



BIBLIOGRAPHY

*on pastoral livestock economy
of Mongolia*

Ulaanbaatar
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PREFACE

The Open Society Forum was created by the Mongolian Foundation for Open Society (Soros Foundation) to encourage greater participation of citizens in civic life. As part of this effort, we organize research and analysis on a wide variety of topics in the fields of economic and social policy and governance, and make the results available to the public.

The *Bibliography on the Pastoral Economy of Mongolia* is published in both the Mongolian and English languages in order to facilitate the work of researchers, both domestic and foreign, students, decision makers, donor organizations, and others interested in this field. It was designed to include all recent and relevant materials on the pastoral economy available in the Mongolian language.

We would like to express our sincere thanks to the Research and Training Center for Regional Development, under the leadership of Mr. Ts.Sukhbaatar, for their thorough research work that resulted in making this publication possible.

We welcome any comments and suggestions about quality and content of this publication. Please direct your enquiries to osf@soros.org.mn.



Stephen D. Vance
MFOS Executive Director

This bibliography was prepared by a team of the Research and Training Center for Regional Development of Mongolian Pastoral Livestock Industry, supported by the Mongolian Foundation for Open Society.

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FOREWORD

Research for this bibliography on the pastoral livestock economy of Mongolia was initiated, funded and implemented by the Mongolian Foundation for Open Society (Soros Foundation).

The team collected and researched selected resources of research funds, libraries and catalogues held by the following organizations: State Central Library; Library of the Animal Husbandry Research Institute; Library of the Veterinary Research Institute; Library of the Mongolian State University of Agriculture; Library of the National University of Mongolia; Mongolian Development Institute of the Academy of Sciences; Institute of History; Institute of International Studies; Institute of Geography; Institute of Language and Literature; Institute of Geo-ecology; Administration of Land Affairs, Geodesy and Cartography; State Central Archive; Library of the Science and Information Park; Library of the National Statistical Office; International Association for Mongol Studies; International Institute for the Study of Nomadic Civilizations; Mongolian Foundation for Open Society (Soros Foundation); United Nations and other international project implementation organizations. The research also covered Mongolian laws and regulations, government decisions, policy papers and reports of respective ministries.

This is the first bibliography on the Mongolian pastoral livestock industry. It comprises research publications, reports, presentations, articles and theses as well as project reports and recommendations of international organizations written since 1995.

International and national study of pastoral herding has been expanding worldwide in recent years. For example, international experts and researchers discussed and delivered interesting reports on Mongolian development issues at the economic session of the 8th International Congress of Mongolists in 2002.

In the current era of globalization, all countries of the world face inevitable challenges in following the path of sustainable development, especially the protection and rational use of nature and environment and provision of healthy food and fresh water as primary goals. As a result, the demand for ecologically clean products of pastoral livestock origin is expected to grow.

We should also mention that a survey conducted by the MAP-21 unit on Sustainable Development among scientists, university teachers and researchers concluded that there was a need for a bibliography of research into the pastoral livestock economy and more scientific work in this area.

The bibliography in English comprises a summary of contents of 136 publications by 123 researchers. In addition, the research team attempted to evaluate the outcome and significance of each publication.

The team also drew up and organized a list of themes for the use of bibliographical research into the pastoral livestock economy. The bibliography is classified into 24 themes, including economics, effectiveness, management, marketing, sustainable development issues, financial services and accounting.

All publications included in the English version of the bibliography have been ordered into a total of 0136 indexes. In addition, names of authors and publications are listed in alphabetical order along with the indexes. A list of authors' contact addresses is a new feature of this bibliography.

According to bibliographical classification requirements and depending on the nature of research into a pastoral livestock economy, the reference list contains the following components:

- 1) Name of author/editor(s) (If there are more than 2, the first 2 are given followed by " others");
- 2) Title of publication (If publication was published as a book/magazine, the title of book/magazine, volume number and publication year are added);
- 3) Place of publication and name of publisher;
- 4) Year of publication;
- 5) Number of pages (in case of an independent publication, total number of pages; if published in a book/magazine, the page numbers EG 100-108);
- 6) Type of publication (theoretical, methodological, report, thesis etc.);
- 7) Brief contents (main content, focus and importance of the research);
- 8) Summary (scope and scale of research, innovative features, extensiveness, methodology and weaknesses).

We would like to express our deepest gratitude to the Open Society Forum of the Mongolian Foundation for Open Society for initiating, financing and providing the opportunity to publish this bibliography.

THEMES ON PASTORAL LIVESTOCK ECONOMY

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ABBREVIATIONS

GDP	Gross Domestic Product
IAMS	International Association for Mongol Studies
IFE	Institute of Finance and Economics
IIS	Institute of International Studies
IISNC	International Institute for The Study of Nomadic Civilizations
MAS	Mongolian Academy of Sciences
MFA	Ministry of Food and Agriculture
MSUA	Mongolian State University of Agriculture
NUM	National University of Mongolia
PU	Pedagogical University
RIAH	Research Institute for Animal Husbandry
UN	United Nations
UNDP	United Nations Development Program

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ONE. ECONOMICS AND EFFICIENCY OF LIVESTOCK PRODUCTION

1010 Efficiency of Livestock Production

0001

Adya Yu.

Improving productivity of herder households

DSc dissertation. UB, 1999, Academy of Sciences. 249p. In Mongolian

It is here suggested that to increase productivity and improve efficiency of herder households, sustainable livestock growth should be encouraged by gradually changing the current inherited style of pastoral livestock herding to a combination of pastoral and settled tending. Herder households would increase their income by applying modern scientific methods of processing livestock raw materials.

The study indicates that productivity and efficiency of Mongolian herder households are generally similar, but while productivity is an economic indicator of production, efficiency is a performance criterion as a business entity.

This study suggests theoretic concept of how the livestock industry can rise to the economic level of developed countries by improving productivity and establishing a new businesslike livestock economy. It concludes that it's possible to apply developed country experiences in productivity management of household businesses in less developed countries.

In assessment of many productivity factors affecting herder household economies, a rational limitation on costs is assigned as economically as possible and the study offers new ideas on household business management and approaches.

It is suggested that theoretically 300-500 head of livestock (890 sheep-equivalents) per household is the optimum size, depending on the regional features, in order for the household to operate as a business entity. The appropriate composition of herd, suggested here, should comprise 1.4% camels, 13.1% horses, 6.85% cattle, 50.7% sheep and 28% goats.

Summary: New ideas are put forward on improving herder household productivity and efficiency by the application of new organizational forms such as wholesale and auction outlets, cooperation of capital, labor and production technology, extension of volunteer herder household cooperatives and local communities, establishment of factories to process raw materials by herder households with over 1,000 head of livestock.

0002

Bakei A.

Economic and financial issues for herder households

Nomadic Studies No4. UB, 2002. IINCS. pp 118-120. In Mongolian.

Household businesses should meet certain criteria to engage in regular agricultural production, including ownership of land and fixed assets, meeting their own needs in fully, supplying commercial products to the market, earning and saving of income, creating jobs and employing hired labor.

85.1% of households in the study used only the family labor force, while 14.9% used hired labor.

Rich herder household businesses are neither financially weaker and nor incapable to work in partnership with financial organizations than other businesses, though they are not legal business entities. The study covers problems and needs of investment and the necessity to collaborate with banks and other finance organizations in the same way as independent entities in order to protect livestock from risk, encourage savings and develop sustainability.

Summary: The article offers ideas on development of a businesslike economy and how to overcome problems in creation of a favorable legal environment and banking-finance system.

1020 Kinds of Mongolian livestock and animal products

0003

Indra R.

Camel study

Monograph. UB, 1998. 304p. In Mongolian.

Two per cent of the world's camel population and 30% of the two-humped camel population live in Mongolia.

The camel comprises 1.2-3.5% of the total national herd, ranked next to cattle and sheep by product efficiency and influence on the national economy. 3.7% of annual livestock products, 0.4-0.5% of milk, 17% of wool, 2.8-3% of meat and 5.6% of export products are supplied by the camel; 25-30% of domestic transport and cartage is carried on camel. The author points out that 35-40% of the total livestock production income of semi-desert region provinces is generated from the camel husbandry.

The camel is adapted to the natural climate and pasture of 45% of Mongolian territory. As it is an ancient nomadic and pastoral livestock there is great experience in camel tending, riding, cartage, rearing and use of products. The camel is widely used for riding and cartage, milk and production of many dairy products, and many high quality goods such as warm clothes and blankets are made of camel wool. Mongolian camel breed is also a valuable genetic bank of the world's two-humped camels.

Summary: The author describes special features of nomadic and pastoral livestock and the technology inherited from the old nomadic lifestyle with camels. The article covers the camel's body, interior and exterior; its adaptation to the desert and the Gobi; uses of the milk, wool and meat; camel riding and cartage; rearing, selection, tending; veterinary attention, treatment and cures for common camel diseases.

0004

Indra R., Biichee N., et al

Mongolian camels

Project report. UB, 2000. RIAH. 36p. In Mongolian.

The article considers reasons for the fall in camel numbers towards the end of the 20th century. In 1997, there were 355,100 camels, 0.8% less (2,800) than in 1996, 35.8% (191,500) fewer than in 1987. The most severe reduction took place in 1990-1993. The authors believe the main reasons for the reduction were related to a failure to take into account the structure of camel herds when livestock privatization took place. Many camels were slaughtered because of a lack of meat and oil in rural and urban areas.

There are a number of Mongolian camel products, although at present only the meat and wool are generally used. Although 40,000 camels give birth per year, this is not replacement rate, as over 40,000 camels are slaughtered for food. Other camel products are not as yet profitable, so households rear camels only for meat, for their own sustenance and for earning income from sale. For many years, Mongolians were reluctant to eat camel meat, but this habit changed in the years of transition to a market economy.

Summary: The authors suggest it is important to increase income from the camel herd. That only 0.8 tons of milk is produced a year shows there is a little demand for camel milk and little impetus to use the camel cow as a dairy animal. It is possible to increase the camel milk yield: one unit of fodder results in one liter of milk.

The authors consider that there could be more demand for camel milk and yogurt in settled areas, because of its biological characteristics, length of storage, transportation capacity and medical importance. The establishment of dairies as small industries would involve primary processing, cleaning, bottling and delivery and would be an additional source of income for camel owners.

0005

Purevragchaa Sh., Erdenebaatar B., Tsegmid M.

Wool yield of twin-bearded camels

Livestock research No 5. UB, 2003. pp 23-32. In Mongolian.

Wool is a basic product from camels, varying according to age, sex, care, breed, fatness and genetic characteristics. The main difference with the twin-bearded camel is the wool yield, amount, location and shape of beard.

The average wool output from a twin-bearded camel is 3.6-3.7 kg in the first year, 4.6-4.7 kg in the second year, 5.2-5.5 kg in the third year, 5.6-5.8 kg in the fourth year, 7.7 kg from a castrated camel in and after the fifth year, 5.96 kg from a fully-grown cow camel and 12.5 kg from a bull camel.

This means that its wool yield is 1.22-1.953 kg (0.1-3.2%) higher than those more common camel breeds', for both fine and coarse wool.

The quality of the wool is almost the same as other camels, but the staple is 91.6-105 micrometers shorter and 2.2-3 micrometers thicker than two other breeds. The wool yield of the twin-beard alone is 1,137±0.43 (1,700-2,500) grams.

Summary: The authors call for more attention to the raising of twin-bearded camels, with their higher wool productivity and quality in their theoretical research conclusion.

0006

Tsevegmid G.

Mongolian horses

Monograph. UB, 2000. Ministry of Education, Culture and Sciences. 405p. In Mongolian.

This book consists of six chapters and covers equine biology and studies, with an overview of the breeds and strains of Mongolian horse, racecourses and Mongolian methods for treating common horse diseases.

Summary: This volume gives a good understanding of the Mongolian horse and its relationship with nomadic Mongolians and reflects methods of treating horses for various diseases, along with special features, origin, breeds and strains for the good racehorse.

0007

Dagviikhorol B., et al.

Mongolian yaks

Project report. UB, 2000. Research Institute of Animal Husbandry. 53p. In Mongolian.

This study covers methods of increasing the yield from the Mongolian yak, methods of caring for young bulls, guidelines for artificial insemination, restoring and improving pasture in the Khangai high mountain region and guidelines for pasture use. Running a yak economy is different, depending on the ecological conditions in the mountain regions of Khangai, Khuvsgul and Altai. In the Khangai mountain region, the yak economy maintains a balance between society, the economy and nature, and becomes a livelihood base for private livestock businesses.

In the market economy, there are limited possibilities to operate a yak-based economy by a single household, so that tends to advantage tent group forms. One such, a group of tents named *khot ail*, has been created, with an average of 76 yaks per household, comprising 15 (19.7%) mature males, 28 (38%) mature females and 33 (43.3%) young cattle.

Summary: The authors say that when selecting out young bulls, it is necessary to take account of the breed, origin, exterior, live weight, milk yield and color of dams and sires. The live weight of a yearling bull calf is 405.1 ± 3.5 kg, of a cow 311 ± 2.9 kg, with a milk yield of 2.45 ± 0.8 liters per day in milking season.

0008

Bat-Erdene T.

Mongolian breed yak

Monograph. UB, 2002. MSUA. 135p. In Mongolian.

Yaks mostly live in 13 aimags and 130 soums with mountain and forest steppes. At the time of the study the numbers of yak and *kainag* (offspring of a yak and a Mongolian cow or bull) were 100,600 in Arkhangai, 98,500 in Khuvsgul, 79,000 in Bayankhongor, 74,900 in Zavkhan and 68,300 in Uvurkhangai, comprising 71.3 per cent of all Mongolian yaks.

At the time, 26,600 tons of yak meat (live weight) were produced nationally, 5.7% of all meat production (18.1% of beef). Nationally, 35 million liters of yak milk were produced, comprising 12.1% of the nation's total milk production (14% of cow milk).

A Mongolian yak yields an average of 400-450 gm of moult (shed hair), 600 gm of long hair (tail and long hair along the belly), which means a national annual total of 354.5 tons of hair and 250 tons of moult can be produced. The yak is used for transporting on difficult roads, for riding and carrying loads or pulling a cart. The Mongolian yak is significant for the national agriculture and economy and is an independent breed with high economic efficiency in its reproduction and productivity.

Summary: The monograph describes how the Mongolian yak is suited to Mongolia's extreme climate and weather. It is an important work for the Mongolian nomadic and pastoral livestock industry.

0009

Tsegmid M.

Potential for improving cow milk yield

Research paper No 28. UB, 1998. MSUA. pp 15-17. In Mongolian.

The author advises that milking a cow away from its calf will improve the efficiency of a new hybrid cow in the natural climatic and pastoral conditions of Mongolia's forested steppe. He claims an increase in milk volume of 18.7-28% per cow, plus higher amount fat and live weight and easier milking.

Summary: The author describes his experimental work on the Alatau-Mongolian hybrid cow and suggests ways to increase milk yields and efficiency of dairy farming.

0010

Enkhbolor B., Tsegmid M.

Selenge cattle breed milk yield

Livestock research No 5. UB, 2003. pp 53-56. In Mongolian.

A Selenge breed cow can produce 660 liters of milk with 3.57% fat (20 kg of cream and other dairy products). The author says that the milk yield is close to that of an indigenous thoroughbred Mongolian cow.

The average weight of a six-month old Selenge calf reared on mother's milk and grass is 148 kg, 25-39 kg lower than a calf reared with the dam all the time.

Summary: The study shows that for a household with few heads of the Selenge breed cattle, the cow may be milked without harming normal growth of its calf.

0011

Sambuu G.

Yield heredity, selection criteria and efficiency of Mongolian sheep

Livestock research No 5. UB, 2003. pp 6-10. In Mongolian.

Under standard criteria, Mongolian traditional breed sheep live weight ($h^2 = 0.4$) is low and wool length ($h^2 = 0.3$) is medium. The average yield from selectively bred sheep is 5 kg more live weight, with wool 80 gm more and 1.5 cm longer. The researcher estimates that the average yield of a sheep herd will be reached after 2.5 generations for live weight, after 5 generations for wool output and 3.3 generations for wool length to the level of selectively bred elites. This takes 10-20 years.

In Mongolia, 12 breeds, part-breeds and 4 strains of sheep are raised at 3 breeding stations. There is a need to determine a heredity coefficient, selection criteria and efficiency for each sheep to ensure heritable quality of yield and raise more pure bred sheep. These indicators have been determined only for the Orkhon breed.

Summary: This work summarizes the heritable quality of the yield and genetic efficiency of Mongolian sheep.

0012

Gonchigjav Z.

Mongolian sheep

Monograph. UB, 2000. 303p. In Mongolian.

