply are scarcer than in winter or spring. Therefore it is necessary to pay more attention to the improvement of water supply in summer and autumn pastures.

5. Herders themselves settle disputes over pastures. Article 52 of the Law on Land about coordination of disputes over pastures use and distribution of pastures is not implemented and does not correspond with real life.

6. Management workers, experts and researchers, herders and the general public all agree that pastures should be used as common land in conditions of pastoral livestock breeding. However, with transition to the settled livestock breeding, the problem of pasture ownership by herders is emerging. If investment in livestock breeding is to be made, and intensive ways of running business are to be sought, we need to develop a favorable legal environment.

CHAPTER 4

LABOR PRODUCTIVITY IN LIVESTOCK REARING

4.1 The present condition of labor productivity

Labor productivity is the main indicator of economic effectiveness of the given sector. Prior to the 1990's, the number of animals per herd was determined by the directive of Council of Ministers and by the decision of the Supreme Council of Collective Farms' Association. The Collective and State Farms followed these norms and standards in their operations (see Table 16).

Norms of the herd organization in an agricultural unit

Table 16

Type of livestock	Animals per herd	Bod units	Herders per herd	Average livestock per herder
Female Camels	70-90	490-810	3	216
Barren Camels	175-225	1225-1575	3	466
Mares	140-200	840-1200	2	520
Horses	360-600	2160-3600	4	720
Cows	90-150	540-900	2	360
Bulls	140-230	840-1380	2	555
Ewe-Sheep	400-700	400-700	2	275
Yearling Sheep	500-850	500-850	2	337
Ewe Goats	350-650	350-650	2	500

G. Chadraabal and Ch. Arildii *'A system of livestock breeding in the People's Republic of Mongolia.'*

Prior to 1990 the number of animals in one herd reached the norms mentioned in Table 16 and the number of animals to be herded by one person reached 275-720 animals (in *bog* units) depending on the age and kind of livestock. The situation has changed substantially after 1990 because of livestock privatization and transition to the market economy, and labor productivity in livestock breeding has declined sharply.

The research team has calculated the number of livestock per herder (in sheep units) using the sample of over 700 herder households covered by the study. At present the average herder of labor age herds only 70.1 animals (in *bog* units). The team thinks that this survey represents quite objectively the present picture of labor productivity in livestock herding (see Table 17).

When examining indicators of labor productivity along with the number of livestock per herder, also should be taken into account such indicators as: changes in productivity per animal; and the use of different ways of facilitating arduous labor in livestock breeding by using special machinery and equipment which increase labor productivity. However, in reality, apart from few individuals and private enterprises engaged in dairy farming in the environs of Ulaanbaatar, measures are not taken on raising labor productivity by increasing productivity per animal or using special machinery and equipment to facilitate arduous labor in livestock breeding. With regard to these factors, we can say that at present the labor productivity in livestock breeding is defined mostly by the number of livestock per herder of working age.

Groups of herder households selected for the survey

(by number of livestock per herder of working age)

Table 17

Economic Region		Livestock (bog) oer herder of working age						Total	Livestock (bog) per herder
		0-20	21-40	41-70	71-100	101-150	>151		
Hangai Region	qty	30	38	48	41	32	41	230	75.5
	%	13.0%	16.6%	20.8%	17.8%	13.9%	17.8%	100%	
Western Region	qty	18	34	67	28	31	22	200	72.3
	%	9.0%	17.0%	33.5%	14.0%	15.5%	11.0%	100%	
Central Region	qty	21	29	32	26	16	29	153	74.7
	%	13.7%	19.0%	20.8%	17.0%	10.5%	19.0%	100%	
Eastern Region	qty	12	6	10	10	21	47	106	66.9
	%	11.3%	5.6%	9.4%	9.4%	19.8%	44.3%	100%	
UB	qty	4	3	5	2	3	1	18	61.2
	%	22.2%	16.7%	27.8%	11.0%	16.7%	5.6%	100%	
TOTAL	qty	91	110	162	107	103	140	713	70.1
	% herders	12.8%	15.4%	22.7%	15.0%	14.4%	19.7%	100%	

If we compare labor productivity in the present livestock production in terms of the number of livestock per herder, it has declined 4-5 times in comparison with the years before 1990. In this situation, there is no basis to think that a herder's income will increase and their livelihood will improve. At the present one herder of labor age herds only 70.1 animals (in *bog*). If we suppose that 70 animals will produce an average of 200-300,000 MNT worth of products a year, this will not meet the basic needs of a household. Our team regards the reasons for decline of labor productivity to be as follows:

- In the period since 1990, herder households herded only their own few livestock. In the period of transition to the market economy, many thousand residents of cities, *aimag* and *soum* centers, and settlements moved into rural areas to receive livestock during its privatization. They engaged in herding their own few animals and stayed in the countryside. As a result, the number of herders has increased, but the number of livestock per herder has declined.
- Herders are interested in registering underage children, elderly people and adult children who are members of their families as separate households in order to count some livestock under their name. This is related to the tax policy of 1996-2000 that exempted from taxes a household with less than 150 livestock.

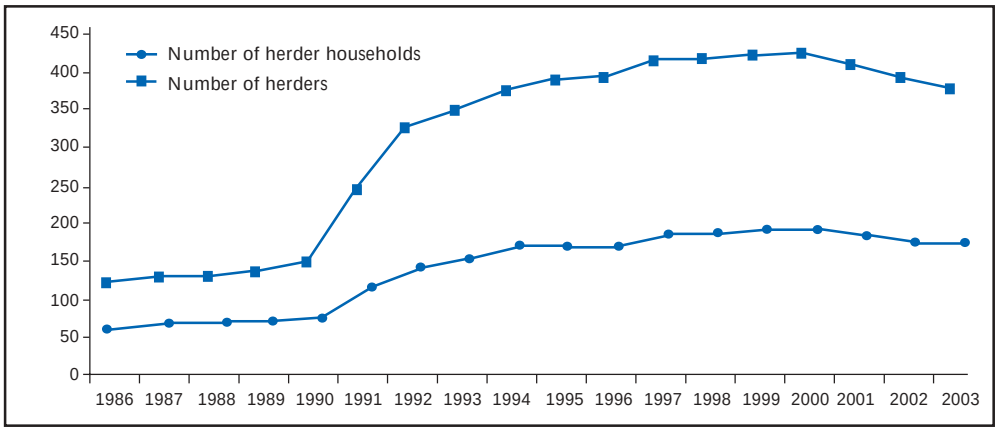
For these reasons the number of herder households has increased 3-fold in the last decade. For instance, statistical data show that in the 2000 there were 191,500 herder households and 421,400 herders, which is 128,800 herder households or 3 times greater than the number of herder households in 1986 and the number of herders has increased by 297,900, i.e. it is 3.4 times greater than in 1986.[12]

In 1990 there were 147,500 herders and the total number of livestock was 25.8 million, thus there was in average of 175 livestock per herder. In 2000 that indicator, which is the main indicator of labor productivity, has declined to 71.7 livestock per herder (see Figure 11).

[12] 'Presentation of results of livestock, domestic animals and fodder census 2002', NSO, UB April 2003.

Changes in the number of herder households and herders

Figure 11



'Presentation of results of livestock, domestic animals and fodder census 2002, 2003', NSO, UB April 2003, April 2004.

4.2 Future trends for increasing labor productivity in livestock rearing

We mentioned earlier that labor productivity in livestock breeding in Mongolia has declined 2-5 times since 1990. The issue of increasing the number of animals herded per person of working age[13] - and thus labor productivity - should be the main task for the future development of this sector.

If labor productivity increases and the number of livestock herded per person (in *bog*) reaches at least the lowest norm of 200 animals per herder, we will need 227,700 herders at national level. However, at present over 380,000 herders work in the livestock breeding sector (data from 2003 Livestock Census). The difference between the number of herders required and herders that are currently working is 160,000 persons, who are unable to derive profit from their work and improve their living standards because of low labor productivity in livestock breeding. On the other hand, it can be viewed as 160,000 extra labor resources. The team's conclusion is similar to the findings of other researchers. For instance, S. Handsuren stated in her research (1998): *"If we look at the number of livestock in relation to herders' labor productivity, there are 167,000 redundant herders"* [14], while research on 'Proper use of labor resources in livestock breeding' by A. Bakei and others (1997) showed that there were 167,300 extra herders in Mongolian livestock breeding in 1997[15].

Study of labor productivity and labor resources in livestock breeding has become one of the most important issues in this sector.

A future trend for the development of animal husbandry in our country should be the improvement of labor organization and labor productivity. In order to accomplish this, measures should be taken such as: creating other than herding possibilities for income generation in rural areas; developing small and medium enterprises and tourism; activities to improve livestock breeding; increasing livestock productivity and better fodder procurement; giving support for capital investment from the private sector; and establishing of small and medium livestock breeding farms with hired herders.

Another important method of increasing labor productivity in animal husbandry is

[13] The research team regarded all men aged 18-60, all women aged 18-55 as capable of labor excluding those who had a medical decision about inability to work, and using this criteria determined the number of people able to work in the households covered by the survey.

[14] S. Handsuren *'Use of labor resources in livestock breeding'*, PhD thesis, MAU, 1998, p.182, UB, Mongolia.

[15] A. Bakei and others *'On the issue of appropriate use of labor resources in livestock breeding'*, project report, MAU, EF, p.41, UB, Mongolia.

by cooperation and cooperatives. All forms of cooperation between herders, individuals and enterprises should be supported.

4.3 Conclusions

1. Labor productivity in the livestock breeding sector has declined 4-5 times in the last decade and over 80% of herders are engaged in herding relatively small number of animals, which leads to a decline in living standards.

2. The correct trend and direction for the future development of livestock breeding is the support of capital investment in this sector from private enterprises, reduction in the number of livestock herded per herder, increase of productivity per animal, all aimed at increasing labor productivity.

CHAPTER 5

ENVIRONMENT, CLIMATE AND LIVESTOCK BREEDING

5.1 Effect of environment and climate on livestock production

In the last few years substantial changes have occurred in the Mongolian ecosystem, which manifest themselves by intensification of desertification and soil erosion, decline of water supply and biodiversity, an increase in the frequency of natural disasters, and the drying up of rivers and springs.

According to records of the average monthly temperature for the last 62 years, from the start of meteorological observations conducted in Mongolia, although no warming or cooling trend was observed for April or August, there is a trend for overall warming, namely: an increase in the annual average temperature by 1.56 C; by 3.6 C in winter; by 1.4-1.5 C in spring and autumn; and by 0.3 C in summer.

Mongolian livestock breeding and herders' livelihood has always depended on the feed that animals found in the pastures all-year-round and so has been directly affected by the natural environment and climate. As a result of long years of natural selection, Mongolian people and Mongolian livestock have become well-adapted to the severe, dry, hard climate of Central Asia, whereby the number of livestock reduced during periods of drought, *dzud* and other natural disasters, and increased again during favorable years. In short, it can be concluded that the increase and decline of the number of Mongolian livestock directly depends on the natural and climatic conditions.

The research team of the survey on *'The Future of Mongolian Pastoralism'* in cooperation with researchers from the Meteorological Institute made an evaluation of the present natural and climatic conditions to determine how disastrous climatic phenomena affect livestock production.

Research data from the last 60 years show that drought has occurred 3 times in the interval between 1940-1960 and 3 times in the interval between 1961-1980, i.e. the frequency of droughts was 3 every 20 years. However in 1993, 1996-1997 and then in successive years of 2000, 2001 and 2002 occurred drought and *dzud* which affected 50-70% of the total territory. In other words, in the decade after 1995 drought and *dzud* happened 5 times, which is 3 times the frequency in previous years.

As experienced herders and researchers have noted, the drought and *dzud* that occurred after 2000 had quite different characteristics from those of the 1940-1997 interval.

In the 57 years from 1940 to 1997, excluding 1944 and 1967-1968 when drought and winter-spring 'white' *dzud* occurred, all others or 7 *dzud* were dominated by 'white' *dzud*[16]. It means that snowfall was so heavy, that pastures were covered by deep snow, which resulted in *dzud*. However the 'red' drought that affected over 50% of the territory in the 3 successive years of 2000, 2001 and 2002 differed substantially from other natural disasters of previous years.

Drought is differentiated as 'red drought', 'drought' and 'dry weather' and in making a general evaluation of drought, only 'red drought' is regarded as natural disaster. In 1994-1997, 'red droughts' which affected over 50% of the total territory occurred only twice.

The following Table shows how natural disasters have affected the number of livestock. In the over 60 years period since 1944, drought and *dzud* which affected over 50% of the total territory of Mongolia occurred 11 times and the total damage was the loss of 28.7 million livestock and 11.5 million young animals (see Table 18).

[16] Included here are the *dzud* that covered over 50% of the total territory of the country.

Damage to livestock breeding as a result of drought and dzud

Table 18

Years	Territory affected	Livestock lossess			
		Mature animals		Young animals	
		qty	%	qty	%
1944-1968	11 *aimag*	14.2 million	14.9%	4.0 million	13.7%
1976-1993	10 *aimag*	4.4 million	6.2%	3.7 million	10.9%
1996-2002	12 *aimag*	10.1 million	9.2%	3.8 million	13.3%
TOTAL	**28.7 million**		**11.5 million**		

Conclusions and lessons learnt from natural disasters of 1996-2001, a compilation.

Drought and *dzud* of 2000, 2001 and 2002 were natural disasters which affected over 60% of total territory of the country, lasted the longest and happened with the shortest intervals in 3 consecutive years.

The natural disasters of 2000, 2001 and 2003 started with drought in summer, which led to loss of plant yield at pastures and as a result lead to 'black' *dzud* in areas with little snow and to 'white' *dzud* in areas with heavy snowfall, i.e. a combination of drought and *dzud*, which started with 'red drought' in summer, had far more harmful consequences then other disasters in previous years.

The frequency of natural disasters has become much higher in the last 3 years, for instance, since 1997, such dangerous natural phenomena as strong storms, floods, rainstorms, and sudden severe cold (down to minus 45-50 C) have often occurred.

Of 55 dangerous natural phenomena which happened at national level in 2002, 19 reached the level of disasters (with different kinds of damage), 43 casualties were counted and a total of 3.4 billion MNT worth of damage was inflicted on the State. Damage from livestock and crops losses due to the 2001-2002 *dzud* and the 2002 drought reached 150.5 billion MNT.[17]

The 2001-2002 *dzud* [18] At the end of November 2001, heavy snowfall started, leading to formation of snow cover over at 70% of the total territory, severe cold started at the beginning of December with precipitation higher than the average of recent years. Snow covered about 80% of the total territory with the depth of snow reaching 10-27 cm in some *soums* of Bayan-Ulgii, Uvs, Zavhan, Hovd, Huvsgul, Govi-Altai, Bayanhongor, Arhangai and Uvurhangai *aimags*. In snowdrifts the thickness of snow reached 30-130 cm and its density was 0.16-0.34 gram/cm^3 which created difficult conditions for winter camping all over the country.

Frequency of dangerous atmospheric phenomena

Table 19

Years	Dangerous phenomena	Disasters	Disasters, of which:				Casualties	Number of *soums*	
			Wind & storms	Heavy snow & rain	Floods & hail	Other		Drought & dry weather	*dzud*
1990-1992	58	26	8	8	9	1	27	43/113	29
1993-1995	75	41	15	17	6	4	104	20/56	85
1996-1998	142	62	11	5	42	4	68	33/77	128
1999-2002	201	77	22	12	31	14	136	212/530	487

http://env.pmis.gov.mn/Meteoins/

[17] Report on evaluation of natural environment conditions in Mongolia, 2002.
[18] http://env.pmis.gov.mn/Meteoins/

In the first ten days of January 2002 started a sudden warming which had not occurred in the last 20 years, and temperatures in the most parts of the country exceeded the average of recent years by 5-9 C. Then in February it was warmer than average and as fluctuations of temperature at day and night were large, snow became compressed and hardened, creating an ice cover on top.

Situation of drought and overall summer camping in all Mongolia

Table 20

Year	Favorable summer	Dry summer	Drought
2000	40%	55%	5%
2001	30%	40%	30%
2002	30%	50%	20%

http://env.pmis.gov.mn/Meteoins/

In the winter of 2001-2002 'white *dzud*' occurred in 114 *soums* of 8 *aimags*: in all *soums* of Uvs, Zavhan, Govi-Altai and Uvurhangai *aimags*; in all *soums* of Bayanhongor *Aimag* except for Ehiin Gol; in Bulgan, Uench, Altai, Erdeneburen, Mayangad, Durgen, Buyant, Chandman, Manhan, Zereg and Dariv *soums* of Hovd *Aimag*; in RenchinIkhumbe, Ulaanuul and Hanha *soums* of Huvsgul *Aimag*; and in Huder and Baruunharaa *soums* of Selenge *Aimag*. The situation became more difficult, and from the end of November, livestock started dying, so that a total of 2.4 million livestock were lost in Bayan-Ulgii, Bayanhongor, Govi-Altai, Zavhan, Uvs, Hovd, Huvsgul, Uvurhangai, Arhangai, Selenge and Umnugovi *aimags.*

In summer 2002 there was drought or dry weather in 251 *soums* of 20 *aimags* and drought occurred in 77 *soums* of 13 *aimags*.

In June-August 2002 occurred a great heat wave of long duration, which had not happened in the last 50 years. For instance, on the 1-3rd, 10-18th, 24-29th June; on the 2-9th and 18-30th July; and on the 10-20th August the temperatures in the majority of the territory of our country exceeded 30 C. Although in the previous years the highest temperatures in summer in the territories of Gobi and steppe *aimags* and in the deltas of Orhon and Selenge rivers had reached 38-44 C and in other parts of the country the temperatures had been 35-37 degrees, nevertheless the duration of heat waves had been short. In summer 2002, the highest temperatures in the mountainous areas of Altai, Hangai, Huvsgul, Hentii Economic Regions reached 28-33 degrees, while in other areas the temperatures shot up to 34-42 degrees. The highest temperatures in the mountainous areas of Hangai and Huvsgul in that summer were registered as being the highest on record in the last 50 years.

In June-August 2002 temperatures exceeded 30 C in the majority of areas in Bayan-Ulgii, Hovd, Zavhan, Arhangai and Huvsgul *aimags*, in the north of Govi Altai, Bayanhongor, Hentii *aimags*, in the east of Suhbaatar *Aimag*, in the north-east of Tuv *Aimag*, in the north-west and east of Dornod *Aimag* for less than 20 days, in the most areas of Umnugovi, Dundgovi, Dornogovi and Selenge *aimags*, in the south of Govi Altai, Bayanhongor and Uvurhangai *aimags* for 40-77 days and in the rest of the territory for 21-39 days.

Numerous forest fires occurred in summer, a situation brought about by sunny and extremely hot periods that had lasted for many days in 3 summer months and less than average rainfall has occurred in 70% of the territory in June and July and over 90% of the territory in August. In July alone, during 4 extremely hot days from 23rd to 27th, forest fires started in 64 places in Mongolia. In summer 2002, 69 persons had been injured in rivers and lakes, and 60 persons died because of their carelessness. The fact that people had drowned in rivers was an indirect effect of long wave of heat.

Atmospheric peculiarities of 2002. The spring was generally warm with higher than average precipitation and by May 31st, in half of the country's territory plant growth was good, about 40%. Despite that, overall the spring of 2002 was windy and stormy, and this affected livestock rearing unfavorably.

Drought or a dry summer occurred which was one of the driest years with the least rainfall since 1940, with warmer than average summer in most of the territory except for the 3 Eastern *aimags*, and heat waves and scarce rainfall over 70% of the total territory. Less than average precipitation occurred in June-July in 70% of the territory and over 90% in August. Since 1940 there had been no such period with 4 successive years of drought.

As in June, July and August of 2002, heat continued and "red drought" occurred, and until September 2002 there was no rain, so with less than average rainfall in September in over 90% of the total territory, it created favorable conditions for crop harvesting. However, starting from October *dzud* began in Bulgan *Aimag*, conditions for livestock breeding worsened in most areas of Selenge, Tuv and Darhan-Uul *aimags*, some areas of Zavhan, Huvsgul, Uvurhangai, Hentii and Dundgovi *aimags* and snow fell everywhere. By December 20th, snow covered more than 80% of the territory with average thickness of snow of 38cm in 30% of territory. The density of snow reached 0.14-0.42 gram/cm^3 with its thickness reaching 30-40cm in the steppes and 60-120cm in snowdrifts. Opportunities for livestock grazing in mountain valleys had disappeared, no grass could be found with the snow and winter camping became very difficult.

Due to changes in global atmosphere because of erroneous human activities, the frequency of natural disasters has increased, drought occurred across over 50% of the total territory in 4 successive years, and *dzud* occurred in over 100 *soum* territories in the last 3 years. As a result, many millions of livestock were lost and great damage was inflicted to the economy of the country. Therefore, there is an urgent need to develop the legal environment for fighting natural disasters and to improve the system of forecasting natural disasters of atmospheric origin. (Source: Ministry of Nature and Environment).

Because in recent years successive droughts and *dzud* have occurred in our country and the number of dangerous natural phenomena and damage from them have increased, not only livestock, but also wild animals, birds and plants all were put to natural selection and a question *"to be or not to be"* has arisen. In the 3 years from 2000-2002, Mongolia has lost 30% (over 10 million) of the total livestock due to natural disasters.

According to experts' calculations, due to the greenhouse effect the amount of precipitation and fluctuations of temperature have changed sharply in Mongolia, and the frequency of droughts and *dzud* is going to increase in the future. Results of the land research on climate and environment show that in the next 20-50 years unfavorable effect of the weather conditions on the livestock production in Mongolia will increase even more, especially in the last half of the new century.

Therefore it is necessary to implement short and long-term programs on animal husbandry production and optimal ways of organizing livestock production, and to develop policies on livestock breeding with outlook on the future.

5.2 Changes in environment and climate: herders' opinion

Every herder and expert whom we met during the study in over 34 *soums* in 11 *aimags* was concerned with the changes in nature during the last 5 years. The results of the survey on their opinions are presented in Table 21.

In your opinion, did the natural environment and weather change in the last decade?

Table 21

Question		Normal		Declined		Don't know		Total	
		qty	%	qty	%	qty	%	qty	%
Plant composition		61	8.0%	645	84.4%	58	7.6%	764	100%
Pasture yield		11	1.4%	685	89.7%	68	8.9%	764	100%
Weather	Summer	27	3.5%	586	76.7%	151	19.8%	764	100%
	Winter	24	3.1%	632	82.7%	108	14.1%	764	100%
Rivers, springs, streams	Summer	44	5.8%	555	72.6%	165	21.6%	764	100%
	Winter	37	4.8%	563	73.7%	164	21.5%	764	100%

Of 764 herder households covered by the study, 84.3% answered that the plant composition had worsened, 86.8% that the pasture yield had declined, 72.3-77.6% answered that the weather had deteriorated and over 67% observed that rivers and springs had dried up.

Perceptions of herders who view that climate and natural environment declined in the last decade *(by Economic Region)*

Table 22

Questions	% positive response by herders					
	Average	Hangai Region	Western Region	Central Region	Eastern Region	UB Region
Plant composition	84.3%	94.4%	65.2%	95.2%	80.0%	94.7%
Pasture yield	86.8%	94.1%	82.7%	95.1%	86.1%	94.7%
Weather (Summer)	72.3%	86.0%	63.5%	88.9%	66.0%	57.9%
Weather (Winter)	77.6%	88.4%	75.4%	85.9%	81.7%	73.7%
Springs & streams (Summer)	67.9%	71.4%	56.3%	89.0%	82.8%	73.7%
Springs & streams (Winter)	67.7%	81.9%	58.7%	80.0%	76.7%	68.4%

With the main requirements for an increase of the number of livestock - the natural environment, climate, pastures and rivers - having declined in a such short period of time, the question arises: *"should we keep herding methods as they are?"*

In Arhangai and Bulgan *aimags* of the Hangai Region, in Selenge and Tuv *aimags* of the Central Region, deltas of rivers have declined, many thousands of springs and streams that were found in every valley and ravine, have dried up, and in some areas of forest – steppe zone sandy soil has emerged. In pastures such basic plants as wormwood, couch grass and meadow grass have disappeared, giving place to weeds which livestock does not eat.

Many rivers and springs have dried up or became polluted or changed their course due to gold mining activities. If compared with previous years, such changes are obvious to everybody, which leads to giving negative evaluation to changes in natural environment.

As for Govi-Altai, Bayan-Ulgii and Hovd *aimags* which belong to the Western Region, they have little forest and steppes, and few springs or streams, the structure of the territory is desert and mountainous areas of Altai, the number of windy days is numerous, and the amount of annual precipitation is relatively small. The plant composition includes such plants as broom-grass, Haragana bushes, wild leek and tumble-weed which grow in the steppe and Gobi zones and are adapted to droughts. Due to these factors herders of these *aimags* have evaluated the decline of natural environment, climate, pastures and water supply on a lower scale than herders from the Hangai Region. For instance, while 94.1% of herders from the Hangai Region and 82.7% of herders from the Western Region consider that plant growth in pastures has declined, 81.6% of herders from the Hangai Region and 58.7% of herders from the Western Region consider that springs and streams in winter have declined.

5.3 Conclusions

1. Global warming caused by changes in the global climate and by the greenhouse effect directly affected natural and weather conditions in Mongolia, and therefore the frequency of droughts and *dzud* has increased in recent years and there has been a grown in harmful consequences of natural disasters.

2. About 75% of herders feel that the natural environment and climate have declined, pastures have deteriorated and the number of open water sources has reduced.

3. The weather prognosis for the next 20-50 years indicates that unfavorable effect of climate changes on livestock production will intensify. Therefore it is necessary to change present methods of livestock breeding and to develop a system which protects it from natural risks.

CHAPTER 6

DIFFICULTIES IN LIVESTOCK BREEDING: HERDERS' PERCEPTIONS ON OVERCOMING THEM

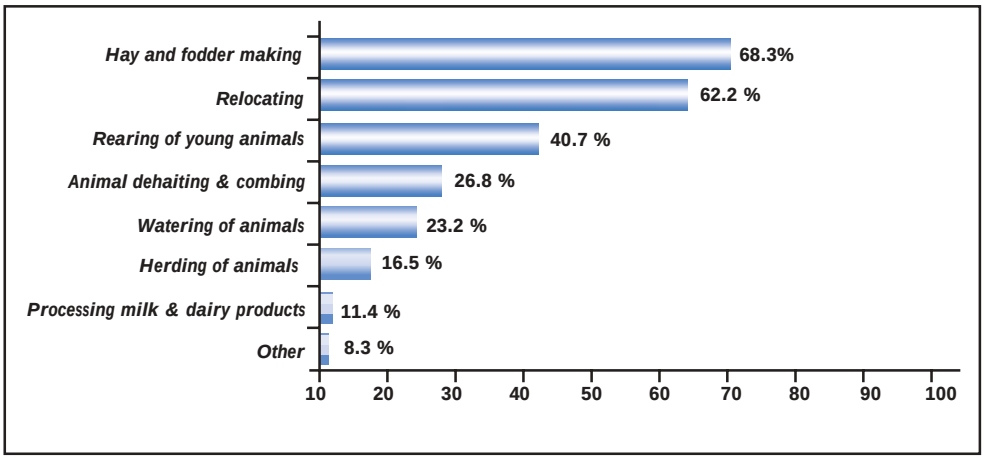
6.1 Arduous labor in livestock production

One of the objectives of the present survey is to determine how herders themselves classify different activities in livestock production by their degree of difficulty and what they consider about ways to facilitate arduous labor. In order to achieve this objective the team has drawn up a list of activities commonly implemented in livestock production, selected the most widespread of them and asked herders to rank them in the order of difficulty.

Herders answered the question "***What is the most difficult work for your family?*** *(rank and number up to 3 answers you consider the most important)"*. The team studied the results and made conclusions with regard to such indicators as Economic Region of their residence, the number of livestock owned by a household, and the size of family. In total over 770 herders answered the question, and of the answers 720 were valid whereas the rest had some errors such as some herders did not answer the question or did not rank the answers. Therefore these answers were not included in the survey. Study results show that 68.3% of total herder households (492 households) selected hay and fodder making as the most difficult activity in livestock production. (see Figure 12).

Levels of difficulty of livestock production activities

Figure 12



When we examined whether the degree of difficulty of different activities vary depending on the Economic Region, some slight changes in the previous order were observed.

The fact that 75.9% of herders from Hangai Region view haymaking as the most difficult activity was the highest indicator among Economic Regions. Although it can be thought that in the Hangai Region with its relatively numerous hayfields it should not be a big problem, the survey findings showed otherwise. While 73.5-81.8% of herders in Bulgan *Aimag* and Arhangai *Aimag* of the Hangai Region answered that haymaking is the most difficult activity for them, herders from the Gobi *aimags* of the Central Region and *aimags* of the Western Region replied that moving to a new campsite is heavy work for them. For instance, moving the campsite was ranked as the most difficult activity by 82.9% of Umnugovi herders, 83.0% of Dundgovi herders, 82.7% of Govi-Altai herders and 69.4% of Hovd herders. The degree of difficulty of different activities depends not on the Economic

Region but on the natural and climatic zone, herding traditions and the animal feed situation. (see Table 23).

What is the most difficult work for your family?

Table 23

Activities	Hangai Region		Western Region		Central Region		Eastern Region		UB		Ä¿í	
	qty	%	qty	%	qty	%	qty	%	qty	%	qty	%
Herding of animals	24	4.2%	51	8.7%	30	7.4%	13	5.0%	1	3.4%	119	6.4%
Watering animals	68	11.9%	42	7.2%	24	5.9%	31	12.0%	1	3.4%	166	9.0%
Rearing young animals	76	13.3%	126	21.5%	46	11.3%	40	15.5%	1	3.4%	289	15.6%
Moving to a campsite	141	24.7%	150	25.6%	107	26.3%	48	18.6%	3	10.3%	449	24.3%
Processing milk & dairy products	27	4.7%	25	4.3%	17	4.2%	13	5.0%	1	3.4%	83	4.5%
Sheep shearing and goat combing	39	6.8%	72	12.3%	52	12.8%	23	8.9%	6	20.7%	192	10.4%
Hay and fodder making	173	30.3%	112	19.1%	120	29.5%	74	28.7%	12	41.4%	491	26.5%
Other	23	4.0%	7	1.2%	11	2.7%	16	6.2%	4	13.8%	61	3.3%
Total number of answers	571	100%	585	100%	407	100%	258	100%	29	100%	1850	100%
Number of herder households participating in survey	228	-	200	-	163	-	107	-	19	-	717	-

In the *aimags* of the forest-steppe and Hangai zones herders pay much attention to the issue of hay making, but in recent years the plant yield in hayfields has been low. In Dundgovi *Aimag* and Umnugovi *Aimag* of the Central Region, and in some *soums* of Govi-Altai *Aimag* and Hovd *Aimag* in the Western Region the tradition of haymaking is not developed and the hay is mainly bought. So these are factors that affected the responses of herders to this question.

