INDEBTEDNESS AND ITS LINK TO VULNERABILITY DURING DZUD EPISODE AMONGST VULNERABLE HOUSEHOLDS

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Data summary

ULAANBAATAR

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1. Introduction

The research titled "Indebtedness and its link to vulnerablility during dzud episode amongst vulnerable households" was commissionedby NGO "People in Need" as a part of a project designed to strengthen herder capacities to prepare for dzud conditions, financed by ASIA Onlus NGO and Italian Waldensian Church in 2016.

The research objective is to understand how indebtedness influences the capacity of herders to prepare for dzud and withstand the crisis in selected areas of Sukhbaatar province. People in Need pre-selected 3 soums where vulnerable households endured the highest rate of livestock loss during the dzudepisode of 2015-2016: Uulbayan, Khalzan and Asgat. The first part of the research aims to list and describe the typology of borrowing schemes available to herders in a rural set-up. The research focuses on bank and non-bank credit institutions as well as grocery shops, pawnshops and individual herders as lenders. The second part of the research is a preliminary analysis ofthe household economy for typical herders. Their financial capacity to repay debt and invest in necessary disaster preparedness programs is being examined. The data collection was performed over one month inNovember 2016.

The research aims at participating at the necessary efforts to understand new vulnerabilities of herders and their related difficulties in terms of preparedness in case of dzud occurrence.

PIN sees this research as a starting point aimed at deepening the understanding of household economy, its sustainability in the current market economy and its resilience to shocks such as dzud or other natural disasters.

1.1. Specifics of Sukhbaatar province

The province is located in the eastern region of Mongolia and borders the Peoples Republic of China. Domestically, Sukhbaatar province borders the Dornogobi region to the west, Khentii region to the north and the Dornod region to the north east.

Image 1: The herder Battur redirects a few fleeing sheep and goats, Sukhbaatar. Credit: Regis Defurnaux, 2016

The province is composed of 13 soums and 66 baghs, its capital is named Baruun-Urt. The population totals 60,000 people (NSO, 2015), the majority of which belongsto Khalkh and Dariganga ethnic groups, with minority belonging to Uzemchin, Barga, Khuuchid, Uuld and Tsahar groups.

The province of Sukhbaatar is scarcely populated, the 4th least out of21. The density of population is 0.7 inhabitantsper km^2.

Image 2: Mongolia and Sukhbaatar province[1]

Map of Sukhbaatar province[2]

The territory of the province falls within the category of the extended regions of Northern Mongolian grasslands, occupying 82.3 thousand km^2 of land and belongs to the steppe zone area. The majority of the territory is located between 1000–1200m above the sea level. The territory of Sukhbaatar is 82,287 km². It is the 8th largest province in Mongolia, the biggest being Umnu-Gobi with 165,380 km² and the smallest being Orkhon province with 844 km².

Hydrographically, Sukhbaatar province is a dry area with very limited surface waterand only a few rivers withcontinuous flow. However around 20 small lakes, 200 springs, streams and creeks dot the province. The territory is composed of 19% agricultural fields, 15.5% hay making, 57.1% pastureland and 7.5% hills and mountains.

The main economic sectors are livestock and mining. The extraction industry created19.40 billion MNT worth of coal, zinc and gravel products in 2015.Sukhbaatar province ranks 9th by its numbers of livestock with atotal number of livestock of 3,070,254 out of which:

- 1,511,835 sheep
- 1,076,042 goats
- 259,590 horses
- 214,478 cattle
- 8309 camels[3].

Overall in Mongolia, the frequency of dzud episodes is increasing, due in part to climate change but also to overgrazing and pasture management related problems. Comparingdata on a period from the 1960's and 2010, the frequency of dudhas increased three fold[4]. The past 15 years have witnessed a historical high with 2 dzuds in 5 years and another back-to-back dzud unfolding in

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[1]https://en.wikipedia.org/wiki/S%C3%BCkhbaatar_Province#/media/File:S%C3%BCkhbaatar_in_Mongolia.svg

[2]https://en.wikipedia.org/wiki/S%C3%BCkhbaatar_Province#/media/File:S%C3%BCkhbaatar_in_Mongolia.svg

[3]*Social and economic statistics of Sukhbaatar*, Statistics center of Sukhbaatar province 2015.

[4]*Dzud National report 2009-2010*, UNDP, NEMA, 2010.

2016-17. These have devastating effects on the livelihood of herders, especially the poorest, and encourages further rural migration to Ulaanbaatar or other urban centres.