This monograph covers how the Mongolian climate affects the pastoral herding, traditional methods of weather forecasting, pasture and vegetation; breed, biology, physiological features, rearing, yields, strain of Mongolian sheep; customs and laudations on sheep. It reflects special

husbandry methods and technology for each season, based on many years of experiences of nomads.

Summary: The monograph covers special features of tending sheep as passed down by Mongolians who have been engaged in nomadic livestock herding for many years, including all aspects related to sheep husbandry.

1030 Living Standards and Problems for Herders

0013

Avdai Ch.

Improving herder living standards by small businesses

Nomadic Studies No 4. UB, 2002. IINCS. pp 131-134. In Mongolian.

This article points out that raw livestock materials like wool, hides and skins are at present exported without processing, and that those who live far from the market do not take full advantage of these valuable raw materials.

The authors also mention traditional raw material processing technology and labor saving devices and techniques have been adopted. Small businesses have been set up in several aimags and soums to make felt goods, process skins, plant grain crops and vegetables and use meat and milk and are starting to show results.

Summary: A national technological fund to process raw materials has already been established, so the foundation of small and medium industries to support herders would offer opportunities to improve living standards and conditions.

0014

Adya Yu.

Features of the herder household and current demands

"Mongolia economics: yesterday, today and tomorrow" magazine No 1. UB, 1997. IFE. pp 38-42. In Mongolian.

This study of ways to improve living standards involved herders from 11 soums of 9 aimags and 4 regions. It looked at the need to establish effective sales networks to connect herders with the market, and results indicate that households with a middle level living standard try to increase the number of their livestock to attain the level of rich households. The article focuses on the need for giving rich households the status of business entity and the need for a legal system of hired employment. The author considers that these measures could stimulate an increase in household productivity and development of rural infrastructure.

Demand of rural herders shows that it is not possible to develop rural herder households continuously with current methods, labor and capital and solve social and cultural development problems. It is thus considered important to find ways to change current consumption patterns of herder households and develop state and local policies, supports and economic mechanisms.

Summary: The work proposes to improve herder living standards on the basis of defining household incomes, expenses and productivity.

0015

Amarkhuu O.

Human rights for herders

Nomadic Studies No 4. UB, 2002. IISNC. pp 106-110. In Mongolian.

The author deems it necessary to make changes and improvements in the state of human rights of herders, especially in economic, social and cultural rights.

He calls for a government-sponsored study into the economic, social and cultural rights of herders, and calls for the initiation, development and approval of a convention on the protection of nomadic herders' rights in Mongolia with support and assistance from UN agencies and human rights organizations.

The author proposes the inclusion of social, economic and cultural rights of herders in the human rights reports of Mongolia, developed by the Mongolian government and submitted to the UN, and measures to hold continuous and step-by-step education on human rights for herders as part of activities under the UN Human Rights Commission's 1995-2004 Decade to Support Education in Human Rights.

Summary: The author calls for intensive but voluntary activities to involve herders in business farm cooperatives with shared labor under government supports and resources, and the establishment of NGOs to protect herders' rights, which become urgent issues.

0016

Baasandash D.

Study of herder household living standards (self evaluation)

Research paper No 1. UB, 1998. MSUA. pp 60-66. In Mongolian.

This is an overview of changes in living standards over time in households with various living standards and in different conditions. The trends are compared (at a 1945 basic rate) and average indicators developed, shown in graph form. These indicators are divided into 4 periods: 1945-1960; 1960-1980; 1980-1990; since 1990. Conclusions are drawn for each period.

Summary: Since 1990, herders have gained livestock ownership but living standards have overall tended to decline and the poverty gap to increase mainly because of the distance from market, commodity price growth, and inability to cover cost with income.

0017

Bat-Erdene Ts.

Sociological study of herders

Research paper No 1. UB, 1998. MSUA. pp 66-69. In Mongolian.

In 1996-1997, the Research Institute for Agriculture conducted a study involving 86 herders from 13 aimags and 23 soums, of various economic regions, into their livestock ownership, livelihoods, income, expenditure, consumption and ways of market transition of herders. 18.6% of households in the study had up to 50 head of livestock, 16.3% had 51-100, 45.3% had 100-300 and 19.8% had over 301. The results give an overview of current herder households. Herder monthly income covers only 60% of consumption and the shortfall of income is the result of factors such as distance from the market, price of raw materials and lack of cash.

As their primary source of information, 10.7% of herders nominated radio and television, 75% travelers and radio, 14.3% travelers only.

Summary: To the question "How many livestock would be adequate for your livelihood?" 41.9% of herders answered 201-400, 45.3% said they needed over 400.

The study concludes that there has been much need for state action, including improvement of transportation infrastructure, lowering of transportation costs, installation of new power grids, creating new jobs, restocking and regional development.

0018

Songino Ch.

Historical development of Mongolian nomadic dwellings

"Nomadism-International Study" compendium. UB. 2002. IISNC. pp 141-143. In English and Mongolian

Early people in Mongolia started to tame and feed wild animals, which became livelihood resources and provided dwellings, clothing and other needs. The study focuses on the dwelling and covers a long historical period during which the dwelling developed from the original design to city buildings and apartments for modern cultural life.

The author describes dwellings invented and developed in central Asia for nomads, the use of natural places as dwellings, the first human dwelling design, and how the dwelling becomes more sophisticated, culminating in the modern *ger*.

Summary: The *ger* originated as a wigwam and hut developed into the current more sophisticated home. The article describes the origins, development, placing of interior furniture, principles and values fitting nomadic specifics.

1040 Risks in Livestock Industry and Ecological Issues

0019

Bayanmunkh P.

Reducing risk in agriculture

Livestock research. № 5. UB, 2003. MSUA. pp 273-277. In Mongolian.

Ensuring fodder security is important in reducing risk in the pastoral livestock industry and the author says it is necessary to increase the amount of fodder resources and stores and assign proper structures. He considers that there is a need to change the structure of the state reserves of fodder and grass, so that the relative proportions of hay and fodder should be 50:50 within the next 3 years and eventually get to 30:70, to help reducing risks faced by the livestock industry.

Summary: The author puts forward proposals to refine the legal environments governing the national reserve, to reconsider location and mobilization means and alter the ratio of hay and fodder in the reserve, to apply methods of preservation and to refine management of fodder stations and branches.

0020

Ganchimeg G.

Animal production: risks and prevention of negative effects

Master's thesis. UB. 2000. MSAU. 99p. In Mongolian.

Drought recurs in the Khangai soums 2-3 times every 10 years and 3 times in the steppe soums. In parts of the steppe, *dzud* has been rare in years when there has been snowfall elsewhere in the country, but *dzud* recurs every 10-11 years.

The study shows that there has been a recurrence of temporary weather difficulties every spring, between April 15 and 25, since the great *dzud* of 1980.

Insurance is the classic method to reduce risk but has not been used in the animal husbandry sector because of the ineffectiveness of insurance legislation and specific features of the livestock sector. There has been no decline in the number of livestock that have died from insufficient care or of disease over the last 10 years and the author considers that this shows the action to reduce and prevent disease has not been adequate.

Summary: The author proposes to adopt an Insurance Law to involve appropriate insurance types and fees for livestock and raw materials.

0021

Indra R., Enkhbaatar L.

The effects of solar activity on livestock losses

Research paper № 28. UB, 1998. MSUA. pp 25-27. In Mongolian.

On average, livestock loss has been significantly higher every 3, 5, 10 and 16 years and the authors indicate that this results from a recurrence of drought, snowfall (*dzud*) and other natural disasters.

They suggest that an in-depth repeat of this study in each aimag would be important in helping to reduce livestock losses, and in forecasting and fighting disasters.

Summary: The article is innovative in explaining unreasonable livestock losses, looking at the effects of solar activity on livestock and the ecology in each Mongolian aimag. The authors identify the year with the highest livestock losses, study the solar activity effects of that year and show how the two are related.

0022

Moyobuu D.

Ecological threats to sustainable economic development

Research paper № 31. UB, 2002. MSUA.. pp 121-125. In Mongolian

Threats of an ecological crisis in many countries have a negative influence on development. Mongolia's annual average temperature has risen by 0.7 degrees, there is an increased occurrence of drought and snowfall (*dzud*) and soil degradation and pasture pulverization are spreading, so that 15-20% of Mongolia's pastureland is degraded, especially surrounding settled areas and cities.

Summary: The author concludes that with insufficient consideration of the ecological and economic problems in our current development, future generations will be likely to inherit an extremely damaged environment. He suggests that a structural policy should be developed and implemented for reducing the thousands of small herder businesses into few bigger ones in order to form herder households that can overcome natural and economic risks.

0023

Tuvaasuren G., Sangidansranjav S., Danzannyam B.

Climate conditions for pastoral livestock

Monograph. UB, 1996. Institute of Meteorology and Hydrology. 121p. In Mongolian.

Severe weather and a sharp climate offer many difficulties for the sustainable growth of herds, improvement of production and increase of economic efficiency in pastoral breeding. The authors say that it is becoming more and more important for herders to have access to meteorological information to help improve efficiency of using traditional tending methods on the grounds of proper scientific methods.

This article considers the need to adjust pasturing of the traditional five types of animal, according to the weather conditions, observations and meteorological studies related to livestock breeding carried out in recent years.

Summary: This book introduces the first phase of a livestock hydro-meteorological study into the influence of weather on the livestock industry.

0024

Tungalag D.

Issues for Mongolian economic security

Ph.D dissertation. UB, 2001. NUM. 178p. In Mongolian.

In a consideration of how to ensure Mongolia's economic security, the author has analyzed livestock development. Mongolian herders are unable independently to protect themselves from natural disaster and have not been able to create a system of protection from unexpected disaster in the market economy. Herders frequently experience natural disaster, often with human and material injury and loss of life. The incidence of disasters has increased, and their strength and scope are enhanced in Mongolia as result of global climate changes. Drought and snowfall (*dzud*) have occurred on average every 10-12 years in the last 60 years.

Because of the lack of precipitation in most parts of the country in the summer of 2000, 60% of the country was in drought, 40% experienced an unseasonably hot summer and the incidence of forest and steppe fire was 3.2 times that of the previous year. As result, 5.1 million hectares of pasture caught fire, 6,000 hectares of grassland were infested with voracious grasshoppers, pastureland yields fell due to the spread of field rats in 20 million hectares of grassland and livestock entered winter without sufficient fat reserves.

Because of *dzud*, the national herd of 2.1 million head failed to survive the winter in 1999 and 3.5 million died in 2000.

Summary: In Mongolia, two main approaches of combating the *dzud* are widely used. One traditional Mongolian way to combat *dzud* is to move away. This is not effective in current conditions of low pastoral capacity and overstocking with over 30 million head. The author concludes that a better method is feeding livestock by increased and improved fodder reserves.

1050 Intensification of Livestock Industry

0025

Ailtgui D.

Beef cattle and development of the meat industry

Livestock research. № 5. UB, 2003. pp 47-52. In Mongolian.

The paper considers the growth in cattle numbers, beef production, meat exports and imports, and patterns of intensification in 200 cattle-rearing countries. It suggests that it is possible to define

4 patterns in the economy of beef cattle and development of beef production: intensified, non-intensified, unsustainable and stable.

Summary: The development of beef production in the last 10 years has been similar to countries that have intensified and non-intensified patterns for some indicators, but generally it can be assigned to the unsustainable category. The paper recommends operation of a beef cattle economy in a more efficient and intensive way.

0026

Bizya G.

Development of pastoral livestock

Research paper No 1. UB, 1998. MSUA. pp 29-38. In Mongolian.

Most Mongolian herders are expert in their own system of livestock tending but are not fully conversant with ways to operate in the pastoral livestock industry in the market economy. There are no organizations to help them connect with the market and management and organizational processes are not systematically integrated. This generates difficulties for herders. The author considers that it is necessary to develop a pastoral livestock management system in harmony with the market economy on the basis of scientific researches and experiments.

Summary: The author directs his study towards the solution of problems in Mongolian livestock development, the amount of livestock export products, the occurrence of heavy snowfall (*dzud*) and the occurrence of *dzud* since 1921.

0027

Dashdondov Kh.

Economic evaluation of the current situation of private sector business entities

Recommendation. UB, 2002. MSUA. 21p. In Mongolian.

Two important requirements for the development of pastoral nomadic livestock herding are a reliable source of hay and fodder and as small as possible risk of snowfall (*dzud*). Mongolian regions best meeting these requirements are forest steppe, some parts of the dry steppe and the great steppe of Dornod.

The study says that the number of herder households meeting these requirements is tending to increase. It recommends that the future of Mongolia depends on further increasing the number of semi-settled households that have good financial resources and saving capacity to conduct extensive production; take care of the livestock intensification and good selection of breed and stock; and are able to keep the herd healthy. The article suggests that nomadic pastoral livestock households should not aim to increase the herd numbers, but should pay more attention to animal quality, taking measures to improve breed and stock and earn sufficient cash income from just a few livestock. For this, it is important to have livestock with high productivity, through improvement of the quality of existing livestock with local thoroughbreds to increase high-yield livestock in the herd.

Summary: The article recommends that in order to avoid the effects of drought and *dzud*, herders need to adopt a semi-settled lifestyle as soon as possible, and work in cooperation, seeking the best pasture and using the best pastoral methods. These steps will improve production efficiency and productivity, increase profits and benefits and improve living conditions, by intensifying production and labor saving methods.

0028

Logi N.

Ways to achieve sustainable camel herd growth

Research paper № 30. UB, 2002. MSUA. pp 108-112. In Mongolian.

Mongolia has one third of the world's two-humped (Bactrian) camel population. Unfortunately, in recent years the number of camels has been in severe decline. Mongolia had 706,400 camels in 1961. This fell by the end of 2001 to 322,900.

In this study, an economic-mathematical model of flock cycle is developed to maximize the amount of wool from camels, using detailed ratios of age, sex and structure of the 13,446 camels counted in an animal census in Mandal-Ovoo soum, Umnugobi aimag, at the end of 2001.

Summary: This study lays down that for the best sustainable growth of the camel herd, the herd should comprise an optimal ratio of 34.5% adolescent camels and 47% older camels. The author draws up his rules based on data and information from the last 40 years, and considers how factors such as the ratio of female to male camels in the herd structure, the unreasonable camel losses and average survival rate of camel calves per 100 camel cows influenced to the growth of camel numbers.

0029

Chagdaa Kh.

Livelihood mindset of Mongolian herders

Monograph. UB, 2002. 343p. In Mongolian.

Mongolia has a tradition of nomadic culture and current Mongolian livestock practices are pastoral. This means moving the livestock every season to pasture, perhaps in another aimag, soum or bag territory.

Within a territory, a herder tends to graze his livestock on good pasture, with good vegetation of grasses and fresh water. He fattens the livestock in summer and autumn, so that they last through the harsh winter and spring. 80% of Mongolian territory is suitable for pastoral livestock, with many kinds of good quality vegetation. The country has used both pastoral and settled herding for many generations, and the former is likely to be maintained.

Summary: In recent years, the climate has been changing, with more frequent drought and *dzud*, and the pastoral livestock industry faces many difficulties. The monograph recommends that it

is important to strengthen livestock material bases, turning towards more scientific ways of protecting the environment and training the younger generation of herders in traditional methods and techniques.

The author points out the importance of promoting and supporting activities for cooperatives as the principal way to concentrate herders' efforts in times of drought, *dzud* and other natural disasters as well as broad use of livestock insurance.

0030

Suzuki, Yukio

Current state of Mongolian agriculture and the future

Summary of presentations delivered at the "Some problems facing to agriculture in market condition" mini forum. UB, 2003. Mongolia-Japan Center. pp 20-21. In Mongolian.

The author covers Mongolian livestock dependence on nature, the severity of the climate and its considerable influence on herder income. He addresses the importance of establishing and supporting livestock cooperatives, herder groups and self-support organizations to work jointly in raw material sales, besides the necessity to process raw animal materials and to improve use of pasture and wells.

Summary: The author proposes that it is important to improve livestock tending, export primary processed raw materials and change to a semi-settled lifestyle to improve livestock production.

1060 Cooperatives and Herder Cooperation

0031

Ito, K.

Tent groups in the Gobi - structure and features

Mongolica. No 9 (30). UB, 1999. IAMS. pp 219-220. In Mongolian.

In 1990, Mongolia adopted a market economy and began to privatize livestock, resulting in many households with private livestock. Herder locality organization has gradually changed and as a result the traditional herder community has changed to a tent grouping to replace the *suuri* primary unit of agricultural cooperative which existed until 1990.

The *khot ail* tent grouping is a local community that existed as a household group for 700 years until the *negdel* cooperative system was adopted at the end of the 1950s. Herders do not move at whim, but regularly, according to the special features of the area and the natural cycle of the four seasons. The household economy is dominated by private livestock, and a voluntary community has been created to manage livelihoods for a group of tents (*khot ail*), the nomadic herder 'community alliance.' This term can describe the *khot ail*, other neighbors, the same bag, soum or just persons living near each other. In the *negdel* period, the five types of animal were divided by sex, age and type and herders raised them by a single household; a herder had only one responsibility in the livestock reproduction revolving process.