Drawing conclusions about *aimags* covered by the study only on the basis of representation by Economic Regions is insufficient. Therefore some results of the survey were examined and clarified *aimag* by *aimag*. For instance, answers to the question *"What is the most difficult work for your family?"* studied by each separate *aimag* revealed that the herders in the Central *Aimag* and Selenge *Aimag* of the Central Region consider haymaking and fodder preparation as the most heavy work (83.3-87.9% of all herders selected this answer), whereas other kinds of work are not considered to be very difficult. Herders in Dundgovi *Aimag* and Umnugovi *Aimag* of the same Economic Region ranked moving to a campsite as the most difficult activity (see Table 24).

What is the most difficult work for your family?

(by aimags of the Central Economic Region)

Table 24

Activities	Central Aimag		Selenge Aimag		Umnugovi Aimag		Dundgovi Aimag		Ä¿í	
	qty	%	qty	%	qty	%	qty	%	qty	%
Herding of animals	8	10.7%	4	4.8%	9	8.0	10	7.1%	31	7.5%
Watering animals	5	6.7%	9	10.8%	18	16.1%	7	5.0%	39	9.5%
Rearing young animals	11	14.7%	13	15.7%	7	6.3%	15	10.6%	46	11.2%
Moving to a campsite	13	17.3%	16	19.3%	34	30.4%	44	31.2%	107	26.0%
Processing milk & dairy products	2	2.7%	4	4.8%	0	0.0%	11	7.8%	17	4.1%
Sheep shearing and goat combing	4	5.3%	4	4.8%	22	19.6%	22	15.6%	52	12.7%
Hay and fodder making	29	38.7%	30	36.1%	21	18.8%	28	19.9%	108	26.3%
Other	3	4.0%	3	3.6%	1	0.9%	4	2.8%	11	2.7%
Total number of answers	75	100%	83	100%	112	100%	141	100%	411	100%
Number of herder households participating in survey	33	-	36	-	41	-	53	-	163	-

Of total respondents only 6.7-8.5% selected the answer *"Other"* in Tables 24 and 25, mostly ranking it as third. Reasons for that choice differed from one household or respondent to the next. The answers were mostly unrelated to the main question, such as *"lack of machinery and equipment"*, *"shortage of manpower"*, *"changes in weather and natural environment"*.

When the team clarified during focus group discussions and interviews why the **haymaking** is considered the most difficult work, the following reasons where mentioned:

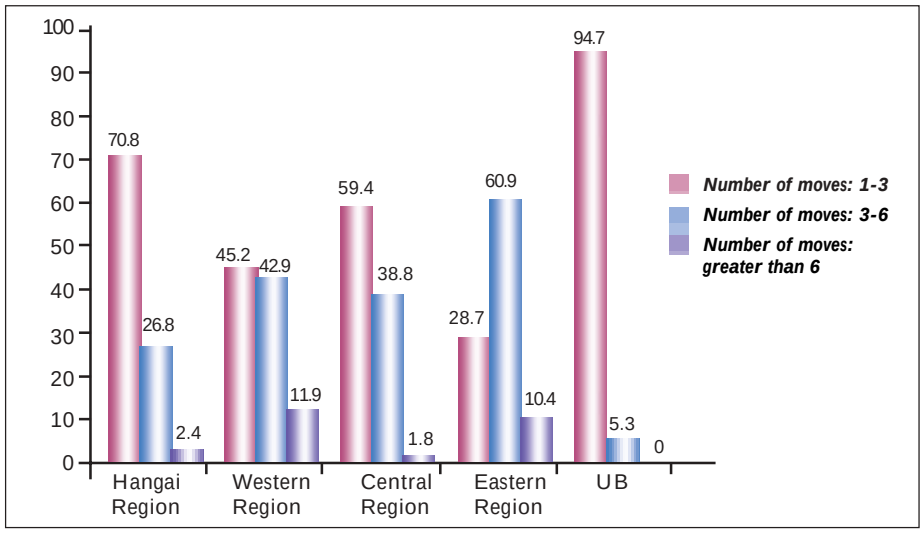
- In recent years the hayfield yield has been very low and their availability is low. There are often disputes over hayfields. Such disputes are resolved mostly by such non-legal methods as by taking into account private connections, wealth and resources. This situation depresses herders and adds pressure on them. In some cases herders compete to be the first to prepare hay as hay fields are in common possession.
- As hay is mainly cut manually, it requires physical strength and is work for healthy young people. Work on haymaking includes not only cutting down the grass, but has several stages such as stacking, transporting etc. Usually there are not many members of a household who can cut hay manually.
- While making hay, a vehicle of some kind is necessary to transport it from the field to the winter or spring campsites. If renting a vehicle, herders need at least some cash to buy petrol, which is a problem for most herders. On the other hand, it is difficult to persuade drivers to transport hay because distance to hay fields is usually long.
- Haymaking requires arduous work in a short time interval since time cannot be wasted and work should be organized well. This puts pressure on the herders as they are used to organizing their lives in an unhurried way.

The number if household members and availability of manpower does not necessarily affect the degree of difficulty of haymaking. For instance haymaking is considered to be difficult by 70.5% of households with 2-5 household members, 61% of households with 6-8 members and 75.5% of households with 9-10 members. It can be seen that the main reason for difficulty in haymaking is not insufficiency of manpower, but in existence of such obstacles as scarcity of hay fields, disputes over them, lack of transportation and financial problems.

Moving to a new campsite was ranked as the second most difficult activity in livestock breeding and 62.2% of respondents considered it difficult. The level of difficulty of moving to the new campsite depends much on natural and climatic zone.

The number of moves made by herder households in a year

Figure 13



While herders from the Western and Gobi *aimags* consider a move of a campsite to be the most difficult work, herders from Ulaanbaatar and Hangai *aimags* do not consider it very difficult.

- Over 50% of herders of the Gobi and Western and Eastern *aimags* move 3-6 or even more times a year, while 30% of herders from *aimags* in the Hangai zone and only 5.3% of herders near Ulaanbaatar move 3-6 times a year.
- Camels are the main means of transportation on the Western border of the Altai mountain range and in the Altai mountains, as well as in Gobi and steppe zones, but the number of camels has declined in the last decade from 366,100 to 255,600, i.e. by 30%. To move one herder household with its average load, 6 camels are required. At present there are virtually no households that own 6 fully grown tame camels trained to carry burden. So families borrow camels from neighbors to move to a new campsite. It becomes a problem because of the lack of means of transportation.
- In some areas the use of vehicles in transportation is impossible because of the distinctive features of the area and its physical obstacles. On average, the distance from an old to a new place is 100 km one-way in steppe and Gobi, and a move from a *soum* to the countryside is also over 100 km. That is why it is difficult to coordinate effective use of a vehicle and agree on the transportation fees. When a vehicle is used, cash is required to pay for fuel.

For those households with few members, transportation of the *ger* and belongings, droving of livestock to a new pasture becomes a difficult task because of lack of manpower. Of households covered by the survey 61.4% of households with 2-5 members consider moving to be a difficult activity, while only 35% of households with 9-10 members consider it so.

Rearing of young animals ranked as the third most difficult activity in livestock production and 40.7% of respondents consider it to be arduous work. Rearing of young animals is of seasonal character and requires a lot of manpower at that time. The fact that 41.3% of households with 2-5 members, 40.4% of households with 5-8 members and 30.0% of households with 9-10 members ranked it as arduous work proves that the more work hands are available, then there is less tendency to consider it to be difficult.

As for Economic Regions, 63% of herder households in the Western Region, 28.2% in the Central Region and 33% in the Hangai Region consider that the rearing of young animals as difficult. High costs of hay and fodder and scarcity of human resources in the Western Region make rearing of young animals more challenging.

26.8% of herder households consider **sheep shearing and goat combing** a to be a difficult activity. Combing cashmere is a task that requires accuracy and households with numerous goats hire extra workers to comb their goats. It should be noted that many herders view as difficult those activities that should be done in cooperation with others or by the way of hiring extra people. It is evident that herders have little experience in, and lack knowledge of, methods of cooperative work, hiring people to do certain work, negotiating, learning to hire and to work for hire. Such relationships are underdeveloped. The highest indicator of considering shearing and combing to be difficult work was among herders of Umnugovi *Aimag*, where 53.7% selected it as being difficult. However, most herders of Hentii *Aimag* (20.5%), Arhangai *Aimag* (16%), Selenge *Aimag* (11.1%) do not view it as being difficult. This can be explained by small number of goats per household, relative availability of work hands, and the closeness of families to each other and therefore more opportunity to help each other.

Watering of animals. Of total respondents, 23.2% view watering of animals as being a difficult task. Among them, 41.2% of herders in Suhbaatar *Aimag* and 34% in Arhangai *Aimag* ranked watering as the most difficult task, which is the highest indicator.

The fact that herders in Arhangai *Aimag* of Hangai Region, where there are plenty of rivers and streams, consider watering of animals difficult, attracted the interest of the research team. When the reasons were clarified, herders revealed that many thousands of small streams and springs in Arhangai *Aimag* have dried up in recent years and it has become a problem for local herders who always depended on open water sources rather than wells.

For instance, in a place called 'Ih Ulunt' in Ihtamir *Soum* over 10 herds spent the winter before 1990, but at present no water can be found in winter, so it is impossible to spend a winter there. In Hangai Region wells are not usually constructed at winter and spring camping sites, so drying up of natural open water sources leads to the problem with water supply. Herders concentrate in places with available water sources, pastures are overgrazed and there are queues to water animals. Although in Hangai Region watering of animals does not require physical labor such as carrying water in buckets from wells, the emerging lack of water points leads herders to considering watering one of the hardest tasks.

It seems that herders from the Gobi *aimags* always select winter and spring campsites with a well or a water source and do not consider carrying water from wells a difficult task. They are used to it, and view it as a usual task.

Herding of animals. Herders do not view herding as being a difficult task. The majority of them have an impression that herding is the basic job of a herder. Only 16.5% of total herders replied that it is arduous work. If looked at by *aimags* 41.7%, 33.3%, 22% and 21.2% of herders in Bayan-Ulgii, Hovd, Umnugovi and Tuv *aimags* respectively consider it to be difficult, which is the highest indicator.

Herders also stated that in areas with wolves and lynx, especially in the Altai mountains, the livestock cannot be left without the constant care of shepherds; in areas close to roads and settlements the theft of livestock is widespread and shepherds should be very careful; and households with few members or families that camp alone are not able to herd animals in shifts and have to watch after animals without rest. So for these reasons herders ranked herding as arduous work.

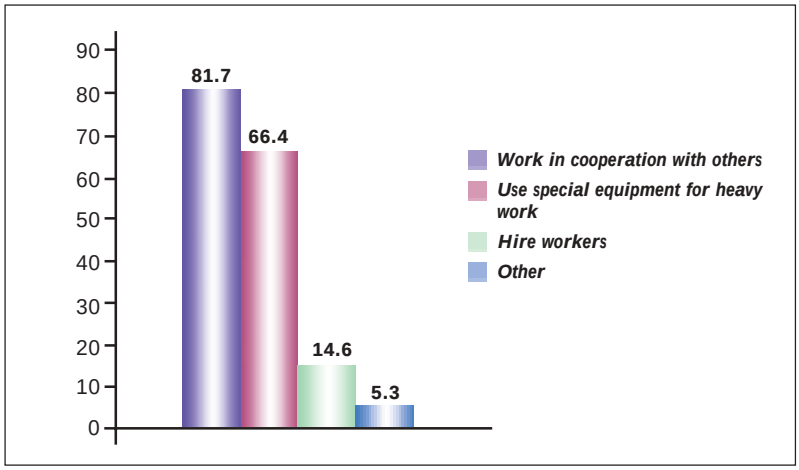
Processing of milk and dairy products. The main problems in the field are: the small market for the sale of milk and dairy products in summer; the short lifecycle of dairy products processed by Mongolian methods; and an inability to satisfy market needs with regard to quality and taste are the main problems. While in Umnugovi *Aimag* no one considered processing of dairy products to be difficult, in Hovd *Aimag* 27.8% of herders selected it as arduous work, which is the highest indicator. Our research team discussed the issue with several herders to clarify the reasons. It appears that the main method of processing dairy products in Hovd *Aimag* is to churn *airag* (fermented mare's milk) in order to separate the butter, so it is labor-intensive and therefore is considered to be difficult. To separate one kilo of *airag* butter, one needs to churn *airag* for one hour.

6.2 Herders' perceptions on facilitating arduous labor in livestock production

To study herders' suggestions on ways to facilitate arduous labor in livestock production the research team asked herders to respond to the following question: "***Your suggestions as to facilitate heavy work in livestock production?*** *(give up to 2 answers)".* Answers to this question were summarized and are presented in Figure 14.

Herders' suggestions to facilitate arduous tasks in livestock production

Figure 14



These results show that the majority of herders regard cooperation with others as the best way to facilitate heavy work. There are large opportunities and need for cooperation in all activities such as herding animals, building wells, shearing and combing of animals, haymaking and moving to campsites. The study also proves that most herders are interested in using special equipment in dealing with such heavy work as cleaning animals' waste from pens, haymaking and moving to new campsites.

The research team chose an indicator of a monthly income per member of a household and used it for studying herders' perceptions. As the study results show, herders' opinions on how to facilitate arduous labor varied depending on their income level. For instance, of 43 herders with monthly income of more than 150,000 MNT, 11 (25.6%) replied that they would hire workers to facilitate heavy work, while of 180 herders with monthly income of 20-40,000 MNT only 21 (11.6%) selected this answer. (see Table 25). Interest in using special equipment to facilitate work did not depend on a herders' income, as it is everyone's wish and this issue needs to be solved.

Herders' suggestions on facilitation of heavy work

(by income per household member)

Table 25

Income per household member MNT	Herder households respondents		Suggestions to facilitate heavy work							
			Hiring workers		Cooperation with others		Use special equipment		Other	
	qty	%	qty	% of group	qty	% of group	qty	% of group	qty	% of group
0-20,000	194	26.9	18	9.3	151	77.8	124	63.9	19	9.8
20,001-40,000	180	24.9	21	11.7	158	87.8	120	66.7	8	4.4
40,001-70,000	160	22.2	27	16.9	134	83.8	114	71.3	6	3.8
70,001-150,000	145	20.1	33	22.8	115	79.3	93	64.1	4	2.8
Over 150,000	43	6.0	11	25.6	32	74.4	27	62.8	2	4.7
TOTAL	722	100.0	110	15.2	590	81.7	478	66.2	39	5.4

Herders' suggestions on facilitation of heavy work do not differ much between Economic Regions. But only 14.3% herders from Ulaanbaatar did not choose to work in cooperation with other herders - very distinctive compared with other Economic Regions.

6.3 Issue of working in cooperation in livestock production

Although herders did not achieve much in this field, our study shows that 81.7% of herders covered by the study recognize the importance of working together and cooperating, which is reflected in Chapter 6.2.

The fact that herders themselves consider working together a necessity is a big change in the mentality of herders due to social changes and thus provides a basis of favorable conditions for further development.

From early times herders have had a tradition of working together and cooperating in livestock production. In the years before the 1990's when they herded communal livestock, herders used to implement the main seasonal work together with the whole *hot* or *suuri* (several *gers*, camping in one place).

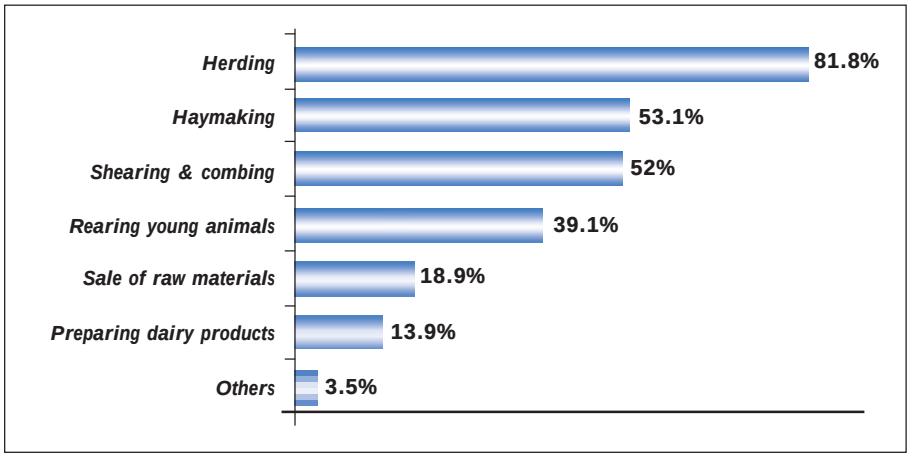
Although a period of more than 10 years has elapsed since the 1990's when society started a transition to the market economy and people's mentality has changed, the residents of rural areas are not yet prepared psychologically for working for hire, herding someone else's livestock, watering other's animals or shearing other's sheep. The reason for this is that by 1990 a whole generation of herders had been brought up used to herding communal livestock, but not an individual's or other's livestock. All herders were equal, even if some were wealthier or poorer, more entrepreneurial or less so, everyone herded communal livestock owned by State farms. That's why herding someone else's animals was understood as if the hired person became the rich herder's servant. In the last few years, herders are becoming adapted to the new environment and new social relationships are emerging together with the beginning of cooperation with their livestock, assets and labor.

In order to clarify what kinds of work are done in cooperation with others in herder families the question ***"What works do you mainly do in cooperation with your group of herder families?"*** was asked and the answers are summarized in Figure 15.

Of the total respondents 81.8% herd their livestock together; 53.1% worked together to make hay; and 52% shear sheep and slaughter animals jointly. Financial cooperation is almost nil. Only 3.5% of herders responded to the question by stating *"other fields of cooperation"*, but none clarified in what ways they cooperated.

What work do you mainly cooperate in with a group of herder families?

Figure 15



As the answers show, herders combine efforts to implement certain tasks, but the practice of entering economic relations jointly is still not developed.

Many still consider that you should own your own equipment, others' cannot be used or you cannot cooperate with them, or if you have some equipment, it should not be loaned to others, as it will tear and wear.

The team organized a focus group discussion among 20 herders of the 3rd brigade of Jargalant *Soum* in Tuv *Aimag* and put forward the question: ***"If you were given 10 million*** MNT ***without the need to repay it, how would you spend it?"*** The answers were summarized by each kind of expenditure and evaluated. 15 of the households (75%) replied that they would purchase hay-mowing equipment. On the one hand, this proves how badly herders need equipment and technical machinery for haymaking, on the other hand if each household owns machinery for haymaking, it will resemble the situation in the 1990's when every enterprise and private company purchased a small flour mill. In 2-5 years almost 90% of them were closed down without making any profit. Equipment that will be used once a year should be exploited to its full capacity, sharing its purchase with money from several households is profitable to everyone and the amount of money spent per household will be much less.

The survey findings show that herders should be trained and informed about cooperating and sharing production tools and equipment.

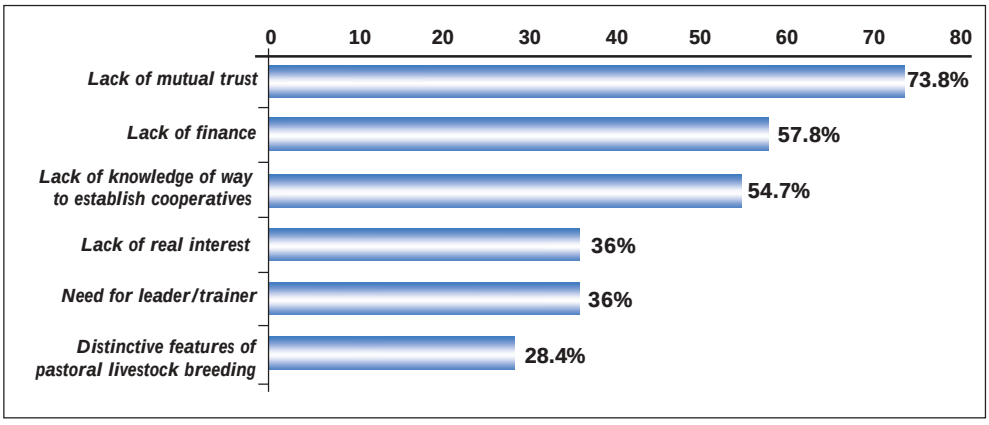
In the next chapter we describe in detail how brainstorming of the question was used for determining herders' priorities.

Replies of 225 animal husbandry experts and administrative workers to the question ***"What obstacles are there in cooperating among herders?*** *(rank by importance and circle up to 3 answers which you consider the most difficult)"* are presented in Table 26 and Figure 16. Of a total of 225 respondents, 166 (73.8%) answered that among herders there is no mutual trust to work together, 130 (58.7%) respondents consider that herders lack assets to work together and 123 (54.7%) respondents consider that herders lack the knowledge on how to work together.

What obstacles are there in cooperating among herders?

(opinion of livestock breeding experts and management workers)

Figure 16



What obstacles are there in cooperating among herders?

(response of livestock breeding experts and management workers)

Table 26

Answers	Ranking of answers	Number of answers	% of total answers to question	% of total respondents
Distinctive features of pastoral livestock breeding present an obstacle	1	36	5.6	16.0
	2	13	2.0	5.8
	3	15	2.3	6.7
	Total	**64**	**9.9**	**28.4**
Herders lack real interest in working together	1	35	5.4	15.6
	2	29	4.6	12.9
	3	17	2.6	7.6
	Total	**81**	**12.6**	**36.0**
Lack of mutual trust among herders	1	82	12.7	36.4
	2	53	8.2	23.6
	3	31	4.8	13.8
	Total	**166**	**25.7**	**73.8**
Lack of leaders or instructors	1	21	3.3	9.3
	2	34	5.3	15.1
	3	26	4.0	11.6
	Total	**81**	**12.6**	**36.0**
Lack of finances to work together	1	29	4.5	12.9
	2	54	8.3	24.0
	3	47	7.3	20.9
	Total	**130**	**20.1**	**57.8**
Lack of knowledge of how to establish cooperatives	1	19	2.9	8.4
	2	30	4.7	13.3
	3	74	11.7	32.9
	Total	**123**	**19.1**	**54.7**
GRAND TOTAL		**645**	**100%**	

The fact that 82 respondents (i.e. most participants) selected the answer *"lack of mutual trust among herders"* as the most important and ranked it first, is very interesting. It is understandable that property relationships between people are the most vulnerable and it is an issue that requires from both sides information and knowledge, experience in communicating with people, wisdom and patience, plus mutual trust.

Lack of knowledge about ways to establish cooperatives is one of real problems encountered by herders. That is why a priority is the question of providing herders with knowledge about ways to work together and share assets.

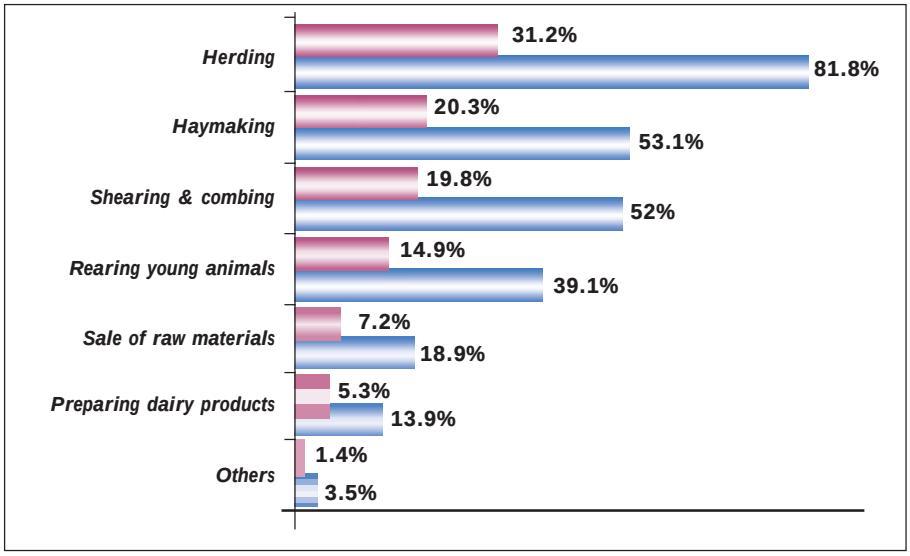
In order to determine what kinds of works herders are interested in financing jointly in the future and whether they are psychologically ready to it, the research team asked ***"What of the following you would finance jointly with others?*** *(select up to 2 answers)"*. The answers are summarized in Table 27.

Activities which herders are ready to finance jointly with hot ail

(selected up to 2 answers)

Table 27

Answers	Number of answers	% of total answers
Purchase of agricultural machinery	237	17.6%
Building of animal pens and wells	407	30.1%
Sale of products, commerce	220	16.3%
Enhance livestock breeds	308	22.8%
Not psychologically ready to join assets	164	12.1%
Other	14	1.0%
TOTAL	1,350	100%



Of the total of 1,350 answers, 30.1% are ready to invest in the building of animal pens and wells, 22.8% in works on improvement of livestock breeds, 17.6% in purchase of agricultural equipment and machinery, while 12.1% answered that they are not psychologically ready to finance things jointly.

In Chapter 3 we concluded on the basis of our research that insufficiency of animal pens and fences, plus water supply are the main problems of herders. Now answers to this question prove that herders are ready to solve these problems jointly. Such activities as building of animal pens and wells, and the exchange of sires of good breed have been implemented jointly before herders entered market relations and are not new issues.

It can be concluded that the herders' mentality has not changed regarding the issue of cooperating and joint work since transition to market economy and there has not been much progress in this question.

The fact that 21.6% of the 760 herder households covered by the survey answered that they are not psychologically ready to join their assets with others shows that there is a need to unite herders and teach them about market relations. There might have been many herders who also did not understand the meaning of the question and could not express their thoughts on whether they are ready or not to cooperate with others.

6.4 Herders' concerns

The main fears of herders are not related to difficulties of their work, but are mostly about issues that trouble and alarm them, add psychological pressure, and undermine their belief in future.

On the basis of previous study of what it could be, the research team asked herders the following question: ***"What are you concerned of?*** *(rank and number up to 3 important answers)"* and the answers are summarized in Tables 28 and 29.

Herders' concerns

Table 28

Answers	Ranking of answers	Number of answers	Share of total answers	Share of total 760 respondents
Livestock theft	1	339	15.8	44.6
	2	90	4.2	11.8
	3	45	2.1	6.0
	Total	**474**	**22.1**	**62.4**
Drunks & hooligans	1	17	0.8	2.2
	2	52	2.4	6.9
	3	23	1.1	3.1
	Total	**92**	**4.3**	**12.2**
Decline of livelihood	1	78	3.6	10.3
	2	85	4.0	11.3
	3	64	3.0	8.4
	Total	**227**	**10.6**	**30.0**
Pastures, wells, water supply	1	71	3.3	9.3
	2	127	5.9	16.7
	3	55	2.6	7.2
	Total	**253**	**11.8**	**33.2**
The future of children	1	67	3.1	8.7
	2	130	6.1	16.9
	3	113	5.3	14.7
	Total	**310**	**14.5**	**40.4**
Shortage of information	1	16	0.7	2.1
	2	39	1.8	5.2
	3	70	3.3	9.3
	Total	**125**	**5.8**	**16.6**
Attacks of wolves & wild dogs	1	36	1.7	4.8
	2	82	3.8	11.0
	3	119	5.5	15.8
	Total	**237**	**11.0**	**31.6**
Nature and climate	1	105	4.9	13.6
	2	119	5.6	15.5
	3	151	7.0	19.7
	Total	**375**	**17.5**	**48.8**
Other	1	16	0.7	2.2
	2	8	0.4	1.0
	3	27	1.3	3.6
	Total	**51**	**2.4**	**6.9**
TOTAL		**2144**		

The main concern of herders is livestock theft, which can be seen from Table 28. Of herders (62.4% of respondents) answered that they are concerned about livestock theft. During the focus group discussion herders mentioned that an amendment to the Criminal Code, which banished imprisonment when the cost of stolen property was less than 1.5 million MNT had become one of the main reasons for the increase in livestock theft and this was demonstrated again by the response to this question. The second biggest concern is of natural and weather hardships. Their children's future is among the first three concerns.

Herders' concerns depend on the Economic Region of their residence and vary somewhat from region to region. For instance, of 245 households covered by the survey in the Hangai Region, 210 (85.7%) were concerned with livestock theft, over 20% higher than the total average for the survey. In contrast only 55.2% of herders in the Central Region and 35.4% of those in Western Region were concerned with this issue.

The survey showed that livestock theft occurs most in Tuv *Aimag* of the Central Region, but is relatively low in Dundgovi, Umnugovi and Selenge *aimags*. Herders in the Western Region are concerned with children's education and their future, while only 5.3% of herders in Ulaanbaatar and 24.8% of herders in the Eastern Region are concerned with these issues. Concern about their children's future by herders in the Western Region is related to the remoteness from big cities and settlements of their place of residence.

Herders' concerns *(by Economic Region)*

Table 29

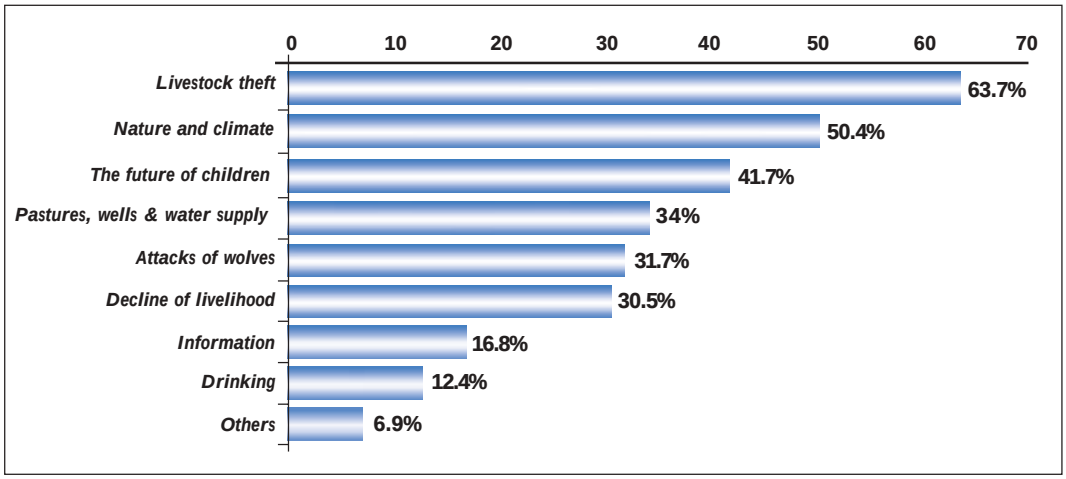
Answers	Hangai Region		Western Region		Central Region		Eastern Region		UB		Total	
	qty	%	qty	%	qty	%	qty	%	qty	%	qty	%
Livestock theft	210	29.8	73	11.9	91	19.5	87	27.7	13	32.5	474	22.1
Pastures, wells, water supply	76	10.8	76	12.3	56	12.0	37	11.8	8	20.0	253	11.8
Drunks & hooligans	29	4.1	29	4.7	21	4.5	9	2.9	4	10.0	92	4.3
Decline of livelihood	67	9.5	79	12.8	43	9.2	38	12.1	0	0.0	227	10.6
The future of children	82	11.6	127	20.6	73	15.6	27	8.6	1	2.5	310	14.5
Lack of information	26	3.7	63	10.2	10	2.1	21	6.7	2	5.0	122	5.7
Attacks of wolves	61	8.7	74	12.0	57	12.2	40	12.7	5	12.5	237	11.1
Nature and climate	126	17.9	84	13.6	114	24.4	46	14.6	5	12.5	375	17.5
Other	27	3.8	11	1.8	2	0.4	9	2.9	2	5.0	51	2.4
Total number of answers	704	100%	616	100%	467	100%	314	100%	40	100%	2141	100%
Number of herder households survey respondents	245	-	206	-	165	-	109	-	19	-	744	-

Livestock theft is the foremost concern for all herders, 85.7%, 99.8%, 79.8% and 68.4% of herders in the Hangai, Eastern and Ulaanbaatar Regions respectively are concerned with this issue, which is highest indicator. Ranking concerns by their importance shows that 345 herders (44.6% of total respondents and 71.6% of herders who selected the answer) ranked livestock theft first (see Table 28), which shows how urgent this issue to be for herders.

Natural and climatic phenomena ranked second among herders concerns and were chosen as the primary concern in 105 replies. Herders in Dundgovi *Aimag* and Umnugovi *Aimag* of the Central Region are concerned more than others about this issue, which is related to successive years of drought and *dzud* in the last 3-5 years in these *aimags*.

Herders' concerns

Figure 17



6.5 Conclusions

1. The heaviest works in livestock production are haymaking, moving to other campsites and the rearing of young animals, in that order.

2. The kind of work in livestock production considered to be the most difficult depend on the natural environment and climate of the given *aimag*, distinctive local features and the number of household members. For instance, for herders of Gobi, steppe and Altai

mountainous areas the most difficult work is in moving to new places, while for herders in Hangai Region haymaking is the most difficult work.

3. Although herders cooperate with each other, this cooperation does not develop further than such traditional forms as herding animals and building animal pens. It is necessary to create conditions in order to transform cooperation and joint activities into joint economic relations.

4. Herders realize that the main way of facilitating heavy work is by joint efforts. However, they lack knowledge and experience on cooperation and cannot find ways to cooperate. Therefore, there is a need to organize training among herders on cooperation.

5. Livestock theft is the biggest concern of all herders and 63.7% of all herder households are concerned with this issue. Natural disasters, droughts and *dzud* also worry herders. This situation proves that we need to develop a management system of protecting livestock breeding from external interventions and natural disasters.

6. The third concern of herders is the future of their children. Herders are concerned with the lack of financial opportunities and adequate learning environment to provide them with good schooling. The Government and private institutions should support education of children with special talents and high academic success.

7. Over 30% of herders are concerned with the sufficiency of pastures and water supply, attacks of wild animals and decline of their livelihood. That is why the State institutions in order to improve herders' livelihood need to develop special policies in order to provide safe and secure living conditions for herders, to improve social order, to fight livestock theft, to distribute pastures, and to create and develop market economic structures and conditions.

CHAPTER 7

HERDERS' SATISFACTION

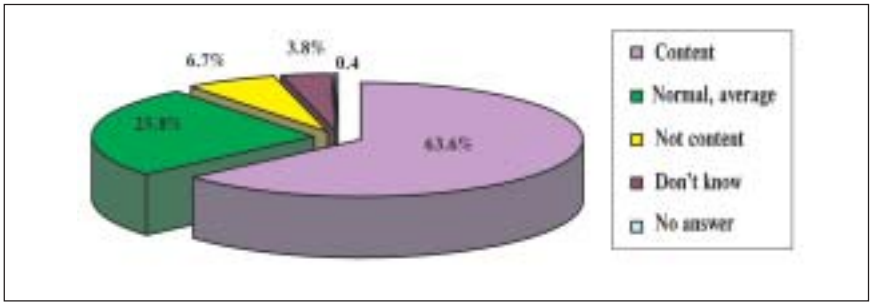
The survey aimed to clarify from the herders themselves if they are satisfied with being engaged in pastoral livestock breeding, with their own living conditions, income and expenditure, and access to social services. The information gained should be valuable factual material to use in making decisions on the future development of livestock breeding sector.

7.1 Herders' satisfaction in being engaged in livestock breeding

An objective was to determine whether herders are interested in their occupation or not. To attain this objective, a sociological study was conducted and herders were asked: ***"How content are you with being engaged in livestock breeding?*** *(select one of four answers)"* and the responses are summarized in Figure 18.

How content are you with being engaged in livestock breeding?

Figure 18



Of a total of 773 respondents, 63.6% considered themselves to be content, 25.8% to be average and only 6.8% were not satisfied with being herders. The majority of herders are satisfied with their occupation in livestock breeding.

The results of the survey show that herders are not tired of herding and that they are not engaged in herding because of a lack of other ways to sustain their livelihood contrary to what some experts and the general public perceive.

When the research team met and talked to herders, they did not observe disappointment of herders in being engaged in livestock breeding, but on the contrary, poor herders with few animals looked for the reasons for the decline of their livelihood in the society and themselves, and criticized their own lack of initiative and entrepreneurship.

Many herders we met during the survey said that they could not claim being unsatisfied with herding as it is thanks to these few livestock that they survive.

We draw attention to the observation that the majority of herders who gave as an answer *"normal, average"* expressed views close to the answer *"content with being engaged in livestock breeding"*. In other words, there were many herders who could not claim that they are absolutely content with their work, but could not say that they were not content, either. It is necessary to observe that reviewers, who read and gave their comments on our report, suggested having only two opposite answers to this question, without third, middle version. As the question was written with four variations of answers and field research was completed in this way, we included the results in the report as they were for our readers to judge if it were right or wrong.

There is a hypothesis that lack of experienced herders and emergence of young inexperienced herders also affect livestock growth. Young people are not content with herding, they leave livestock breeding, claimed some people, but survey results prove this

wrong. Answers to the question "***How content are you with being engaged in livestock breeding?***" are summarized by age groups in Table 30 as follows:

How content are you in being engaged in livestock breeding?

Table 30

Answers	Herders in survey (by age group)					Total
	18-25	26-35	36-50	51-60	Over 60	
Content	59.2%	64.9%	68.2%	55.5%	57.9%	63.6%
Normal, average	36.7%	21.5%	23.3%	30.9%	31.6%	25.8%
Not content	4.1%	7.8%	5.9%	10.9%	4.2%	6.8%
Do not know	0%	5.4%	2.0%	2.7%	6.3%	3.4%
No answer	0%	0.5%	0.7%	0%	0%	0.4%
TOTAL	100%	100%	100%	100%	100%	100%

Almost 60% of herders aged 18-25 are content with being engaged in livestock breeding and only 4.1% of young herders chose the answer *"not content"*. 64.9% of herders aged 26-35, 68.2% of those aged 36-50 and 55.5% of those aged 51-60 answered that they are content in being engaged in livestock breeding.

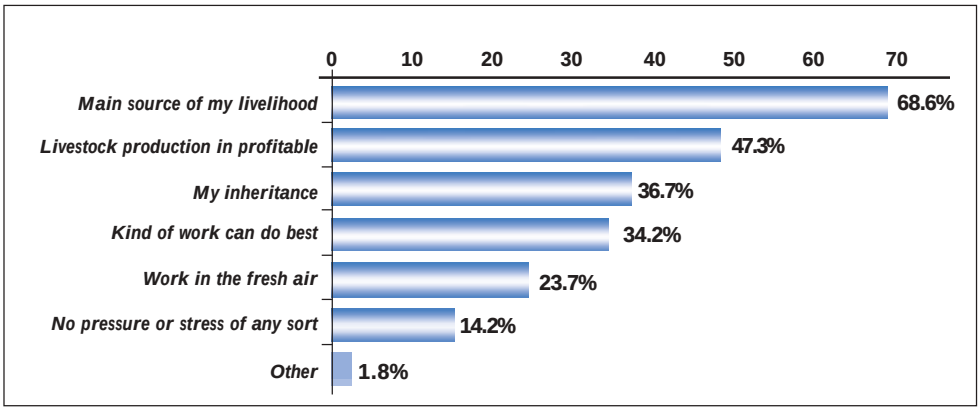
It can be concluded that herders' satisfaction with their work does not depend much on the age group of herders.

7.1.1 Reasons for herders' satisfaction in being engaged in livestock breeding

The reasons for herders' satisfaction with being engaged in livestock breeding, their ranking, and factors that affect herders' satisfaction were determined by the following question ***"If you are content, what's the reason for this?*** *(rank and number up to 3 most feasible answers by their significance)"*. The results are presented in Figure 19.

Reasons for satisfaction in being engaged in livestock breeding

Figure 19



As Figure 19 shows, the main reason for herders' satisfaction with their occupation is that it is their main source of livelihood and the second reason is that livestock production is profitable.

Herders who participated in the survey chose up to 3 answers and ranked them from 1 to 3. Table 31 shows ranking of reasons for herders' satisfaction with their work.

Of the herders covered by the survey, 276 (56.1%) ranked the reason *"as livestock breeding is the main source of their livelihood"* first, which is the highest indicator in comparison to others.

But the second main reason for herders' satisfaction, namely that *"livestock production*

is profitable" was ranked first by only 52 herders, in other words it makes up only 6.7% of total respondents, which is less frequent than the first rank of the answer *"as livestock breeding is the main source of their livelihood"* by 49.4% (224 herders). The frequency of answers other than *"as livestock breeding is the main source of my livelihood"*, which was ranked first does not differ much in other questions. This emphasizes the importance of the abovementioned answer.

Of the 233 herders who selected the answer *"livestock production is profitable"* 118 (24.1%) ranked it second, 82 (19.7%) ranked it third and only 33 (6.7%) ranked it first.

It is clear from Table 31 that herders' attitudes are almost the same to answers other than *"as it is the main source of my livelihood"*. For instance, first rank was selected the least and second and third ranks were selected more often.

Reasons for satisfaction with being engaged in livestock breeding

Table 31

Answers	Ranking	Number of answers	% of total answers	% of 492 respondents
As it is the main source of my livelihood	1	276	24.7	56.1
	2	41	3.7	8.4
	3	20	1.8	4.0
	Total	337	30.2	68.6
As livestock production is profitable	1	33	3.0	6.7
	2	118	10.6	24.1
	3	82	7.3	16.6
	Total	233	20.9	47.3
As it is my inheritance	1	29	2.6	6.0
	2	55	4.9	11.1
	3	97	8.7	19.7
	Total	181	16.2	36.7
As it is the kind of work I can do best	1	36	3.3	7.4
	2	86	7.7	17.5
	3	46	4.1	9.3
	Total	168	15.1	34.2
As we always work in the fresh air	1	16	1.4	3.2
	2	56	5.0	11.4
	3	45	4.0	9.1
	Total	117	10.5	23.7
As there is no pressure or stress of any sort	1	6	0.5	1.2
	2	16	1.5	3.4
	3	48	4.3	9.7
	Total	70	6.3	14.2
Other	1	0	-	-
	2	3	0.3	0.5
	3	6	0.5	1.3
	Total	9	0.8	1.8
GRAND TOTAL	**1,115**	**100%**		

There are some differences in herders' satisfaction with their work depending on the Economic Region of their residence, as Table 32 shows.

Reasons for satisfaction with being engaged in livestock breeding

(by Economic Regions)

Table 32

Answers	Survey average	Hangai Region	Western Region	Central Region	Eastern Region	UB
As it is the main source of my livelihood	68.6%	87.2%	84.1%	54.1%	93.3%	77.8%
As livestock production is profitable	47.3%	51.7%	34.3%	45.2%	37.5%	50.0%
As it is my inheritance	36.7%	57.2%	70.9%	57.4%	53.8%	33.3%
As it is the kind of work I can do best	34.1%	25.6%	23.2%	43.9%	21.2%	16.7%
As we always work in fresh air	23.7%	51.7%	49.7%	35.5%	51.0%	16.7%
As there is no pressure or stress of any sort	14.2%	10.6%	28.5%	14.8%	19.2%	16.7%
Other	1.8%	2.8%	1.3%	0.6%	1.9%	11.1%

As can be seen, 93.3% of herders of the Eastern Region selected the answer *"as it is the main source of my livelihood"*, exceeding the average by 27.4% and is the highest indicator. This shows that herders of this Economic Region do not depend on using natural resources (e.g. nuts, berries, game or forests), but sustain their living with livestock breeding.

However, of herders from the Central Region only 54.1% selected this answer, which is lower than the average by 14.5% and is the lowest indicator. Influenced this situation is that on the one hand such factors as the existence of a well-developed market and infrastructure, the possibility to engage in crops and vegetable cultivation along with livestock breeding, and on the other hand the fact that many herders from Dundgovi *Aimag* and Umnugovi *Aimag*, who lost their livestock during drought and *dzud* in 1999-2002, do not regard livestock breeding as the main source of their income anymore.

That 50.0-51.7% of herders from Hangai and Ulaanbaatar Regions regard livestock breeding as being profitable, is explained by their closeness to the market.

Study of the dependence between herders' satisfaction in being engaged in livestock breeding, the livestock (in sheep and goat units) per household member and the household income is important in making the survey results reliable and objective. Results of the study of dependence between herders' satisfaction in being engaged in livestock breeding and the number of livestock per household member are presented in Table 33.

Relationship between herders' satisfaction with being engaged in livestock breeding and number of livestock per household member

Table 33

Answers	Livestock units (bog) per household member										Total	
	0-20		21-40		41-70		71-150		Over 150			
	qty	%	qty	%	qty	%	qty	%	qty	%	qty	%
As it is the main source of my livelihood	129	29.3	134	30.0	121	30.7	108	30.7	38	32.2	530	30.3
As it is the kind of work I can do best	62	14.1	60	13.4	61	15.5	64	18.2	17	14.4	264	15.1
As livestock production is profitable	92	20.9	84	18.8	78	19.8	86	24.4	26	22.0	366	20.9
As we always work in fresh air	47	10.7	51	11.4	44	11.2	31	8.8	10	8.5	183	10.5
As it is my inheritance	75	17.0	77	17.2	62	15.7	47	13.4	23	19.5	284	16.2
As there is no pressure or stress of any sort	30	6.8	39	8.7	22	5.6	16	4.5	3	2.5	110	6.3
Other	5	1.1	2	0.4	6	1.5	0	0.0	1	0.8	14	0.8
Total number of answers	440	100%	447	100%	394	100%	352	100%	118	100%	1751	100%
Number of herder households - survey respondents	159		158		138		123		40		618	
% of herder households –survey respondents	25.7		25.6		22.3		19.9		6.5		100%	

Respondents who considered themselves to be content with their occupation consisted of 81% of households with 0-20 livestock (in sheep and goat units) per household member; 87.7% of households with 40-70 livestock units per household member; 87.8% of households with 70-150 livestock units per household member; and 95% of households with more than 150 livestock units per household member. As the number of livestock per household member, their trust in livestock breeding being *"the main source of livelihood"* increases.

It is clear that in a household with less than 20 livestock units per household member their basic needs are not met. So why did they answer that they were content in being engaged in livestock breeding? They chose this answer because of many different reasons and considering different aspects, not only looking at the provision of their needs or

consumption. For instance, 39% of households with less than 20 livestock units per household member answered that they were content because it was *"the kind of work I can do best"*, and 47.2% because it was their inheritance.

As the number of livestock units per household member increases, the percentage increases of respondents who selected the answers *"as livestock breeding is profitable"*, *"as it is the kind of work I can do best"* increases. For instance, 57.9% (92) of 159 households with less than 20 livestock units chose the answer *"as livestock breeding is profitable"*, while 69.9% (86) of 123 households with 70-150 livestock units per household member chose the above answer.

Effect of income from livestock breeding on herders' satisfaction

Table 34

Reason for herders' satisfaction in being engaged in livestock breeding		Monthly income per capita (in MNT)					Total
		under 8,000	8,001-25,000	25,001-41,500	41,501-58,300	over 58,301	
As it is the main source of my livelihood	1	86	236	123	50	35	**530**
	2	16.2%	44.5%	23.2%	9.4%	6.6%	**85.8%**
	3	93.5%	81.7%	87.2%	89.3%	87.5%	
As livestock breeding is profitable	1	41	173	86	40	26	**366**
	2	11.2%	47.3%	23.5%	10.9%	7.1%	**59.2%**
	3	44.6%	59.9%	61.0%	71.4%	65.0%	

Note: 1- the number of respondents who selected this answer*
2- percentage from total respondents who selected this answer*
3- percentage from total respondents of this group*

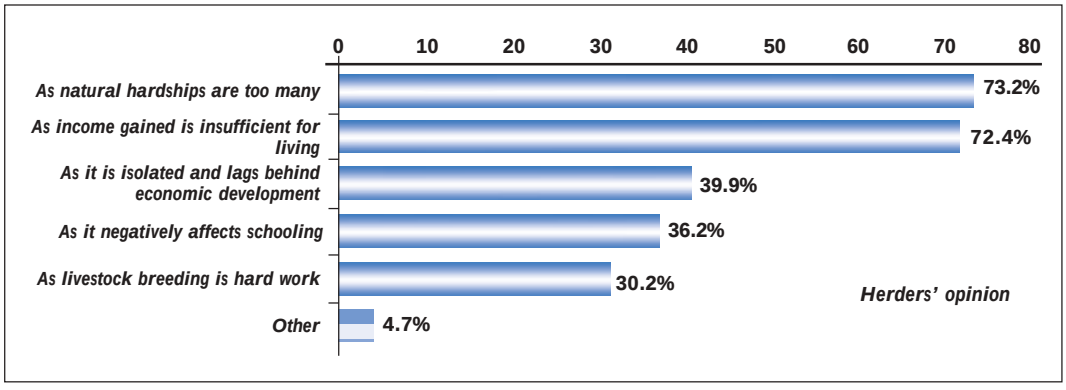
As we looked at herders' satisfaction with being engaged in livestock breeding in relation to income per household member, 93.5% of herders with a monthly income of less than 8,000 MNT per household member chose in first place the answer *"as it is the main source of my livelihood"* which is the highest indicator. Of herders of the same group, 41 (44.6%) selected the answer *"as livestock breeding is profitable"* which is the second reason by significance. In other words, the reasons for herders' satisfaction are the same from both aspects: by the number of livestock and by income per household member.

7.1.2 Reasons for herders' dissatisfaction in being in livestock breeding

Some herders are not satisfied with being engaged in livestock breeding. In order to determine why, a question ***"If you are not content with being engaged in livestock breeding, what is the reason?"*** was put to 52 herders and the results are presented in Figure 20. The results of ranking by significance are summarized in Table 35.

Reasons for dissatisfaction with being in livestock breeding

Figure 20



From a total of 52 herders who participated in the survey, 38 (73%) selected the answer *"not content with being engaged in livestock breeding as the natural hardships are too many"* and this answer was selected by the largest number of participants. Of them 15 households (22.3%) ranked it first.

As 25 households (41.1%) chose the answer *"as income gained is not enough for living"* and ranked it first, it shows that respondents give more significance to this than to the answer *"as the natural hardships are too many"*.

It is clear that the negative effects of natural hardships is not an issue to be dealt with every year and they could be overcome, while the issue of income being inadequate for living is the most important factor. To sum up, the majority of herders looked at the economic aspect when indicating the reason of being content with their work and replied *"as it is the main source of my livelihood"*, and when answering the question about reasons of dissatisfaction with their works they also looked at economic aspect and replied *"as income gained is not enough for living"*.

Herders who are dissatisfied with their work selected answers such as *"livestock breeding is arduous work"* (30.7%), *"it is isolated and lags behind social development"* (40.3%), *"as it negatively affects schooling and education of children"* (36.5%), but these factors were ranked mostly second or third as can be seen in Table 35. It can be concluded on the basis of these answers that herders' dissatisfaction with their work is mainly related to the fact that income gained is not enough for their living.

If not content in being engaged in livestock breeding, what is the reason?

Table 35

Answers	Ranking of answers	Number of answers	% of total answers	% of total 52 respondents
1	2	3	4	5
as income gained is not enough for living	1	25	18.8	49.1
	2	8	6.0	15.9
	3	4	3.0	7.3
	Total	37	27.8	71.1
as livestock breeding is arduous work	1	3	2.2	6.5
	2	10	7.6	18.1
	3	3	2.2	5.6
	Total	16	12.0	30.7
as the natural hardships are too many	1	15	11.3	29.3
	2	18	13.5	33.6
	3	5	3.8	10.3
	Total	38	28.6	73.0
as it is isolated and lags behind social development	1	2	1.5	3.0
	2	5	3.7	9.9
	3	14	10.6	25.0
	Total	21	15.8	40.3
as it negatively affects schooling and education of children	1	5	3.8	9.0
	2	3	2.2	5.6
	3	11	8.3	21.6
	Total	19	14.3	36.5
Other	1		-	-
	2	1	0.75	1.7
	3	1	0.75	2.1
	Total	2	1.5	3.8
GRAND TOTAL	**133**	**100%**	**-**	

If those herder households who are dissatisfied with their occupation are classified in accordance with their monthly income per household member, then 16% are very poor, 50.7% are poor, 20.4% are at average level, and 12.9% have a livelihood level above average (see Table 36).

As the monthly income level decreases, the number of herders who select the answer *"not content with being engaged in livestock breeding as income gained is not enough for living"* increases. For instance, while 37% of households with per capita monthly income of more than 58,300 MNT selected the answer *"as income gained is not enough for living"*, 61.9% of households with per capita monthly income of 41-58,000 MNT, 63% of households with per capita monthly income of 25-41,000 MNT and 88.9% of households with per capita income of less than 8,000 MNT (very poor households) selected this answer. The survey again proves that sufficiency of income derived from livestock breeding is the decisive factor in herders' satisfaction or dissatisfaction with their occupation (see Table 36).

Reasons for herders' dissatisfaction in being engaged in livestock breeding
(by income per capita)

Table 36

Indicators	monthly income per capita (in MNT)					Total average
	under 8000	8001-25000	25001 41500	41501 58300	Over 58301	
Income groups of herder households - survey respondents	16.0%	50.7%	20.4%	9.3%	3.6%	100%
As income gained is not enough for living	88.9%	79.8%	63%	61.9%	37.5%	74.3%
As livestock breeding is arduous work	19.4%	26.3%	41.3%	42.9%	62.5%	32.8%
As natural hardships are too many	86.1%	73.7%	76.1%	66.7%	75.0%	72.5%
Isolated, lags behind social development	38.9%	37.7%	39.1%	47.6%	37.5%	37.9%
Negative effect on children's education and schooling	36.1%	33.3%	47.8%	38.1%	37.5%	37.9%
Other	2.8%	7.9%	2.2%	0%	0%	7.8%

Herders from households with income per capita higher than 58,300 MNT who selected the answer *"as income gained is not enough for living"*, explained that they have high expenditure, their children study in colleges and universities, they have vehicles and equipment and much is spent on fuel, they are short of income for furnishing the house or improving the livestock breed - so although they have enough money for food, basic living needs are not met. In general, as the herder household's income grows, their consumption and expenditure goes up, and due to these factors and individual mentality of respondents, herders can evaluate their satisfaction or dissatisfaction with being engaged in livestock breeding not on the basis of their real income, but on the basis of their own ideas, beliefs and views.

Of herder households dissatisfied with being engaged in livestock breeding 64.9% have up to 40 livestock (in sheep and goat units) per capita; 16.9% have 40-70 livestock units; 12.9% have 70-150 livestock units; and 5.3% have more than 150 livestock units (see Table 37).

Reasons for herders' dissatisfaction with being engaged in livestock breeding
(by livestock units per capita)

Table 37

Indicators	livestock units (*bog*) per capita					Total
	0-20	20-40	40-70	70-150	Over 150	
As income gained is not enough for living	82.6%	92.6%	50.0%	58.6%	50.0%	**75.9**%
As livestock breeding is arduous work	21.7%	35.2%	42.1%	34.5%	41.7%	**30.8**%
As natural hardships are too many	77.2%	68.5%	78.9%	75.9%	83.3%	**76.9**%
Isolated, lags behind social development	35.9%	35.2%	55.3%	41.4%	25.0%	**39.7**%
Negative effect on children's education and schooling	39.1%	35.2%	31.6%	41.4%	41.7%	**37.5**%
Other	3.3%	9.3%	2.6%	6.9%	0%	**6.1**%
TOTAL	**40.9**%	**24.0**%	**16.9**%	**12.9**%	**5.3**%	**100**%

From Table 37 it can be observed that in general, as the number of livestock per a member of household decreases, the herders' satisfaction with their work also goes down. The Table also shows that households with a large number of livestock are more concerned with natural hardships. For instance, as 68.5% of households with 20-40 livestock units per capita are dissatisfied because of natural hardships, 83.3% of households with more than 150 livestock per capita selected this answer.

The study revealed basically similar results for the dependence between herders' satisfaction in being engaged in livestock breeding, and the livestock units (*bod*) per household member and the household income.

7.2 Herders' self-evaluation of their living standards

In order to determine the level of herders' satisfaction with their living conditions, the research team agreed that herders covered by the survey should evaluate their standard of living themselves.

It can be concluded that herders who evaluated their standard of living to be 'above average' are satisfied with their living conditions, those who evaluated it to be 'average' are less satisfied with their living conditions and those who consider that their standard of living to be 'poor or below average' are not satisfied with their living conditions.

The team does not regard this method of determining herders' satisfaction with their living conditions as an absolutely correct method, but only as one attempt to reach the objective. In order to make the survey more interesting, herders' self-evaluation of their living standards was compared to the standards determined by the National Statistical Office (NSO).

Every year the National Statistics Office calculates the minimum standard of living using a special methodology taking into account the structure of the consumer basket, prices for consumer goods and foodstuff, basic norms and standards of food and other product consumption per person and so determines the minimum standard of living (monthly income per capita) by Economic Regions. In 2003 this was determined to be as follows[19]:

Western Region	19,500 MNT per month
Eastern Region	20,500 MNT per month
Central Region	19,800 MNT per month
Hangai Region	19,990 MNT per month
Ulaanbaatar	25,300 MNT per month

The minimum standard of living for 2003 approved by the Director of the NSO vary slightly from one Economic Region to another, but in general consumption per person in rural areas is determined as 20,000 MNT per month.

The Government and Ministries determine the lowest level of wages, but not the subsistence level. This is why the standard approved by the State and termed 'subsistence level' is not a different official definition, but is the 'minimum standard of living' as determined by the NSO.

The Article 3.1.3 of Law on Social Welfare determined 'extremely poor' as a person whose income is less than 40% of the minimum standard of living and thus has limited consumption due to his/her income. At present, it can be determined as monthly income of less than 8,000 MNT per household member. However, it is unclear how to determine a household with average or above average standard of living.

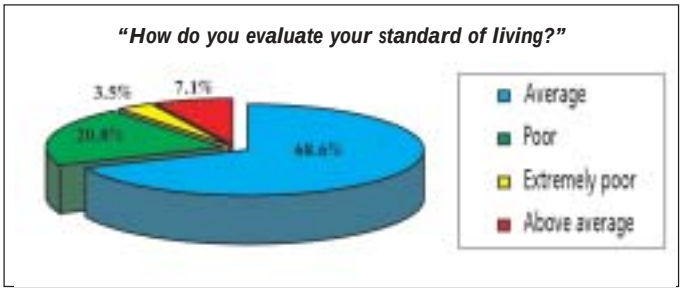
The team asked herders the following question: ***"How do you evaluate your living standards*** *(choose one answer only)"*. From the 773 households covered by the survey, 55

[19] Directive 50 of the NSO Director, 2003

households (7.1%) evaluated their standard of living as above average, 530 households (68.6%) as average, 160 households (20.7%) as poor, and 28 households (3.6%) as extremely poor (see Figure 21).

Herders' evaluation of their standard of living

Figure 21



The results of the survey were compared to the living standards determined by the State and summarized in Table 38. The survey showed that of extremely poor herder households (with a monthly income per household member of less than 8,000 MNT) only 6.6% evaluated their standard of living correctly as 'extremely poor', while 62.3% viewed it as 'average', and 1.6% as 'above average', thus defining their standard of living as higher than in reality.

Herders' self-evaluation of their living standards

Table 38

Income per capita (MNT/month)	NSO living standards of herder households in survey		Evaluation of living standards							
			Above average		Average		Poor		Extremely poor	
	qty	%	qty	%	qty	%	qty	%	qty	%
0-8,000MNT (very poor)	122	15.8	2	1.6	76	62.3	36	29.5	8	6.6
8,001-20,000 (poor)	286	37.0	13	4.5	185	64.7	74	25.9	14	4.9
20,001-33,000	179	23.2	15	8.4	130	72.6	30	16.8	4	2.2
33,001-58,300	141	18.3	18	12.8	103	73.0	20	14.2	0	0.0
58,301-83,300	25	3.2	2	8.0	23	92.0	0	0.0	0	0.0
over 83,301	19	2.5	5	26.3	13	68.4	1	5.3	0	0.0
TOTAL	772	100	55	7.1	530	68.6	161	20.8	26	3.5

*Note: * share from total number of herder households in the given group*
*** share from total number of herder households- survey respondents*

Of 122 households that are 'extremely poor' by the NSO standards, only 8 (6.6%) evaluated their standard of living correctly as 'extremely poor'; while 36 households (29.5%) view it as 'poor' and 76 households (62.3%) view it as 'average'. This shows that very poor and poor herders are not able to evaluate their standard of living objectively, but assess it to be higher than reality.

According to the NSO standards, of the 722 herder households covered by the survey, 15.8% are 'very poor', 37% are 'poor', and 47.2% have 'average or above average living standards'. Yet herders' self-evaluation shows that only 3.5% evaluated their living as 'very poor', 20.8% evaluated their living standards as 'poor', and 75.7% view them as 'average or above average'.

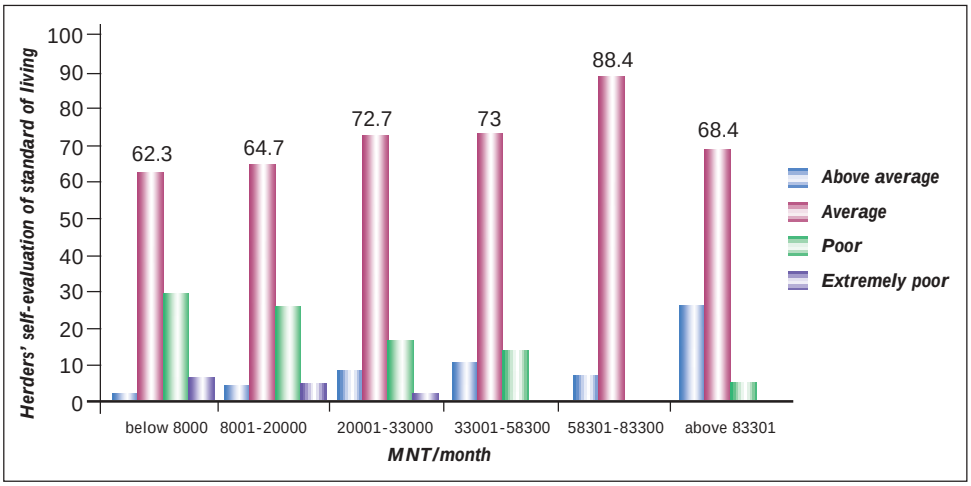
This trend to evaluate their living standards as better than they are in reality can be explained by calm, peaceful attitudes of Mongolians, the optimistic character of herders, a tradition of saying *"everything is fine, we get by"*, lack of information, low education level,

and limited consumption (as the Mongolian proverb says *"if there are clothes to wear and food to eat, nothing more is required"*). Also herder households who have not had substantial expenditures such as payment of children's tuition fees consider their present situation to be normal, average.