But the household economy is responsible for itself, rearing all 5 types animals depending on availability of labor resources, if necessary working jointly and taking part in the whole livestock rearing process. It was therefore necessary to learn a variety of skills, including breeding, pasturing, recognition of plants, castration, medical treatment, branding, processing of milk and wool, tanning, making leather straps, spinning wool and preparing salt marsh etc. These skills are passed on from father to son and from elders to youth, as well as among families, *khot ails* and local community.

Summary: The article says that Mongolian nomadic livestock production involves many skills; the family, local community and especially the *khot ail* play a great role in livelihoods and production systems of Mongolia nomadism.

0032

Logi N.

Basic issues of developing livestock cooperatives in Mongolian pastoral economy

Sc.D dissertation. UB, 1999. MAS. 224p. In Mongolian.

This dissertation considers that development of a form of cooperatives among herders is beneficial. The author asserts the best form of cooperative for herders of the two forms common in other countries is the current vertical cooperative because of the particular features of Mongolian pastoral livestock work.

In 1996, different forms of cooperative were trialed in 10 herder households in Baatsagaan soum, Bayankhongor aimag, and in 1998 in a group of 22 herders in Tosontsengel soum, Khuvsgul aimag. According to the accounting system introduced for all activities of production of the cooperatives, the efficiency level of the 'Tavan Els' cooperative was assessed at 34.5% and the 'Takhilt' cooperative reached 68%. It was concluded that this showed the proposals to run economic activities in a cooperative based on marginal productivity were practical and beneficial for increased herder productivity.

Summary: The thesis concludes that herder cooperatives can be effective in any climatic conditions and can ensure sustainable livestock production in cooperation with production sectors. Also, guidelines for organizing and developing a new cooperative are explained.

0033

Logi N.

A cooperative is a guarantee of sustainable agricultural development

Research paper № 30. UB, 1999. MSUA. pp 172-174. In Mongolian.

Sustainable livestock growth does not depend on type of ownership but on adequacy of grass, fodder, pasture and water, breeding methods and technologies. A model of agricultural cooperative development concept was formulated and put on trial into two pilot cooperatives in 2 soums in Bayankhongor and Khuvsgul aimags with different environmental and climatic conditions.

Two pilot agricultural cooperatives were set up with the member-herders' livestock not being communal but left privately owned, and with cooperative production activities with shared labor leading to increased outputs. It was estimated that income exceeded costs by 35-60%, in both total herder income and in the majority of individual household's income.

Summary: An economic-mathematical statistics model of a cooperative aimed to combine rationally with the production sectors was developed, reflecting conditions of compatible and incompatible climates.

0034

Oyunbat R.

Developing and organizing a new style of agricultural cooperative

Master's thesis. UB, 1999. MSUA. 109 p. In Mongolian.

In recent years, agriculture has changed its collective activities of nomadic and pastoral livestock, where tradition has not involved exploiting the significant advantages of shared labor. This sociological study of herders shows that they lose most of their income to middlemen and did not follow minimum requirements of nomadic and pastoral livestock tending techniques because there is no reliable organization to serve them.

Summary: Responses from herders in the study show that it is possible and inevitable to implement new technology. The author concludes that there is a need to develop and establish new-style livestock production cooperatives to meet the challenges of the current market economy.

0035

Tsybikzhapov, V.B.

New cooperative trends in the Mongolian reform process

"Market-Economy Nomads-Technology" compendium. UB, 2002. IISNC. pp 100-104. In Russian.

Mongolia has a classic pastoral livestock industry, with many years of tradition. The country's environment and climate are similar to other countries with nomadic culture. The author conducted a survey in Kharkhorin and Khujirt soums (Uverkhangai) and in Khuvsgul, Selenge and Bulgan aimags. In the last few years, herders have been interested in working cooperatively. In the first stage, 10-20 households (usually relatives and neighbors) share their labour. They were able to accumulate enough to start small-scale processing of raw materials. For example, the 'Takhilt' voluntary pilot cooperative was established in Tosontsengel soum, Khuvsgul aimag, involving 22 herder households with 3,452 livestock. The cooperative's income from livestock production in the first year was 19.3 million MNT, including 3.8 million MNT from milk, 2.3 million MNT from wool and 3.6 million MNT from skins and hides.

Summary: The study shows the potential to join property and workforce through cooperative movements among herders for increased income and profit and to overcome natural climatic difficulties.

1070 Labor Resources in the Livestock Industry

0036

Baasandash D.

Some ways to hire labour

Research paper № 31. UB, 2002. MSUA.. pp 91-94. In Mongolian.

At present, formalization of the process of hiring employees for the pastoral livestock industry is only at the initial stage. Livestock has been privatized and herders are engaged in the market economy. Property disparities between herders have grown sharply and the gap between poor and rich has increased, especially in the countryside. Rich herder households with many livestock are short of labor, while poor households with few livestock have many semi-employed and unemployed persons. Rich herders are becoming employers, while unused resources of labor have been created. Surplus labor in households which want to raise livestock but don't have enough animals for self-sufficiency forms a pool of hired herdsmen in rural areas. 14.9% of rich households in the study used hired labor.

The study shows that the employers who hire herdsmen use five types of payment, including restocking contract, rental contract, wage-based, aid-based and promotional payments.

Summary: The study is innovative in its analysis of the employment state of herder households in 25 soums of 9 aimags, considering factors such as forms and types of hiring, payment and promotion. The study shows that employers use various types of payment, including provision of livestock, rent, cash and other forms of support and inducement.

0037

Bakei A., et al.

Proper use of labor resources in the livestock industry

Project report. UB, 2000. MSUA. 41p. In Mongolian.

This study estimates the total livestock numbers for each region and employment, comparing current number of herders to the total number needed: the optimum number of livestock that can be raised by a herder and the required number of herders.

The study also looks at use of labor resources in the livestock industry, composition of herders by age and sex and labor productivity. 52.6% of all Mongolian employees and 36.4% of the entire working age population is engaged in the livestock sector and 15.2% of all herders are elders. There was a surplus labor force of 167,300 herdsmen by 1997.

Summary: Between 1990 and 1997 the number of livestock rose by 21% but the number of herder households increased 2.5 times and the number of herders increased 2.8 times, the result of rising unemployment in other sectors. Today, unemployment in the livestock sector is a cyclic unemployment resulting from the economic crisis.

0038

Jargalsuren M.

Some issues of improving herder education

Nomadic Studies No 4. UB, 2002. IISNC. pp 168-171. In Mongolian.

The article proposes improvement of herder education by providing favorable education environments and facilities for children studying in remote households by resolving their educational issues in various ways which do not impose more burdens on herdsmen, by organizing distance training that fits herder needs, delivering needed training materials and by promoting institutions and individuals working toward those ends. In particular, he suggests refining the primary education system for herder children, without isolating them from livestock production.

He proposes the refinement of existing projects such as the *khot ail* project, for example, summer training sessions that prepare teachers for their job and running courses to help teachers to generate income during their summer vocation.

Summary: The article suggests improving education of herders, especially by training about livestock production, pasture, weather, information and raw material processing.

0039

Mueller, Franz-Volker

Mongolian similarities to African nomads

"Ardiin Erkh" newspaper: No 144 (1103). UB, 25 July, 1995. In Mongolian.

Because of privatization, herdsmen are affected by the transition, moving from dependence on state co-operative wages to an unaccustomed independence. As a result, the rural situation has deteriorated. The author considers that this is because of the abandonment of the rural social structure.

Between 1992 and 1993, 30% of soum center inhabitants moved away as the center's importance decreased. Those who stayed were the poor, who were unable to run livestock herds. However, new herders often work with livestock for a year before finding that they cannot earn a living and move to the aimag center or to Ulaanbaatar to look for work.

Summary: The migration resembles what has happened in Asia, Africa and Latin America, where job seekers concentrated in urban area with hopes of a better life. The urban overpopulation caused many problems in urban living standard, housing and employment. The author concludes that the current situation of Mongolian herders is significant.

0040

Khandsuren S.

Use of labor resources in livestock rearing

Ph.D dissertation. UB, 1998. MSUA. 182p. In Mongolian.

In 1997, Mongolia had 410,000 herders, 2.7 times more than in 1990. 54.7% were aged 16-34 years, 30.1% were 35-55, and 15.2% were over 55. Employment in the livestock sector comprised 36.4% of total Mongolian employment. In the first 7 years after the change to a market economy, number of herders grew 2.3 times, but their productivity was halved. It is estimated that there were 167,000 surplus herders in the Mongolian livestock industry in 1997, according to a calculation correlating the number of animals and herder productivity.

Summary: The author studies the use of labor in the Mongolian pastoral livestock sector in connection with the number of livestock, productivity, age and sex of herders, and proposes measures to achieve better results in the near future.

0041

Khuldorj B.

Mongolian management theory: nomadic use of human resources

"Mongolica" magazine No 9. UB, 1999. IAMS, pp 379-385. In Mongolian.

The author offers a methodology to identify cultural influences on the theory of the management arising from traditional Mongolian thinking, feeling and behavior.

He considers employment in nomadic herding, generally based on the family. People living in tent groups (*khot ail*) have certain specializations or sole activities: for example, youth learn horse riding, women prepare milk and sew clothing, mature and old men catch the horses, build and repair fences and wells, prepare fodder and harvest, tan skins for leather etc. Depending on the season and place, these activities differ and people also constantly exchange responsibilities. The older man usually makes the final decision on problems regarding livestock among neighboring families as they often consult each other. This tradition can be considered a significant precursor of Mongolian management structure, characterized by its compact form and few stages.

Summary: Management theory based on the Mongolian nomadic culture of pastoral livestock differs from other management theories by its basics of human resource management. Especially, it's principally different from the American (A) theory and the Japanese (J) theory. Formulating management theory using cultural heritage basis may have a considerable importance for developing countries, especially for those in transition. It is suggested that the M theory can be common to any country with a nomadic culture.

1080 Position of the Mongolian Livestock Industry in the World Market

0042

Dashdondov Kh.

Mongolian participation in northeast Asian agricultural cooperation

"International Studies" magazine No 2. UB, 2003. pp 72-86. In Mongolian.

Northeastern Asia is a very large area with abundant resources, favorable climate and natural conditions, with traditional methods still practiced long alongside modern ways of agriculture. Eastern Russia, northeast China and Mongolia have wide areas that are not fully utilized, while Japan, North and South Korea have adopted modern high-productivity agricultural systems and techniques of processing raw livestock materials developed in Russia, Japan and China. Thus a distinctive organizational model of regional cooperation would be needed. If the advantages of each northeastern Asian nation can be harnessed, it would not only satisfy regional needs but also would take an important place in the world trade of agricultural products. The study proposes that it is necessary to take account of the wide development of the pastoral livestock sector of the region with enormous export potential to satisfy regional food demands by high quality, low priced natural products, grown without chemicals.

Summary: The author says that product diversification and regional cooperation with consideration of national preferences is not yet at a high enough level because of environmental and climate features.

0043

Myagmarjav B.

Comparison of nomadic livestock industries in central Asia

"Nomadism – International Study" compendium. UB, 2002. IISNC. pp 68-73. In Mongolian.

Central Asia is an ancient cradle of nomadic livestock and the authors carried out a comparative field study of nomadic livestock in Mongolia, Inner Mongolia and Buryatia. It looks at location, structure, types and increase of livestock in those counties in the last 10 years. In that time, horse numbers have risen 118% in Mongolia, but in Inner Mongolia and Buryatia have declined by 71-75% since 1990. The number of camels constantly declined both in Mongolia and Inner Mongolia, while the number of goats is rising in those countries because of contact with the world cashmere market.

The change in relative animal numbers is connected with the demand for wool, cashmere and meat, but also with livestock biology, pasture, water and geography, so there is a need for thorough study.

All of central Asia has long traditions of nomadic herding, but while the nomadic livestock style continues in Mongolia, herders in Buryatia and Inner Mongolia have adopted a settled or semi-settled style. The study shows what the countries have common in their transition to a market

economy. This is a cost for pasture and points out that while the cost different in Mongolia, Buryatia and China, land has been pulled irrevocably into economic turnover.

Summary: The importance of comparative studies of nomadic herding in central Asia is not limited to the above countries. The study notes that low-cost pastoral herding is benign to the environment and significant for the economy and society.

0044

Myagmarjav B., Enkhee M.

Nomadic livestock products in the global market

Nomadic Studies No 04. UB, 2002 IISNC. pp 160-163. In Mongolian.

This study looks at Mongolian meat from pastoral herding and claims that it has same quality as meat from thoroughbred animals in other countries in its biochemical contents and quality. The Mongolian meat has biological values enriched by non-substituted vita acid, vitamins dissolved in water, micro-elements, iron, manganese and copper. Mongolian meat is considered ecologically pure, hygienic and safe.

Summary: The study claims that Mongolia and some Asian as well as African countries produce ecologically pure meat products. Although this output is small on a global scale, it is an important export for those countries. It is suggested that many Asian and African countries with a nomadic herding sector should jointly conduct a study into meat products and share information.

0045

Nyamaa N.

Economics of goat husbandry

Monograph. UB, 2001. MSUA. 46p. In Mongolian.

The monograph offers a comparison of Mongolian goat husbandry with the world goat husbandry, setting the goat husbandry locations and seeking possibilities to develop the goat husbandry and to increase number of goats in potential places for raising goats.

The author makes extensive use of Mongolian statistics and research papers on pasture and climate, domestic and foreign research works and his own research material.

Summary: The paper gives wide consideration of Mongolia's goat breeds, its products, locations, growth dynamics, past, present and future cashmere production and further trends. It supports consideration of development issues of the goat husbandry by pastoral capacity and creation of a rational structure of goat flocks.

0046

Tumurjav M.

Mongolian livestock adaptation to the climate and ecology of central Asia

"Mongolica" magazine No 9. UB, 1999. IAMS. pp 337-349. In Mongolian.

Mongolian nomadic herders chose the nomadic lifestyle as best suited to the Mongolian environment, climate, geography and pasture.

Mongolian livestock must endure harsh, lean winters and springs, so in summer and autumn they increase body weight and accumulate fat for energy and warmth in harsher weather, grow wool and hair and strengthen their physique to overcome fluctuations of warm and cold. Mongolian animals are robust and disease resistant, with a well-developed herd instinct, enduring a harsh climate, with great hereditary yield and fertility. They possess many special biological, ecological and etiological features.

Most Mongolian livestock have dark hair; many sheep have black heads and eyes, with black or multicolored shanks, which the author believes protects them from harmful rays of the sun and regulates body temperature. The animals are well able to endure the cold in winter and spring and use energy economically, as he claims brown and black colors absorb solar energy well.

Summary: The author claims that Mongolian breeds conform well to ecological conditions of Mongolia.

0047

Tumurjav M., Erdenetsogt N.

Mongolian nomads

Monograph. UB. 1999. MSUA. 292p. In Mongolian.

Mongolia is one of the few countries still basing their economy on livestock, where most people still live a nomadic lifestyle. Even in the current transition to a market economy, livestock is still the principal economic sector and significant part of Mongolian population is still nomadic.

The authors say that Mongolian nomads have traditionally been able to resist foreign economic usurpation such as economic crisis, price fluctuations and bankruptcy by operating a distinctive nomadic livestock economy in which they satisfy needs for dwellings, clothes and nutrition without a wasteful technology. This is the culture they arrived at themselves, without foreign support.

The study says that over centuries, in the harsh climate and difficult geography of central Asia, Mongolian nomads acquired considerable knowledge and experience in tending, rearing and selecting, riding, processing and using yields, treating diseases of animals in harmony with the pasture and water of the region. Their dwellings, livelihoods, furniture, facilities, livestock equipment and food are also well adapted to a nomadic lifestyle.

This lifestyle, which respects nature, results in ecologically pure products, is energy efficient and has developed no wasteful technology. The creation of a natural cycle involving the environment, pasture, water, livestock and people is considered important.

Summary: The authors suggest a development concept for the nomadic livestock sector, including its structure and composition, production process, economic and natural evolution and growth dynamics, on the basis of many years of studies on issues such as Mongolian livestock biology, etiology, ecology, physiology and morphology.

0048

Chuluunbaatar G.

Issues of tradition and reformation for nomadic culture in the era of globalization

“Nomadism – International Study” compendium. UB, 2002. IISNC. pp 35-37. In English and Mongolian.

Mongolia has developed for its whole history both nomadic and settled cultures over its broad territory with extremely low population density. In the current world of multicultural interactivity, this combination of the nomadic and settled styles in Mongolia that creates a new pattern of civilization is an interesting context of international cultural studies.