As the amount of income per household member increases, herders' evaluation of their living standards gets closer to the criteria developed by the National Statistics Office (NSO). For instance, of 141 herder households with income 1.5-2.9 times higher than the minimum living standards (33,001-58,300 MNT per month), only 20 (14.2%) evaluated their standard of living as 'poor' whereas the majority defined it as 'average or above average'.

Herders' self-evaluation of their living standards

Figure 22



7.3 Administrative, education and healthcare institutions and services: herders' opinion

Figure 23 and additional Table 28 show how herders evaluate services provided by the *soum* administration, schools, hospitals and veterinary clinics, legal enforcement institutions, and by the postal and other communications organizations. Herders assess the work of legal institutions and police as 'satisfactory', *soum* administration and veterinary clinic services as 'average', but 80.4-86.1% of respondents view communications and schooling services as 'average or unsatisfactory'.

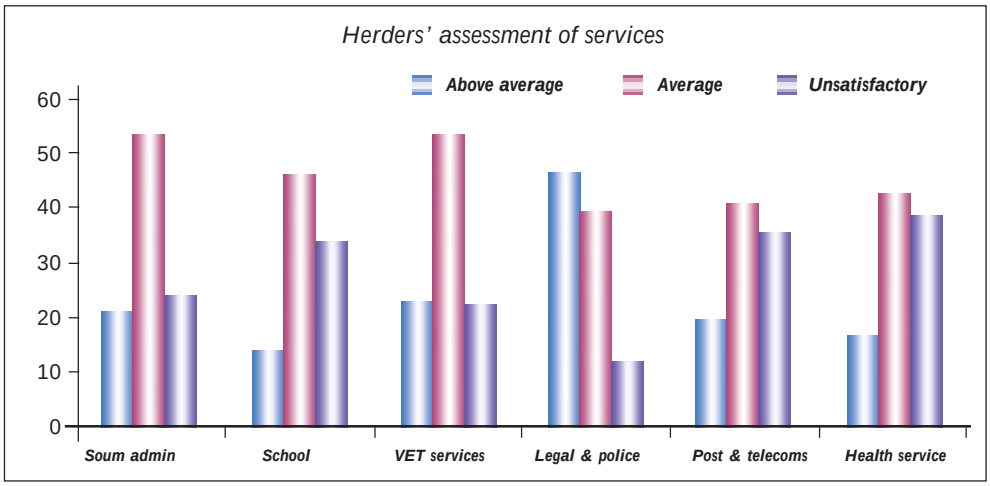
It was observed that as herders gave evaluation of work and services provided by the State administrative and service institutions, they lacked information about them, and in general were resorting to guesswork. Herders do not participate and are not interested in the activities of local State institutions and these institutions do not do enough to organize activities to increase public participation.

It seems that herders have appropriate information on school activities as their children go to school everyday, so they evaluated their activities quite critically. Their main criticism was that the quality of teaching is low and there is a shortage of specialized teachers.

The work of legal institutions and police was evaluated by the majority of herders covered by the survey as being 'good or normal', which was the highest indicator in comparison with other State organizations. However, while in areas with developed infrastructure and high rate of livestock theft herders evaluated police work as 'bad', herders in remote areas with low rate of livestock theft evaluated the police work as 'good', so the evaluation was not very objective and the fact that in general individuals who have not suffered of crime or theft do not have bad impressions about police work seems to influence this assessment.

Herders' evaluation of administrative, education and health care institutions and their services

Figure 23



Although herders are not completely satisfied with the work of State institutions they did not absolutely dislike them.

Herders have little opportunities to make a call for a doctor in time (42.2%), but doctors can be relied on coming in time, on call.

Herders' evaluation of health care services

Table 39

Indicator	Herders' evaluation						Total	
	Good		Average		Bad			
	qty	%	qty	%	qty	%	qty	%
Opportunity to call for doctor when needed	125	16.2%	322	41.7%	326	42.2%	773	100%
Opportunity for doctor to come on call without delay	136	17.6%	351	45.4%	286	37.0%	773	100%
Availability of medicines	192	24.8%	357	46.2%	224	29.0%	773	100%
Price of medicines	489	63.3%	215	27.8%	69	8.9%	773	100%

Although herders say that doctors come on time when they receive a call, they looked at the issue very carefully and mostly evaluated the services to be 'average or bad'. *Soum* doctors have an opportunity to get to herders on time after receiving a call in order to provide emergency assistance or in case of acute disease, but herders often call for doctors with complaints on chronic diseases and general decline of health.

In general, 17.6% of herders' were content with the opportunities to get medical assistance, 37% were dissatisfied, and 45.4% were doubtful.

7.4 Conclusions:

1. The majority of herders (63.6%) are satisfied with being engaged in livestock breeding, a certain group report average satisfaction (25.9%) and a few (6.7%) are not content with their work.

2. When expressing their satisfaction or dissatisfaction with being engaged in livestock breeding, herders do not take into account the number of their livestock and the consequent impact this has on their standard of living. This might be related to their education level and to Mongolian traditions and customs.

3. Factors have their own distinctive features, such as: livestock breeding is arduous

work; the kind of work that herders can do best; the effect on children's schooling and education; bad access to information; good effect of fresh air; such lifestyle was inherited from their parents. These factors are evaluated differently by different individuals and households, and this evaluation continuously changes as time elapses and social development trends change, so their significance waxes or wanes. For instance, some herder households are concerned most with their children's education and for them providing their children with opportunities to access high quality education is much more important than engaging in livestock breeding, so they move to cities or settlements, while other herders households do not mention this issue.

4. Herders' dissatisfaction with their occupation is mainly related to a fact that income gained is not enough for their living and there are too many natural hardships.

5. Of herder households covered by the survey, 52.8% have living standards below the poverty line and are 'poor or extremely poor' (in terms of monthly income per household member determined by the NSO), 47.2% have living standards higher than the minimum standard of living. But the results of herders' evaluation of their standard of living show that only 24.3% consider themselves 'poor or extremely poor', while 75.7% consider their living standards to be 'average and above average'.

6. Poor and extremely poor herders were not able to evaluate their living standards objectively. Over 30% of them evaluated their living standards higher than they are in reality. This is related to their low education level, limited consumption and slow changes in mentality.

7. Livelihood and income level of herders engaged in pastoral livestock breeding basically depends on the number of livestock. That is why in the period since livestock privatization herders have strived to increase the number of livestock, not its quality or productivity.

8. The majority of herders with a relatively large number of livestock are content with being engaged in livestock breeding. This is related to the fact that livestock breeding is their main source of livelihood.

9. Herders view the work of legal institutions and police as 'normal', work of administration and veterinary services as 'average', but 80.4-86.1% of respondents evaluated communications and school services as 'average or unsatisfactory'.

10. The majority of herders agree on the necessity of education for their children. As the herders' education level rises, their interest in getting good education for their children tends to increase.

11. Herders are not completely satisfied with the issue of getting emergency medical assistance on time. For instance, 17.4% of respondents evaluated the possibility of the doctor coming on time after receiving a call as 'good', 45.6% as 'average' and 37% as 'bad'.

CHAPTER 8

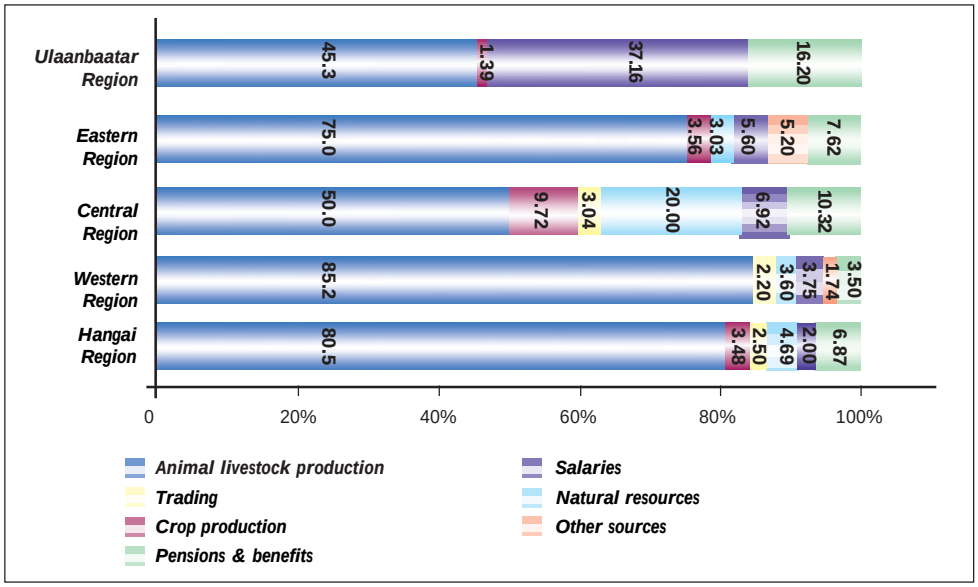
HERDER HOUSEHOLD INCOME AND EXPENSES

8.1 Herder household income and its sources

The main indicator of a herder household's financial status is the size of its income. The income level of herders participating in the survey varies due to differences in market conditions, number of animals and structure of the herd. In calculating the income of a herder household, the team used the following method. First, on the basis of the End of Year Livestock Census 2002 data ("A" account), changes in the number of livestock since the Census were calculated. In calculating income from sale of animals, local market prices and the cost of sold products according to their own report were taken into account. In calculating income from livestock productivity, average norms of productivity for given livestock were multiplied by the number of livestock and the price of the unit of production. Taken into account were the average norms of productivity for given livestock such as dairy and meat products consumed by the household, and their cost according to the average local prices.

Average annual income of a regular herder household

Figure 24



The annual income of the average herder household in the 5 Economic Regions covered by the survey is 2.4 million MNT. The principal income source of herders from each Economic Region is livestock production. For example, income from livestock breeding in the total annual income of 85% of herders in the Western Region, 80.5% in the Khangai Region, and 75% in the Eastern Region. As can be seen from Figure 24, income from sources other than livestock breeding has a share in the total annual income of those herders who reside near the bigger cities and urban settlements with good infrastructure. This is confirmed by the fact that income from crop farming, trading and salaries constitute 50-54.7% of the income sources of the herders who participated in the survey in the Central Region and areas near Ulaanbaatar.

The percentage share by type of livestock in the annual sales income of the herders participating in the survey is as follows:

Camels	3.9%	Sheep	23.5%
Horses	2.9%	Goats	59.4%
Cows	10.4%		

The structure of sales' income by the type of raw materials and products:

meat sold	28.5%	wool, hair, molt	5.1%
meat	5.4%	cashmere	51.9%
hides and skins	6.6%	milk, *airag*, dairy products	2.1%
intestines	0.4%		

Income from the sale of cashmere, meat, cattle and hides constitutes 93.1% of the total sales income. Thus the livelihood and financial status of herder households depends heavily on the amount sold, the quality and price level of the above products and raw materials.

Household needs are met by selling livestock breeding products at the market. Livestock products consumed by households are the part of actual income from animal husbandry and should therefore be included into total income of the household, although they are not directly related to cash income. Over 80% of cash income of herder households from the Western, Hangai and Eastern Regions comes from livestock breeding and the remaining 20% from other sources. A small percentage of income from other sources and production in the structure of herder household income shows the narrow specialization of herder households in livestock breeding and their non-involvement in other production.

Of herder households covered by the study 122 (15.8%) have a monthly per capita income from livestock breeding up to 8,000 MNT or are very poor households. Of total herders covered by the survey, 46.4% have a monthly per capita income of 8,001- 25,000 MNT. On average the size of a herder household covered by the survey is 4.7 persons, and the average annual income per capita is 0.51 million MNT.

Grouping of herder households *(by monthly income per capita)*

Table 40

Monthly income per capita	Number of households	From total households in study	
		% share	Cumulative share
Under 8,000 MNT	122	15.8	15.8
8,001-25,000 MNT	359	46.4	62.2
25,001-41,500 MNT	177	22.9	85.1
41,501-58,300 MNT	70	9.1	94.2
Over 58,301	45	5.8	100.0
Total	773	100.0	-

The survey revealed the herders income to be affected by 3 basic factors:

Income = livestock number X productivity per unit X price of raw materials and produce
(1) (2) (3)

Of these 3 basic factors, the productivity per unit, which is the second factor affecting herders' income, does not change and is basically stable. The third factor – market prices for raw materials and produce – do not grow substantially, but fluctuate from year to year and by seasons. The price growth is very slight, especially when compared with inflation. As these two main factors remain stable, herders have chosen to increase their income by increasing the number of livestock and have used this method for many years. The survey on herders' needs confirms a trend for the continuation of this situation.

8.2 Expenses of herder household and their structure

As livestock breeding is a main source of income for herder households, it is important to study changes in the number of livestock in the course of one year in order to define the source of their income and expenditure.

Changes in herder livestock numbers in the Western and Central Economic Regions

(average per herder household in survey)

Table 41

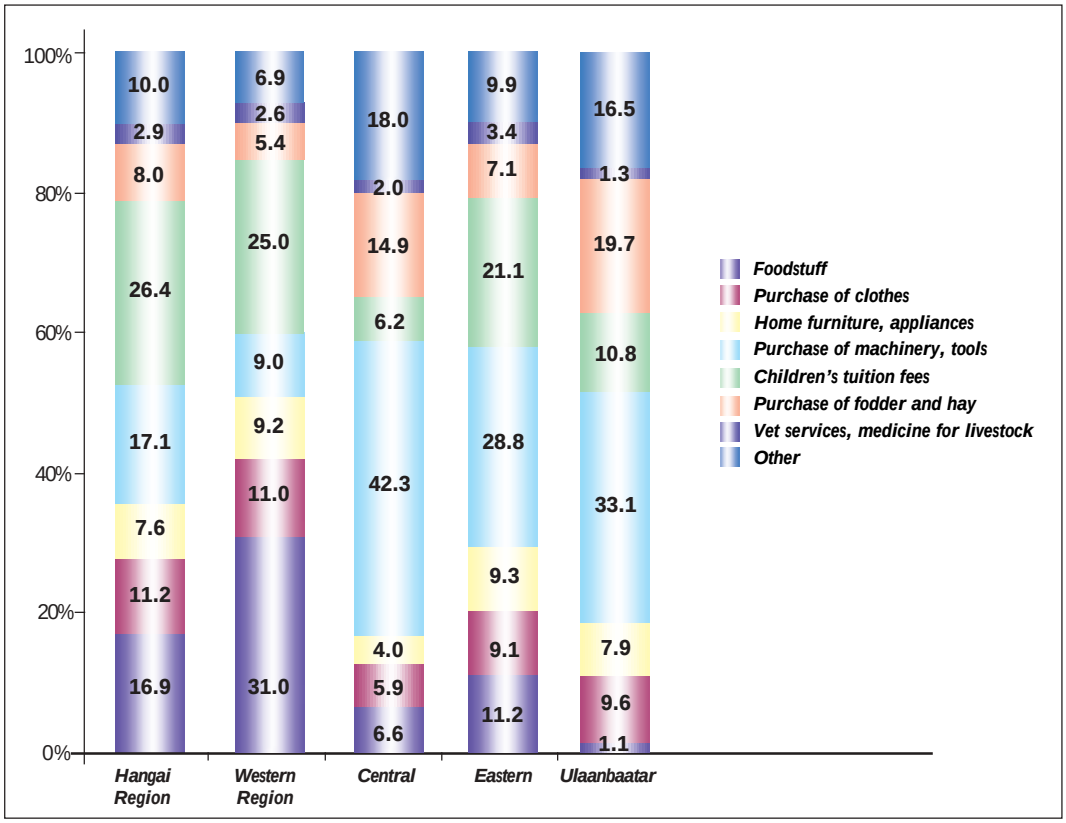
Livestock	Economic Region	1*	2*	3*	4*	5*	6*	7*	8*	9*
Camels	Western	4	2	3	2	2	0	2	2	1
	Central	9	2	3	2	0	2	3	2	6
Horses	Western	9	2	4	2	2	2	2	3	4
	Central	11	6	4	2	2	3	4	25	6
Cows	Western	14	2	6	3	2	2	2	5	10
	Central	11	2	4	4	4	3	3	4	-1
Sheep	Western	57	8	29	9	3	3	5	12	62
	Central	69	15	27	16	4	12	18	11	50
Goats	Western	56	14	27	12	5	2	6	11	61
	Central	51	25	19	9	3	11	18	10	45
Total	Western	140	28	69	28	14	9	17	31	138
	Central	151	50	57	33	13	31	46	30	105

Note: *1*- number of livestock at the beginning of the year; 2*- purchased livestock; 3*- young animals reared; 4*- sold; 5*- given free to others; 6*- lost to livestock theft;7*- perished; 8*- used for consumption; 9*- number at the year-end.*

On the basis of the survey results from the herders, we have been able to define the general picture of the changes that have occurred in the course of a year in the number of livestock of each herder household from the start of 2003. Table 41 shows a comparison of average livestock turnover of all households from the Western and Central Regions.

Expenses of a herder household

Figure 25



The number of livestock at the beginning of the year per household participant of the survey from those two Economic Regions was approximately (140-150) the same. If it is assume that the number of animals per herder household as an average of the two Economic Regions at the beginning of the year was 100%, then the number of animals equal to 26.8% of all animals at the beginning of the year was purchased, the herd was replenished by raising 43.3% of young animals, 21% was sold at the market, 9.3% was given away to others free of charge, 13.7% was lost to theft, 21.6% perished and 21% were consumed for food.

It is interesting that herders of the Central Region have more livestock bought from and sold to others, which shows that due to good market conditions the herders are learning ways of entering the livestock into economic turnover. But the herders from this Economic Region lost 20.5% of the herd to theft, whereas the same indicator is much lower for the herders from the Western Regions (6.4%).

The annual expenses of the average herder household covered by the survey are 2.7 million MNT. The Economic Region with the highest expenses per person is UB (3.3 million MNT), and that with the lowest expense are herder households is the Western Region (2.5 million MNT). In none of the Economic Regions can the herder fully cover expenses by their income and the average expenses in access of the annual income per herder household is 100,700 to 366,700 MNT.

As can be seen from Figure 25, expenses related to the purchase of food, clothing, *ger* furniture and utensils are prevailing in the herder household expense structure, but the size and share of capital investment in production (money spent on it) are insufficient in both of these Economic Regions. This shows that herders spend their modest income on consumption and do not make accruals for the expansion of production.

Sufficiency of a herder household income

(by the number of livestock per member of household)

Table 42

Answers	Livestock units (bog) per household member										Total	
	0-20		21-40		41-70		71-150		Over 150			
	qty	%	qty	%	qty	%	qty	%	qty	%	qty	%
Not enough even for food	47	22.1	23	12.2	4	2.3	5	3.4	3	6.1	82	10.6
Enough only for food	87	40.8	98	51.9	44	25.1	44	29.9	6	12.2	279	36.1
Enough for food and clothing	64	30.0	56	29.6	100	57.1	63	42.9	23	46.9	306	39.6
Enough for food, clothing and children's tuition fees	9	4.2	8	4.2	17	9.7	14	9.5	9	18.4	57	7.4
Enough to cover all expenses	6	2.8	4	2.1	10	5.7	21	14.3	7	14.3	48	6.2
Did not respond	0	0.0	0	0.0	0	0.0	0	0.0	1	2.0	1	0.1
TOTAL	213	27.6	189	24.5	175	22.6	147	19.0	49	6.3	773	100.0

Like any other consumer, it is obvious that the herders would first meet their requirements for the basic needs such as food and clothing and later rank their other needs by significance and satisfy other needs within their budget accordingly. In order to understand which of various types of demands (expenses) are covered by the income the question ***"Which of the following expenses are met by your household's income?"*** was put forward and the answers of herders are presented in Tables 45 and 46 in relation to the number of livestock and monthly income per household member.

Of 213 households with 0-20 livestock (in *bod* units) per household member, 47 households (22.1% of respondents) answered that their income is not sufficient enough to cover food, 87 households (40.8%) answered that their income is enough only for food (see Table 42).

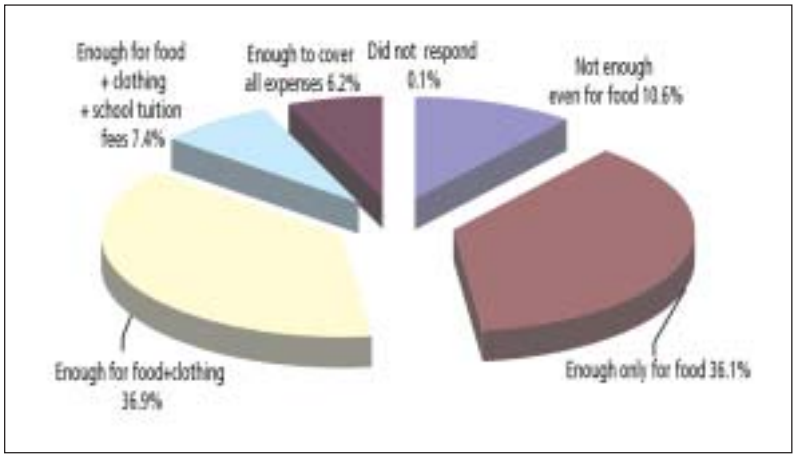
So, if the number of livestock units is 40 per household member it would be sufficient

to cover food, and if it is 41-70, then it would be sufficient to cover food and clothing. Table 42 illustrates the fact that only if the number of livestock are 150 per household member would it be sufficient to cover all the herder's expectations.

Figure 26 shows how herder households covered by the survey evaluated the sufficiency of their income. From Figure 26 it can be seen that of total herder households 10.6% replied that their income does not cover even food, and 36.1% that it is enough only for food.

Sufficiency of a herder household income

Figure 26



As 2.8% of respondents from those households with up to 20 animals per household member answered that the family income was *'fully sufficient'*, but 6.1% of the herders with over 150 animal responded that their income was *'not enough even for food'*, it can give the impression that it is illogical and put the reliability of survey into question. However this situation has an explanation. Of 6 households with up to 20 animals per household member who answered that family income was *'fully sufficient'*, 5 are households with only a few highly productive animals, and the main income source of the remaining household is from haymaking. Furthermore 3 households with over 150 animal per household member, who answered that family income was *'not enough even for food'*, in recent years have paid attention only to increasing the number of livestock, and so have been unable to enter the livestock into economic relations and use it for living needs as their location is remote from the market and they are not adjusted to the market conditions.

If such reasons are taken into account, then it is clear that the sufficiency of herder household income is not be determined solely by the number of livestock per household member. Therefore sufficiency of herder household income should be related to income per household member and such a study would be more reliable (see Table 43).

Sufficiency of herder household income *(by income per household member)*

Table 43

Answers	Income per household member (MNT/month)										Total	
	Under 8,000		8,001-20,000		20,001-40,000		40,001-60,000		Over 60,001			
	qty	%	qty	%	qty	%	qty	%	qty	%	qty	%
Not enough even for food	24	19.7	44	12.3	9	5.0	4	6.1	1	2.2	82	10.6
Enough for food	49	40.2	150	41.8	49	27.1	16	24.2	10	22.2	274	35.4
Enough for food + clothing	44	36.0	127	35.3	88	48.6	38	57.6	14	31.1	311	40.2
Enough for food + clothing + school tuition fees	2	1.6	27	7.5	18	9.9	3	4.5	7	15.6	57	7.3
Enough to cover all expenses	3	2.5	11	3.1	17	9.4	5	7.6	12	26.7	48	6.2
Did not respond	0	0.0	0	0.0	0	0.0	0	0.0	1	2.2	1	0.1
TOTAL	122	100	359	100	181	100	66	100	45	100	773	100

Of 122 households with a monthly income per household member of up to 8,000 MNT ('very poor'), 24 (19.7%) responded that the income is not enough even for food, and 49 (40.2%) answered that it is enough only for food.

Of 181 households with a monthly income per household member of 20,001-40,000 MNT only 9 (5%) answered that their income is not enough even for food. Thus Table 46 illustrates the fact that of the herder households covered by the study, 10.6% evaluate their income as being not enough even for food, 35.4% as enough only for food, 40.2% as enough for food and clothing and only 6.2% selected the answer that income covers all their expenses.

Although the majority of herder's income comes from livestock breeding, this activity constitutes only a small percentage of their expenses. Even though the costs that prevail in animal husbandry production are those related to fodder, labor, medicines and vaccination, as well as transportation costs, the herder households do no incur much direct cash expenses, because they do these jobs by their own effort.

The average annual expenses of herders covered by the survey was 0.8-6.9 million MNT depending on the number of livestock and location.

Herder families engaged in pastoral livestock breeding spend 9.4% of annual cash expenses on production needs; 90.6% - the majority of it - is spent on food and household needs only, whereas the farmer families near the city spend 66.3% of their cash expenses on production needs.

The uniqueness of livestock breeding is that it is based on biological reproduction, it grows and reproduces on its own and therefore does not require much capital investment. But, at the same time, it involves the same level of risk and losses. Thus the animal husbandry requires major investment into risk prevention rather than growth and reproduction. But the herder families have limited ability to make such investment

8.3 Animal raw materials and products market

In the countryside, market relations have not yet developed or stabilized, and the more remote the location is from the centralized market, the more issues have negative impact on the herders' standard of living, such as: decrease of livestock raw materials' and products' prices; increase of consumer goods prices; inability of herders to have proper connections to the market; engagement in barter trade mostly; as well as a low level of raw material processing. Therefore in order to decrease unemployment and poverty in the countryside and ensure sustainable growth of herder family income, an important strategic goal is to develop agricultural and industrial sectors capable of developing by complementing each other, and to strengthen their competitiveness.

The question is how efficiently the raw materials and products are sold at the markets, being the real factor to influence the herder income. There are 5 principal channels for the

sale of raw materials and products for herder families, including Ulaanbaatar city, urban settlements near Ulaanbaatar, *aimag* centers, *soum* centers, traveling traders from the settlements, as well as the border points.

Among the different types of raw materials brought to and sold in **Ulaanbaatar** the share of cashmere is quite high**.** The herders explained that those who live close to UB bring it by their own vehicles to sell the cashmere, as well as selling cashmere through their relatives and children studying in UB, since cashmere is not bulky, the price is higher when sold in UB, and the city has a good market organization.

The advantage and specifics of t**he intermediate traveling traders** is that they bring services directly to herders, by trucks loaded with the most needed consumer goods, flour, rice, etc. at the time when herders have raw materials ready on their hands. There are cases when traders conclude contracts with the herders several months in advance. The herders who give their cashmere to mediators are the ones who lack information on prices and rates, reside in remote locations from the center and are short of labor.

Herders sell raw materials and buy necessary products in ***aimag* and *soum* centers** because, on the one hand, there are many traders and entities willing to buy raw materials and products, and on the other hand the centers are relatively close to the herders.

The specific of the **border point trade** is that the herders who sell their raw materials (such as cashmere and hides and skins) through the border point are the ones who reside close to the border in Economic Regions with border points. According to herders, they cross the border in their own vehicle once per season when the border point is open in order to sell their raw materials.

Therefore raw materials of animal origin pass through many channels and cross many routes on their way from herders to processing factories and exports. It is important to establish a channel for efficient sale of herder products and raw materials by strengthening the cooperation and partnership among herders and domestic processing factories.

Table 44 summarizes the findings of the survey and shows the types of raw materials and products and the channels they are mostly sold through.

Channels for sale of raw materials and products

(by household shares)

Table 44

Raw materials		Channels of sales					
		UB	aimag, urban settlements	Soum center	Traders	Border trade	Total
camels	wool	8.9	14.3	19.6	55.4	1.8	100%
cattle &horses	animal, meat	41.2	31.4	2.0	25.5		100%
	hides	20.0	14.5	18.2	45.5	1.8	100%
sheep	animal, meat	35.4	26.2	6.2	32.3		100%
	wool	7.7	30.8	6.4	55.1		100%
	skins	23.8	20.2	20.2	35.7		100%
goats	animal, meat	28.9	18.4	15.8	36.8		100%
	cashmere	47.7	14.0	7.0	25.6	5.8	100%
	skins	24.7	19.2	15.1	39.7	1.4	100%

The amount of sales of raw materials such as animals and meat directly to traders from the household decreases with the increase of the number of family members, but the amount of delivery to the markets in UB, *aimag* and *soum* centers increases. For example, if 31.7% of the herder families, respondents of the survey, with up to 5 family members, delivered meat to UB for sale, 54.4% of the herder families with over 9 family members delivered meat to the capital city market. This illustrates the significance of the number of household members and sufficiency of labor force to sell raw materials and products for

better price at the markets.

Therefore in order to deal with the above problems incurred during individual delivery of raw materials and products to the market, we consider it important to fully support the initiatives of developing procurement and delivery cooperatives among the herders.

8.4 Conclusions

1. Animal husbandry continues to be the principal source of income of Mongolian herders. But to constitute the sources of income from livestock breeding, the herders mostly use external methods, such as increasing the number of animal. In other words, the herders' income from livestock breeding is obtained by external methods.

2. The necessity arises in due course to increase the sources of income from livestock breeding obtained through more intensive methods by increasing the livestock productivity and efficiency, improving its breed and raising the local elite breeds in the most possible regions.

3. In order to increase the herders' income from sources other than livestock breeding, there is a need to support in all ways the initiative of herders and strengthen their capacity in: using natural resources; growing fodder crops, potatoes and other vegetables in the summer and winter camping sites alongside with being engaged in livestock breeding; developing eco-tourism based on herders, etc.

4. The study on the status of the the principal source of herder livelihood, i.e. livestock breeding, shows the continuous importance of the natural reproduction of the herd.

5. Self-evaluation of sufficiency of their income by herder households covered by the survey produced results similar to our survey on self-evaluation of herders' living standards with regard to NSO criteria. For instance, the fact that 15.8% of total households covered by the survey are in the group of very poor and 37% are 'poor' households is confirmed by herders' answers, with 10.6% of herders answering that their income is not enough even for food, and 36.4% replied that their income covers only food.

6. The majority of expenses is used for personal comsumption. Along with lack of sufficient capital for introducing new technology and expanding the production, the herders have not yet developed the proper mentality.

7. The herders face a lot of difficulties in selling raw materials and products efficiently due to the specifics of being engaged in pastoral livestock breeding in sparsely populated country within the vast territory.

8. Since the herders are unable to overcome those difficulties on their own, the factor of their cooperation and enrolment into cooperatives becomes of utmost importance. In particular there is an opportunity to increase their market competitiveness by developing herder cooperatives based on herder initiatives, which would sell raw materials in the markets and procure necessary products from settlements.

9. There is a need to implement a strategic goal to increase the herder household income and the price of livestock breeding products and raw materials by developing small and medium sized enterprises for processing the animal raw materials depending on the specifics of the Economic Region, its market volume, and level of infrastructure development.