Summary: The author considers that the 21st century will be a century of social globalization and multicultural interaction. This study of the rich and complex structure of nomadic culture covers nomadic technology, labor, economy, skills, intelligence, culture, energy, ecology, traditions and sociology.

TWO. LIVESTOCK HUSBANDRY MANAGEMENT

1210 Organization of Livestock

0049

Tumurjav M.

Teachings of To Ban and Mongolian nomadic herding

Research papers No 29. UB, 1998. MSUA. pp 10-15. In Mongolian.

Pastoral livestock and issues like traditional methods of tending, fattening and strengthening health of herds, knowledge of the environment, climate, weather and livelihoods are well described in the 10th teaching of To Ban. Development of the household economy by a herder's intelligence, hard work, livelihood and economic skills are important in the market economy and the author suggests that the teaching of To Ban was the first Mongolian model of such relations.

Summary: The author proposes livelihood and livestock breeding methods in Mongolia should be based on the teachings of Togtokhtur, who was honored in the Khalkh tribe as Hard To Ban.

0050

Chadraabal G.

From a cooperative to a farm

Monograph. UB 2003. 182p. In Mongolian.

Before 1990 and the start of economic liberalization, the issue of the developing livestock industry was regulated by a standardized administrative policy. The author says that in the current market economy, distinctive methods, technologies and management approaches are required for the sector.

This work redefines the basic object of livestock industry, its forms and environment, and identifies the main trends and processes for improving its management capacity in conformity with the national development policy.

Headings include The Mongol Farm Model, Training for the Successive Household Heads, Priorities for Scientific Works on Farms, A Farm in the Market, Mongolia Needs Farms, and the Model Fine and Semi-Fine Wool Sheep Farm. All are presented broadly in connection with modern management approaches of livestock production with due consideration of scientific research works, foreign experiences and development trends.

Summary: The book aims to motivate herders with new ideas and dreams and gives advice on selecting new ways. It looks at past and current conditions of the livestock industry and its history, pedigree technology, reforms, traditions, experiences and trends from many viewpoints.

0051

Adya Yu., Purev B., Tulga G.

Improving herder household productivity

Research paper № 1. UB, 1998. MSUA. pp 3-10. In Mongolian.

For traditional nomadic herding, the authors have developed a mathematical model, using the structure and optimum number of livestock for an average herder household, to describe how expenditure is allocated and how income and profit can be generated from livestock production per year in 5 different environments.

Summary: The study says that herder household productivity depends on regional environmental factors. The optimum for the average household is 300-500 livestock, made up of 1.4% camels, 13.1% horses, 6.8% cattle, 50.7% sheep and 28% goats. The author suggests that if herders save 20-30% of their profit in good years for emergency reserve fund, it is possible to increase overall livestock production yield and get sustainable livestock growth.

0052

Batdelger Ch.

Territorial organization of agricultural production near cities

Ph.D dissertation. UB, 1995. Institute of Geography, MAS. 113p. In Mongolian.

The study looks at problems involved with the establishment of agricultural-industrial complexes and inter-city industries based on natural resources. The development of chain regions around urban areas will require herdsmen to change their nomadic way of thinking as well as to reform many socio-economic aspects. First of all, a government policy is needed to support development of an intensive livestock sector in suburbs.

The demand for livestock products is encouraging an increased use of agricultural land around the cities. The author considers that it is necessary to make livestock production more industry-oriented, to refine territorial organization gradually and to set appropriate sizes of agricultural area around a city.

Summary: The territorial organization of livestock production and the territorial industrial complex is a new form, created automatically under production process, and has a great potential for increased production. Intensive and semi-intensive livestock geography have been newly formed in the process in suburbs.

0053

Batsuuri Kh.

Issues of territorial organization of livestock in Mongolian steppes

Ph.D dissertation. UB, 1996. Institute of Geography, MAS. 151p. In Mongolian.

This study looks at the features of movement and changing pasture of herders in the Mongolian steppe areas, linking with land ownership. It says natural and socio-economic conditions and

resources to develop livestock differ in each area and authorities must consider the differences in improving sector productivity and resolving herder social issues.

The study looks at features of herder land ownership and movement in the steppe and defines 22 characteristics, 8 sub regions and 2 regions of ecologically appropriate livestock territory.

Knowledge of ecologically appropriate livestock territory guides much research, planning and practical actions such as development of an efficient scientific management system, improvement of inter- and intra-organizational bases and organization of rural socio-economic units.

The author considers that identification of ecologically appropriate pastoral livestock territory is fundamental to a policy to develop different territories in the region. One basic unit of territorial organization of using public land for pastoral livestock with consideration of natural systems is the tent group (*khot ail*) and the local household community.

Summary: The author proposes that significant consideration should be given to natural conditions and resources when developing territorial organization of pastureland for herders under the Law on Land and when the local governor and citizens' representative office decide allocation and ownership of pastureland. The author believes that his research can be used for policies and practical actions such as moving the livestock industry into a market economy, formulation of a development policy for the steppe region and implementation of the Mongolian Land Law.

0054

Dorligsuren D.

Tent group (*khot ail*) farms

Project report. UB, 1995. 102p. In Mongolian.

The tent group (*khot ail*) is a historically selected method of running livestock and sharing labor. It is believed to be a basic early form of labor organization, and varies according to the structure and special features of the livestock production instruments.

Khot ail groups have sprung up in connection with the effects of season and climate, number of livestock, need for labor, pasture capacity and herding technique. The study observed that the *khot ail* is one temporary form of labor organization forms that shares labor but not property. However, it is not a stable way of conducting business, it is just a production unit that will have to be dissolved when the pasture has degraded due to overgrazing and overstocking.

It can be a production unit or business entity based on blood relations, such as father-son or brother-brother. One such tent group with common property can be described as both production unit and business entity. So a *khot ail* is a production unit with three pillars: herdsman-pasture-livestock, or even business entity for a tent group consisting of single-family household economy.

Summary: The number of households and labor force in a *khot ail* varies regionally, depending on the number of livestock, age and sex of livestock, structure and type of animal. The author explains that a *khot ail* is a form of labor organization based on private property of livestock producers, and when a *khot ail* is developed, it is theoretically and practically important to consider scale, structure, organization, economic and financial capacity of independent household economies.

0055

Kim, Yu

The right time to create a Mongolian rural economic foundation

"Mongolica" magazine No 9. UB, 1999. IAMS. pp 221-247. In Mongolian.

The author proposes that if aimags, the basic units of local administration, place too much reliance on the central government, there will be only slow local and rural development. The study says that rural development is impossible unless the local authorities try to develop and think independently about how to overcome difficulties. The study draws attention to the 2 out of 10 principles for rural development espoused by UN organizations: first, central government support and then implementation of a multi-purpose program.

Each aimag may have its own program; but many works cannot be implemented by the aimag alone, they need central government support to overcome obstacles. This, says the article, is the strategy and guideline for the development of local economics.

In current Mongolian conditions, developing all sectors at the same time is inadvisable, with poor results. Initially, targets that can be more easily achieved at low expense should be chosen, with gradual expansion and development. The study suggests that one low-cost primary target can be pastoral livestock.

Summary: The study says that local economic development cannot be achieved only by aimag planning, but needs short-term targeting with joint implementation of both multi-sided programs and government strategic policy implemented at the appropriate time.

0056

Nansalma Ts.

Livestock production management issues for herder households

Ph.D dissertation (On the example of Gobi region). UB, 1998. MSUA. In Mongolian.

The author says that teaching pastoral herders in Mongolia about how to operate in a market economy is extraordinarily important. The study focuses mainly on production, organization and management approaches and future trends of herder household economies in the semi-desert region, aiming to study theoretical and practical management issues and to develop management policies and guidelines appropriate to household economies at micro level.

Mongolian herders developed traditional livestock methods with particular national features in harmony with nature over many centuries. Now there is a need for rational modern management methods to change herder households from a self-consumption producer into business units able to compete in the market. Present herder households differ in their number of livestock, income, demand and supply, so that they can be divided into self-consumption oriented and self-sufficient intermediary units.

Summary: The study offers recommendations on management policies and guidelines for herder households as well as production and economic activities.

0057

Nyambat L., Narankhuu L., Purev B., et al.

Features and methods of changing agricultural units into farms

Project Report. UB, 2002. MFA. 84p. In Mongolian.

The authors recommend consideration of several criteria for understanding a farm separate from a typical household, including the economic system, land ownership, environmental conditions, business purposes; commercial potential of products, earnings and savings for extensive reproduction and reliable financial backing.

Mongolia has 256,500 households with livestock and 4,000 of them have over 500 animals, able to satisfy their own demands, cover the costs of production from income and expand production with profits. The authors consider that these households have met the criteria of developing into a form of farm.

Summary: A farm with 500-1,000 livestock can expect 10 million MNT in sales and 4.7 million MNT of profit. With 1,000-1,500 livestock, it should be able to budget for 17.5 million MNT of income and 9.8 million MNT of profit. With over 1,500 livestock, it's possible to earn 31.1 million MNT of income and 19 million MNT of profit. Economically, financially and technologically, a new small farm needs 15 dairy cows to support a single farmer-household, 25 dairy cows for a medium-size one.

The study predicts that in the future, to meet Ulaanbaatar milk demand, there is a need to develop 1,400 small dairies and 2,150 medium-size dairies by 2020.

0058

Onuki, Masao

Current social situation and future of nomadic herders

"Mongolica" magazine No 9. UB, 1999. IAMS. pp 321-327. In Mongolian.

This study covers nature, livestock and people who use livestock for self-sufficiency, especially family and community groupings. The author considers the process by which single households, tent groups (*khot ail*), communities and cooperatives move gradually from traditional cooperation into development of an advanced form of cooperatives.

The basic unit of a cooperative is a household. The cooperative is a more complex form of organization, usually comprising 5-6 family communities who unite to deal with crises they cannot cope with individually. The cooperative must assess in advance the potential for natural disasters such as heavy snow, *dzud* and drought.

Tent groups (*khot ail*) are the second lowest stage of joint organization that involves the workforce of several households. The third stage is a community of several tent groups.

Summary: The author claims that a family relationship based on love and respect between parents, children and siblings is extended in a tent group, community and cooperative, with respect for each other and mutual support. The study relates a process of creation of a common household

economy, tent groups (*khot ail*), communities and cooperatives and their internal dynamics as well as future trends.

0059

Tumurjav M., Myagmarjav B.

Dairy farms: mainstays of milk production

"Nomadic Studies" magazine № 6. UB, 2003. IISNC. pp 30-39. In Mongolian.

The structure and operations of the so-called American Farm in Batsumber is very simple, compact, low-cost and energy-efficient, with low electricity consumption and machinery use. It can be taken as a model farm for households with few cattle, and the authors suggest organizing training courses in certain regional centers, on the basis of studying its organization, operations, technology and management as well as economic efficiency estimation.

The article looks at proposals to develop and support an intensified livestock business, beginning with measures such as calling for tenders for the establishment of dairy farms close to settled areas, cities and regional support centers, paying more attention on fodder reserves, allocating land for hay and fodder fields and certain pastureland to be owned and used by the farmer.

Summary: The authors suggest that the American Farm is not the only possible model of a dairy farm, and that more advanced and efficient models can exist depending on the special features of a regional nature and ecology development of infrastructure.

1220 Regional Development Issues

0060

Ganselem D., Tsedendamba L.

Assessment of the potential supply of livestock raw animal materials from various economic regions

"Development Research of Mongolia" №1. UB, 2003. Mongolian Development Institute, MAS. pp 159-166. In Mongolian.

Mongolia mostly exports unprocessed livestock raw materials (wool, cashmere, hides and skins), losing considerable profit potential. Herders have a limited opportunity to bargain products in the market, so usually sell or barter to middlemen. They cannot maximize profitability and have few opportunities to accumulate funds, expand and intensify their businesses.

The study suggests a need to redevelop the Mongolian livestock raw material processing industry, introducing new technology and techniques, management and government regulation and free competition, first carrying out a thorough assessment of capacities to supply raw material resources for each economic region.

The authors estimate that Mongolia could export up to 40,000 tons of meat annually, including 10-13,000 tons of beef, 10-11,000 tons of horsemeat, 7-9,000 tons of mutton and 4-5,000 tons of goat meat.

The authors also estimate that it is possible to export 7,700-9,100 tons of meat from the western region, 12,400-14,700 tons from the Khangai region, 7,300-8,500 tons from the central region and 5,800-6,900 tons from the eastern region.

Summary: The study proposes the expansion of both the domestic and export market for meat and other raw materials and products; signing cooperation contracts for veterinary regulation and relaxation of livestock quarantine regulations with neighboring and other countries as well as negotiation on health and hygiene rules. The authors also suggested ideas to assess accurately the livestock production capacity in each economic region.

0061

Moyobuu D., Bakei A.

Regional agricultural development issues

Project report. UB, 1999. MSUA.. 30p. In Mongolian.

The report looks at the potential of regional agricultural development, considers differences in pasture and cropland, and calls for a study of the food supply chain and raw materials resources. A major factor in consideration of regional agricultural development issues is the development of the herder household economy. The authors concentrate on three major concerns: improving herder household social and livelihood conditions; improving household production technologies; and resolving economic and legal issues of herder households.

Summary: The authors focus on the main issues of regional agricultural development. They estimate the environmental conditions, population size, demand, supply and available reserve for livestock and vegetable products by each region for 2000-2020. They give an overview of the main issues necessary to be considered in regional agricultural development of each region.

0062

Tsedendamba L., Batkhishig O., Maam Kh.

The western region of Mongolia

Monograph. UB, 1999. 290p. In Mongolian.

In this monograph the authors give comprehensive overview of theoretical and practical issues of regional development, including a summary of reasons for developing the country by region in the market economy and ways to implement this, based on research results carried out over the last 10 years.

Having conducted a field study in the western aimags of Bayan-Ulgii, Gobi-Altai, Uvs and Khovd, the authors define the extant environmental conditions and resources, historical geographic overview, administrative structures, economic and social sectors and assessed the current conditions of livestock locations, flock structure, raw material resources as well as social, economic and livestock development.

Summary: The monograph suggests that to develop the western region, it is necessary to increase the income of most of the population by increasing number of small and medium size enterprises to process livestock raw materials, exploiting mineral resources, expanding road networks and improving power supplies.

0063

Buyantugs A.

Mongolian-Japanese agricultural cooperation

"North East Asia Studies" magazine. № 2. UB, 1999. pp 20-22. In Mongolian.

In March 1994 a contract for a master plan study was agreed by the Japanese and Mongolian governments, to look at development activities of the rural agricultural villages and the agriculture of 6 aimags (Tuv, Selenge, Bulgan, Uvurkhangai, Darkhan-Uul and Orkhon) and the transfer of new techniques and technology in agriculture.

The study covers possibilities of organizing livestock fodder supply system and developing intensified livestock production, using former state collective farm property around urban centers such as Ulaanbaatar, Erdenet, Darkhan and Arvaikheer.

Summary: This project, implemented by a Japanese grant, has a great importance of capacity building to export food products to Russia and China and in addition to support implementation of the government objective for increased domestic food supply and resources.

1230 Traditional Methods of Pastoral Livestock

0064

Minjigdorj B., Naidankhuu M., Narantsetseg G.

Virtuous Livestock: a manual for herders

Monograph. UB, 2001. World Vision in Mongolia. 173p. In Mongolian.

The livestock industry, Mongolia's principal economic sector, developed in a nomadic lifestyle over many years, but is highly vulnerable to natural disaster. Because of global climate change in the last few years, there have been more natural disasters such as drought and *dzud*, and the sharp climate of central Asia presents considerable economic and social difficulties.

World Vision Mongolia has published Virtuous Livestock to improve herder knowledge about sustainable livestock development and production, as a result of government approval of the national program to protect livestock from *dzud* and drought.

This book reflects location, specific features, pedigree, main yield qualities, differences between breeds and stocks in the livestock gene bank; where and how to make selection; methods of rearing livestock, protection of the gene bank, its proper use; information on natural pasture with basic livestock fodder and its best use; protection and rehabilitation of pastureland; preparation of fodder; creation and storage of reserves, livestock feeding at the appropriate time, caring methods;

prevention of and protection from natural dangers and disasters, getting through disaster with minimal damage, preparations for winter and spring; livestock health, prevention of disease and treatment methods.

Summary: The book offers many important and valuable ideas, news and information helpful in increasing incomes and profit for household economies by improving management and organization of livestock production and full use of livestock resources.

0065

Sambuu J.

Warnings and teachings in working with livestock

Monograph. UB, 2000. MFA. 172p. In Mongolian.

Experience in pastoral tending has accumulated from generation to generation and, says the author, should be taken more into account. About 1,200 warnings and teachings are presented in the 19 chapters of this book.