CHAPTER 9

THE PRIORITY NEEDS OF HERDERS

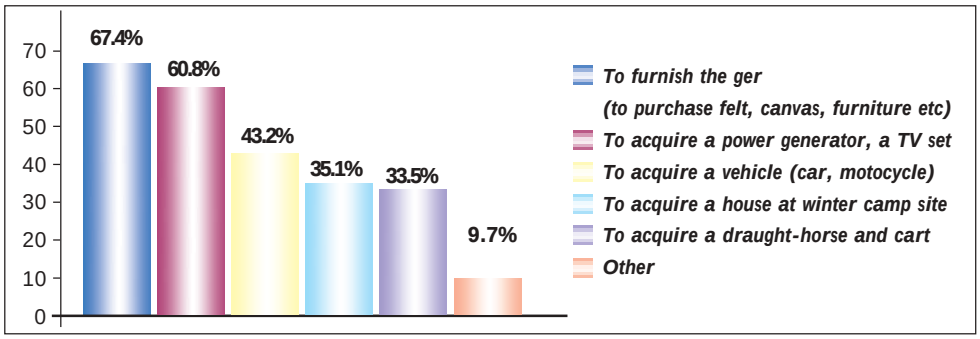
Upon conducting a discussion on the question ***"What are the most expected needs of the herders?"*** and observation, the survey team decided to divide the needs of the herders into 3 principal groups: household needs, livestock production needs, and herders' social needs. The survey was then conducted to specify the possible main needs within each of these 3 groups by the method of conducting a discussion of herders' opinions, collected in advance, and developing a questionnaire.

9.1 Herder household needs

With the aim of defining the needs of herder households and to study their opinions, the following question was asked: ***"What are your priority household needs?*** *(rank in the order of their significance and circle up to 3 answers)",* and their needs were determined in the following order (see Figure 27).

Priority household needs of the herders

Figure 27



Of the 773 households covered by the survey, 67.4% (521 households) selected the answer *"to furnish the house"* which shows that this is their priority need. Out of 521 households 405 (77.7%) ranked this reply as being first in significance, thus confirming again the importance of this need (see Table 45).

According to herders, furnishing of the *ger* includes issues such as purchasing new canvas (tarpaulin) for the *ger*, renewing the felt covering, enlarging the *ger*, repairing or repainting *ger* timbers, purchasing new furniture for the *ger*, etc. It can be considered to be a constant need for each rural household.

In addition, it can be seen that herders are much interested in having a small capacity generator, a TV set, and a vehicle.

Priority household needs of herders

Table 45

Answers	Ranking of answers	Number of answers	Share from 773 household	Share of this answer	Share from total answers
1	2	3	4	5	
Furnish the *ger* (purchase felt, canvas, furniture, etc)	1	405	52.4	77.7	21.0
	2	84	10.9	16.1	4.4
	3	32	4.01	6.1	1.6
	Total	521	67.4	100.0	27.0
Acquire a house at winter camping site	1	83	10.7	30.6	4.3
	2	127	16.4	46.9	6.6
	3	61	7.9	22.5	3.1
	Total	271	35.1	100%	14.0
Acquire a power generator, TV set	1	141	18.2	30.0	7.3
	2	223	28.8	47.4	11.5
	3	106	13.7	22.6	5.5
	Total	470	60.8	100%	24.3
Acquire a vehicle (car, motorcycle)	1	66	8.5	19.8	3.4
	2	135	17.5	40.4	7.0
	3	133	17.2	39.8	6.9
	Total	334	43.2	100%	17.3
Acquire a draught-horse and cart for transport	1	43	5.6	16.6	2.2
	2	99	12.8	38.2	5.1
	3	117	15.1	45.2	6.1
	Total	259	33.5	100%	13.5
Other	1	17	2.2	22.7	0.9
	2	8	1.0	10.7	0.4
	30	50	6.5	66.6	2.6
	Total	75	9.7	100%	3.9
TOTAL		**1,930**	**-**	**-**	**100%**

Table 46 shows how herder household priority needs vary depending on the Economic Region.

While there is a slight difference in herder household priority needs related to the Economic Region, that difference is not real in terms of statistic probability. For instance, the priority need of herders in the Western Region is to acquire a power generator and a TV set as opposed to house furnishing. This can be related to the fact that due to limited access to information, herders in the Western Region use TV's and small generators a lot, so there is quite a need for such items as a result of this consumption.

It can be observed that while herders in the Khangai Region have more interest than others in furnishing their *gers*, herders in the Western Region are mostly interested in acquiring a house at their winter camping sites or acquiring a vehicle. Without taking into consideration the above changes, no marked differences by Economic Region could be observed in the priority needs of the herders.

Priority household needs of herders *(by Economic Regions)*

Table 46

Answers	Herder household groups										Total	
	Hangai Region		Western Region		Central Region		Eastern Region		UB Region			
	qty	%	qty	%	qty	%	qty	%	qty	%	qty	%
To furnish the *ger* (buy felt, tarpaulin, furniture etc)	176	29.0	145	24.5	112	28.5	70	25.8	11	30.6	514	27.1
To acquire a house at the winter camping site	82	13.5	102	17.2	53	13.5	22	8.1	6	16.7	265	14.0
To acquire a power generator, or a TV set	149	24.5	159	26.9	72	18.3	75	27.7	8	22.2	463	24.4
To acquire a vehicle (a car, a motorcycle)	93	15.3	103	17.4	79	20.1	47	17.3	7	19.4	329	17.3
To acquire a draught- horse and cart	84	13.8	62	10.5	61	15.5	44	16.2	2	5.6	253	13.3
Other	23	3.8	21	3.5	16	4.1	13	4.8	2	5.6	75	3.9
Total number of answers	607	100%	592	100%	393	100%	271	100%	36	100%	1,899	100%
Herder households survey respondents	247		208		164		103		19		741	

It is interesting to study the dependence of herders' household needs to their standard of living, and the main indicators which determine them, namely, income per household member or the number of livestock per household member. The survey shows that the higher the income per household member, the lower the need for furnishing a *ger* or purchasing a draught-horse and cart, while the need increases for acquiring a house at the winter camping site or acquiring a power generator (see Table 47). We can see a general picture of human interest being dependent on living standards and objective opportunities, such as the herders first of all are interested in furnishing their house, then in purchasing a draught-horse and cart, after that in acquiring a house etc.

Priority household needs of herders
(by annual income per capita)

Table 47

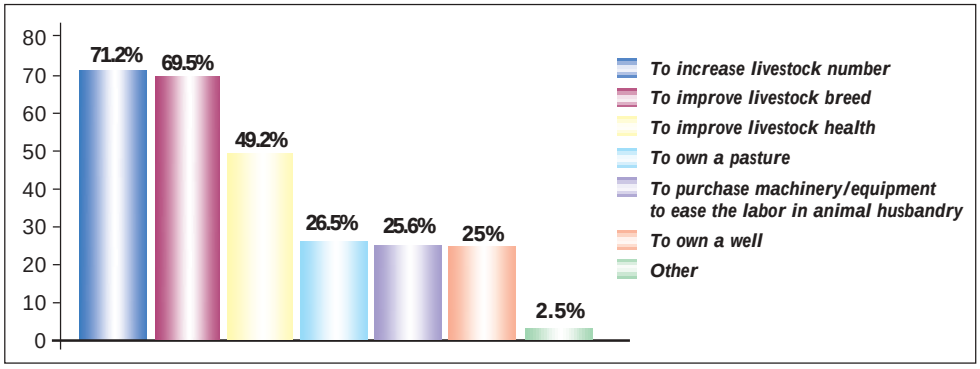
Answers	Annual income per capita										Total	
	0-100,000		100,001-300,000		300,001-500,000		500,001-700,000		Over 700,001			
	qty	%	qty	%	qty	%	qty	%	qty	%	qty	%
To furnish the *ger* (buy felt, tarpaulin, furniture etc)	97	32.7	244	27.1	117	25.7	521	27.0	22	22.2	1,001	27.2
To acquire a house at the winter camping site	31	10.4	123	13.7	73	16.0	271	14.0	20	20.2	518	14.1
To acquire a power generator, or a TV set	66	22.2	214	23.8	110	24.1	470	24.4	30	30.3	890	24.2
To acquire a vehicle (a car, a motorcycle)	41	13.8	148	16.5	90	19.7	334	17.3	12	12.1	625	17.0
To acquire a draught- horse and cart	50	16.8	138	15.4	53	11.6	259	13.4	5	5.1	505	13.7
Other	12	4.0	32	3.6	13	2.9	75	3.9	10	10.1	142	3.9
Total number of answers	297	100%	899	100%	456	100%	1,930	100%	99	100%	3,681	100%
Herder households survey respondents	116		350		176		69		43		754	

9.2 Herders' livestock production needs

In order to determine the herders' livestock production needs, the survey asked the herders the question *"**Which of the following activities in livestock production is of priority to you?** (rank in the order of their importance and circle up to 3 answers)"* and the priorities determined are presented in Figure 28:

Priority needs of herders in livestock production

Figure 28



Out of 773 herder households covered by the survey, 71.2% (550 households) chose the answer *"to increase the number of animals"*, which shows that this is the most important need for herders. Of the households who chose this answer, 73.5% assigned it as first priority which had the highest frequency (see Table 48).

Questions such as: *"Why herders developed an interest in increasing the number of animals?"*; *"How much should the number of animals in herder households be increased in order to satisfy that need?"*; *"How many livestock will Mongolia have should that need of each herder household be satisfied?"* might be interesting questions which attract the attention of researchers.

If the livestock production needs of herders are studied in relation to the current size of the livestock herd, then 79.5% of herder households with 1-20 livestock per household member capable of labor; 76.6% of those with 20-70 livestock per household member capable of labor; 45.7 % of those with over 150 livestock per household member capable of labor have the priority to increase the number of their livestock (see Table 48).

Although the higher the number of livestock per household member, the lower the need to increase the number of livestock, it is interesting that 45.7% of herder households with over 150 livestock per household member still consider there is a need to increase the number of livestock.

Which of the following activities in livestock production is a priority to you?

Table 48

Answers	Ranking of answers	Number of answers	Share of total answers	Share of 773 households in survey
1	2	3	4	5
To increase the number of livestock	1	404	19.6	52.2
	2	93	4.5	12.0
	3	53	2.6	6.8
	Total	550	26.7	71.2
To improve the breed, to intensify	1	228	11.0	29.5
	2	250	12.1	32.3
	3	59	2.9	7.6
	Total	537	26.0	69.5
To own a well	1	19	0.9	2.5
	2	95	4.7	12.3
	3	79	3.8	10.2
	Total	193	9.4	25.0
To own a pasture	1	22	1.0	2.8
	2	84	4.1	10.9
	3	99	4.8	12.8
	Total	205	9.9	26.5
To improve livestock health	1	49	2.4	6.3
	2	133	6.4	17.2
	3	198	9.6	25.6
	Total	380	18.4	49.2
To purchase machinery and equipmentto ease arduous labor in animal husbandry	1	26	1.3	3.4
	2	58	2.8	7.5
	3	114	5.5	14.7
	Total	198	9.6	25.6
Other	1	2	0.1	0.3
	2	5	0.2	0.6
	3	12	0.6	1.5
	Total	19	0.9	2.5
TOTAL		2,063	100%	

According to the findings of the 2002 year-end Livestock Census, out of 243,200 herder households are 168,000 households with up to 100 animals. If the number of livestock units (*bog*) is increased to at least to 100 per person in order to satisfy the priority needs of those households, the estimations are that over 60 million sheep and goats would be needed to satisfy the need of those 168,000 households only, and the total number of livestock in the country would be about 120 million. There is almost no realistic possibility to increase the number of herder livestock, taking into consideration the scientist's opinion that the pasture capacity in Mongolia is only 60-70 million livestock units (*bog*).

At present, when the number of herders is growing and the pasture yield is falling, the justification for satisfying each household's priority need in livestock breeding to increase the number of animals are poor. Instead, there is a need to increase the number of livestock per person with labor capability, improve animal breeds and increase the efficiency of each unit.

Note: *While studying the herders' opinions in relation to the number of livestock they own, instead of the total actual number of all livestock, all animals owned by a household were transferred into livestock units (bog) and the number of livestock units per household member was used. If the actual number of livestock was used in the study, we will have to consider a household with 100 sheep and goats equal to a household with 100 cattle and horses, which might lead to conclusions with methodological mistakes. On the other hand, if we use directly the number of household livestock, we will have again to consider that a 5-member household with 100 animals equal to a 10-member household with 100 animals,*

which will again lead to a methodological mistake. Therefore, the indicator used extensively in the survey, is ***the number of livestock in 'bod' per household member.***

Livestock production activities of priority need to herders

(by number of livestock per household member)

Table 49

Answers	Livesrock (in bog) per household member										Total	
	0-20		21-40		41-70		71-150		Over 150			
	qty	%	qty	%	qty	%	qty	%	qty	%	qty	%
To increase the number of livestock	163	29.3	144	27.1	127	27.2	95	23.7	21	16.7	550	26.4
To improve and intensify animal breed	131	23.5	126	23.7	123	26.3	119	29.7	38	30.2	537	25.8
To own a well	60	10.8	52	9.8	39	8.4	32	8.0	10	7.9	193	9.3
To own a pasture	57	10.2	57	10.7	44	9.4	36	9.0	11	8.7	205	9.8
To improve livestock health	84	15.1	99	18.6	88	18.8	80	20.0	29	23.0	380	18.3
To purchase machinery and equipment to ease arduous labor in animal husbandry	57	10.2	47	8.9	44	9.4	35	8.7	15	11.9	198	9.5
Other	5	0.9	6	1.1	2	0.4	4	1.0	2	1.6	19	0.9
Total number of answers	557	100%	531	100%	467	100%	401	100%	126	100%	2,082	100%
Number of herder households survey respondents	205		188		167		144		46		750	
Share from total herder households survey respondents	27.3		25.1		22.3		19.2		6.1		100%	

The observations show that the greater the number of animals, the greater the herders' need to improve the livestock breed and health of animals. Herders with few animals have more need to own a pasture, animal pen or a well. It could be observed during the discussions with herders that the above was related to a fact that herders with few animals have no winter and summer camping sites, nor animal pens of their own.

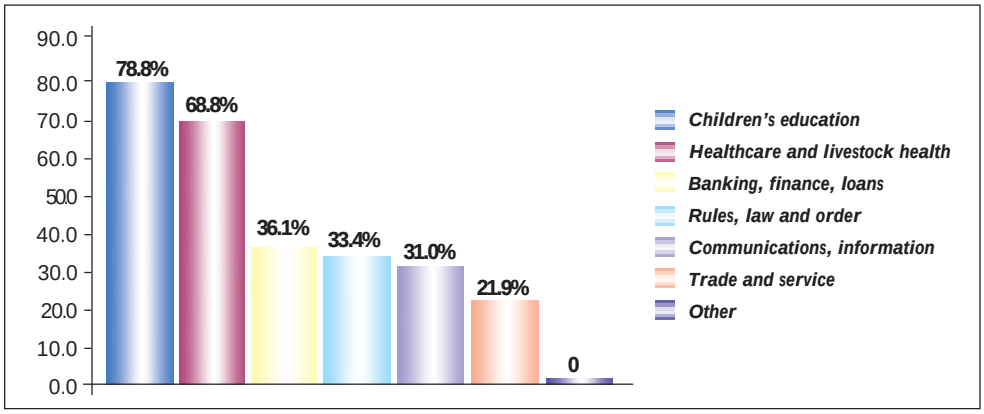
No particular differences were observed in the herders' livestock production needs when compared by Economic Regions where they reside.

9.3 Herders' social services needs

With the aim of defining the herders most important needs in social services was put forward to the herders the question *"**Which of the below social services is the most needed by you?** (rank in the order of significance and circle up to 3 answers)"* and the findings were analyzed. The services ranked according to the importance and significance as viewed by herders participating in the survey are presented in Figure 29.

Herders' needs for social services

Figure 29



As for social services, it is obvious that the most important priority need is the issue of children's education. Of households covered by the survey, 609 out of 773 (78.8%) chose the answer that the most important social need is ***children's education***. Of those 609 households, 429 (70.4%) ranked this answer as first priority, 117 (19.2%) as second priority, and 63 (10.4%) as third priority (see Table 50).

During the focus group discussions and in exchange of opinions, herders commented that the training quality of rural school was lagging behind that of urban schools, and that the supply of specialized teachers and personnel was poor.

To give their children the opportunity to study, herders make different arrangements, including having grandparents or either mother or father move to the *soum* center and look after children while they study; if not, they place the child in the school dormitory; or send the child to relatives or friends who live in the center and have their livestock attended by the parents of the child, etc. Herders are not interested to make children drop out of school, especially those who want to study and who are good students. But if the child is clearly not talented at studying, they take him out of school and teach the child to herd animals and to help them out in livestock production activities. Results of study of herder needs for social services by Economic Regions are presented in Table 51.

Which of the following social services is of priority need for you?

Table 50

Answers	Ranking of answers	Number of answers	% of total answers	% of total 773 households respondents
1	2	3	4	5
Children's education	1	429	20.4	55.5
	2	117	5.6	15.1
	3	63	3.0	8.2
	Total	609	29.0	78.8
Communication, information	1	37	1.8	4.8
	2	135	6.4	17.5
	3	68	3.2	8.8
	Total	240	11.4	31.0
Law and order	1	37	1.8	4.8
	2	124	5.9	16.0
	3	97	4.6	12.6
	Total	258	12.3	33.4
Public and animal health	1	178	8.5	23.0
	2	219	10.4	28.3
	3	135	6.4	17.5
	Total	532	25.3	68.8
Banking and finance, loans	1	50	2.4	6.5
	2	92	4.4	11.9
	3	137	6.5	17.7
	Total	279	13.3	36.1
Trade and services	1	17	0.8	2.2
	2	22	1.0	2.8
	3	130	6.2	16.8
	Total	169	8.0	21.9
Other	1	3	0.1	0.4
	2	4	0.3	0.5
	3	9	0.4	1.2
	Total	16	0.8	2.1
TOTAL		2,103	100%	

Herders' priority needs for social services

Table 51

Answers	Number of answers										Total	
	Hangai Region		Western Region		Central Region		Eastern Region		UB			
	qty	%	qty	%	qty	%	qty	%	qty	%	qty	%
Children's education	188	27.3	187	30.5	135	30.5	80	28.0	12	30.0	602	29.1
Communication, information	81	11.8	87	14.2	38	8.6	28	9.8	3	7.5	237	11.4
Law and order	105	15.2	59	9.6	57	12.9	29	10.1	5	12.5	255	12.3
Human and animal health	176	25.5	129	21.0	129	29.2	72	25.2	13	32.5	519	25.1
Banking and finance, loans	80	11.6	98	16.0	42	9.5	50	17.5	5	12.5	275	13.3
Trade and services	55	8.0	48	7.8	37	8.4	25	8.7	2	5.0	167	8.1
Other	4	0.6	6	1.0	4	0.9	2	0.7	0	0.0	16	0.8
Total number of answers	689	100%	614	100%	442	100%	286	100%	40	100%	2,071	100%
Number of herder households survey respondents	248	-	206	-	162	-	103	-	19	-	738	-

248 herders from Khangai Region gave a total of 689 answers in selecting up to 3 responses, and 188 of the answers (27.3%) selected children's education as the priority, while 30% of herders from Central Region view it as important. More herders from Khangai Region than herders from other Economic Regions consider social order and compliance with laws to be important (see Table 51).

Of the total of 2,071 answers in selecting up to 3 answers that herders gave to the questionnaire about priority needs for social services, 29.1% chose children's education, 25.1% public and livestock health as the most important issues. The fact that trade and services took up only 8% of total answers show that this issue has been solved as market relations have developed.

With the aim of further clarification of the herders' priority needs, we asked the herders-participants of focus group discussion in Jargalan *Soum* of Tuv *Aimag* the question: ***"If you were given right now 10 million MNT with no obligation to repay what would be the most important thing you spend it on?"*** and conducted a brain storming session among them. Table 52 presents the answers of the herders.

Upon summarizing the herders' answers, it can be seen that they would first of all spend 10 million MNT on the most pressing needs of the household, including different types of personal needs, such as buying clothes for their wives and children, paying-off debts, stocking food products, paying children's tuition fees, purchasing a small capacity power generator, *ger* furniture, etc.

Plan to spend 10 million MNT by herders in focus group discussion

Table 52

Type of expenditure	Average expense per type of need (mln MNT)	Total expenses (mln MNT)	% of total expenses	Number of opinions	% of opinions
For personal needs	2.0	32.0	20%	16	100%
To improve animal breed	2.0	30.0	18.75%	15	93.75%
To buy hay making equipment	2.5	30.0	18.75%	12	75%
UAZ-469 car, motorcycle	4.6	42.0	26.25%	9	56.25%
To buy livestock	1.5	10.5	6.56%	7	43.75%
To save at the bank	3.162	12.65	7.9%	4	25%
Power generator	0.950	2.850	1.78%	3	18.75%
TOTAL		**160.0**	**100%**	**-**	**-**

The personal needs of herders constituted 20% of their total needs and it was seen that each survey participant had their personal needs, as different as they were.

Although not included in everyone's answer, the need for a car and/or motorcycle

(vehicle) had the highest share of the total expenditure. 9 out of 16 survey participants (56.25%) responded that they wanted to buy a UAZ-469 car (a Russian jeep) or motorcycle, so it constituted 26.25% of total expenses and about 50% of the given individual's expenses.

It was clear during the discussion and focus group meeting that the most difficult and labor-consuming job was haymaking, which was also confirmed by expenditure distribution. For instance, 75% of participants said that they would use the money for the purchase of haymaking equipment and a small capacity tractor.

9.4 Conclusions

1. Herders consider living in a comfortable environment to be the most important issue. Among different types of herder household needs, the most priority need is to ***furnish the ger***. The need to furnish the *ger* includes purchasing new tarpaulin for the *ger*, renovating the felt covering, enlarging the *ger*, repairing ore repainting *ger* timber, as well as purchasing new furniture for the *ger*, etc. After furnishing the *ger*, herders are interested in acquiring a horse and cart, a car, a house and to meet their other needs.

2. Herders' priority need in animal husbandry production is to ***increase the number of livestock.*** 71.2% of herders covered by the survey considered this to be the priority. Although the herders' need to increase the number of their livestock could be satisfied by bringing the number of small animals (sheep, goats) to at least 150 per household member, it becomes almost impossible should we take into consideration Mongolia's current pasture capacity and the number of people engaged in animal husbandry. Therefore the right solution would be to take measures towards increasing labor productivity, creating jobs other than herding for herders, by increasing the productivity per animal and increasing the number of animal herd by person in the livestock production.

3. The herders' needs in animal husbandry production do not differ much in terms of the Economic Region where they reside.

4. Herder's priority need in social services is children's education. Health services for rural people and animal are also considered to be important by the herders.

5. Although there is a slight varation in the herders ranking of priorities in social services depending on the Economic Regions where they reside, no real statistic difference was observed.

CHAPTER 10

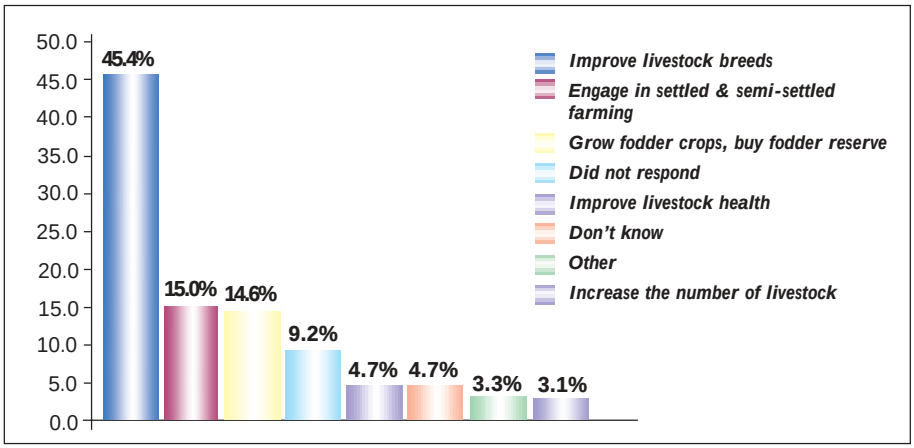
DEVELOPING NEW FORMS AND METHODS OF LIVESTOCK BREEDING

10.1 Intensification of livestock breeding

In order to clarify understanding of intensification of livestock breeding by herders, the team asked a question "***How do you understand intensification of livestock breeding?"*** and the answers are presented in Figure 30.

Herders' opinions on intensification of livestock breeding

Figure 30



From the above list it can be seen that the majority of herders understand intensification of livestock breeding as being the improvement of livestock breeds, growing fodder crops and improving the fodder reserve, and the engaging in settled and semi-settled forms of farming. In "other" diversification of herding, improvement of herd structure and cooperation were also mentioned.

In answer to the question ***"Are there any opportunities to engage in intensive livestock breeding in your area?"*** 33.8% of herders in the Western Region answered that there are some opportunities to engage in intensive livestock breeding in this Economic Region, whereas 68.4% of herders from areas close to Ulaanbaatar and 61.2% of herders from Central Region replied that it is possible to engage in intensive livestock breeding in these areas. The majority of herders from the Eastern Region and Hangai Region consider there to be few opportunities to engage in intensive livestock breeding (see Table 53).

It is clear that opportunities and conditions for the development of intensive livestock breeding in differ between the Economic Regions. Herders especially noted the existence of greater opportunities to develop intensive livestock breeding in the form of farms in the Central Region and in areas close to Ulaanbaatar.

Opportunities to engage in intensive livestock breeding

(by Economic Region)

Table 53

Answers	By economic Region										Total	
	Hangai Region		Western Region		Central Region		Eastern Region		UB Region			
	qty	%	qty	%	qty	%	qty	%	qty	%	qty	%
There are opportunities to engage in intensive livestock breeding	109	43.6	71	33.8	101	61.2	54	47.0	13	68.4	348	45.8
There are few opportunities	70	28.0	52	24.8	46	27.9	34	29.6	1	5.3	203	26.7
No opportunities	13	5.2	59	28.1	5	3.0	9	7.8	1	5.3	87	11.5
Do not know	46	18.4	24	11.4	13	7.9	13	11.3	4	21.1	100	13.2
Did not answer	12	4.8	4	1.9	0	0.0	5	4.3	0	0.0	21	2.8
Herders participating in survey	250	100.0	210	100.0	165	100.0	115	100.0	19	100.0	759	100.0

However, as natural, climatic and economic conditions of all *soums* in one region differ, it cannot be denied that opportunities to engage in intensive livestock breeding exist in some measure in every region.

Herders selected up to 3 answers and ranked them by their significance in answer to the question ***"If in your area there are opportunities to engage in intensive livestock breeding, which direction has more potential?"*** (see Table 54).

Which directions have more potential for intensive livestock breeding?

Table 54

Answers	Economic Regions										Total	
	Hangai Region		Western Region		Central Region		Eastern Region		UB Region			
	qty	%	qty	%	qty	%	qty	%	qty	%	qty	%
To raise cattle for milk	79	16.4	93	25.3	68	19.7	40	21.6	14	66.7	294	21.0
To raise cattle for meat	111	23.1	46	12.5	44	12.7	32	17.3	0	0.0	233	16.6
To raise sheep for meat	80	16.6	66	18.0	60	17.3	31	16.8	0	0.0	237	16.9
Local elite breed	96	20.0	81	22.1	51	14.7	42	22.7	1	4.8	271	19.4
Intensive livestock breeding+ crop cultivation	80	16.6	64	17.4	77	22.3	25	13.5	5	23.8	251	17.9
Intensive livestock breeding + other sectors	27	5.6	16	4.4	42	12.1	15	8.1	1	4.8	101	7.2
Other	8	1.7	1	0.3	4	1.2	0	0.0	0	0.0	13	0.9
Total number of answers	481	100.0	367	100.0	346	100.0	185	100.0	21	100.0	1400	100.0
Herder households in survey	182		127		147		73		14		543	
% of herder households in survey	33.5		23.4		27.1		13.0		2.6		100.0	

From Table 54, herders' opinions on priority directions for development of intensive livestock breeding can be determined by Economic Region. For instance, in Hangai Region of 481 answers that were given by 182 herders who answered the question, most consider that in this Economic Region cattle for meat can be grown (23.1%), local elite breed can be bred (20%) and dairy farming can be developed (16.4%). On the basis of the answers, directions of intensive livestock breeding development can be determined for each Economic Region as follows:

- **Hangai Region:** raising cattle for meat + local elite breed;
- **Western Region:** dairy farming + local elite breed + raising sheep for meat;
- **Central Region:** intensive livestock breeding + crop cultivation + dairy farming + raising cattle for meat;
- **Eastern Region:** local elite breed + dairy farming + raising cattle for meat;
- **Ulaanbaatar Region:** dairy farming + intensive livestock breeding + crop cultivation.

Herders in the Western Region and Hangai Region consider that intensive dairy farming can be developed in their regions and their response was quite differs from the concepts of livestock breeding experts and researchers. With regard to the negative effect that remoteness from the market can have on the sale of dairy products, weak traditions of engaging in dairy farming in the Western Region and the harsh climatic conditions, there are limited grounds for implementation of the above opinions of herders. Yet there are great opportunities for development of intensive sheep and goat breeding in the Western Region.

To clarify the herders' wishes in order to develop intensive livestock breeding, they were asked the question ***"What prior conditions, in your opinion, should be in place for development of intensive livestock breeding?*** *(select up to 3 answers and rank them by significance)"* and the answers summarized in Table 55.

- purchase of highly productive livestock;
- provision of loans and preferential taxes by the Government;
- participation in training is viewed by herders as a general priority condition necessary for development of intensive livestock breeding.

Along with these general conditions, there are some distinctive issues in different Economic Regions, for instance, in the Central Region and Hangai Region fencing and irrigation of pastures, cultivation of fodder crops are considered to be important, whereas in the Western Region the purchase of equipment and tools are considered to be important.

Priority conditions for development of intensive livestock breeding

Table 55

Answers	Economic Regions										Total	
	Hangai Region		Western Region		Central Region		Eastern Region		UB Region			
	qty	%	qty	%	qty	%	qty	%	qty	%	qty	%
To buy highly productive livestock	157	29.3	161	27.7	136	33.8	72	30.1	11	28.2	537	29.9
To fence & irrigate pastures, to plant fodder crops	67	12.5	73	12.6	65	16.2	16	6.7	6	15.4	227	12.6
To participate in training	80	14.9	93	16.0	41	10.2	33	13.8	3	7.7	250	13.9
To purchase equipment	37	6.9	82	14.1	48	11.9	34	14.2	4	10.3	205	11.4
To access loans and preferential taxes from Government	123	22.9	90	15.5	72	17.9	55	23.0	4	10.3	344	19.1
To own private animal pens	63	11.8	78	13.4	36	9.0	29	12.1	9	23.1	215	12.0
Other	9	1.7	4	0.7	4	1.0	0	0.0	2	5.1	19	1.1
Total number of answers	536	100.0	581	100.0	402	100.0	239	100.0	39	100.0	1797	100.0
Herders participating in survey	195	-	195	-	149	-	88	-	18	-	645	-
% of herders participating in survey	30.2	-	30.2	-	23.1	-	14.0	-	2.8	-	100.0	-

In the Ulaanbaatar Region the ownership of land and animal pens are considered important conditions for engaging in intensive livestock breeding.