The author defines 3 basic regions of mountain meadows, steppes and semi-desert, and details methods for selecting livestock pastures for all 4 seasons, livestock breed improvement, insemination, mating cattle, rearing young animals and castrating male animals.

The author gives advice on how to build fences and wells; grow and harvest fodder and hay; how to use salt marsh; how to protect and prevent livestock from drought and snowfall (*dzud*). There are detailed descriptions of processing milk, skins, wool and cashmere; taming and using young cattle for riding and carrying; and preparing livestock equipment.

Summary: The book comprehensively covers the nomadic pastoral livestock industry and ways to increase yields.

0066

Avdai Ch., Tumurjav M., Songino Ch.

Traditional methods of Mongolian nomads

Monograph. UB, 2003. IISNC. 384p. In Mongolian.

This is a joint work by prominent Mongolian scientists, looking at the skills and experience of Mongolians about nature, use of pasture, livestock products and adaptation between nomadic and settled herding. The authors suggest that these skills and experiences have achieved a high level. The monograph divides traditional Mongolian knowledge into two sections: astrology and natural science, and traditional methods; the authors here concentrate on the latter.

IINCS has also published Milk and Dairy Technology, which covers in detail livestock care, pasture use, traditional ways to make livestock products, livestock equipment, nomadic homes, traditional craftsmanship, traditional agriculture, woodwork and metalwork.

Summary: Historically, Mongolians have lived and managed nomadic livestock in a severe climate, developing traditional ways of tending livestock and agriculture, producing raw material

products handed down with constant improvements from generation to generation. Mongolian and foreign scientists have studied traditional methods for many years and issued the results partly in books and articles. This study is a detailed overview of the literature.

0067

Bataa D.

Traditional pastoral livestock management methods

Monograph. UB, 1998. 152p. In Mongolian.

The author posits that in order to study various issues nomadic livestock production, it is necessary to look at environmental and ecological factors like pasture, soil, water, vegetation, weather and climate as the bases for a natural balanced relationship that affect livestock breeding, evolution and yields.

Summary: The author suggests that it is essential to meld traditional methods of milk production, skin processing, and wool and cashmere production with more modern technologies. He details traditional ways of managing pastoral livestock, including livestock tending, fattening and processing products as well as recognizing natural weather indicators.

0068

Bayanjargal Ch.

History of the Mongolian economy

Monograph. UB, 2001. 275p. In Mongolian.

Mongolia has a long history of tending livestock as a livelihood, and livestock still plays a central role in the Mongolian economy. This work has 2 parts, 9 chapters and 36 headings. The first part reviews history of livestock industry and traditional lifestyles from ancient times until 1990, on basis of relevant writings and publications. The second part covers the last ten years.

Summary: The monograph includes explanation of traditional methods of caring for and increasing livestock herds, how khans and lords affected the livestock economy, the main issues involved in developing the livestock sector and how they were resolved etc. The work is a general historical overview of the pastoral livestock industry.

0069

Lkhagvajav S.

Traditional methods of livestock caring

Research paper No 1. UB, 1999. MSUA. pp 96-101. In Mongolian.

The author's central point is that yields from livestock will increase provided that a proper combination between traditional and modern scientific methods is found.

Summary: The author recommends that livestock pastoralists need to choose location carefully, use pasture more efficiently, use tending methods appropriate to the nomadic way of life, and organize moves more efficiently. He makes a plea for maintenance of ecological balance, properly organized production with consideration of the optimum herd size and structure.

0070

Namjim T.

Mongolian livestock economy in three periods of history

Monograph. UB, 2000. 1016p. In Mongolian.

This monograph covers business and economic traditions, development and backwardness in three periods of Mongolian history and social structure.

- Feudal society, from the Great Mongolia period to the Autonomous Monarchy (up to 1921), when nomadic livestock was practically the sole factor in the national economy.
- New era of Mongolia, from the 1921 revolution until 1990: the monograph describes the socio-economic policy, growth and changes in the livestock-main sector; and the creation and development of other production and service sectors.
- The last ten years, the creation of a new social and political system as Mongolia is in transition to a market economy. The study describes significant events like the replacement of former agricultural collectives by privatization of livestock, the dismantling of state collective farms and creation of small agricultural companies.

Summary: The author gives an assessment of the livestock sector development, classifying and summarizing the publications of other researchers and scientists.

0071

Potaev, Victor Sergeevich

Development history and economic base of Mongolian traditional livestock herding (compared with Buryatia)

Summary of Sc.D dissertation. UB, 2003. MAS. 33p. In Mongolian.

The author considers that the main difference between the Mongolian and Buryatian livestock industry structure is that Mongolia does not need radical reforms, but needs rather to pay attention on selective livestock breeding.

Building a herder household business as a farm is proposed as the best way to develop the livestock industry in both countries, although prospects for livestock intensification and agricultural developments are limited, obstructed by the harsh climate and not entirely suitable territorial locations for intensive cropping.

Recently, world agriculture has been adopting alternative technologies. The Mongolian traditional livestock industry can be counted as an alternative one, because it uses almost no chemicals.

Instead, its base is natural pastoral fodder and use of dung. The author considers that in Buryatia and Kalmyk, a revised government policy is needed for livestock development.

Summary: The study suggests that in addition to rational allocation of financial resources to the restructuring of the livestock industry, it is important to offer state subsidy, tax relief, and more loans to finance traditional livestock productions. He says that experience shows nomadic livestock herding finds it difficult to develop independently without state support.

0072

Sodnoi T.

Livestock in the Great Empire of Chinggis Khan

Monograph. UB, 2001. 78p. In Mongolian.

The author identifies 3 stages in the development of Mongolian nomadic livestock herding: from when humans started to tend animals in Mongolia by taming wild beasts to the start of nomadic livestock breeding; from the beginning of the classic form of nomadic herding to the start of the 20th century; and from the beginning of the 20th century up to 1990.

Each stage had its peak period of development. This was for stage 1 the period of the Hiongnu state, when classic nomadic herding began, 2,000 years ago. The second stage peak period was the Great Empire of Chinggis Khan (13th and 14th centuries). This was when breeding principles began to be understood, so the gene stock of Mongolian livestock was enriched and breeds created. Aristocracy-owned herds were created; livestock were protected by Ikh Zasag law; and divisions of labor were introduced.

During the third stage, the industry developed along scientific lines, with many new livestock breeds, creation of cooperatives and herders' sharing of labour.

Summary: The researcher gives support to Japanese expert of Mongol studies Onuki Macao's idea (1988): "Nomadic livestock in Mongolia is growing stronger, experimenting towards a specific goal, adapting to natural, social and historical conditions."

0073

Songino Ch.

Mongolian needleworking artistry

Monograph. UB, 1999. 301p. In Mongolian.

Mongolians domesticated wild animals long ago and began nomadic herding, moving across the wide country, processing raw livestock materials by sewing, metalwork, carpentry etc. One of the earliest forms of production was needlework.

Summary: This article aims to teach traditional activities to the younger generation and gives guidance to the art of needlework as a special part of national history and culture, created by centuries of nomadic Mongolian life.

0074

Khavkh N.

Philosophy of Mongolian nomadic livestock rearing

Monograph. UB, 2000. NUM. 180p. In Mongolian.

Every state has a strategically important or principal sector of the economy, as a basis for other sectors. For Mongolia, this is the pastoral livestock sector. Nomadic and pastoral livestock herds and land resources are the roots of Mongolian culture and society. Mongolian characteristics, culture and even politics all spring from nomadic pastoral herding and aim to sustain and balance the industry. The Mongolian pastoral livestock industry is in harmony with the environment and climate, and the Mongolian economy is significantly affecting the pastoral livestock industry, says the author.

The nomadic pastoral livestock industry is a net profit economy. The author's thesis is that it generates income at low cost and develops and increases in relation to nature, not by capital, financial and technical capacities. A livestock herd may improve or deteriorate in its quality and yield and its quantity may increase or decrease by natural selection law. The author suggests that this is a very specific economy demanding appropriate government policy and herder skills, as well as knowledge of natural selection laws.

Summary: The author explains the existence and development of pastoral livestock processes philosophically, using eastern beliefs about 'contradiction' (cited as the source of planetary development), of Buddhist philosophy and the theory of the five elements of astrological calculation.

0075

Khavkh N.

Significance of studying nomadic culture

"Nomadism-International Study" compendium. UB, 2002. IISNC. pp 48-52. In English and Mongolian.

It is generally accepted that humans were first of all nomadic. German philosopher Hegel noted: "Nomadic people created and maintain their history...it is right to consider that history of humanity began with them," (Hegel, History of Philosophy, volume VIII, p 96). Later, many nomads adopted a sedentary way of life.

The author says it is possible to study nomadic civilization from the current sedentary stage. He proposes that civilizations develop in harmony with nature in a process of change. Natural changes dominate in nomadic cultures while a changing process is dominant in a sedentary civilization. If the adaptation process dominates for too long, development will slow down and nomads will be left behind. This, says the author, is why nomads lost their advanced role in the world.

Nomadic livestock herding is a production process that does not harm nature and ecology. It is intimately connected to nature, and is adjusted by natural selection; quantities increase or reduce, quality improves or deteriorates; the weakest die and the strongest survive. In winter and spring, weak animals die and strong animals of good herders live on. This, suggests the author, contradicts current claims that pastoral animals die of *dzud* (winter disaster) and the nomadic livestock breeding is unreliable.

Summary: The article suggests that nomadic herders have a history of great knowledge and experience about the natural environment and manage their own culture and lifestyle without harming ecological balance.

0076

Tserenkhand G.

Mongolian nomads and traditional harmony with nature

"Mongolica" magazine, No 13, UB, 2003. IAMS. pp 210-214. In Mongolian.

Nomadic movements are a basic livelihood method closely related to natural and climatic cycles. Although the movement helps pastureland protection and animal fattening, degraded pastures may cause spread of viruses.

Nomadic movements and traditions may differ in various regions. For example, herders in Khangai region in summer move closer to water, herders in the Altai region in summer camp in the highlands and move downhill in winter. Herders move in a steady circuit in response to the changing weather pattern.

The nomadic culture is a knowledge-based tradition. The movement ensures that pasture is not overgrazed and the animals conserve strength and fatness. The author says herders have an intimate knowledge of nature, which they apply to animal husbandry. They need to know about good and bad weather, knowledge they gain from experience. Nature and the nomadic life teach them how to select the best pasture and grasses. Nomads know for example, that the maximum nourishment is in grass tips and shoots.

Summary: Mongolian nomadic animal husbandry and lifestyles are indivisible and closely associated with nature. Mongolian nomadic herders, says the author, have created a rich tradition, experience and knowledge of settlement and movement being in harmony with nature that is passed down from generation to generation.

0077

Erdenetsogt N.

Nomadic livestock herding

Monograph. UB, 1998. 302p. In Mongolian.

The Mongolian nomadic livestock industry was the only pillar of economy created (and still managed) by Mongolian nomads during long history of rises, recessions and recoveries of the country.

Mongolians created a complete economic system of nomadic livestock herding, interrelating the five types of animals.

This volume covers the past, present and future of the Mongolian nomadic livestock industry and includes methods of moving livestock; biological, ecological and adaptation abilities of Mongolian livestock; and processing, rearing and managing livestock.

Summary: This comprehensive work on Mongolian nomadic livestock considers the composition, structure and features of nomadic livestock, dividing the system into 3 elements: herders, pastoral land and livestock. The author assesses the theoretical and methodological foundations of each element and looks at the biological, ecological, ethological and economical roots and theoretical and practical significance. The volume also details dynamics and trends of livestock management development.

0078

Erdenetsogt N.

Development prospects of the classic Mongolian nomadic livestock and culture

"Mongolica" magazine No 9. UB, 1999. IAMS. pp 445-455. In Mongolian.

The author describes the composition, structure, and features of the nomadic livestock industry and its development dynamics in the framework of various disciplines such as biology, ecology and economics. He also suggests directions for further study and development dynamics, methods and ways of nomadic herding, concentrating on 5 features of the Mongolian nomadic livestock industry: nomadic, economic, ecological, seasonal and classic. He says there are traditional basic and sub-structures.

He explains that the Mongolian nomadic livestock industry has three linked pillars - the person (herder), nature (pastoral land) and herd (the five basic animals) - and three parts – breeding and rearing methods, processing methods, and use of animals for transporting.

Summary: The author suggests a detailed study of Mongolian nomadic herding and the development dynamics of the basic structure of nomadic herding; herding infrastructure; and the modern market system.

THREE. LIVESTOCK HUSBANDRY MARKETING

1310 Livestock Product Marketing

0079

Badarch S.

Measures and policy options to establish livestock marketing system

Research paper No 30. UB, 1999. MSUA. pp 181-184. In Mongolian.

The author draws attention on three major conditions for the establishment of a market system for livestock products and raw materials: 1) linking the main household livestock producer and the actual processor; 2) creating small and medium processing enterprises close to livestock locations; 3) connecting the producers with an accessible and well organized sales network.

This research paper shows that in Mongolia the following forms of intermediation are suitable for delivering livestock products and raw materials to the consumer and in return delivering goods, machines and technology to the herder: 1) intermediary supply and delivery cooperatives to service herder households, which need government support; 2) local agents and rural representative offices of large state and private enterprise companies, taking into account the location of major livestock products and raw materials; 3) a wholesale network, along the locations of infrastructure, producers and consumers, and locations of livestock products and raw material resources.

Summary: The author proposes government policy options to establish a livestock marketing system on the basis of studying current estimates of livestock production and its demand and supply.

0080

Badarch S.

Meat marketing in Mongolia

Ph.D dissertation. UB, 2002. MSUA. 138p. In Mongolian.

Meat and meat products play important role and position in the Mongolian economy while other livestock raw materials and animal-origin products are in high demand in both domestic and foreign markets. The primary production unit for meat is generally the herder household, but there are many difficulties associated with collecting, processing, storing, transporting and marketing the meat.

The author says the optimum number of livestock per average herder household (5 members) is 350 head, with an appropriate ratio of the basic five animal types. He says that with this number, the family can maintain their herd with normal reproduction, satisfy their own domestic needs and sell the surplus products and raw materials to the market.

For the small Mongolian market of animal products, the main inhibiting factors are time and distance between customer and producer.

Formulating a policy on Mongolian meat marketing components is a difficult task demanding different actions, time and resources by different regions. The author suggests that it is impossible to resolve the transition of the livestock industry into a market economy without government intervention at reasonably low cost and within a limited timeframe.

Summary: The study addresses the importance of intermediary cooperatives being established by herder household initiative. The author considers that herders should set up cooperatives by sharing capital in order to create a proper meat marketing system. He adds that although most dealers involved in the livestock marketing system are private, their activities should be government-regulated.

0081

Badarch S.

Current problems in livestock marketing

Research paper No 31. UB, 2002. MSUA. pp 145-149. In Mongolian.

Since most Mongolian herder households have just a few animals, they are weak in running broad reproduction and creating commercial value, says the author. Introduction of modern ways of processing livestock materials and creation of small and medium enterprises is taking a long time in rural areas. There are also few reliable traders willing to market the products of herder households. Dispersion of herder households and poor infrastructure form barriers to herders access to the market. With little information on market prices for raw materials and products, herders tend to be careful about selling to itinerant dealers.

Summary: This research paper identifies some factors that influence the sales of raw materials and other products of herder households and suggests possible remedies and options.

0082

Nansalma Ts.

Management patterns of herder household businesses

Research paper No 31. UB, 2002. MSUA. pp 129-131. In Mongolian.

The author says that a normal daily work for a herder consists of 17 to 32 repetitive tasks, mostly related to livestock production, which can be classified into main and auxiliary production of raw materials. Herder households sell 85-98% of their wool and cashmere output - the main income source - in April and August to traders in markets in the *aimag*, *soum* or urban periphery at the market price.

Market principles dictate that the producer should find an appropriate market, but this is difficult for a small entity, dependent on the environment and climate and located in a remote area. Most herder households sell their products through 3-4 different itinerant dealers.

Conclusion: The author links the management patterns of the herder households with marketing researches and she advances recommendations on how to resolve and overcome the problems of selling herder household products.

0083

Nyamaa N.

Cashmere marketing management issues

Ph.D dissertation. UB, 2000. MSUA. 121p. In Mongolian.

Cashmere marketing is a broad issue involving the herder-producer, the processing industry and the trader as well as foreign and domestic markets. The author says that cashmere quality becomes crucial, and there is a pressing need for changing goat-rearing methods into quality-oriented ones rather than focusing on quantity and breeds with more cashmere yield.