Priority conditions for development of intensive livestock breeding
(evaluation by management, livestock breeding experts, researchers)

Table 56

Activities	Number of answers	% of answers	% of respondents
To improve livestock breeds and quality	155	22.9	68.8
To strengthen the fodder reserve	138	20.4	61.3
To create a market environment for sale of their products	100	14.8	44.4
To develop power supply, roads and communications and other infrastructure	83	12.3	36.8
To transfer land into herders' individual possession and ownership	81	12.0	36.0
To develop optimal form of a model entity	69	10.3	30.6
To give professional advice and conduct training on livestock breeding	45	6.6	20.0
Other 5	0.7	2.2	
Total number of answers	676	100.0	-
Management workers & livestock breeding experts in survey	225		-

A total of 225 livestock breeding experts, researchers and local management workers were also asked the question ***"What prior conditions, in your opinion, should be in place for development of intensive livestock breeding?*** *(select up to 3 answers and rank them by significance)"* and the results are presented in Table 56.

Livestock breeding experts, researchers and local management consider that in order to develop intensive livestock breeding, it is necessary first of all to improve livestock breeds (68.8%) and to strengthen the fodder reserve (61.3%), which is quite close to the herders' opinions.

When management workers, researchers, experts and general public were asked ***"What kind of support should the Government provide in order to develop intensive livestock breeding?"***, 86.2% chose the answer *"to provide loans from the Government on favorable conditions"*, and 73.3% selected the answer *"to exempt from taxes in the first 3 years"*, which agrees with the opinions of herders. Therefore, special attention should be paid to provision of such conditions and opportunities (see Table 57).

Opinions of management, experts, researchers and general public on Government support to individuals and entities investing in intensification of livestock breeding

Table 57

Suggestions	Respondents who selected suggestion	% of answers	% of respondents
Exemption from taxes in the first 3 years	165	41.9	73.3
Loans from the Government on favorable conditions	194	49.2	86.2
No need for support, they should be on equal terms with others	18	4.6	8
Other	17	4.3	7.6
TOTAL	**394**	**100**	

10.2 Livestock insurance

Livestock insurance should take an important place among complex issues related to establishing a system to protect livestock breeding from risks. But most herders who participated in our survey lack a clear understanding of livestock insurance, and have different opinions on such issues as settling accounts with the insurance institution on perished animals, or in which circumstances of animal loss should compensation be paid. On the other hand, insurance institutions are not very interested in livestock insurance. Of

total herders covered by the survey, 76.4% have not insured their livestock (see Table 58).

Herders listed different reasons for failing to have livestock insurance. For instance, 30.9% of herders replied that they lacked information, while 32.3% answered that they lack financial opportunities.

Situation with livestock insurance

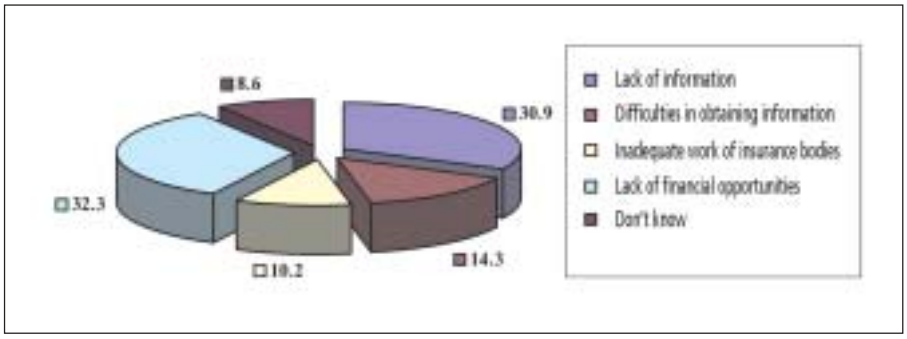
Table 58

Answers	Number of answers	% of household respondents
All livestock covered by insurance	77	10.0
Some livestock covered by insurance	89	11.5
Not covered by insurance	590	76.3
Did not respond	12	1.6
TOTAL	773	100.0

Different age groups had different attitudes, the majority of young herders aged 18-25 (42.9%) answered that they lack information, while the majority of herders older than 50 selected the answer *"lack of financial opportunities"*.

Reasons for failure of measures on livestock insurance

Figure 31



Livestock insurance is one of the important factors to reduce the negative effect of natural risks in pastoral livestock breeding. That is why it is time to approve and follow the Law on Livestock Insurance in order to keep interests of insured parties as well as the insurance company. Special attention should be paid to the following several issues and they should be reflected in the draft of the Law.

Of experts, participants of our focus discussion, 50% consider that livestock insurance should be mandatory, while 58% of herders consider that insurance should be voluntary. Our team thinks that in present conditions both mandatory and voluntary forms of insurance should be combined.

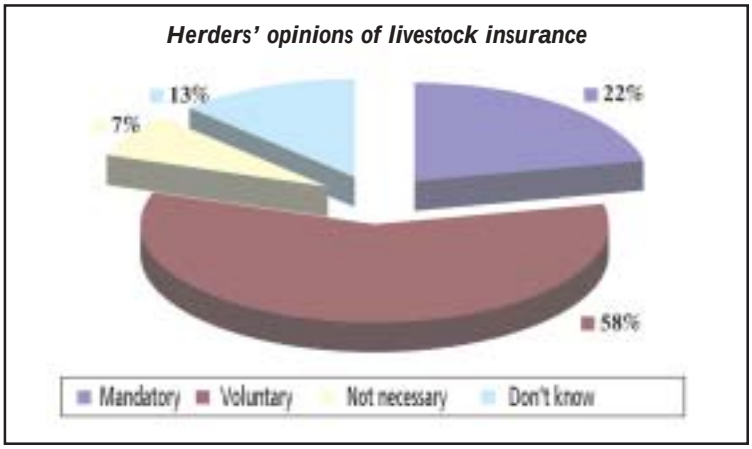
The insurance companies view that all livestock of all kinds, of all ages, both male and female, should be insured. However, herders and some animal husbandry experts support the idea that only sires, dames, and young animals should be insured.

Droughts, *dzud*, natural disasters and contagious diseases have always caused substantial damage to pastoral livestock breeding. Due to these factors there are greater than normal losses of livestock at the beginning of the year. It is difficult in practice to determine the specific reason for livestock loss, which happened when there was a drought in summer and heavy snow and severe cold in winter. 60.4% of herders and experts who responded to our survey suggested livestock should be insured for drought and *dzud*, and 39.4% suggested to insure against contagious diseases.

Herders were asked about ***their thoughts on livestock insurance*** and their answers are summarized in chart 32.

Herders' opinions on livestock insurance

Figure 32



On the other hand, there is a need to determine the normal amount of livestock loss by different *soums* and different kinds of livestock on the basis of statistical data and research, and then to insure livestock and to pay compensation if the loss is more than that normal amount. In some foreign countries this is called indexed insurance. The team regards this form of insurance as possible in livestock insurance. The total territory of Mongolia can be divided into regions on the basis of natural risks and livestock insurance possibilities, and an insurance mechanism that will differ by regions can be developed. The team thinks that related ministries and professional institutions should develop a draft of Law on Livestock Insurance according to these principles and put it forward to the State *Ih Hural* for approval.

The amount of insurance payment. Although high rates of insurance payments are profitable to insurance companies, it is difficult for the herders to pay them under the prevailing circumstances. The amount of payment should be determined with regard to the financial capacity of herder households, their living standards, and the conditions and opportunities for insurance companies to operate with profit.

Form and time of payment. The general Law on Insurance states that insurance payments should be only paid in monetary form, which is more appropriate to insurance institutions. However, as herders do not always have cash, they are interested in paying insurance fees in such physical form as livestock or raw materials of animal origin. This would be advantageous for herders, but difficult for insurance institutions to collect such fees. We suggest the usage of a combination of these two forms. As pastoral livestock production has a seasonal character and herders' income is uneven throughout the year, herders' financial opportunities to pay livestock insurance fees differ according to the season.

10.3 Diversification of animal husbandry

Diversification of livestock breeding is the correct development trend and the most economically productive form of organization, which is proved by global development trends of livestock breeding and by its historic development.

Diversification of livestock breeding was conducted intensively in Mongolia before the transition period. For instance, cattle in the dairy farms were divided into cow herds, young bull herds and young cow herds, while in the pastures sheep were divided into male lamb flocks and female lamb flocks, lambing ewes and buck flocks and were shepherded separately. There were many advantages to herding animals according to their age and sex,

such as favorable effect on growth and development of animals, development of herding technology adapted to the specific group of animals, facilitation of the herders' labor and increase of its labor productivity, specialization of herders and increase of economic efficiency of the sector in whole.

At present in Mongolia diversification of herding has basically disappeared apart from herding bucks and sires separately from other livestock.

Most herders, who are engaged in breeding cows for milk, slaughter yearling animals because they lack the financial opportunities to buy fodder for calves, yearlings and for young cattle. They explained that it is more profitable to feed one cow and sell milk than to feed several young cattle. This is a clear example of the lack of diversification in livestock breeding and it also shows a lack of opportunities to breed pure and cross breed cows.

10.4 Conclusions

1. Herders agree that there are some opportunities for intensive livestock breeding in certain regions. They consider that especially in the Central Region and in areas close to big cities there is every opportunity to conduct intensive livestock breeding.

2. The conclusions of herders about the development of different specialized or combined forms of livestock breeding with regard to distinctive features, conditions and opportunities of the given region basically agree with the conclusions of researchers and academics. It was also observed that highly productive local elite livestock should be bred in the regions of pastoral livestock breeding, and pure bred livestock should be bred in the region of crop cultivation which has good fodder resources. This is an important condition for intensification of livestock breeding.

3. An indexed form of livestock insurance shall be in the interest of herders as well as in the interest of insurance institutions.

4. Apart from the existence of special buck flocks, other forms of rearing and herding livestock according to their kind have basically disappeared. In the future the Government should support and direct diversification of livestock breeding and train herders to work jointly in this direction.

5. The Government should develop a special policy in order to raise highly productive pure and crossbred livestock and to establish a specialized professional institution in this field.

CHAPTER 11

HERDERS' OPINIONS ON THEIR LIVELIHOOD AND FUTURE OBJECTIVES

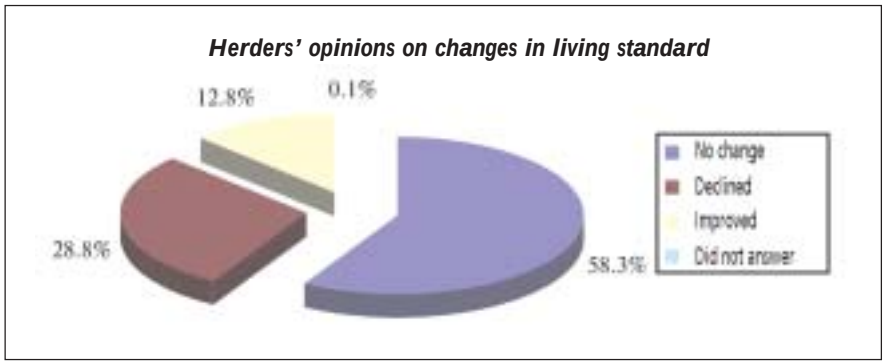
11.1 Changes in living standards of herders

The team studied whether the standard of living of herders has changed in recent years with regard to their age, education, family and region.

Of the 762 herders covered by the study 58.4% answered that no changes have occurred in their life in the last 3 years; 28.3% replied that their standard of living has declined and 13.1% that they have improved (see Figure 33).

Changes in the living standards of herders

Figure 33



When changes in the herders' standard of living are examined in relation to their education level, 25.8% of herders with higher education replied that their living has improved, which exceeds more than twofold the average of answers on improvement of standard of living. Of herders with primary education, 11.3% reported that their life has improved and 38.3% that it has declined.

Changes in the living standards of herders

(by level of education of herders)

Table 59

Answers	Education level of herders									
	Higher		Vocational		Secondary		Primary		Total	
	qty	%	qty	%	qty	%	qty	%	qty	%
Improved	8	25.8	9	12.0	65	12.9	15	11.3	97	12.8
No change	17	54.8	50	66.7	299	59.6	67	50.4	433	58.3
Declined	6	19.4	16	21.3	137	27.3	51	38.3	210	28.8
Did not answer	0	0.0	0	0.0	1	0.2	0	0.0	1	0.1
TOTAL	31	100.0	75	100.0	502	100.0	133	100.0	741	100.0

It shows that education is also an important factor in herding livestock. That is why we need to determine the needs for herder training, its requirements, curriculum, methods and forms and start implementing it, as herders' mentality *"everything is okay today, it will be the same in the future"* will remain unchanged.

Herders gave different answers to the question ***"Have your living standards changed in the last 3 years?"*** depending on differences in Economic Region (see Table 60).

Changes in the living standards of herders

(by Economic Regions)

Table 60

Answers	Economic Regions										Total	
	Hangai Region		Western Region		Central Region		Eastern Region		UB Region			
	qty	%	qty	%	qty	%	qty	%	qty	%	qty	%
Improved	18	7.2	26	12.4	12	7.3	33	28.9	8	42.1	97	12.8
No change	149	59.6	96	45.9	119	72.1	66	57.9	11	57.9	441	58.3
Declined	83	33.2	87	41.6	34	20.6	14	12.3	0	0.0	218	28.8
Did not answer	0	0.0	0	0.0	0	0.0	1	0.9	0	0.0	1	0.1
TOTAL	250	100.0	209.0	100.0	165.0	100.0	114.0	100.0	19.0	100.0	757.0	100.0

Of 757 herders who responded to this question, 250 (33%) were herders in the Hangai Region, 209 (27.6%) herders in the Western Region, 165 (21.8%) in the Central Region, 114 (15.1%) in the Eastern Region and 19 (2.5%) were herders in the Ulaanbaatar Region.

The answers of herders show that 72.1% of herders in the Central Region reported no change in their standard of living and herders from the region close to Ulaanbaatar did not report any decline of their standard of living, while 41.6% of herders from the Western Region reported a decline of their standard of living. It can be viewed as a clear reflection of disparities in the lives of current urban and rural residents.

Herders noted that the size of a family does not affect in great degree their livelihood. In other words, changes in livelihood of herders with large or small families are quite similar, as the survey results show.

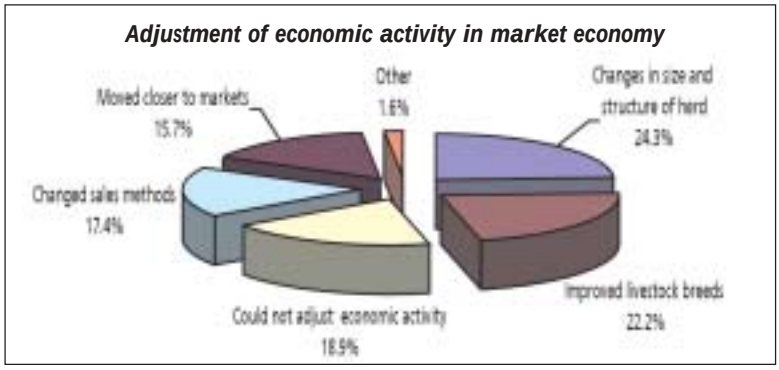
In order to clarify how herders have adjusted to the situation in the country since the transition to the market economy and how they carry on with their lives, the team put forward a question ***"How did you adjust your economy with regard to the changes in prices of animal raw materials and livestock production since transition to the market economy?"*** and summarized the answers in Figure 33.

Of total herders covered by the survey 24.3% reported changes in the number and structure of herd, 22.2% replied that they are making attempts to improve livestock breeds and 17.4 % answered that they have changed the sales methods.

By changes in the structure of their herd, herders mean such activities as increasing the number of goats, or breeding one kind of livestock in a direction that they are able to engage in, for instance, breeding milking cows in the areas close to the cities, or breeding mares in order to produce *airag* (fermented mares' milk). When asked about work on improving breeds, herders mostly talked about using good sires from neighboring *aimags* or *soums*.

How did you adjust your economic activity since transition to the market economy?

Figure 34



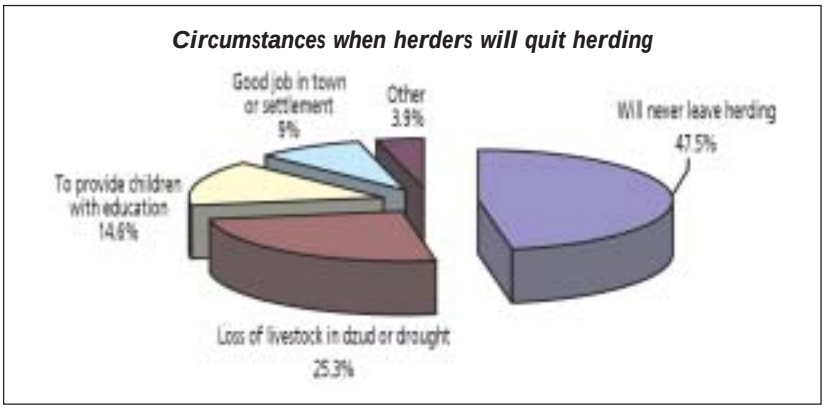
Of the total herders, 18.9% answered that they could not adjust their economic activity to market conditions.

11.2 Herders' perceptions on choices other than herding for sustaining their livelihood

In order to study whether herders have other than herding sources of income generation, and whether they were going to leave herding, herders were asked ***"In what circumstances will you leave herding?"*** (see Figure 35).

Circumstances when herders will quit herding

Figure 35



Of herders covered by the survey, 47.5% selected the answer *"I'll never leave herding in any case"*. Along with this, herders replied that they would leave herding if they lost livestock due to drought and *dzud* (25.3%) or in order to provide their children with good education and profession (14.6%). As not many herders (9%) consider engaging in occupations other than herding, the findings show that the majority of herders are not going to quit livestock breeding in the near future.

The number of herders who selected the answer *"I'll never leave herding in any case"* increased as the number of livestock per household member went up, so about 61% of herders with more than 151 livestock per household member chose this answer.

Of herders with higher or vocational education 23.6-25.8% or almost ¼ selected the answer *"I will leave herding to get children educated"*.

When herders will leave herding

(by education level of herders)

Table 61

Answers	Education level of herders									
	Higher		Vocational		Secondary		Primary		Total	
	qty	%	qty	%	qty	%	qty	%	qty	%
If I lost my livestock	4	12.9	17	23.6	143	28.9	18	13.7	182	25.0
If I found good job in town or settlement	4	12.9	2	2.8	39	7.9	19	14.5	64	8.8
To provide children with education	8	25.8	17	23.6	66	13.4	17	13.0	108	14.8
I will not leave herding in any case	15	48.4	33	45.8	231	46.8	67	51.1	346	47.5
Other	0	0.0	3	4.2	15	3.0	10	7.7	28	3.9
Herder households-in survey	31	100.0	72	100.0	494	100.0	131	100.0	728	100.0

The final result of any business activities depend on previously determined goals and all the resources and efforts put in realization of these goals. When the team asked from herders about the goals of their business, of herders covered by the survey, 61.5% answered *"to increase the number of livestock"* and 49.0% replied *"to improve livestock breed"*. It shows that herders still regard increasing the number of livestock as an important factor in increasing their income and profit. As pasture capacity and its availability are declining at present, the growing number of livestock is one of the issues that should be considered at the herder household level as well as at the national level. We believe that in the future herders would be interested in having a small number of highly productive livestock by the way of improving livestock breeds.

Herders answered the question ***"In case you lost all your livestock which of the following ways would you choose?*** *(select up to 3 answers and rank them)"*. Of 751 herders who gave in total 1,976 answers, only 386 answers (16.1%) said that they would move to the city and get another job, which confirms our conclusion on their lack of interest in leaving livestock breeding (see Table 62).

Herders' choices if they lost all livestock

Table 62

Answers	Number of livestock (bog) per capita										Total of answers	
	0-20		21-40		41-70		71-150		Over 150			
	qty	%	qty	%	qty	%	qty	%	qty	%	qty	%
Secure a loan	110	20.0	106	20.2	94	21.0	68	19.4	22	21.2	400	20.2
Ask for assistance from relatives	98	17.8	102	19.5	84	18.8	84	23.9	18	17.3	386	19.5
Move to town & do other work	73	13.3	93	17.7	79	17.7	54	15.4	19	18.3	318	16.1
Utilize natural resources	95	17.3	83	15.8	75	16.8	47	13.4	11	10.6	311	15.7
Ask for assistance from the State	88	16.0	72	13.7	67	15.0	59	16.8	19	18.3	305	15.4
Work as a hired herder	86	15.6	68	13.0	48	10.7	39	11.1	15	14.4	256	13.0
Total number of answers	550	100.0	524	100.0	447	100.0	351	100.0	104	100.0	1976	100.0
Herder households in survey	208	-	187	-	169	-	142	-	45	-	751	-
% of herder households in survey	27.7	-	24.9	-	22.5	-	18.9	-	6.0	-	100.0	-

That herders are interested in securing a loan and engaging in different work is an important trend. In recent years banks and financial institutions have expanded the scope of their activities and a positive trend to direct their activities towards rural areas is observable, which is beneficial to herders.

From Table 62 it can be seen that a substantial group of herders would ask for assistance from their relatives, which proves that they have not get rid of the *"feed-me"* mentality.

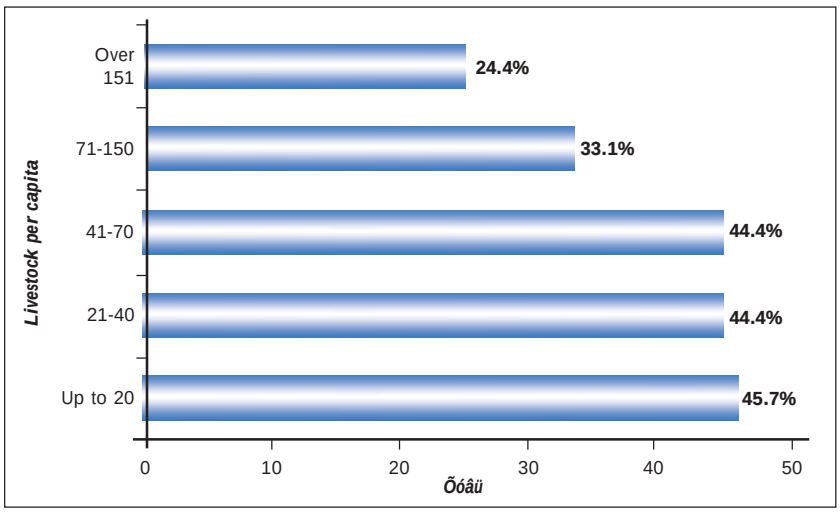
At present, as more and more entities engage in business in livestock breeding, a trend is emerging for an increase of the number of hired herders and decrease of the number of herders who will herd their own livestock. However, herders are still not prepared psychologically to herd other's livestock in case they lost their own. Of total answers to question what would they choose to do in case they lost their livestock, only 13% mentioned working as hired herders.

When herders are hired to herd other's livestock, they have to negotiate with the employer and settle on the wages themselves, as at present no special tariffs or established wages for that kind of services exist.

Herders' choice of other than herding employment does not change much with regard to the number of livestock per capita. However, the lower the number of livestock per capita, the higher the number of herders who answered they would utilize natural resources (see Figure 36).

Herders who would utilize natural resources if they lost their livestock

Figure 36



Herders with relatively large number of livestock know more herding methods, are more experienced and hard-working than herders with few livestock, so they do not view utilization of natural resources as their choice. It seems that herders with few livestock strive to solve the problem by ready, at hand things such as utilizing natural resources.

11.3 Public opinion on improving herders' livelihood and increasing their income

The research team asked the opinions of management workers, livestock breeding experts and researchers on effective measures that the Government should implement in order to improve herders' livelihood, to find other sources of income for them, to solve problems of herders with few livestock and low income.

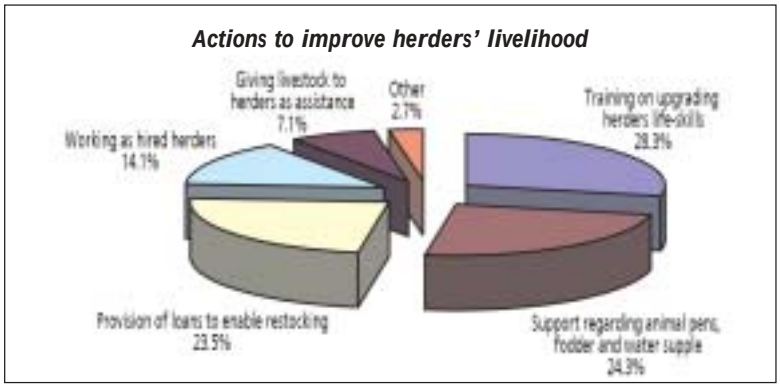
Of total management workers, livestock breeding experts and researchers who answered the question *"**What kind of activities should be implemented in order to improve herders' livelihood?** (select up to 3 answers)"*, 28.3% replied that training in upgrading living skills of herders should be organized and 24.3% regard that herders should be given support on dealing with the issues of building animal pens and fences, improving fodder preparation and water supply (see Figure 37).

However, they had principally different approach to the issue of restocking herders with few livestock by providing a loan or providing it free as assistance. For instance, of survey participants 64% regard restocking herders with few livestock by providing them with a loan to be the correct decision, but only 19.4% of them support giving livestock for free as assistance. Many respondents commented that direct assistance to herders encourages their *"feed-me"* mentality and would be ineffective.

Activities to be implemented to improve herders' livelihood

(opinions of management workers and experts)

Figure 37



Herders, management workers, researchers and experts were asked on other opportunities to increase the income of herders alongside being engaging in livestock breeding. Answers of herders, management workers, researchers and experts to the question ***"Are there any other opportunities to get other sources of income along with engaging in livestock breeding?*** *(rank by significance and select up to 2 answers)"* are summarized and presented in Table 63.

Of management workers and experts who responded to the survey, 78.7% replied that herders should grow potatoes and vegetables in addition to livestock breeding, 75.5% consider hay-making. and 41.8% to utilize natural resources as an opportunity, so these answers have the highest indicators among all answers.

However, of herders 37.4% selected the answer *"to grow potatoes and vegetables"*, 33.8% of them consider there are no other opportunities for income generation other than livestock breeding, 31.7% selected *"engage in trade and commerce"*, and these are the answers with highest frequency.

Many herders say that there are no opportunities to engage in work other than livestock breeding because herding is very important, especially so for herder households with few family members that lack any opportunities to engage in other work.

Our survey showed that the opinions of experts, management and herders on other opportunities for income generation along with livestock breeding differ quite substantially. For instance, while 78.7% of experts and management consider that herders have an opportunity to grow potatoes and vegetables, only 37.4% of herders consider that it is possible. While 36.5% of experts and management think that herders can engage in subsidiary farming, only 12% of herders agree. Moreover, 33.8% of herders answered that there is no opportunity to engage in some other activity along with livestock breeding. It can be seen from this that special attention should be paid to teaching herders to seek opportunities for other sources of income, to motivate them and create conditions for that search.

Are there any opportunities for other sources of income generation along with livestock breeding?

(opinions of herders, management workers and experts)

Table 63

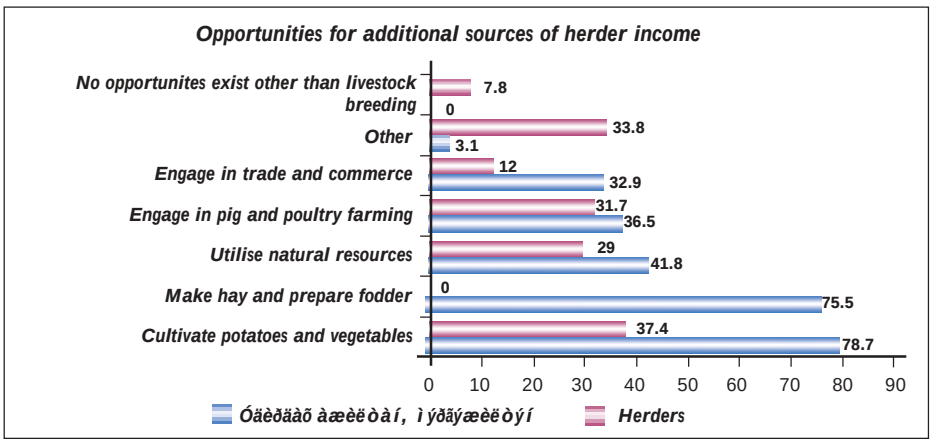
Indicators	Ranking of answers	Number of answers		% of total answers		% of respondents	
		Herders	Others	Herders	Others	Herders	Others
Grow potatoes and vegetables	1	202	135	17.2	22.4	26.2	60.0
	2	82	26	7.0	4.3	10.6	11.6
	3	4	16	0.4	2.7	0.5	7.1
	Total	288	177	24.6	29.4	37.4	78.7
Make hay and prepare fodder	1	-	57	-	9.5	-	25.3
	2	-	91	-	15.1	-	40.4
	3	-	22	-	3.6	-	9.8
	Total	-	170	-	28.2	-	75.6
Utilize natural resources	1	99	14	8.5	2.3	12.9	6.2
	2	98	42	8.4	7.0	12.7	18.7
	3	27	38	3.2	6.3	3.5	16.9
	Total	224	94	19.1	15.6	29.1	41.8
Engage in trade and commerce	1	98	3	8.3	0.5	12.7	1.3
	2	124	24	10.6	4.0	16.1	10.7
	3	23	47	2.0	7.8	3.0	20.9
	Total	245	74	20.9	12.3	31.8	32.9
Engage in pig and poultry farming	1	31	5	2.6	0.8	4.0	2.2
	2	52	24	4.4	4.0	6.8	10.7
	3	10	53	0.9	8.8	1.3	23.6
	Total	93	82	7.9	13.6	12.1	36.4
No opportunity to generate income other than livestock breeding	1	209	-	17.8	-	27.1	-
	2	39	-	3.3	-	5.1	-
	3	13	-	1.2	-	1.7	-
	Total	261	-	22.3	-	33.9	-
Other	1	19	3	1.6	0.5	2.5	1.3
	2	37	2	3.2	0.35	4.8	0.9
	3	4	2	0.3	0.35	0.5	0.9
	Total	60	7	5.1	1.2	7.8	3.1
Total		1171	603	100.0	100.0	100.0	100.0

Herders', management workers' and experts' opinions on opportunities to find other sources to generate income along with livestock breeding are summarized in Figure 38.

Opportunities to find other sources of income generation along with livestock breeding

(opinions of herders, management workers and experts)

Figure 38



Herders' answers on opportunities to derive income from other than livestock breeding activities differ substantially depending on their Economic Region. For instance, 47% of herders in Hangai Region noted an opportunity to utilize natural resources, while only 16.3% of herders in the Eastern Region selected this answer. 52.3% of herders in the Eastern Region selected the answer *"no opportunity to earn income other than by herding"*, while only 25.5% of herders from the Central Region selected this answer. Such differences are due to the differences in natural environment, climate and natural resources of the Economic Regions.

There are 168,000 households with less than 100 livestock in Mongolia according to data from the start of 2003, which constitutes 69.1% of total households with livestock. Among these households are many poor and very poor households with no other source of income other than livestock breeding. A question on how to improve their livelihood is one that attracts a lot of attention. In order to clarify the opinions of management workers, researchers and experts on this issue, they were asked a question ***"What should herders with few livestock and low income choose to do for living?*** *(select up to 2 answers)"* and the results are summarized in Table 64.

Of survey respondents 65.8% answered that they should increase the number of livestock, and 50.7% that herders should get adapted to the market conditions, and these are the highest indicators. In other words, the overall majority view is that poor and very poor herders should improve their livelihood themselves by increasing the number of livestock or in some other way. While 32% of participants selected the answer *"to provide them with support and assistance"*, 16.9% consider that they should engage in other than livestock breeding kinds of work, and 3.1% consider that they should leave livestock breeding and move to the cities. The sector experts and management do not appreciate such activities coordinated by the State as providing herders with assistance or moving them to the cities.

What should herders with few livestock and low income choose to do?

(opinions of management workers and experts)

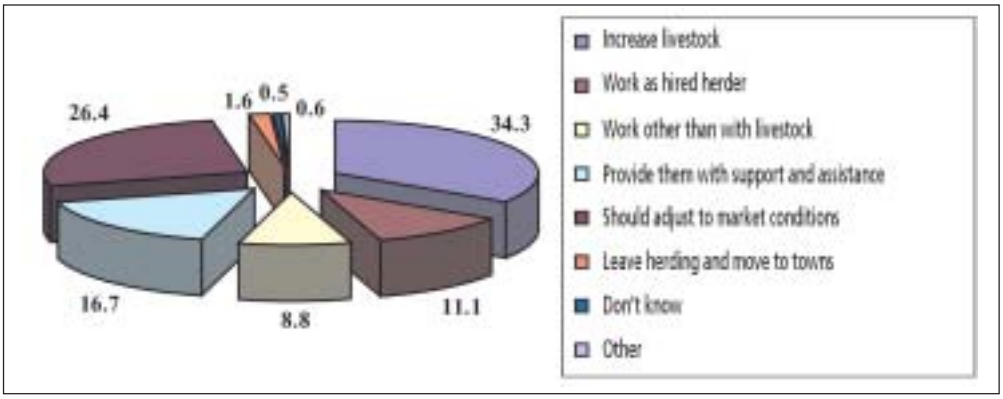
Table 64

Answers	Respondents	% of 432 answers	% of 225 participants
Increase the number of livestock	148	34.3	65.8
Work as a hired herder	48	11.1	21.3
Work other than in livestock breeding	38	8.8	16.9
Provide support and assistance	72	16.7	32.0
Herders should adjust to market conditions	114	26.4	50.7
Should leave herding and move to cities	7	1.6	3.1
Do not know	2	0.5	0.9
Other	3	0.6	1.3
Total	432	100.0	

What should herders with few livestock and low income do?

(management workers and experts' opinions)

Figure 39



The main way to maintain the sustainable livelihood of herder households is to reduce their vulnerability to natural hardships and to protect livestock breeding from risks. In order to clarify herders' opinions on the issue they were asked ***"What would you do in order to protect pastoral livestock breeding from risks?"*** and the results are presented in Table 65.

Of herders who responded to the question 73.7% replied *"Move to reserve range lands"*, 68.7% *"Make hay and prepare fodder"*, 55.4% *"Improve the quality of livestock"*, and these answers have the highest indicators.

Protection of pastoral livestock breeding from risk

(opinions of herders)

Table 65

Indicators	Ranking of answers	Number of answers	% of total answers	% of 773 participants
Move to reserved rangelands (*otor* pastures)	1	412	19.5	53.2
	2	120	5.7	15.5
	3	38	1.8	4.9
	Total	570	27.0	73.7
Make hay and prepare fodder	1	154	.3	19.9
	2	304	14.4	39.3
	3	73	3.5	9.4
	Total	531	25.2	68.7
Improve quality of livestock	1	95	4.5	12.3
	2	152	7.2	19.7
	3	181	8.6	23.4
	Total	428	20.3	55.4
Be financially prepared for risks	1	22	1.1	2.8
	2	75	3.5	9.7
	3	137	6.5	17.7
	Total	234	11.1	30.3
Make transition to settled and semi-settled forms of livestock breeding	1	19	0.9	2.5
	2	42	2.0	5.4
	3	108	5.1	14.0
	Total	169	8.0	21.9
Insure livestock	1	30	1.4	3.9
	2	28	1.3	3.6
	3	94	4.5	12.2
	Total	152	7.2	19.7
Other	1	9	0.4	1.2
	2	1	0.05	0.1
	3	14	0.65	1.8
	Total	24	1.1	3.1
Total		2108	100.0	100.0

The fact that the issue of moving to reserve range lands (*otor* pastures) in order to fatten livestock' and preparing fodder reserve are the most important issues in developing livestock breeding in sustainable, risk–free way is demonstrated by results of different research and questionnaires.

11.4 Herders' thoughts about the future of their children

To determine herders' thoughts about their children's future, they were asked the question ***"What do you think about your children's future?*** *(select up to 2 answers)"*. 730 herders gave 1,305 responses and 43.4% answered *"to provide them with good education"*, 35% *"children should decide for themselves"*, 12.7% *"to make them herders, so they take over my work"*, 13.3% *"to make them farm owners"*. Hence most herders agree on the necessity of education for their children. The higher the herders' education level then the greater their interest in getting good education for their children. For instance, 50.9% of herders with higher education selected the answer *"to provide them with good education"*, while 40.2-43.3% of herders with secondary education chose that answer.

Of total herders, 77.7% of those who prefer providing their children with quality education want their children to decide for themselves, and are not interested in their children committing their lives to livestock breeding. This can be related to the fact that most herder households have small livestock numbers and the income derived from livestock breeding is not sufficient for their living.

Herders' thoughts on the future of their children

Table 66

Answers	By herders' education level								Total	
	Higher		Vocational		Secondary		Primary			
	qty	%	qty	%	qty	%	qty	%	qty	%
To take over my work & become herders	5	8.8	10	7.7	117	13.0	34	15.5	166	12.7
To become farm owners	3	5.3	5	3.8	73	8.1	16	7.3	97	7.4
Children should decide themselves	20	35.1	51	39.2	309	34.4	77	35.2	457	35.0
To provide them with good education	29	50.9	60	46.2	389	43.3	88	40.2	566	43.4
Other	0	0.0	4	3.1	11	1.2	4	1.8	19	1.5
Total answers	57	100.0	130	100.0	899	100.0	219	100.0	1305	100.0
Herder households in survey	31		74		496		129		730	

It can be claimed that the issue of child education is one of the main indicators in determining the herders' satisfaction with their life. In discussion they expressed different views: some said that one of the children should take over their work and keep the family's hearth, while others consider they should find work according to their interests, while some want their children to decide for themselves.

If we look at herders' thoughts on the future of their children in relation to the number of family members, 12.4% of families with 2-5 members want one of their children to take over their work, while of families with 6-8 family members 13.3%, and of families with 9-10 members 7.9%, chose this answer (see Table 67).

Herders' thoughts on the future of their children

Table 67

Answers	By size of family						Total	
	2-5		6-8		9-10			
	qty	%	qty	%	qty	%	qty	%
To take over my work & become herders	113	12.4	53	13.3	3	7.9	169	12.6
To become farm owners	74	8.1	25	6.3	2	5.3	101	7.5
Children should decide themselves	312	34.3	145	36.4	16	42.1	473	35.2
To provide them with good education	395	43.5	171	43.0	17	44.7	583	43.3
Other	15	1.7	4	1.0	0	0.0	19	1.4
Total answers	909	100.0	398	100.0	38	100.0	1345	100.0
Herder households in survey	507	-	223	-	20	-	750	-
% of herder households in survey	67.6	-	29.7	-	2.67	-	100	-

From these findings it can be concluded that a decision on whether their children should take over their work does not depend on the number of family members and moreover, interest in seeing their children become herders is not very high.

11.5 Herders' short-term objectives (1-5 years)

In order to clarify herders' plans for the near future, their objectives and trends, an open question *"**What are the main objectives and activities that you plan to implement in near future (1-5 years)?** (please write a short and clear answer)"* was asked of the herders.

The research team collected the answers to the open question, grouped them into 9 categories of similar responses and made an attempt to determine herders' objectives for the near future. Often a herder household that answered the question gave a complex response containing 1-3 ideas such *as "in the next few years we have plans to increase the number of livestock, improve its quality, and own a well"*. Furthermore 225 herder households (29.1% of total herder households covered by the study) did not give any answer to this open question, which we would like to note especially. The team considers that one reason for not answering the question can be having unclear objectives for the near future or the difficulty in expressing their objectives.

The survey shows that the main objectives of the herders are increasing their number of livestock (65.7%), improving livestock breeds and increasing its productivity (43.6%), and the construction or enlargement of animal pens or fences (24.7%). Other objectives expressed by herders are presented in detail in Table 68. Among herders' objectives for the near future the team included a group named 'other', in which such objectives, not commonly indicated by others, as providing children with good education, treatment of a family member, sending children abroad to work, marrying children, building them a *ger* or a house, purchasing a car or a motorcycle, or valuables as a snuff box and race horse are included.

Herders' objectives in the near future

Table 68

Answers	Number of answers	% of herders in study	% of total answers
Increase number of livestock	508	65.7	32.5
Improve quality of livestock	191	24.7	21.6
Build or enlarge animal pens	337	43.6	12.2
Work in cooperatives	50	6.4	3.2
Acquire machinery for hay making	59	7.6	3.8
Move to the center , settlements	34	4.4	2.2
Own a well	42	5.4	2.7
Own a pasture	56	7.2	3.6
Other	59	7.6	3.8
Did not answer	225	29.1	14.4
Total	**1561**	**-**	**100.0**

Results of the above survey show that for herders engaged in pastoral livestock breeding, the main method of increasing their income and improving their livelihood has been to increase the number of livestock and this remains the same for the near future. Among short-term objectives, the majority of herder households have no plans to leave herding and transfer to other jobs - moreover due to their plans to continue herding, their objectives are all related to livestock and to the herders' livelihood. However, an interest in improving livestock breeds and increasing productivity per animal expressed in the objectives for the near future is a proper trend.

Management of central and local State organizations, experts and researchers (totaling 224 people), were asked the open question ***"How do you imagine the future development of livestock breeding?"*** The majority (86.3%) replied that livestock breeding should be intensified. Such issues as improving livestock breeds, increasing productivity per unit, transition to forms and methods of settled livestock breeding, and increasing fodder reserves are included in the answer *"to intensify livestock breeding".*

While herders emphasize increasing the number of livestock, only 6.4% of management workers, researchers and experts support this view, which is the principal difference between the answers. We would like to note that a number of management workers, researchers and experts, who answered the open question, observed *"if the State does not pay attention to this issue and let livestock breeding develop in the present direction, this sector will face a catastrophe soon. It is necessary to take substantial measures on reform of legal environment on the use and possession of pastures, on reducing risks of pastoral livestock breeding, and on increasing fodder reserve without wasting time".* Moreover, 5.5% of respondents answered that: *"livestock breeding will face a breakdown should it remain in the present state".*

Future development of livestock breeding

(opinions of management workers, researchers and experts)

Table 69

Answers	Number of answers	% of total respondents	% of total suggestions
Intensification of livestock breeding	202	86.3	56.8
Establishment of farming cooperatives	70	29.9	19.5
Improving livestock health	18	7.7	5.1
Increasing the number of livestock, developing pastoral livestock breeding	15	6.4	4.2
Providing assistance to herders	13	5.5	3.7
Breakdown if remains in the present state	13	5.5	3.7
Other	16	6.8	4.5
No answer	9	3.8	2.5
Total	**356**	**-**	**100.0**

11.6 Conclusions

1. Of herders in the study 12.8% answered that their living standards have improved in the last 3 years, 58.3% answered that no changes have occurred in their life; 28.8% replied that their living standards have declined. The fact that herders' living standards have not substantially improved in recent years is related to the fact that the number of livestock has fallen by up to 30% since 2000 due to natural disasters. Therefore, establishing a risk management system in order to overcome natural hardships is one of the most urgent issues in livestock breeding.

2. Herders' education level influences their living standards. For instance, of herders in the survey, 25.8% with higher education replied that their living has improved, while only 11.3% with primary education agreed. Thus upgrading of herders' education level

and the organization of work on involving herders in special professional training on livestock breeding technologies are the main conditions for improving their living standards. When management workers, livestock breeding experts and researchers responded to the question on ways to improve herders' living standards, *"organization of training to upgrade herders' capacity"* was given priority which confirms the above conclusion.

3. Unless a sudden, unfavorable situation emerges (e.g loss of all their livestock in *dzud* or concern about children's future), the majority of herders are not going to give up livestock breeding in the near future. As only 9% of herders are ready to leave livestock breeding if they find good jobs in the city, it reflects high level of stability among herders.

4. Results of a survey on the possibility to generate income from other sources alongside engaging in livestock breeding shows that 33.9% of herders consider that there are no opportunities to engage in other activities along with livestock breeding. It proves that herding is complicated, time-consuming and labor-intensive work. As in the future livestock breeding will intensify and diversify, opportunities to engage in other activities along with livestock breeding will decline even more.

5. Our survey showed that the opinions of experts, management and herders on other opportunities for income generation alongside livestock breeding differ quite substantially. The majority of experts and management consider that herders have an opportunity to grow potatoes and vegetables, and can engage in subsidiary farming - moreover, nobody selected the answer "there are no opportunities to engage in other activities along with livestock breeding". Growing potatoes and vegetables or engaging in subsidiary farming can prove to require highly professional skills, so we think that opportunities for herders to engage in other activities along with livestock breeding will be limited.

6. The majority of herders (77.5%) wish to provide their children with a good education and 62.6% want their children to decide for themselves which profession or job to choose. 22.7% of herders are interested in their children taking over their work and become herders. The survey findings show that interest in seeing their children become herders is not very high among them.

7. Increasing their number of livestock remains a common objective for the near future among herders. However, in the present conditions of limited pasture capacity and high risks, there is no other opportunity to satisfy herders' interests as by improving livestock breeds and increasing productivity per animal.

8. Management workers, livestock breeding experts and researchers have a generally united view on the future development of livestock breeding, namely *"intensification of livestock breeding, increasing fodder reserve and improving livestock breeds".*

CHAPTER 12

GENERAL CONCLUSIONS

12.1 Present state of pastoral livestock breeding in Mongolia

12.1.1. In the period of over 10 years since Mongolia made the transition to a market economy, the material and technical base of the livestock-breeding sector (such as wells, animal pens and fences, fodder production units, complex units of settled livestock breeding etc.) has deteriorated and almost disappeared. In the same period the main trends in development of the livestock breeding sector have been lost, and meanwhile a threefold increase has occurred in the number of herder households with few, low productivity livestock, of low economic capacity, only fit to sustain their livelihoods, and at the same time the number of highly productive pure bred and cross bred animals has decreased and breeding and selection work has basically stopped.

12.1.2. Since the 1990's, the work implemented by the State in the field of livestock breeding and selection has been limited to an attempt to preserve the system of professional institutions financed from the State budget. Work on improvement of livestock breeds, introduction of new technologies and scientific achievements in selection work, and research work have been basically neglected. Of herders covered by the study, 29.0% evaluated activities implemented by the Government on the development of livestock breeding as satisfactory, and 38.3% as unsatisfactory, while 21% selected the answer *"I don't know"*. These results are similar to the conclusion above. However, budget and expenditure on the protection of livestock health and preventive measures from different diseases undertaken by the Government has been increasing year-by-year.

12.1.3. Laws and regulations on livestock production do not meet the needs of rural social development. This is confirmed by the fact that 51% of herders, together with 40.2% of livestock breeding experts and researchers consider that the legal environment in livestock breeding needs to be reformed and upgraded.

12.1.4. Evaluation of community projects and other activities implemented by international agencies in the livestock breeding sector, their efficiency, their ability to focus on relevant issues, and reach to the general public was not uniform. For instance, 40.9% of livestock breeding experts and researchers and local management view that such projects and activities are not focused on important issues.

12.2 Public opinions on possession and use of pastures, animal pens and wells

12.2.1. Although herders mostly talk about sufficiency of pastures and their use, when asked about complex issues which are difficult to coordinate in livestock breeding, our survey shows that in the first place animal pens and fences are deemed to be insufficient (59.5% of respondents), and the second issue is sufficiency of water supply and wells (30.8% consider it insufficient in winter and spring camping sites and 36.7% in summer and autumn sites).

12.2.2. In most cases herders themselves settle disputes over pastures. The Articles of the Law on Land concerning distribution of pastures and settlement of disputes are implemented inadequately.

12.2.3. Global warming negatively affects the Mongolian natural environment and weather. The frequency of droughts, *dzud* and natural disasters in recent years has increased and there is a trend for further escalation of their harmful consequences. Of herders covered by the survey about 75% noted that the natural environment and weather conditions have deteriorated, pasture yield has declined and open sources of water have become more difficult to find - all of which supports the above conclusion. As herders observed, the

decline of natural environment, weather, pastures and water supply is more notable in the Central Region and Hangai Region.

12.3 Labor organization and productivity in livestock breeding

12.3.1. The method of herding diversified groups of livestock, which is the main form of organization used to increase the efficiency of livestock breeding and intensify its development, has basically disappeared.

12.3.2. In the last decade the labor productivity in livestock breeding has declined 3-5 times, and over 80% of herders capable of labor now herd a relatively small number of animals, which adds to the decline of their livelihood. If in collective and State farms one herder was in charge of herding 200-550 livestock units (*bog*), our survey shows that at present one herder has only 70 livestock units (*bog*) to herd, which supports the above conclusion. On the other hand, apart from few private dairy farms, it is impossible to calculate the labor productivity in livestock breeding in Mongolia by efficiency per unit.

12.4 Herders' opinions on problems in livestock breeding

12.4.1. A majority of herders (68.3%) views fodder and hay preparation as the most difficult among over 10 different tasks in livestock production. However, the most difficult task is determined differently depending on the distinctive natural and climatic features of the given Economic Region. While in the Western Region and Gobi *aimags* of the Central Region moving to the new campsite is considered to be the most difficult task, in the north of the Central Region and Hangai Region the herders regard hay and fodder making as being the most difficult task.

12.4.2. Herders consider that the best method to facilitate arduous tasks in livestock production is by working together with others (81.7%). Herders also view the use of machinery and equipment in arduous tasks as being very important (66.4%).

12.4.3. In the opinion of livestock breeding experts, researchers and management workers, the main reason for the underdevelopment of cooperation between herders in livestock production is a lack of mutual trust (73.8%), lack of financial opportunities for cooperation (57.8%), and lack of knowledge and ways to cooperate (54.7%).

12.4.4. Among numerous concerns of herders, the highest concern is livestock theft, as 63.7% of them reported. Apart from this, children's education, sufficiency of pastures and water, attacks by wild animals (such as wolves), decline of livelihood are issues that account for up to 30% each among herders' concerns. However, herders are not much concerned about lack of information (16.8%), or by drunks, hooligans and violations of order (12.4%).

12.5 Herders' satisfaction and dissatisfaction

12.5.1. According to the survey results, the majority of herders (63.6%) are satisfied with being engaged in livestock production, a certain proportion (25.9%) reported average satisfaction, and only a minority (6.7%) is dissatisfied.

12.5.2. The main reason for herders' satisfaction in being engaged in livestock breeding is related to the fact that it is the main source of their livelihood (68.5%). The main reason for dissatisfaction in being engaged in livestock breeding is that the income so earned is not enough for living (72.4%).

12.5.3. In the herders' opinion, activities of legal and law enforcement institutions in rural areas are at satisfactory level (satisfactory 46.1%, average 39.3%), the work of *soum* health clinics and veterinary services are average (satisfactory 20.7% and 22.9%, average 53.3% and 53.2% respectively), but school and communication services are considered to be unsatisfactory (average 45.9% and 40.8%, unsatisfactory 40.2% and 39.5% respectively0.

12.5.4. 17.6% of herders replied that the chance is good for doctors to come on time when a call for services is placed, is good, and 41.6% evaluated this as being average. This is an assessment of herders on the speed of delivery of medical services.

12.5.5. On the basis of the previous conclusions on herders' opinions on social services, it can be concluded that their satisfaction with living environment and social services is average.

12.6 Herder households' income and expenditure

12.6.1. According to our survey, the average annual income of a herder household is approximately 2.4 million MNT. Over 80% of income consists of income from livestock breeding.

12.6.2. In the herders' opinion, when the livestock units (*bog*) per household member is 40 then the income is enough for food, when it is 41-70 livestock units (*bog*) then the income is enough for both food and clothes. Only when the number of livestock units (*bog*) per household member is 150 or greater can all the needs of herders be satisfied.

12.6.3. Although over 60% of herders are poor or extremely poor in terms of their level of income, nevertheless their approach to self-evaluation of their living standards was optimistic. For instance, only 6.6% of herder households which are in the group of extremely poor households according to the NSO standards (i.e. monthly income per capita less than 8,000 MNT) evaluated their living standards correctly as being 'extremely poor', while 62.3% of them view their living standards as 'average', and 1.6% as 'above average', i.e. they evaluated their living more optimistically than it really is. The fact that they evaluated themselves in such a way is related to their low level of education, limited consumption and needs, lack of information and other factors, as well as calm and peaceful mentality of Mongolian people and traditions of optimistic attitudes to any issues.

12.6.4. At present, herders' income is not enough to meet their basic living needs, and they lack financial sources to expand livestock production, introduce new technologies or to buy new equipment.

12.6.5. Regarding the opportunities to generate income from other sources alongside livestock breeding, there is a major difference of opinion between the herders and that of experts and management workers. For instance, 78.7% of experts and management workers consider herders have the opportunity to grow potatoes and vegetables, whereas only 37.4% of herders view this as possible. Moreover 33.8% of herders replied that there is no opportunity to engage in any other kind of work alongside livestock breeding. It can be concluded that it is necessary to pay special attention to teaching herders to seek income sources other than herding, to motivate them, to create opportunities for these activities, and to develop the correct form of labor organization by using diversification.

12.7 Herders' needs

12.7.1. Among the numerous household needs of herders the priorities are furnishing the *ger* (67.4%) and acquiring an electric power generator (43.2%). As household income increases, priority household needs such as *ger* furnishing, acquiring of draught-horse and cart decline, but other needs such as acquiring a house at the winter camping site or purchasing an electric power generator increase.

12.7.2. The priority need of herders in livestock production is to increase their number of livestock (71.2%). Although the need to increase the number of livestock can be met by building the number of livestock per household member up to 150 livestock units (*bog*), this is a virtually impossible task at present in Mongolia with regard to the pasture capacity of the country and the number of people engaged in livestock breeding.

12.7.4. The priority need in social services is children's education. Herders also regard public health and veterinary services as amongst their most important needs.

12.8 Herders' future objectives

12.8.1. Herders are not going to leave livestock breeding in the near future. For instance, 47.5% of herders covered by the study replied that they wouldn't leave livestock breeding in any case. However, a substantial portion (25.3%) answered that if they lost all their livestock due to drought or *dzud*, or in order to educate their children then they would leave herding, while a few herders replied that they would leave herding if they found a suitable job in the city (8.6%).

12.8.2. The common objective of herders in the near future is still the increasing of their number of livestock (61.5%). But under the present conditions when pasture resources are limited and livestock breeding is a highly risky business, there is no other opportunity to meet herders' expectations such as by improving livestock breeds and increasing productivity per animal.

12.8.3. Livestock breeding experts, researchers and management workers have in general a similar understanding on the development trends of livestock breeding in the near future, namely, the need to intensify livestock breeding, strengthen the fodder reserve and to improve livestock breeds.

CHAPTER 13

RECOMMENDATIONS

13.1. We would like to note that in the last years the Government has allocated relatively little resources on introducing new technologies and equipment in livestock selection and breeding work, on importing highly productive animals of good breeds and their embryos, on fodder production or on other activities. It is necessary to pay special attention to upgrading of selection work to a new stage on the basis of the opinions of the herders, livestock breeding experts and researchers, and to allocate in the sector no less than 5 billion MNT per year from the State budget.

13.2. To upgrade laws and legal basis for operating livestock production, to provide opportunities for engaging in livestock breeding to individuals and entities.

13.3. To create a risk management system in order to overcome natural hardships encountered in pastoral livestock breeding (such as drought, *dzud* and other disasters) through the joint efforts of State and non-government organizations.

13.4. The main way to solve problems of the optimal distribution and use of pastures is the expansion of pasturelands by increasing the sufficiency of animal pens and fences, improving the pastoral water supply and by developing infrastructure.

13.5. To use pastures as common land when engaged in pastoral livestock breeding and to develop legal guarantees of possession and ownership of pastures in the process of transition to the settled forms of livestock breeding.

13.6. Introduction of cheap, compact mechanical equipment for hay and fodder making and for moving to new campsites, with the aim of facilitating arduous work in livestock breeding is an activity that will meet herders' expectations.

13.7. The main method to intensify cooperation processes in livestock breeding is the training of knowledgeable and educated human resources, who can manage cooperatives, organization of training among herders in order to teach methods and ways of cooperating, and building of mutual trust among herders.

13.8. If decisive measures on elimination of livestock theft in rural areas are undertaken, then the main obstacle to the peaceful life for herders will be eliminated.

13.9. The main direction of a policy aimed at increasing herders' profit and income and improvement of their livelihood is not to increase the number of livestock, but to increase the productivity per animal, growth of labor productivity, introduction of adequate forms of labor organization and by other activities directed towards intensification of livestock breeding.

13.10. State and community-based organizations should organize activities on teaching herders to seek other opportunities for income generation, and to motivate and encourage them.

13.11. One of the main issues to be implemented in the next 3-5 years is the need to intensify the diversification process of livestock breeding, whereby the tradition and present situation of having all kinds of livestock in each herder household would change and households would then specialize in herding a certain kind of livestock. Diversification of livestock breeding is a natural trend for intensive development of livestock breeding and in order to accelerate this process it should be supported and directed at a policy level.

13.12. It is necessary to create a favorable environment for capital investment in livestock breeding by developing the legal coordination for pasture possession, by differentiating fees for pasture use depending on the region, by establishing a system of

giving pastures into possession or use by individuals and entities, who are engaged in intensive livestock breeding.

13.13. Increasing the capital investment in the livestock breeding sector is the main impetus for accelerating the process of quick introduction of new technologies and forms of settled livestock breeding into this sector, improvement of fodder procurement, water supply, building of pens and fences, strengthening of material basis, increasing labor productivity. As a result, hidden unemployment in this sector will be revealed, herders' mentality and understanding of market relations will change, and the process of combining livestock breeding with crop cultivation will accelerate.

13.14. Determining the legal status of farms will greatly affect further development of livestock breeding.

13.15. The Government should support the establishment of model farms with intensive livestock breeding in areas close to regional centers and main cities on the basis of agricultural regions; establish a direct link between activities of scientific institutions in livestock breeding sector and real production; provide an opportunity to study model entities by individuals engaged in livestock breeding, and to exchange experience between them. They will be the main conditions for acceleration of development.

13.16. The results of study of the opinions of herders, livestock breeding experts, researchers and management workers show that the future trends and directions of livestock breeding development n Mongolia can be defined in the following manner:

- The basic structure of Mongolian livestock breeding has the trend of gradual transition from subsistence household economy to a private diversified economy that is a new for-profit business branch.
- Intensification of livestock breeding can be understood as not only operating it with use of industrial methods or breeding highly productive livestock imported from foreign countries, but also as a complex of methods in order to manage breeding in the most effective way by using scientific achievements in pastoral as well as settled livestock breeding.
- As livestock breeding becomes a private business sector, the issue of possession and use of pastures and hayfields requires legal coordination in order to provide a stable and secure business environment. In order to align the issue of possession and use of pastures and hayfields with development of livestock breeding, we need to start doing research on legal reform and begin its implementation.
- Mongolian livestock breeding has a trend to diversification in the future. Business entities shall not breed all 5 kinds of livestock, but will select one kind of livestock to breed and this trend will increase. As a result, the number of livestock per herder will increase and labor productivity will grow. Due to this trend, by 2010 over 60,000 herders can become unemployed. On the other hand, as a result of selection work, the productivity per animal will grow and the number of livestock to be herded per herder will decline, so there will be a trend for new workplaces to appear in this sector. However, these new workplaces will provide work for only 20-30% of unemployed herders. That is why the Government should start paying special attention to the question of future unemployment among herders.
- Opportunities for increasing labor productivity in livestock breeding are not limited only by increasing the number of livestock per herder. By increasing productivity per animal and improving efficiency we will have resources for creating new workplaces.
- As livestock breeding becomes a new business sector and competition grows, subsistence herder households with low economic capacity and insufficient

education level will be adversely affected, their living standards will decline and the number of poor households will increase. We can view that this process has already started. Therefore, we think that the issue of tens of thousand herders who might become impoverished, provision of workplaces for them and training in living skills should be in the center of Government policy.

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APPENDIX 1

TABLES

Annex 1: Table 1. **Profile of administrative workers, animal husbandry experts and researchers who participated in the survey**

	By gender			By profession					
	male	female	Total	Agricultural experts	Social & political	Economic experts	Engineers	Other	Total
Number	157	68	225	100	54	26	21	24	225
%	69.7	60.3	44.4	44.4	24.0	11.6	9.3	10.6	100.0

	By education level					By age group					
	Higher	Vocational	Secondary	Primary	Total	18-25	26-40	41-55	56-60	over 61	Total
Number	142	49	29	5	225	6	79	96	35	9	225
%	63.1	21.8	12.9	2.2	100.0	2.7	35.1	42.7	15.5	4.0	100.0

Annex 1: Table 2. **Profile of herders who participated in the survey**

	By gender			By family members			
	male	female	Total	2-5	6-8	9 & over	Total
qty	629	146	773	521	232	20	773
%	81.1	18.9	100.0	67.4	30.0	20.6	100.0

	By education level					By age group					
	Higher	Vocational	Secondary	Primary	Total	18-25	26-40	41-55	56-60	61 & over	Total
qty	32	78	523	140	773	50	207	308	111	97	773
%	4.2	10.1	67.7	18.0	100.0	6.4	26.8	39.9	14.4	12.5	100.0

	By years of work			By economic region					
	1-5	6-10	11 & over	Hangia	Western	Central	Eastern	UB	Total
qty	85	200	488	254	214	168	117	20	773
%	11.0	25.9	63.1	32.9	27.7	21.7	15.2	2.5	100.0

	By aimag												
	Ar	Bu	GA	Du	Ho	BU	Tuv	Um	He	Se	UB	SB	Total
qty	183	67	110	53	37	63	33	41	81	38	33	34	773
%	23.7	8.7	14.2	6.9	4.8	8.2	4.2	5.3	10.5	4.9	4.2	4.4	100.0

Annex 1: Table 3. **Where do you get information?**

Answers	By economic region										Total	
	Hangai		Western		Central		Eastern		UB			
	qty	%	qty	%	qty	%	qty	%	qty	%	qty	%
Radio	213	35.4	198	33.3	138	31.7	104	36.2	12	50.0	665	34.2
Television	56	9.3	49	8.2	39	8.9	66	23.0	12	50.0	222	11.4
Newspapers, press	87	14.5	130	21.9	65	14.9	54	18.8	0	0.0	336	17.3
Soum and *bag* governors, workers	68	11.3	55	9.3	92	21.1	37	12.9	0	0.0	252	13.0
Passers-by	159	26.4	144	24.2	91	20.9	23	8.0	0	0.0	417	21.5
Other	19	3.2	18	3.0	11	2.5	3	1.0	0	0.0	51	2.6
Total number of answers	602	100.0	594	100.0	436	100.0	287	100.0	24	100.0	1,943	100.0
Herder households in survey	182		127		147		73		14		543	
% of herder households in survey	33.5		23.4		27.1		13.0		2.6		100.0	

Annex 1: Table 4. Who can settle disputes over pastures?