Over the last few years, Mongolian cashmere production has been steadily increasing, with increases in the number of goats. Cashmere has become a major income source for many households with a few animals as well as significant part of national export. The current cashmere preparation and trade system has many stages, which negatively affects the cashmere quality and accounts for a wide price disparity between what the herders earn and what the processors pay. For example, the author estimates that the herder loses 3,200 MNT on each kg of cashmere when selling to itinerant traders. 12.9% of herders sell their cashmere to these private suitcase traders, 21.4% to companies in the *aimag and soum* centers, 26.2% to agents buying for processing enterprises and 9.5% come to Ulaanbaatar to sell their cashmere.

Summary: The study says that although Mongolia has a pastoral capacity and environmental conditions suitable for goat rearing, there is a pressing need to ensure quality-oriented intensive economic growth rather than non-intensive ways of racing for quantity. The author takes a close look at the Mongolian position in the world cashmere market, and calls for a SWOT analysis to assess strengths and weaknesses, designed for getting better strategic concepts.

1320 Prices, Quality and Standards of Livestock Products

0084

Davaadorj P., Bat-Erdene A.

Quality of cashmere goats in the high mountain zone

Livestock research No 5. UB, 2003. pp 207-211. In Mongolian.

In the areas covered by this study, the average length of cashmere staple fluctuates between 38.7 and 47.85 mm for a male goat and 42.85 and 47.65 mm for a female. The cashmere length tends to increase with age. Goat cashmere average width in Tsengel *soum* was lower than of cashmere breed goats and the authors suggest maintaining cashmere width of local breed goats and taking account of this quality in organized selective breeding.

Summary: Cashmere is a major source of income in the local pastoral livestock industry and the author points out the need for regular analysis to maintain cashmere standards of staple length and width for local Mongolian goat breeds.

0085

Nansalma Sh., Bat-Erdene A.

Main features of goat cashmere in forest steppe zones

Livestock research No 5. UB, 2003. pp 212-217. In Mongolian.

In the forest steppe zone of Tumurbulag soum, Khuvsgul aimag, the cashmere of the *Erchim* goat breed tends to thicken as the goat ages, averaging 15.29-16.82 micron for males and 15.82-16.85 micron for females.

The cashmere staple length of locally bred goats is 37.2-46.3 mm for males and 38.2-40.1 mm for females, also thickens as the goat ages. Cashmere of the *Erchim* thoroughbred goat is thicker.

Summary: The authors suggest an increase in cashmere output without lowering quality by instituting breeding campaign, selecting and matching animals to mate and importing thoroughbred goats from areas where goats have high-quality, high-output cashmere.

0086

Orgilsaikhan A., Indra R.

Comparative study and better ways of producing butter

Livestock research No 5. UB, 2003. MSUA. pp 234-240. In Mongolian.

Mongolia is a good market for butter but currently buys imported butter of inferior taste and quality. The cost of domestic butter is high, because the large dairies are distant from milk suppliers though they are close to the consumer market.

Although buyers say they would prefer to buy Mongolian butter, they are suspicious of the quality because of bad packaging. The authors say there is a pressing need to improve the packaging.

Summary: The authors say that producing butter with enriched protein meets current consumer market demand and makes it possible to lower production costs, improve technologies and to reduce calories.

0087

Tumurjav M.

Traditional nomadic methods of processing skins

Research paper No 30. UB, 1999. MSUA. pp 20-25. In Mongolian.

Mongolian nomads have a long tradition of processing and using skins from the basic 5 animal types. Traditionally, leather production is in several stages: selection, cutting, shaving the hair, cleaning off the blood, hardening outdoors, oiling, smoking and currying.

The author notes that the traditional way of producing leather needs to be studied in detail and improved scientifically.

Summary: This study looks at theory and explains in detail the skin processing technology in relation to the traditional method of leather making.

0088

Khandsuren S.

Basic marketing issues of skin products in the transition period

Ph.D dissertation. UB, 2001. MSUA. 147p. In Mongolian.

Marketing of skin is a broad issue, which involves herders, processors and traders as well as foreign and domestic markets. The author notes that solution of problems is possible if the marketing concepts on skins reflect both national interests and interests of producers and consumers.

Preventive action against animal disease has decreased during the transition period as the state veterinary service has been privatized, which has badly affected the quality of skins. Damages and defects on skins have doubled since its 1992 level and damage occurring during preparation has increased by 17.2%. The usable area of skins has decreased by 43.8%. The author claims that animals have become smaller as a result of poor management and a less rigid checking of veterinary and breeding services, which has also reduced the usable skin area.

The study claims that both producers of skins and herder household businesses are immature in their psychology and management and very few of them are capable of conducting extensive reproduction. By the end of 2000, 85.7% of livestock owners had up to 200 animals, making the creation of a micro-marketing environment difficult.

Summary: The author suggests herder households need to develop as businesslike entities in order to conduct their businesses with proper marketing management. He says that herder households should operate according to market principles, and need to increase their market knowledge, have access to information on market prices of raw materials and products and be able to carry out primary processing of skins. They need also to vaccinate herds every year to maintain their health and to study traditional methods of animal rearing.

0089

Tsendsuren S., Indra R.

Milk quality of Mongolian sheep breeds

Livestock research No 5. UB, 2003. MSUA. pp 249-257. In Mongolian.

Research indicates that the volume of solids and protein in sheep milk is almost the same in both steppe and semi-desert zones. The difference is that sheep milk in the steppe zone has more fat while sheep milk from the semi-desert zone has more sugar and calcium. Sheep milk has more solids, protein and fat than cow milk. The latter has 12.5% of solids while sheep milk has 14.6-24%. The milk of Mongolian-bred sheep contains 15.80-17.7% solids, of which 5.26-5.83% is protein and

5.73-6.54% is fat. About 70% of the solids are purely protein and fat; 80% of the protein is casein and 20% is albumin, globulin or whey. Casein-richness makes it suitable for making protein products.

Summary: The author notes that Mongolian-bred sheep milk is very suitable for milk production.

0090

Tserenpuntsag Sh.

The meat of Mongolian livestock breeds

Research paper No 30. UB, 1999. MSUA. pp 17-19. In Mongolian.

Mongolians prepare and use various types of meat products, well suited for their environment and climate conditions. Mongolian meat is rich in vitamins, including B12, copper, iron and other micro-elements. The study shows it is an ecologically pure and highly digestible product with unsaturated fatty acids or uncongealed fat.

Summary: The author looks at previous studies on the meat of Mongolian-bred livestock. This study summarizes the studies conducted by domestic researchers and draws general conclusions.

1330 Trading of Livestock Products

0091

Bat-Erdene B.

Sales operation of businesslike herder households

Research paper No 31. UB, 2002. MSUA. pp 87-91. In Mongolian.

The author says that today's nomadic herder households have irregular income-expenditure and low savings and lack management skills to estimate their production, consumption and trading activities. They also have no household business plan.

In order to expand production and increase profits in the market economy, suggests the author, herder households need to: 1) be profitable; 2) have high liquidity; 3) be able to bear risks. The author suggests that modern herder households need to behave as private business entities, communities and cooperatives.

Summary: The researcher analyzes sales issues of herder households by each animal-origin product, and tries to determine their sales channels and the main income sources. He suggests training courses in business and production management for herders with 1,000 livestock to improve productivity as well as labor, machinery, technology and capital utilization.

0092

Nyamaa N.

Influence of cashmere on herder household income

Research paper No 1. UB, 1998. MSUA. pp 51-56. In Mongolian.

This article details goat numbers and cashmere productions by 5 economic zones in 1996, the percentage of goats in the total herd and changes in this proportion. He also determines the percentage of cashmere income in the total household income and the composition of herder household income.

Cashmere production accounts for 26.3% of the central economic zone, 32% of the semi-desert zone. In the central economic zone, 37% of all livestock were goats, 48% in the semi-desert zone.

Summary: Cashmere income is 27.7% of the total national herder household income. The author says that herders have 5 main outlets for cashmere: 25% is sold to private traders, 41.7% at aimag and soum markets, 27.9% to companies and cooperatives, 5.3% at the Ulaanbaatar market and 0.1% to the processing industry.

0093

Nyamaa N.

Mongolian cashmere: economic and strategic issues

Monograph. UB, 2002. MSUA. 103p. In Mongolian.

On the world market, one kilo of combed cashmere fetches around US\$80, while Mongolia sells it for about US\$50. The author says Mongolia needs to adopt a complex marketing policy on cashmere. It needs to hold cashmere fairs in countries with a high market potential, cooperate with cashmere producing countries, and gain better access to worldwide cashmere marketing information, perhaps through an international Internet network, in order to upgrade cashmere production technology and improve product quality and design.

The author proposes that the government should adopt a policy of support for cashmere exports with concessionary customs duty rates that conform to World Trade Organization regulations while offering protection to this strategically important product.

Summary: The study includes research into and assessment of cashmere demand and supply, the current situation of cashmere production, quality and price, export potential, present government policy and marketing strategies. The author employs statistical methods, field trips, questionnaires and econometric diagnosis.

0094

Nyamaa N.

More efficient ways of cashmere preparation and sales

Research paper No 30. UB, 1999. MSUA. pp 185-188. In Mongolian.

Marketing cashmere involves a number of stages from herder to final processor, during which the price rises and quality gets worse. The author suggests that herders should have direct access to the processing industry and cut out middlemen. He recommends the creation of a centralized system of trading raw materials, with agents of the processor receiving the raw materials who sell their products on through tenders, stock exchanges and auction. Herders would make more profit by selling their products at the current market price, and would be paid in cash or in kind, as they desire. Herders with more disposable income would be eager to improve the breeds of animal in their herd and produce better quality goods.

Summary: The author calls for the creation of a better trading system for livestock raw materials and recommends a centralized procurement system. He estimates this system would bring extra profit of at least 1,300 MNT per kilo of cashmere to herders and 363 MNT to the state budget.

FOUR. PROBLEMS FOR SUSTAINABLE LIVESTOCK INDUSTRY DEVELOPMENT

1410 Sustainable Livestock Industry Development

0095

Baatar I.

Mongolian agricultural development trends

"International Study" magazine No 1, UB, 2003. pp 102-108. In Mongolian.

Mongolia has an ancient story of herding of pastoral livestock, with 5 basic animal types: cattle, horses, camels, sheep and goats. The study shows that in 1945 the Mongolian national herd decreased to 20.1 million, the fewest in recorded history. The size of the national herd rose by 6.7% between 1996 and 1997, reaching 31.2 million, perhaps the most ever. But in all cases, there was a general trend of livestock growth.

Summary: The article shows the rise and fall in numbers of all Mongolian livestock and tries to assess the trend.

0096

Nasanjargal D.

Rural development strategy

Speech at consultation meeting of donors for Mongolia. UB, 2002. MFA. pp 1-14. In English and Mongolian.

A national program was approved to assist protection of livestock from drought and snowfall (*dzud*), with measures to combat such natural disasters and repair damage, create aid networks, define the responsibilities of herders, other livestock owners and all administration organizations. The program sets out policy, coordination and direct support to ensure sustainable livestock development. A project named 2001 Harvest and Fodder was approved to increase the harvest and fodder supply and generate reserves of hay and fodder at the *aimag* and *soum* levels in case of natural disaster, with a national government budget allocation of 1.3 million MNT.

More attention was to be given to improving remote pasture use, steadily increasing hay and fodder reserves, reserves of non-harvest fodder, irrigation of fodder crops, increasing yields by fertilizing and irrigating hayfields, creating pastureland reserves among aimags and increasing water supplies and the number of wells. These measures would need foreign loan and aid support.

Summary: The author says that it is not possible to meet the increasing national demand and consumption without further development of an intensified livestock industry. His presentation proposes that at first, there is a need to develop dairy and fodder farms that breed beef cattle with foreign aid. In addition, more attention is needed for development of the livestock industry and solving rural social problems by encouraging herder household cooperatives. To attain these goals, the author

says, there is a need to support various forms of cooperatives among herders and agricultural farmers.

0097

Sukhbaatar Ts.

Prospects and problems in Mongolian agriculture

Development Research of Mongolia. No 1. UB, 2002. Mongolian Development Institute, MAS. pp 113-126. In Mongolian.

The household income of herders has fallen in the last few years because of natural disaster (drought and *dzud*), contributing to a fall in per capita GDP (Gross Domestic Product). However, losses from natural disaster often vary for herders in one local area with the same weather. This can be explained by experience and methods used by herders. New and inexperienced herders who moved to the countryside from urban areas during the transition period suffer more, because they are not fully aware or equipped for the livestock industry. The author says that they lack the proper equipment; do not prepare fodder for the winter; do not fatten livestock by moving to better pasture; do not plan pasture usage; do not have a proper division of livestock, often concentrating on small animals such as goats; do not prepare pens, dung and wells; have not learned traditional livestock caring methods; and are poor at cooperating with other herders.

Summary: The author advises that it is important for herders to cooperate in livestock production and to set up a system for primary processing of livestock raw materials and market outlets. He points out that at the time many livestock farmers in foreign countries cooperate in production and trading. Mongolian herders need to create and test an auxiliary pattern of such entities in each zone. The author says that the livestock sector is very vulnerable to weather calamities and herders who have lost their animals are moving to urban areas, showing the lack of significant national rural development policies.

0098

Tungalag D., Tserenpil D.

Some issues for Mongolian economic security

Monograph. UB, 2002. Institute for Intelligence. 175p. In Mongolian.

The authors define economic security as involving national economic growth, development and competitiveness, and say the agricultural sector plays a major role in the economy, as it contributes 30-40% of GDP. The Mongolian tradition of nomadic livestock herding persists, tending to live on the livestock benefits only. In recent years, the agricultural sector has fallen and its influence on the economy has declined. Agricultural contribution to GDP is falling by 2.5-3% per year.

Summary: The authors conclude that nomadic herding plays a crucial role in the Mongolian economy and its decline may negatively affect national security.

0099

Baatar I.

The nomadic economy and the traditional Mongolian ecological awareness

"International Study" magazine No 1. UB, 2003. pp 66-69. In Mongolian.

Livestock is not only an instrument of direct production and labor in the nomadic economy, but is also a commercial and livelihood instrument, supplying various herder household needs. Horses and camels provide transport, beef and mutton are mainstays of Mongolian consumption and milk is an ecologically benign drink. Skins and cashmere provide clothing, bedding and horse equipment as well as valuable barter goods.

Destruction of pasture, says the author, means loss of the means of production, and knowing this, herders love and protect the land. Mongolian songs praise the land not only for its beauty, but also because the steppe provides them with a living, production and existence. Nomadism is an ecologically friendly economy, which created ecological ways of thinking, claims the author.

Summary: Livestock provide products and income to satisfy various needs of life, the latter only limited by the growing Mongolian understanding of the market. An ecological awareness becomes basic to protection of the environment, and there may be a growing tension between commercial and ecological perceptions because the two principles are so different. The author stresses the importance of simultaneous environmental protection and livestock economic development.

0100

Ikhanbai A.

Herders and ecology

Nomadic Studies No 4. UB, 2002. IISNC. pp 121-127. In Mongolian.

Traditional rural ways of environmental conservation and rational use of natural resources are significant to the creation of sustainable management. For this, it's necessary to take account of cultural, traditional and physiological specifics of local citizens and herders, says the author.

Natural resource management at the local level is not only concern of herders in the area, but also concern of many other stakeholders and the herders are just one part of the system. The article suggests that a collective management method determining roles and duties of citizen representatives, local government organizations and the private sector is important to pastureland and natural resource management.

The author suggests that pastureland management should include other natural resources, rural residents should be allowed to own pastureland and natural resources, herder households should be considered as key elements of rural development, and pastoral herding should adopt a semi-settled form, not completely abandoning the former one.

Summary: The author considers that there is a need to support the establishment of rural citizens' union and community not only for economic interests, but also for eco-economic efficiency; to find ways to develop herders' psychology to be more inclined to protect the ecosystem; and to resolve herders' social issues properly.

0101

Enkh-Amgalan A.

Current situation of the Mongolian pastoral livestock industry

Report to the Economic Club meeting. UB, 1999. In Mongolian.

This report identifies inherent and emerging problems for the Mongolian livestock industry and proposes policy options for their solution, based on a review of a range of studies, including those of the author. The major characteristic of the livestock industry is low overall productivity because of ecological constraints. Intensification from the 1960s to 1990, with the provision of shelter structures and veterinary services, supplementary fodder and concentrates and irrigation of pasture, did not result in notable improvement in productivity per head.

With the transition to a market economy, maximization of livestock numbers became a basic aim for small herding households, as a risk-reduction strategy to compensate for potential loss in bad years. However, the author says that private interests of unrestrained race for quantity contradict the national interest to maintain potential of pasture resources and to ensure long-term sustainable development of the industry.

Summary: The author recommends pastoral land reforms, based on traditional informal herder groups and localities that share pasture, for the following reasons:

- rather than investing capital to improve pastureland and livestock quality and to increase the herd, there is a need for more intensive methods of livestock production and an acceleration of the processes to move into settled livestock breeding that could improve the living conditions of herder households;
- poverty alleviation by providing guaranteed pasture for the poorer herders;
- the livestock-pasture balance has been damaged with the increase in livestock numbers after privatization, so there is a need to solve the pastoral deficiency.