Answers	Higher		Vocational		Secondary		Primary		Total	
	qty	%	qty	%	qty	%	qty	%	qty	%
Soum and *bag* governors	14	45.2	33	44.0	199	39.6	49	36.6	295	39.7
Respected & influential people	1	3.2	3	4.0	27	5.4	10	7.5		0.0
Herders themselves	8	25.8	26	34.7	222	44.1	58	43.3	314	42.3
None of them can settle the problem, we need other methods	8	25.8	10	13.3	45	8.9	12	9.0	75	10.1
Others	0	0.0	2	2.7	5	1.0	2	1.5	9	1.2
Did not answer	0	0.0	1	1.3	5	1.0	3	2.2	9	1.2
Herders participating in survey	31	100.0	75	100.0	503	100.0	134	100.0	743	100.0
% of herders participating in survey	4.2		10.1		67.7		18.0		100.0	

Annex 1: Table 5. Production needs of herders

Answers	By economic region											
	Hangai		Western		Central		Eastern		UB		Total	
	qty	%	qty	%	qty	%	qty	%	qty	%	qty	%
Increase the number of livestock	181	27.2	163	27.5	113	24.4	76	27.0	8	17.0	541	26.4
Improve livestock breed	164	24.6	132	22.3	130	28.0	84	29.8	15	31.9	525	25.6
Own a well	53	8.0	62	10.5	54	11.6	15	5.3	9	19.1	193	9.4
Own a pasture	59	8.9	84	14.2	37	8.0	16	5.7	7	14.9	203	9.9
Improve livestock health	130	19.5	92	15.5	89	19.2	58	20.6	5	10.6	374	18.2
Buy machinery to facilitate arduous labor	67	10.1	58	9.8	36	7.8	32	11.3	3	6.4	196	9.6
Other	12	1.8	1	0.2	5	1.1	1	0.4	0	0.0	19	0.9
Number of answers	666	100.0	592	100.0	464	100.0	282	100.0	47	100.0	2051	100.0
Herders participating in survey	245		206		164		104		18		737	
% of herders participating in survey	33.2		28.0		22.3		14.1		2.4		100.0	

Annex 1: Table 6. Herders' household needs
(by herders' family size)

Answers	By size of family						Total	
	2-5		6-8		9-10			
	qty	%	qty	%	qty	%	qty	%
To furnish the *ger* (to purchase felt, canvas, furniture, etc)	358	27.9	152	26.2	5	10.4	515	28.1
To acquire a house at winter camping site	182	14.2	76	13.1	11	22.9	269	14.7
To acquire a generator, a TV set	313	24.4	138	23.8	15	31.3	466	25.4
To acquire a vehicle (car, motorcycle)	207	16.1	112	19.3	12	25.0	331	18.0
To acquire a cart, and a draught-horse	171	13.3	81	14.0	3	6.3	255	13.9
Other	51	4.0	21	3.6	2	4.2	0	0.0
Number of answers	1282	100	580	100	48	100	1836	100
Herder households participating in survey	504		222		20		746	

Annex 1: Table 7. Situation of livestock insurance
(by herders' educational level)

Answers	By educational level								Total	
	Higher		Vocational		Secondary		Primary			
	qty	%	qty	%	qty	%	qty	%	qty	%
All livestock is insured	2	6.5	13	17.3	43	8.5	18	13.4	76	10.2
Some livestock is insured	8	25.8	8	10.7	57	11.3	12	9.0	85	11.4
Not insured	21	67.7	53	70.7	393	78.1	101	75.4	568	76.4
Other	0	0.0	0	0.0	4	0.8	0	0.0	4	0.5
Do not know	0	0.0	1	1.3	6	1.2	3	2.2	10	1.3
Total number of answers	31	100.0	75	100.0	503	100.0	134	100.0	743	100.0

Annex 1: Table 8. Herders' opinions on livestock insurance
(by herders' educational level)

Answers	By educational level								Total	
	Higher		Vocational		Secondary		Primary			
	qty	%	qty	%	qty	%	qty	%	qty	%
Mandatory insurance	6	19.4	21	28.0	102	20.3	29	21.6	158	21.3
Voluntary insurance	18	58.1	43	57.3	294	58.4	72	53.7	427	57.5
No need for insurance	2	6.5	3	4.0	35	7.0	12	9.0	52	7.0
Do not know	5	16.1	6	8.0	64	12.7	16	11.9	91	12.2
Other	0	0.0	0	0.0	1	0.2	0	0.0	1	0.1
Did not respond	0	0.0	2	2.7	7	1.4	5	3.7	14	1.9
Total number of answers	31	100.0	75	100.0	503	100.0	134	100.0	743	100.0

Annex 1: Table 9. Circumstances in which would quit herding

Answers	By age group										Total	
	18-25		26-35		36-50		51-60		60 & over			
	qty	%	qty	%	qty	%	qty	%	qty	%	qty	%
If I lost my livestock in *dzud* & drought	15	31.3	63	31.2	75	27.1	20	18.7	16	17.2	189	25.3
If I found good job in town or settlement	6	12.5	25	12.4	42	15.2	7	6.5	6	6.5	86	11.5
To provide children with education	7	14.6	30	14.9	21	7.6	17	15.9	13	14.0	88	11.8
I will not leave herding in any case	18	37.5	82	40.6	148	53.4	59	55.1	48	51.6	355	47.5
Other	2	4.2	2	1.0	12	4.3	4	3.7	10	10.8	30	4.0
Total number of answers	48	100.0	202	100.0	298	107.6	107	100.0	93	100.0	748	100.0

Annex 1: Table 10. Herders' choices in eventuality of losing their livestock
(by herder's age group)

Answers	By age group										Total	
	18-25		26-35		36-50		51-60		60 & over			
	qty	%	qty	%	qty	%	qty	%	qty	%	qty	%
Ask for assistance from relatives	27	23.5	111	20.1	158	19.3	44	16.5	43	17.6	383	19.2
Secure a loan	21	18.3	100	18.1	170	20.8	54	20.2	51	20.9	396	19.8
Move to town & do other work	17	14.8	93	16.8	132	16.1	40	15.0	33	13.5	315	15.8
Utilize natural resources	27	23.5	84	15.2	115	14.0	46	17.2	33	13.5	305	15.3
Work as a hired herder	8	7.0	75	13.6	109	13.3	37	13.9	25	10.2	254	12.7
Ask for assistance from the State	14	12.2	84	15.2	115	14.0	38	14.2	50	20.5	301	15.1
Other	1	0.9	5	0.9	20	2.4	8	3.0	9	3.7	43	2.2
Total number of answers	115	100.0	552	100.0	819	100.0	267	100.0	244	100.0	1997	100.0
Herders covered by survey	48		195		302		103		95		743	
% of herders covered by survey	6.5		26.2		40.6		13.9		12.8		100.0	

Annex 1: Table 11. **Herders' choices in eventuality of losing their livestock**
(by herder's number of livestock)

Answers	By livestock units (bod)										Total	
	0-20		21-40		41-70		71-150		over 150			
	qty	%	qty	%	qty	%	qty	%	qty	%	qty	%
Ask for assistance from relatives	98	17.3	102	19.2	84	18.4	84	23.3	18	17.0	386	19.1
Secure a loan	110	19.4	106	20.0	94	20.6	68	18.9	22	20.8	400	19.8
Move to town & do other work	73	12.9	93	17.5	79	17.3	54	15.0	19	17.9	318	15.7
Utilize natural resources	95	16.8	83	15.6	75	16.4	47	13.1	11	10.4	311	15.4
Work as a hired herder	86	15.2	68	12.8	48	10.5	39	10.8	15	14.2	256	12.7
Ask for assistance from the State	88	15.5	72	13.6	67	14.7	59	16.4	19	17.9	305	15.1
Other	17	3.0	7	1.3	9	2.0	9	2.5	2	1.9	44	2.2
Total number of answers	567	100.0	531	100.0	456	100.0	360	100.0	106	100.0	2020	100.0
Herders covered by survey	208		187		169		142		45		751	
% of herders covered by survey	27.7		24.9		22.5		18.9		6.0		100.0	

Annex 1: Table 12. **Herders' choices in eventuality of losing their livestock**
(by herders' education level)

Answers	By educational level								Total	
	Higher		Vocational		Secondary		Primary			
	qty	%	qty	%	qty	%	qty	%	qty	%
Ask for assistance from relatives	11	14.7	18	9.2	268	20.1	68	20.1	365	18.8
Secure a loan	15	20.0	52	26.7	254	19.0	64	18.9	385	19.8
Move to town & do other work	16	21.3	40	20.5	204	15.3	48	14.2	308	15.9
Utilize natural resources	15	20.0	37	19.0	204	15.3	49	14.5	305	15.7
Work as a hired herder	7	9.3	22	11.3	176	13.2	47	13.9	252	13.0
Ask for assistance from the State	8	10.7	20	10.3	203	15.2	56	16.5	287	14.8
Other	3	4.0	6	3.1	25	1.9	7	2.1	41	2.1
Total number of answers	75	100.0	195	100.0	1334	100.0	339	100.0	1943	100.0
Herders covered by survey	29		72		493		128		722	
% of herders covered by survey	4.0		10.0		68.3		17.7		100.0	

Annex 1: Table 13. **Herders' opinions on arduous tasks in livestock breeding**
(by herders' number of livestock)

Answers	By livestock units (bog)										Total	
	0-20		21-40		41-70		71-150		Over 150			
	qty	%	qty	%	qty	%	qty	%	qty	%	qty	%
Herding of animals	22	4.5	38	7.8	29	6.6	28	7.9	4	3.7	121	6.5
Watering animals	47	9.6	36	7.4	41	9.4	31	8.8	14	13.0	169	9.0
Rearing young animals	64	13.1	76	15.6	81	18.5	57	16.1	17	15.7	295	15.7
Moving to a campsite	128	26.2	134	27.6	97	22.1	82	23.2	12	11.1	453	24.2
Processing milk and dairy products	16	3.3	27	5.6	20	4.6	11	3.1	9	8.3	83	4.4
Sheep shearing and goat combing	50	10.2	53	10.9	43	9.8	34	9.6	13	12.0	193	10.3
Hay and fodder making	140	28.7	117	24.1	111	25.3	95	26.8	35	32.4	498	26.6
Other	21	4.3	5	1.0	16	3.7	16	4.5	4	3.7	62	3.3
Total number of answers	488	100.0	486	100.0	438	100.0	354	100.0	108	100.0	1874	100.0
Herders covered by survey	194		184		165		141		44		728	
% of herders covered by survey	26.6		25.3		22.7		19.4		6.0		100.0	

Annex 1: Table 14. **Tasks mainly by cooperation with herder families group**
(by herders' number of livestock)

Answers	By livestock units (*bog*)										Total	
	0-20		21-40		41-70		71-150		over 150			
	qty	%	qty	%	qty	%	qty	%	qty	%	qty	%
Herding of livestock	170	31.2	147	28.9	152	34.0	119	32.2	35	27.1	623	31.2
Processing milk and dairy products	25	4.6	34	6.7	26	5.8	16	4.3	5	3.9	106	5.3
Rearing young animals	75	13.8	75	14.8	68	15.2	54	14.6	26	20.2	298	14.9
Hay and fodder making	120	22.0	101	19.9	82	18.3	79	21.4	23	17.8	405	20.3
Sale of raw materials	41	7.5	45	8.9	26	5.8	22	5.9	10	7.8	144	7.2
Shearing and combing, slaughtering	101	18.5	101	19.9	89	19.9	77	20.8	28	21.7	396	19.8
Other	13	2.4	5	1.0	4	0.9	3	0.8	2	1.6	27	1.4
Total number of answers	545	100.0	508	100.0	447	100.0	370	100.0	129	100.0	1999	100.0
Herders covered by survey	209		189		172		144		48		762	
% of herders covered by survey	27.4		24.8		22.6		18.9		6.3		100.0	

Annex 1: Table 15. **Tasks mainly by cooperation with herder families group**
(by herder's family size)

Answers	By family size						Total	
	2-5		6-8		9-10			
	qty	%	qty	%	qty	%	qty	%
Herding of animals	428	32.2	172	28.3	17	37.8	617	37.2
Processing milk and dairy products	65	4.9	39	6.4	0	0.0	104	6.3
Rearing young animals	199	15.0	91	15.0	6	13.3		0.0
Hay and fodder making	255	19.2	132	21.7	13	28.9	400	24.1
Sale of raw materials	97	7.3	42	6.9	4	8.9	143	8.6
Shearing and combing, slaughtering	265	20.0	124	20.4	5	11.1	394	23.8
Other	19	1.4	7	1.2	0	0.0	0	0.0
Total number of answers	1328	100.0	607	100.0	45	100.0	1658	100.0
Herders covered by survey	507		227		20		754	
% of herders covered by survey	67.2		30.1		2.65		100	

Annex 1: Table 16. **Tasks mainly in cooperation with herder families group**
(by herder's economic region)

Answers	By economic region										Total	
	Hangai		Western		Central		Eastern		UB			
	qty	%	qty	%	qty	%	qty	%	qty	%	qty	%
Herding of livestock	231	35.2	173	28.3	99	27.0	100	33.3	11	33.3	614	31.2
Processing milk and dairy products	23	3.5	48	7.8	16	4.4	14	4.7	2	6.1	103	5.2
Rearing young animals	49	7.5	122	19.9	39	10.7	73	24.3	5	15.2	288	14.6
Hay and fodder making	161	24.5	104	17.0	69	18.9	60	20.0	6	18.2	400	20.3
Sale of raw materials	60	9.1	36	5.9	36	9.8	8	2.7	3	9.1	143	7.3
Shearing and combing, slaughtering	131	19.9	127	20.8	88	24.0	43	14.3	4	12.1	393	20.0
Other	2	0.3	2	0.3	19	5.2	2	0.7	2	6.1	27	1.4
Total number of answers	657	100.0	612	100.0	366	100.0	300	100.0	33	100.0	1968	100.0
Herders covered by survey	248		207		161		115		19		750	
% of herders covered by survey	33.1		27.6		21.5		15.3		2.5		100.0	

Annex 1: Table 17. **Activities that herders would finance jointly with hot ail**
(up to 2 answers selected by each herder)

Answers	By economic region										Total	
	Hangai		Western		Central		Eastern		UB			
	qty	%	qty	%	qty	%	qty	%	qty	%	qty	%
Purchase of agricultural machinery	62	15.2	72	18.8	53	17.1	41	20.8	5	16.1	233	17.5
Building of animal pens and wells	107	26.2	122	31.9	104	33.5	54	27.4	13	41.9	400	30.1
Sale of products, commerce	75	18.4	58	15.2	47	15.2	36	18.3	1	3.2	217	16.3
Enhance livestock breeds	99	24.3	82	21.5	81	26.1	39	19.8	5	16.1	306	23.0
Not psychologically ready to join assets	61	15.0	48	12.6	22	7.1	24	12.2	5	16.1	160	12.0
Other	4	1.0	0	0.0	3	1.0	3	1.5	2	6.5	12	0.9
Total number of answers	408	100.0	382	100.0	310	100.0	197	100.0	31	100.0	1328	100.0
Herders covered by survey	247		207		164		111		19		748	
% of herders covered by survey	33.0		27.7		21.9		14.8		2.5		100.0	

Annex 1: Table 18. Activities that herders would finance jointly with hot ail
(up to 2 answers selected by each herder)

Answers	By education level								Total	
	higher		vocational		secondary		primary			
	qty	%	qty	%	qty	%	qty	%	qty	%
Purchase of agricultural machinery	9	17.6	28	21.7	159	17.8	36	15.9	232	17.9
Building of animal pens and wells	12	23.5	38	29.5	267	30.0	70	30.8	387	29.8
Sale of products, commerce	7	13.7	16	12.4	154	17.3	38	16.7	215	16.6
Enhance livestock breeds	12	23.5	26	20.2	208	23.3	49	21.6	295	22.7
Psychologically unready to join assets	11	21.6	20	15.5	96	10.8	29	12.8	156	12.0
Other	0	0.0	1	0.8	7	0.8	5	2.2	13	1.0
Total number of answers	51	100.0	129	100.0	891	100.0	227	100.0	1298	100.0
Herders covered by survey	29		74		497		131		731	
% of herders covered by survey	4.0		10.1		68.0		17.9		100.0	

Annex 1: Table 19. Activities that herders would finance jointly with hot ail
(up to 2 answers selected by each herder)

Answers	By number of livestock units (*bog*)										Total	
	0-20		21-40		41-70		71-150		over 150			
	qty	%	qty	%	qty	%	qty	%	qty	%	qty	%
Purchase of agricultural machinery	50	14.2	58	16.7	62	20.3	51	19.7	16	18.6	237	17.6
Building of animal pens and wells	112	31.9	111	31.9	98	32.0	64	24.7	22	25.6	407	30.1
Sale of products, commerce	59	16.8	54	15.5	51	16.7	42	16.2	14	16.3	220	16.3
Enhance livestock breeds	68	19.4	83	23.9	65	21.2	70	27.0	22	25.6	308	22.8
Psychologically unready to join assets	56	16.0	39	11.2	26	8.5	31	12.0	12	14.0	164	12.1
Other	6	1.7	3	0.9	4	1.3	1	0.4	0	0.0	14	1.0
Total number of answers	351	100.0	348	100.0	306	100.0	259	100.0	86	100.0	1350	100.0
Herders covered by survey	208		189		172		144		47		760	
% of herders covered by survey	27.4		24.9		22.6		18.9		6.2		100.0	

Annex 1: Table 20. Herders' opinions on easing tasks in livestock breeding
(by herder's family size)

Answers	By family size						Total	
	2-5		6-8		9-10			
	qty	%	qty	%	qty	%	qty	%
Hiring workers	70	8.7	37	10.2	3	10.0	110	9.5
Work in cooperation with others	397	49.1	174	47.8	12	40.0	583	50.1
Use special equipment in heavy work	317	39.2	139	38.2	15	50.0	471	40.5
Other	24	3.0	14	3.8	0	0.0	0	0.0
Total number of answers	808	100.0	364	100.0	30.0	100.0	1164	100.0
Herders covered by survey	480		214		20		714	
% of herders covered by survey	67.2		30		2.8		100.0	

Annex 1: Table 21. Herders' opinions on easing tasks in livestock breeding
(by herder's economic region)

Answers	By Economic Region										Total	
	Hangai		Western		Central		Eastern		UB			
	qty	%	qty	%	qty	%	qty	%	qty	%	qty	%
Hiring workers	33	9.1	38	9.9	24	9.3	10	5.9	1	6.3	106	8.9
Work in cooperation with others	185	51.1	183	47.7	127	49.0	84	49.4	2	12.5	581	48.8
Use special equipment in heavy work	135	37.3	155	40.4	100	38.6	73	42.9	9	56.3	472	39.6
Other	9	2.5	8	2.1	8	3.1	3	1.8	4	25.0	32	2.7
Total number of answers	362	100.0	384	100.0	259	100.0	170	100.0	16	100.0	1191	100.0
Herders covered by survey	237		201		158		101		14		711	
% of herders covered by survey	33.3		28.3		22.2		14.2		2.0		100.0	

Annex 1: Table 22. **How did you adjust your economy with regard to the changes in prices of animal raw materials and livestock production since the transition to a market economy?**

(by economic region)

Answers	By Economic Region										Total	
	Hangai		Western		Central		Eastern		UB			
	qty	%	qty	%	qty	%	qty	%	qty	%	qty	%
Changed size & structure of herd	71	18.6	125	31.8	74	27.0	26	15.3	6	24.0	302	24.3
Improved livestock breeds	67	17.6	81	20.6	77	28.1	41	24.1	9	36.0	275	22.1
Moved closer to the market	53	13.9	75	19.1	35	12.8	25	14.7	8	32.0	196	15.8
Changed methods of sale of produce & raw materials	85	22.3	73	18.6	37	13.5	22	12.9	0	0.0	217	17.5
Could not adjust their economy	96	25.2	37	9.4	50	18.2	49	28.8	1	4.0	233	18.7
Other	9	2.4	2	0.5	1	0.4	7	4.1	1	4.0	20	1.6
Total number of answers	381	100.0	393	100.0	274	100.0	170	100.0	25	100.0	1243	100.0
Herders covered by survey	238		206		161		109		19		733	
% of herders covered by survey	32.5		28.1		22.0		14.9		2.6		100.0	

Annex 1: Table 23. **How did you adjust your economy with regard to the changes in prices of animal raw materials and livestock production since the transition to a market economy?**

(by educational level)

Answers	By education level								Total	
	higher		vocational		secondary		primary			
	qty	%	qty	%	qty	%	qty	%	qty	%
Changed size & structure of herd	18	34.0	36	30.8	188	22.6	57	26.3	299	24.5
Improved livestock breeds	16	30.2	36	30.8	179	21.5	43	19.8	274	22.5
Moved closer to the market	6	11.3	13	11.1	137	16.4	33	15.2	189	15.5
Changed methods of sale of produce & raw materials	7	13.2	16	13.7	147	17.6	36	16.6	206	16.9
Could not adjust their economy	4	7.5	12	10.3	171	20.5	45	20.7	232	19.0
Other	2	3.8	4	3.4	11	1.3	3	1.4	20	1.6
Total number of answers	53	100.0	117	100.0	833	100.0	217	100.0	1220	100.0
Herders covered by survey	29		66		493		130		718	
% of herders covered by survey	4.0		9.2		68.7		18.1		100.0	

Annex 1: Table 24. **How did you adjust your economy with regard to the changes in prices of animal raw materials and livestock production since transition to the market economy?**

(by age group)

Answers	By age group										Total	
	18-25		26-35		36-50		51-60		over 60			
	qty	%	qty	%	qty	%	qty	%	qty	%	qty	%
Changed size & structure of herd	44	38.3	178	34.2	256	33.2	95	33.1	93	37.3	666	34.3
Improved livestock breeds	15	13.0	52	10.0	85	11.0	40	13.9	29	11.6	221	11.4
Moved closer to the market	15	13.0	90	17.3	134	17.4	53	18.5	43	17.3	335	17.2
Changed methods of sale of produce & raw materials	15	13.0	71	13.7	108	14.0	27	9.4	30	12.0	251	12.9
Could not adjust their economy	25	21.7	111	21.3	170	22.0	64	22.3	49	19.7	419	21.6
Other	1	0.9	18	3.5	19	2.5	8	2.8	5	2.0	51	2.6
Total number of answers	115	100.0	520	100.0	772	100.0	287	100.0	249	100.0	1943	100.0
Herders covered by survey	49		202		301		109		95		756	
% of herders covered by survey	6.5		26.7		39.8		14.4		12.6		100.0	

Annex 1: Table 25. Herders' thoughts on the future of their children

Answers	By Economic Region										Total	
	Hangai		Western		Central		Eastern		UB			
	qty	%	qty	%	qty	%	qty	%	qty	%	qty	%
To take over my work & become herders	44	10.4	26	6.5	67	21.8	26	14.0	4	16.0	167	12.5
To become farm owners	31	7.3	31	7.8	32	10.4	6	3.2	1	4.0	101	7.5
Children should decide themselves	147	34.7	172	43.1	86	28.0	61	32.8	5	20.0	471	35.1
with good education	190	44.8	166	41.6	119	38.8	93	50.0	15	60.0	583	43.5
Other	12	2.8	4	1.0	3	1.0	0	0.0	0	0.0	19	1.4
Total number of answers	424	100.0	399	100.0	307	100.0	186	100.0	25	100.0	1341	100.0
Herders covered by survey	245		209		165		110		19		748	
% of herders covered by survey	32.8		27.9		22.1		14.7		2.5		100.0	

Annex 1: Table 26. Herders' satisfaction in being in livestock breeding
(by herder's age group)

Answers	By age group										Total	
	18-25		26-35		36-50		51-60		over 60			
	qty	%	qty	%	qty	%	qty	%	qty	%	qty	%
As it is main source of my livelihood	30	28.6	144	31.3	227	30.7	66	29.7	57	27.9	524	30.3
As it is the kind of work I can do best	16	15.2	72	15.7	107	14.5	35	15.8	31	15.2	261	15.1
As livestock production is profitable	19	18.1	92	20.0	155	20.9	51	23.0	44	21.6	361	20.9
As we always work in fresh air	12	11.4	53	11.5	72	9.7	19	8.6	23	11.3	179	10.3
As it is my inheritance	21	20.0	61	13.3	129	17.4	35	15.8	37	18.1	283	16.3
As no pressure or stress of any sort	6	5.7	34	7.4	42	5.7	16	7.2	11	5.4	109	6.3
Other	1	1.0	4	0.9	8	1.1	0	0.0	1	0.5	14	0.8
Total number of answers	105	100.0	460	100.0	740	100.0	222	100.0	204	100.0	1731	100.0
Herders covered by survey	40		161		259		80		71		611	
% of herders covered by survey	6.5		26.4		42.4		13.1		11.6		100.0	

Annex 1: Table 27. Herders' satisfaction in being in livestock breeding
(by herder's educational level)

Answers	By educational level								Total	
	higher		vocational		secondary		primary			
	qty	%	qty	%	qty	%	qty	%	qty	%
As it is the main source of my livelihood	17	29.3	57	32.9	360	31.0	81	26.8	515	38.6
work I can do best	11	19.0	12	6.9	182	15.7	49	16.2	254	19.0
As livestock production is profitable	17	29.3	47	27.2	238	20.5	57	18.9		0.0
As we always work in fresh air	3	5.2	11	6.4	118	10.2	39	12.9	171	12.8
As it is my inheritance	7	12.1	29	16.8	184	15.9	54	17.9	274	20.5
As no pressure or stress of any sort	3	5.2	16	9.2	65	5.6	22	7.3	106	7.9
Other	0	0.0	1	0.6	13	1.1	0	0.0	14	1.0
Total number of answers	58	100.0	173	100.0	1160	100.0	302	100.0	1334	100.0
Herders covered by survey	21		59		412		106		598	
% of herders covered by survey	3.5		9.9		68.9		17.7		100.0	

Annex 1: Table 28. Herders' opinions on services of State, education and health care institutions

Kind of services	Herders' evaluation					
	Satisfactory		Average		Unsatisfactory	
	qty	%	qty	%	qty	%
Soum work	160	20.7	412	53.3	201	26.0
Work of the school	107	13.9	355	45.9	311	40.2
Veterinary services	177	22.9	411	53.2	185	23.9
Legal and enforcement services	356	46.1	304	39.3	113	14.6
Communications services	152	19.7	315	40.8	306	39.5

APPENDIX 2

LEGAL REFERENCES

Legal Reference No.1 - Law on Land

Article 4. Principles Pursued by the Government in Relation to Land

4.1. The Government shall follow the following principles in the relation to land:
4.1.2. Land shall be protected and controlled by the State;
4.1.3. Fairness and equity shall be ensured with respect to ownership, possession and use of land;

Article 5. Land Owners

5.1. Any land other than that given into ownership to citizens of Mongolia shall be property of the Government.
5.2. Land, excluding pastureland, land for common tenure land and land for special Government use, may be given into ownership to citizens of Mongolia only.

Article 6. Land Possessors and Land Users

6.2. The following [types of] land, regardless of whether they are given into possession or use, shall be used for common purpose under Government regulation:
6.2.1. Pasturelands, water points in pasturelands, wells and salt licks;
6.2.2. Public tenure lands in cities, villages and other urban settlements;
6.2.3. Land under roads and networks;
6.2.4. Lands with forest resources;
6.2.5. Lands with water resources.

Article 7. Land fees

7.1. Citizens, companies and organizations possessing or using land shall pay land fees in accordance with relevant laws and contracts.
7.2. The amount of land fees and regulations on partial waiver from land fees, exemption from land fees, and expending the income from land fees shall be regulated by the law.

Article 8. Maps of Borders, Names of Geographical Units and Land Classification

8.1. Each administrative (territorial unit) shall have maps showing their borders, names and geographic units and land classifications.

Article 16. Land for Special Needs

16.1.6. *Aimag* level reserve rangelands;
16.1.7. Hayfields for Government fodder reserves.

Article 52. Pastureland, Its rational Use and Protection

52.1. *Soum* and district Governors, in cooperation with a relevant professional organization and taking into consideration land use traditions, rational land use

and conservation requirements, shall initiate land management activities according to the general schedule of pasture separation for winter, spring, autumn and summer settlements and reserve rangelands, and take measures on protecting pastureland and on regulating its capacity.

52.2. Summer and autumn settlements and rangelands shall be allocated to *bags* and hot ails and shall be used collectively. Winter and spring pastures shall be prevented from livestock grazing during summer and autumn, and shall be carefully protected with public efforts.

52.4. Governors of *aimags*, the capital city, *soums* and districts may establish pastoral or settled livestock breeding areas within their territories, taking into consideration their environmental, social and economic conditions.

52.5. Pastureland fenced for purposes of developing intensive settled livestock breeding or farming of tamed animals can be given for use to citizens, companies and organizations regardless of season under specific conditions, on an agreement.

52.6. The maximum size of land referred to in provisions 4 and 5 of this Article shall be determined by Citizens Representatives *Hural*, who also approves regulations for its use.

52.10. Disputes arising in relation to use of pastureland shall be resolved by discussing them on the *Bag* Public *Hurals* based on traditional land use practices and customs of herders. If an agreement cannot be reached, the issue shall be resolved by governors of *soums*.

Legal Reference No.2 - Law on Land Fees

This law legalizes and determines fees for the land used as pastures.

Article 6. Indicators for determining land fees and their definition

1. The land fee calculation indicator unit is determined as follows:
   1/ fees for possession and use of land as pastures are calculated as percentage of the basic estimate of one unit of this pastureland per one animal (in sheep);
2. While determining land fees for pastureland on the basis of the number of livestock (in sheep), the number of horses, cattle, camel and goats in the census conducted in the end of the previous year should be multiplied by 6.0, 6.0, 5.0, 0.9 coefficients respectively.

Article 8. Exemption from land fees

1. Following payers shall be exempted from fees for use and possession of land:
2. 1/ herder households from fees for use of pastures and hay fields;
   6/ individuals, enterprises and other organizations which possess fields planted with perennials and leguminous plants in order to improve the soil structure and then use it as pastureland shall not pay for use and possession of land for up to first five years.

Legal Reference No.3 - Law on Cooperatives

The use of this law by herders is as follows:

3.4. A cooperative is allowed to engage in following kinds of activities:
(an amendment on 12th December 2002 caused numbering to have changed)

3.4.1. Processing of raw materials;

3.4.2. Production;

3.4.3. Loans and savings;

3.4.4. Sale, supply, procurement;
3.4.5. Services;
3.4.6. Construction of resident apartments;
3.4.7. Consumer services;
3.4.8. Activities defined by the regulations.

Legal Reference No.4 - License on Hunting & Fishing

Article 7. License on hunting and fishing

7.1. Individuals shall get an entitlement in order to hunt for animals; individuals, enterprises and organizations shall get a special license for hunting for special purposes and make an agreement for hunting for industrial purposes.

7.3. The State Environment Inspector of the given *soum* shall give a document about the origins of the game (bag/catch) to the individuals, enterprises and organizations who sell the game and raw materials of animal origin.