0102

Nyamdavaa G.

Natural conditions for the livestock industry and natural resources in Khovd aimag

Monograph. UB, 2000. 137p. In Mongolian.

The livestock production sector is experiencing intensive development, but traditional methods of caring for pastoral livestock are still employed and have an important role. This study of the main characteristics of natural resources and bio-ecological correlation of pastoral herding in Khovd aimag determines 5 basic patterns for livestock production.

The author suggests the main factor of geographical characteristics that cause different natural conditions should be considered in daily and seasonal livestock herding as a basis for fattening animals and increasing yields. Tips on recognizing local climate conditions and dynamics of Khovd aimag would be significant for young herders.

The study of pasturelands, capacities and fodder resources indicates the urgent need to improve management of pasture use, create possibilities for land rehabilitation, irrigation and avoid overgrazing of pasture.

Summary: The author notes that environmental awareness and consideration of the pastoral livestock socio-economic laws, dynamics and characteristics as well as needs of the land in their own area are important for every herder as a major basis of creating pastureland recovery conditions and securing further sustainable development. Therefore, the pastoral livestock socio-economic patterns in Khovd aimag can be useful for making policies on strategic development and economic transition of nomadic herders.

1420 Pasture and Fodder; Grazing Management

0103

Altantsesteg B.

Participation of herders in pastureland management

Livestock Research No 5. UB, 2003. pp 195-200. In Mongolian.

Herders are getting more involved in pastureland management, which means they participate in the resolution process of production issues. He says that there is a need to run training courses for herders, especially for the young and inexperienced, to improve their pastureland management knowledge and skills.

Summary: The author suggests giving herders tax relief, encouraging herder investment in natural resources and rationalizing of related legislation.

0104

Jigjidsuren S.

Problems of pasture management

Research paper No 9. UB, 1998. MSUA. pp 44-45. In Mongolian.

The author points out that migration to the market is continuing, while the adverse effects of excessive livestock production on the environment such as pastureland degradation is increasing. Operating mechanisms of pastureland water sources have broken down and water supplies have significantly deteriorated, so that over 50% of pastoral land is left unusable. This indicates the need for a new pastureland management system compatible with the transition to a market economy. The article has 3 sections: history; current issues; and future action on pastureland.

Summary: The author recommends measures to remedy pastureland deterioration.

0105

Lkhagvajav N.,

Effective pasture use in the Khangai mountain areas

Research paper No 30. UB, 1999. MSUA. pp 53-59. In Mongolian.

This research was carried out in 1998-99 in Chuluut soum, Arkhangai aimag. The pastureland of this area was divided into 4 types for the study: forest steppe at 2,000-2,160 meters above sea level; meadows in valleys at 2,000-2,250 meters; high mountain forest meadows at 2,500-2,600 meters; and low mountain valley meadows at 1,700-1,800 meters. Pastureland vegetation stays long in the mountain areas. But the amount of various plants increases in summer and the proportion of *Kobresia* and sedge grasses increase in the autumn, spring and early summer, with reduction of other plant types.

Summary: The study, conducted in a single *soum*, looks at the change in proportions of pastureland plant composition as affected by ecological factors, accumulation and maintenance of vegetation, negative changes in pastureland status by human factors; and assesses the potential for natural rehabilitation of pastoral land.

0106

Oyuntsetseg Ch.

Using some types of pasturelands in forest steppe zones

Ph.D dissertation. UB, 2000. 150p. In Mongolian.

This study looks at the winter and spring use of 100 hectares of pastoral land by two tent groups of herders. The land has an estimated grazing capacity of 106 sheep in summer and autumn, 36 in winter and spring. Pasture utilization is 34.4% in winter and 41.4% in other seasons. The average utilization of short and middle-range pasture is a maximum of 41.2% in summer; in spring it rises to 53.9% for short-range pasture. Short-range pasture is used for pasturing dams and young, and its carrying capacity deteriorates 2-3 times during cold seasons.

Summary: Nomadic herders move from highland to lower land 3-5 times a year, dividing the total pasture into four sections for seasonal use, then each section into short-, middle-, long-range and reserve land. They manage this land economically, covering all expenditures in the first two years, with a profit of 14,500 MNT per cow. The author says that the research shows that using pastureland rationally would be economically efficient.

0107

Enkh-Amgalan S.

Ecological condition of pasture in semi-desert steppe zones

Ph.D dissertation. UB, 2000. PU. 114p. In Mongolian.

This research examines environmental conditions affecting livestock production and issues that adversely affect the ecological balance of modern livestock grazing and caring. The author discusses

the main ecological factors in the semi-desert steppe, such as degradation and adequacy of pastureland and changes in climate.

He suggests ways to resolve problems of degradation of the livestock pastoral ecosystem, including re-examination of pasturing methods, setting of a maximum herd size and structure appropriate to available land, and intensification of livestock by improved breeding, gradual adjustment of livestock in fluctuations of natural conditions and fighting against desertification.

Summary: The author has developed a mathematical and statistical methodology to determine adverse effects caused by nature and by human activity. This methodology has theoretical and practical significance and can be applied extensively in other zones.

0108

Togtokh J.

Scientific basis of tending Mongolian pastoral sheep and fodder management

Sc.D dissertation. UB, 1996. MSUA, RIAH. 286p. In Mongolian.

The Mongolian harvest process peaks by the middle of August and the end is in sight by the end of that month. Harvest preservation rate is 68-76% in autumn, 53-54.4% in winter and 35-43% in spring. Pastureland plants start recovering in April 15-25 in forest steppe and in May 1-15 in wet areas, but the appropriate grazing period starts 30-35 days after the recovery.

Sheep graze on over 50 plants, but prefer young vegetation and the number of edible plants increases while the grasses are low and visible. The nutritional value of Mongolian pastoral plants is high, though digestibility reduces as plants age or wilt from lack of water. Sheep eat more in summer and autumn to store up energy and protein for winter. The author claims that in summer and autumn, Mongolian sheep gain 58.4% of spring weight in the high mountain zone, 33.8% in forest steppes, 41.2% in steppes and 21.2% in the semi-desert areas.

The amount of dry substances that sheep eat increases in autumn by 6.18-7.25% over summer in forest steppe, 20.35% in semi-desert and 7.47% in the high mountain zone. Sheep pastureland fodder is less nutritious in winter and spring than in summer and autumn, which is in part why they lose weight.

Summary: Sheep in high mountain zones in autumn weigh 10.5% less than sheep in forest steppe, 16.3% less than sheep in the steppe and 17.1% less than sheep in semi-desert (eastern desert).

Sheep weight varies according to location and ecological conditions. Ten days of milk yield per Mongolian sheep between mid-April and early August is 42.5±0.53 liters in steppe zones and 37.3±0.39 liters in semi-desert zones, and there was an estimated availability of 20-30 liters of milk from a sheep in the milking season.

0109

Rinchindorj D.

Problems of establishing reliable fodder reserves

Livestock research No 5. UB, 2003. pp 177-181. In Mongolian.

Emergency fodder reserves are important in overcoming natural disaster such as heavy snow (*dzud*) with minimal animal losses in winter and spring. Although the national office of state reserves manages *aimag* reserves, they lack good services for customers in their creation, storage and sale of fodder reserves both in quality and quantity. The *soum*'s emergency depots are usually poorly equipped to prepare and store fodder, poorly managed and under funded. They are state-funded and supposed to be refunded by sales of fodder to herders, but they often end up with amounts of unsold fodder and accumulated debt.

Summary: The author says that although *aimags* could create larger and better-organized reserves of fodder, they lack initiative and management. Also they prefer quantity over quality and often break storage and protection procedures. The article makes recommendations for reorganizing fodder reserves.

0110

Khishigdavaa B.

Haymaking capacity of Mongolia

Master's thesis. UB, 2003. MSUA. 63p. In Mongolian.

This thesis draws conclusions on how to make the current fodder preparation efficient, discussing issues related to changes in livestock numbers and other factors. The author suggests that the current haymaking is not enough to feed the national herd for 30 days. He says that since intensive breeding is a development concept for Mongolian livestock, the national herd size tends to decrease.

Summary: The author suggests there is an urgent need to increase significantly the area of natural hayfields and proposes to improve hay yields by weeding, fencing, watering and fertilizing hayfields; to establish and support technologically and organizationally emergency fodder reserves to prevent risks of natural disasters; to support and encourage cooperative forms of herders and businesses that make hay; and allow long-term ownership and effective use of pastoral lands and hayfields to intensive breeding farms and agricultural farmers.

0111

Tsogoo D., Turtogtokh B.

Research into leguminous fodder gene banks

Livestock research No 5. UB, 2003. pp 182-188. In Mongolian.

The authors propose that the following leguminous plants can be cultivated with irrigation in the steppe zone: *Medicago Falcate*, *M. Ruthenica*, *Astragalus Adsurgents*, *A. Melilotoides*, *A. Sulcatus*,

Hedysarum Fruticosum and *Trifolium Lupinaster*. Although it is also possible to grow other leguminous plants like *Lathurus Pratensis*, *L. Quinquenervis*, *Lespedeza Dahurica* and *Lotus Corniculatus*, their maturity takes long.

One bush of Yellow Willow gives 4.4 to 38.9 grams of foliage and 4.9 to 0.5 grams of seed; *Astragalus Adsurgens* gives 13.3 to 251.8 grams of foliage and 0.1 to 3.5 grams of seed; *Hedysarum Fruticosum* gives 4.3 to 8.1 grams of foliage and 0.1 to 0.7 grams of seed; and *Trifolium Lupinaster* yields 3.4 to 8 grams of foliage and 0.2 to 0.3 grams of seed.

Summary: The authors stress the value of including leguminous plants in the list of Mongolian pastoral fodder plants for the use of additional fodder. The research is a base study for the calculation of economic value of leguminous plants.

0112

Kennett, Gregory

Report on land use and pasture management

Project report. UB, 1999. Gobi Regional Economic Growth Initiative. 40p. In Mongolian.

The study revealed that much pasture was entirely degraded. Because of overuse of natural grasses, destruction of bushes and herbs and changes in plant varieties, pastureland resources are under threat.

According to a calculation of grazing capacity, pastures in semi-desert zones are overgrazed almost 200 percent. In terms of both economy and ecology, such overuse causes adverse effects such as soil erosion, desertification, lowered water absorption, loss of environment and fauna and flora.

Although herders know that the overstocking results in pasture degradation, it is considered to be key to higher profits. That is mostly because an individual herder benefits from more livestock while all herders generally suffer from overstocking and overgrazing of pasture. Allowing others to use one's own pastureland is a common Mongolian tradition.

Summary: The author suggests, it is important to issue rules covering livestock pasturing, determine a proper balance between the number of livestock and grazing capacity, and improve market access, transportation service, water supply and emergency fodder reserves.

He concludes that the current pasture practices in semi-desert zones significantly reduce pastureland productivity as well as regional and national economic efficiency, adversely affecting on pastureland resources.

0113

Jigjidsuren S., Johnson, Douglas

Livestock fodder plants in Mongolia

Monograph. UB, 2003. 564p. In Mongolian.

The article suggests the need to teach herders to recognize the main useful fodder plants when grazing and pasturing livestock. That is, they need to know when and what kinds of grasses are necessary for which types of animals when they move livestock on seasonal pastures. The author illustrates 323 selected fodder plants (139 types of 38 families) common to Mongolian pastoral land, with their basic features and photographs.

Summary: Edible fodder plants for livestock grazing are described, with indication of their location (e.g. high mountain, forest mountain) and by each season for the 5 common types of livestock. The book also describes nutritional values and chemical contents.

0114

Griffin, Keith

Urban-to-rural migration and sluggish development in the livestock sector

Report of UNDP Mission on "The Integration of Equity and Poverty Reduction Consense into Development Strategy". UB, 2001. UNDP CO in Mongolia. pp 44-45. In English and Mongolian.

Research shows that at the beginning of the country's transition to a market economy, there was a significant urban to rural migration, but in 1999-2000 many new and inexperienced herdsmen moved back to the city because they incurred a serious damage from natural disaster.

Over-use of public land resulted in degraded pasture and the author calls for ways to regulate pastureland use. He suggests that herders should organize groups to take out pastureland and water resources with rental leases with local authorities on an annual rental.

Summary: The author proposes that leasing pasture and water sources to herders on long-term contracts would increase incentives for herders to use pasture and water more rationally and reduce overuse of pastureland. He suggests that the lease income should be used to finance other rural development initiatives.

0115

Togtokhbayar N., Gendaram Kh.

Changing plant nutrition qualities by energy exchange

Livestock research No 5. UB, 2003. pp 107-114. In Mongolian.

As the practice of assessing plant nutritional qualities by energy exchange has become common in the world, the authors say it is necessary to determine digestibility and nutritional quality of fodder. Fodder digestibility and nutritional qualities can be tested directly on animals, and there are many methods of calculation. The autors reach their results using energy exchange methods proposed by Popov, Accelison, Kalashnikov, Gendaram and Morgan, analyzing the selected indicators

under two dispersion models, arguing that Gendaram's method was the better one. They calculated general digestibility per 1 kg of plants as 10.9 MDJ for mountain meadows, 9.2 for steppe and 11.1 for semi desert areas. These figures match indicators calculated by Tserendulam, P. (DSc).

Summary: This theoretical research is significant for livestock production cost estimation, accurately calculating the nutritional quality of pastoral plants.

0116

Chognii O.

Changing and restoring characteristics of used pasture

Monograph. UB, 2001. 174p. In Mongolian.

The author points that it is not possible to improve Mongolian pasture by fertilizer or cultivation of perennial grasses. Pastoral land that has insufficient water, bad fertility and stony soil needs improvement in its quality and yields by natural restoration processes. The author has studied evolution and restoration specifics of plant cover of pastureland degraded by human and animal factors in forest steppe and steppe zones of Arkhangai, Uvurkhangai, Tuv, Bulgan, Khuvsgul, Zavkhan, Khentii, Sukhbaatar and Dornod aimags and the areas around Ulaanbaatar between 1970 and 1990. He analyzes changes in plant composition, structure of the bi-morphologic community, quantity and quality of plants, and human, animal and climatic ecological factors.

Summary: The author says that to assess pasture quality and use and to improve restoration and protection, it is essential to determine the degree of damage (small, medium, significant) of pastoral land in every *aimag*, *soum* and *bag*, determining pasture type and size and plant capacity. He says that it is important to carry out an experimental study of pasture restoration for further implementation.

0117

Enkh-Amgalan A.

Some issues of pastoral livestock development policy

Policy recommendation. UB, 1998. "Thinktank Facility" UNDP Project on supporting economic and social growth Mongolia - MON/97/131. 11p. In Mongolian.

The author compares world and Mongolian trends in livestock development and makes recommendations for government livestock policy, using his previous studies and observations as well as this comparative study. The main proposal is to encourage long-term sustainable development of the Mongolian livestock sector through specific measures of land reform.

The author suggests that organizational issues in agriculture will be resolved if land reform is properly implemented. He suggests implementing land reform among herders based on the traditional forms of organization such as an informal community of people of the same locality (surrounding a river and water source).

Summary: The study proposes that approval of pastureland possession rights (implementation of land reform) would significantly contribute to the development of livestock sector.

0118

Erdenebaatar B., Batjargal N.

Pastureland conflicts

Monograph. UB, 2001. Asian Fund. 107p. In Mongolian.

An increase of 35.6% in the national livestock herd between 1999 and 2000 resulted in heavy pressure on the availability of pastoral land, and the study says that at present, 20% of pastoral land has been severely degraded. The author suggests that there is a need to improve pastoral management, regulate pasture use, create suitable legislative environment for pasture possession and use, hold regional training in pastoral management and establish an organization responsible for implementing government policies on pastoral land.

Summary: Pasture is vital for nomadic livestock. The author raises issues of conflict over land and pastures that have frequently occurred. He details the issues and calls for a solution that might satisfy both parties of the conflict.

1430 Land Management, Land Relations and Geography

0119

Bazargur D.

Geography of pastoral livestock

Sc.D dissertation. UB, 1996. MAS. Institute of Geography. 263p. In Mongolian.

The thesis explores theoretical resolution and dynamics of social and economic herder problems by semi-centralization and semi or complete settlement by applying traditional 'People of One Locality' unit as a market economy unit, reforming territorial organization and redeveloping centers. He supports the 'village' concept of transition to the market economy, making small settled areas and administration centers socio-economic units of nomadic herdsmen and uniting herders in remote areas in cooperatives.

The thesis also suggests allowing herder households to use pasture with traditional and reserve ways by allocating pastureland as cultivated, reserved and unused; improving haymaking and fodder growing practices.

Summary: The author offers ways to persuade pastoral herders to adopt a semi-settled form and ways to timetable nomadic livestock movements for grazing.

0120

Bazargur D.

Geography of pastoral livestock

Monograph. UB, 1998. MAS. Institute of Geoecology. 379p. In Mongolian, In English and Russian.

The Mongolian pastoral livestock herding tradition started over 2,000 years ago, claims the author, offering as evidence that Mongolian lifestyle and methods of tending livestock differ significantly from those of nomads in other countries. This monograph summarizes geographic issues, on the basis of knowledge gleaned from hundred years of nomadic history.

Summary: The study compares Mongolian and foreign studies of Mongolian nomads, which have employed various methods including geographic borderlines, and identifies characteristics of the most ecologically suitable areas for pastoral herding. He argues that pastoral livestock geography is a new branch of the discipline.

0121

Tseveen Ts.

Land use and economic issues for herder households

Ph.D dissertation. UB, 1999. NUM. 167p. In Mongolian.

The main factor affecting management of pastoral livestock is the land. Mongolian land use is affected by area, location, climate, precipitation and vegetation. Land is a basic factor of livestock breeding while livestock yields are the roots of herder livelihoods. The thesis says that the pasture-livestock-herder linkage is the basic form of herder household business and its economic capacity.

Income, expenditure and profit of herder households depend on the number of livestock and family size. The author estimates that a single herder needs 117 animals and a 10-person household needs 632 animals for self-sufficiency, on an assessed income and expenditure.

The author claims that household heads (managers) and members running livestock production do not have sufficient market knowledge and experience. The study covers 11 *aimags*, 35 *soums* and 139 herder households. It shows that 287 (56.4%) of 509 people aged over 12 years had either primary education or no education at all.

Summary: The author says that herder households are adopting the market economy without goals, strategies or direction, which explains why they are unable to improve their lives and businesses. He recommends more detailed policies on land use, planning, organization, management and control.

0122

Shiirev-Adiya S.

Geographic issues regarding location of nomadic herders

Ph.D dissertation. UB, 1999. MAS. Institute of Geoecology. 129p. In Mongolian.

The author identifies and describes various herder social organizations. He says that nomadic herder collective settlements differ in quality from the current mechanical centralization, and describes the characteristics of increasing dominance of a settled lifestyle and sedentary culture in small rural villages with production and infrastructure networks.

Although elements of herder settlement have long been present in many organizations for livestock production, they were not concentrated in any single unit of territory, production and or rural settlement and never sustained. The 'People of One Locality' concept was an advanced yet ~~to be organized and the author's idea is to be accepted~~ its advantages.

Summary: Different features of land surface are principal indicators for assessing natural conditions and resources that influence settlements of Mongolian nomadic herders. Other factors include temperature, precipitation and vegetation that depend on sunshine and wind. The author recommends creating an environment for herder settlement by determining the minimum features of land surface suitable for pastoral livestock, along with ecological, technological and economic assessment of the land and by improving biological productivity of the pastureland.

1440 Electrification and Mechanization

0123

Baldangombo B.

Scientific basis of mechanical technology for a small-scale milk farm

Sc.D dissertation. UB, 1999. MSUA. 283p. In Mongolian.

The author analyzes small milk production units and suggests scientific ways to improve methods and resolve technical, mechanical, economic and organizational issues. He proposes a methodology to equip small-scale dairies with simple techniques and mechanical equipment.

Summary: The author describes ways to increase production, improve quality and productivity by creating small units with economies of energy and material resources and mechanization of labour.

1450 Veterinary Services

0124

Jandagsuren B., Erdenetuya M.

Economic effectiveness of veterinary services

Project report. UB, 1999. MSUA. 100p. In Mongolian.

Researchers have studied 15 disease classifications for the last 15 years say that 11 of them, such as blood infections, blackleg, agalactia, diphtheria, scabies, roundworms, tapeworms, have 100 per cent probability of infecting all 5 types of animals (ticks 67%, leikoz 60% and brucellosis 40%). The report suggests preventive measures and treatment against main high-probability diseases, disinfections against brucellosis, production of bio-vaccines, expanding their delivery and allocation to rural areas.

The authors say that many livestock die because of a lack of veterinary services. In 1997 alone, livestock losses were worth 54 billion MNT. This research calculates the potential profit from better livestock treatment services as 87,700 MNT per animal based on estimated average annual income. The repayment rate of veterinary service costs was estimated at 0.74, which shows it has considerable economic efficiency.

Economic losses from livestock diseases relate to skin disease and damage to live animals. The nation's losses from cattle skin disease and damage is estimated at 730 million MNT a year. The report adds that the national average recovery rate from livestock diseases is 83.5% and a disease costs an average 59.3 MNT per animal.

Summary: The report recommends more state finance for treatment of super-infectious diseases, compensation for loss of exports because of outbreaks of livestock diseases, better payment for private and state veterinary research into infectious, non-infectious and parasitic diseases and state financial support for organizations and business entities fighting zoonotic livestock diseases.

0125

Narankhuu L., Jandagsuren B., et al

Economics of private veterinary service

"Veterinary of Mongolia" magazine. UB, 2000. Veterinary Association of Mongolia. pp 9-22. In Mongolian.

The veterinary service, as part of the agricultural infrastructure, aims to free herder businesses from the distraction of auxiliary services, so that they can concentrate their efforts, time and capital on production. Before the privatization of veterinary services that created new development trends for private services, most veterinary services were executed by the state and somehow by agricultural enterprises in the centrally controlled economy.

Summary: The article considers issues that need resolution after privatization of veterinary service such as the price, cost, income and profit calculation as well as budgeting and planning for veterinarians.

FIVE. FINANCIAL SERVICES FOR THE LIVESTOCK INDUSTRY

1510 Wages, Loans and Savings

0126

Fisher, Ingrid and Eruulsuren N.

Delivering financial services to the countryside 2001-2003

Project report. UB, 2003. UNDP CO Mongolia. 73p. In Mongolian.

Although the financial sector has been developing, there is a relatively high cost and risk in service delivery in rural areas and the financial sector has little interest in the rural market. This project, entitled Delivering Financial Services to the Countryside, recommends that it is possible to control risk and that the current loan interest rate would sufficiently secure the profit level of rural loans.

Commercial banks such as the Khaan Bank and the Mongol Shuudan Bank offer banking services in rural areas, but neither has the same target clientele as the Canadian Cooperative Society project, which is very small and only provides loan for production and agricultural cooperatives. Since most of the rural Mongolia lacks financial services, widening the experience of the pilot project is a primary goal.

Clients frequently complain that applying for a loan is a difficult and time-consuming process, which implies a dislike for preparing money flow charts and business plans. The same is true in many other countries, but the study claims that this planning is essential for risk management, as a common tool for improving loan status, important for the rural financial sector as well as rural economic development.

Summary: Dispersion of rural households limits accessibility and the small population makes it difficult to organize community groups. Group loans tend to attract those with little financial prospects and low levels of education. The authors say that this implies a need for significant investment, financial institutions and partner organizations to run programs to develop group skills and abilities to implement the group loans efficiently. They add that planning is important for the development of the rural financial sector.

1520 Taxation and Insurance

0127

Amgaa S.

Analyses on livestock tax

Research paper No 31. UB, 2002. MSUA. pp 126-129. In Mongolian.

The paper proposes that although the livestock industry is an important sector of the economy, it contributes very little to the state budget. In 2000, many livestock died in a harsh winter, badly affecting the lives of many herders. The government gave herders tax concessions and as a result, the state budget income decreased by 6% over the previous year.

The study asks whether the pastoral livestock industry is a business benefiting the owner or only providing subsistence. The author says it is important to decide how to tax the livestock industry by determining specific indicators and how to ensure proper reporting of herder household income and expenditure.

Summary: The author raises important issues about the current situation of livestock taxation and its role in the state budget and offers several recommendations.

0128

Amgaa S.

Livestock tax in Mongolia and main issues of refining its methodology

Ph.D dissertation. UB, 2001. MSUA. 129p. In Mongolian.

This work uses modern tax theories to describe livestock issues in Mongolian government tax policy and to reduce budget deficit. It points out that although the livestock sector is responsible for one third of GDP (Gross Domestic Product), it provides less than one per cent of the national budget. Therefore, there is a need for more detailed study on livestock taxation to cover herder households.

The author says that there are a number of difficulties in imposing and collecting livestock taxes. They include the difficulty of estimating the livestock producer's income and expenditure and the variety of uses of livestock products, while many livestock herders are members of the vulnerable group. The author also points out that a herder does not have the status of a legal entity, is therefore not directly accountable to the state, and seldom keeps detailed financial records.

The study suggests some possible solutions. They include a tax threshold for the number of animals needed for a minimum standard of living; setting different regional tax levels depending on income levels; reducing the various livestock taxes to a single livestock tax; and including non-livestock income for tax purposes. It suggests that tax collection mechanisms should be simplified.

The study estimates that the number of livestock needed to provide a minimum standard of living is 61 large animals or 107 small animals for a single household with 4.8 members.

Summary: The author's principal conclusion is that livestock tax issues should be solved by adjustment to the tax system and an increase in livestock tax, important for improving herder responsibility and making the pastoral livestock industry more businesslike.

0129

Baatar S., Purvee D., Gankhuleg B.

Some theoretical and practical tax issues

Monograph. UB, 1997. General Department of National Taxation. 202p. In Mongolian.

After the 1921 revolution, the government considered that the creation of a national financial system was important and therefore considered a new tax system on pastoral livestock. A commission to establish the tax system was set up, with 4 representatives of *aimags* and the Party Central Committee, at the Ministry of Internal Affairs. The commission presented a draft and the government approved livestock taxation on March 17, 1922.

Livestock taxation has changed several times since then and these changes have had different goals. For example, in the 1950s a high tax was imposed on private livestock, aiming to abolish the private sector and include everyone in cooperatives. Laws and regulations have often had their own agendas, like increasing livestock numbers, reduction of the rich-poor gap and increase of the state budget income.

Summary: The study surveys theories and methodologies, advantages and disadvantages in the taxation systems of Mongolia and other countries. It details Mongolian taxation issues and methods, types and goals of tax imposition.

0130

Kadirbek D.

Income tax on livestock

Master's thesis. UB, 2002. MSUA. 100P. In Mongolian.

The author looks at the experiences and situation of pastoral livestock taxation and the livestock sector's contribution to the state budget and he suggests that it is possible to increase livestock income tax. There are several innovative recommendations for changes, such as creation of a differential regional livestock tax and determination of taxable income based on the livestock turnover model.

Summary: The author calls for a study of ways to improve livestock taxation and taxable income assessment, with subsequent legislative reform.

0131

Bakei A., Moyobuu D.

Refining livestock taxation and insurance

Project report. UB, 2000. MSUA. 24p. In Mongolian.

The authors point out the imperfections of the livestock income tax system, since the livestock sector is responsible for 30% of GDP, but it pays less than one per cent of the state budget income. The study suggests different tax levels, with consideration of factors such as distance from the market, natural zones and potential and actual livestock income generation.

The authors suggest defining 5 Mongolian tax regions, according to their distance from market, with determination of net income from the livestock of each region and use of a tax scale to determine income tax.

Summary: The authors recommend ways to determine private livestock income upon which taxes should be imposed by each natural and geographic region.

0132

Buyandelger M.

Refining livestock insurance

Ph.D dissertation. UB, 2000. MSUA. 171p. In Mongolian.

Natural disasters occur frequently in Mongolia, causing much loss of livestock production. Climate, natural resources and soil fertility vary across the country and must be considered in livestock production. Studying the main natural indicators and bio-ecological conditions of the pastoral livestock industry, the author details 16 pastoral risks and 22 general risks and proposes that there is a need for more livestock insurance. While the numbers of livestock have increased in recent years, the number of insured livestock has decreased year by year.

Summary: The recommendations include establishment of regional livestock insurance; provision of information to herdsmen about livestock insurance, its purposes and significance; promotion of risk management systems; and refinement of a preventive information system on natural risk.

1530 Renting

0133

Orosoo R.

Livestock rent and income distribution

Research paper No 31. UB, 2002. MSUA. pp 95-98. In Mongolian.

In the last few years the number of herders with over 1,000 animals has grown significantly and there has been a shortage of labour, adversely affecting livestock production.

Rich herder households have been interested in more labour and in renting out livestock to others. However, there is no legislative environment regarding livestock renting and hired labour, inadequate mentality of hiring and being hired and lack of awareness and experience in how to rent animals, how to calculate the proper rental amounts etc.

Summary: The author assesses what the livestock leaser financial relationship should be. He estimates the profit potential of an animal, considering average young animal survival per 100 dams and loss rates per 100 heads by averaging statistics from the last 10 years. He proposes determination of rent rates by region.

0134

Orosoo R.

Refining livestock rent issues in Mongolia

Ph.D dissertation. UB, 2002. MSUA. 135p. In Mongolian

Rural profits, herder initiative, productivity and living standards increased significantly by the end of the 1980s, when a renting system was implemented in the livestock sector. However, there was a tendency to decrease agricultural production and efficiency and to refuse to pay rent from 1991 as privatization of livestock and machinery was implemented. The author suggests that it would have been possible to maintain agricultural production levels if problems in the privatization process had been resolved by expanding the rental system in a businesslike way.

The study says that there is still a need for a broad use of animal lease system. Rich herder households, with many animals but a relatively small family labor force, need workers. However, there is still no properly applicable legislation and rural people are unsure and unfamiliar with an ethos of hired employment. Herders do not understand fully about animal leasing and there is no established leasing system.

Summary: The author suggests the need for a universal methodology for renting animals and employing herder labor, and calls for training workshops and seminars, especially for big leaseholders and employers.

SIX. ACCOUNTANCY IN THE LIVESTOCK INDUSTRY

1610 Financing and Accounting

0135

Bakei A., Altantsetseg S.

Budgeting and reporting methodology for herder households

Recommendation. UB, 2002. MSUA. 22P. In Mongolian.

Research indicates that herder households usually have no formal plan, budget or accounting except for handwritten notes; few estimate annual household income and expenditure. Most herder households do not contact a professional accountant. Obviously, they could benefit a lot if they learned planning, budgeting, accounting and reporting.

However, the author proposes that herders should encourage a member of the family to undertake a training course in business accountancy. He says that this ought not to be too difficult, since the study indicates that 57.4% of those in rich herder households have secondary education and 4.8% have a degree. The author suggests that efficiency in herding would be improved by planning, budgeting, accounting, reporting and analyzing.

Summary: The study says that a herder household should run as a business entity. Herders need to be encouraged to develop a business plan, budget and keep accounts and proper records so that they can give complete information to government offices. This would help planning, budgeting and cooperating with government, financial and insurance organizations. There should also be short-term training in economics, finance, marketing and accounting so that herders can have economic way of thinking and market mentality like other businessmen.

1620 Statements and Information

0136

Tumurjav M., Erdenetsogt N.

Way of thinking and knowledge of Mongolian nomads

Research paper No 31. UB, 2002. MSUA. pp 23-26. In Mongolian.

The long experience of Mongolian nomads has created distinctive bank of knowledge and traditional ways of thinking, to which some researchers give terms like 'popular intelligence,' 'traditional thinking' or 'traditional knowledge'.

The study addresses importance of studying scientifically the herder psychology, way of thinking and its changes, and suggests that the results should be reflected in livestock management and legislation. The authors also suggest detailed study of traditional knowledge and summarize the results of other research into herder ways of thinking.

Summary: The study classifies nomadic ways of communication into three: getting information from each other; information/feelings from the environment; and information/feelings from the livestock. It explains each. The researcher attempts to compile and evaluate research works of other scientists on the mentality and methods of Mongolian herders.

RESEARCHER'S FOREWORD

Mongolian pastoral livestock production is a vital part of the long history of nomadic civilization. In recent times, to meet increasing demand, agricultural production has intensified, though this has also involved an increased production of ecologically impure products, with some unhealthy effects on humans.

Pastoral livestock production is based on nature and ought therefore to involve ecologically clean products. However, pristine natural conditions and appropriate production forms are not common in the world.

The Mongolian pastoral livestock industry is one of the few traditional forms of livestock production remaining in the world, adapted to the extreme natural climate of central Asia, with natural selection over the ages, with its own distinctive technology, low cost and ability to produce an ecological clean product.

An increasing number of researchers in the last few years have been interested in studying the effects of the market economy transition on the traditional livestock industry, focusing on the relationship between the new market conditions and traditional pastoral livestock development from many different viewpoints.

This first edition of a bibliography on the Mongolian pastoral livestock industry, initiated and sponsored by the Soros Foundation, will be an important guide for scientists, researchers and students working in this area, and will also contribute to the development of the pastoral livestock industry by improving capabilities of researchers.

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