If dzuds have generally a moderate impact on herders in eastern Mongolia[5], Dornod, Khentii, Dornogobi provinces and especiallySukhbaatar were disproportionately affected in 2016. As of early 2017, it is likely that Khentii, Dornod and Sukhbaatar will again be struck by a dzud in 2017 with possible heavy consequences on herders in the recovery phase.

At 1.1 million loss of livestock, the overall damage caused by last dzud was moderate, probably thanks to the intervention of National Emergency Management Agency and other humanitarian partners. However, herder households traditionally considered at vulnerable (with less than 200 animals) constitute *ca* 50% of the total herder population (an all-time high) and have suffered disproportionate loss (on average tenfold in Sukhbaatar) of livestock.

According to 2015 data, the population of Sukhbaatar was around 60,000 people out of which14,300 (or 6858 households) or 24% of the population are herders.

Table 1: Data on soums part of the research area

	Asgat soum	Khalzan soum	Uulbayan
Total population	1,712	1,598	2,854
Herders population	588	609	1,104
Distance to aimag center	45km	65km	77km
Note	2 least populated soums of the province		

Image 3: Map of Sukhbaatar province and 3 targeted soums

[5] Batima et al, *Climate Change Vulnerability and Adaptation in the Livestock Sector of Mongolia*, Report for Assessments of Impacts and Adaptations to Climate Change (AIACC). Washignton: International START Secretariat, 2006.

Table 2: Livestock related data (Sukhbaatar Statistics Office 2015) in Sukhbaatar and 3 target soums

	Total livestock	Note
Sukhbaatar	3,070,354	
Asgat	120,850	Target area
Khalzan	141,029	
Uulbayan	240,940	
Tumentsogt	95,385	Lowest # livestock
Bayandelger	405,917	Highest # of livestock

1.2. Guiding questions of the research

The research focused on two main sets of data. The first one aimed at describing the typology of borrowing schemes available to herders in a rural context. For this purpose, the research focuses on bank, non-bank lending institutions, pawnshops and grocery stores or individual herders having the capacity to lend money or goods to others.

The second set consistedindescribing the household economy related to debt for typical herder households. The team aimed at closely analyze the income sources and expenses of indebted households in order to determine the reasons for borrowing money. In an humanitarian perspective, only the most vulnerable households were considered in this work and their financial capacity to repay their loan and invest in necessary winter/dzudpreparedness activities were examined.

Besides individual semi-structured interviews, focus group discussions were organized in each target soum in order to clarifypriorities and difficulties of herders in regard to winterization and to validate the research questionnaires.

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2. Typology of borrowing schemes available to herders in rural set-up

2.1. Literature review

According to Lucy Hornby[6], loans have become an annual ritual on Mongolia's steppes, where herders capitalizing on a growing market for cashmere are hostage to a downward cycle of falling margins and deteriorating pastures.

Bank loans are relatively easy to obtain and do not involve the long-term personal work involved in borrowing money from friends and relatives. Khan bank, present in every 335 soum center in Mongolia as developed various loan products adapted to herders' characteristics, needs and constraints. One of its most successful products is the 'Herder Loan', as it is commonly known. It is aimed at financing consumer and business needs of herders. Following Empson (2014:186)[7], this loan arose in reaction to the prevalence of informal lending, which was the bank's main competition. Instead the bank encourages herders to take out loans as a means for low credit-worthy individuals to move into the formal financial system. Loans are used for various purposes and projects: procuring petrol to access markets, school fees, or paying off previous loans.

Although some authors consider that obtaining a loan from a bank is easy, Sneath (2006: 100)[8]determined that there has been a custom rate of payment established to bank officials from herders. In cities, this kind of payment would be described mostly as a bribe, but in traditionalist rural conditions people consider it as a gift and expression of gratitude. Since banks loans are limited, development of bribery is possible.

Following Hornby, banks charge a punishing 18% for borrowing against pensions, increasing the general indebtedness of the poor. The boundary between those who had coerced and those who were coerced was hazy and everyone was implicated, with some having to give up their animals and houses in an attempt to pay back debts. The "punishing" used by Hornby is not the correct wording. 18% is not "punishing", it is the actual annual interest rate of Pension Loan.

Ironically, one of our informants said as a joke that everyone living in a soum is indebted to banks in some level or another, and works on behalf of the banks profit – employees work for them to cover their credit, and herders herd the livestock as collateral for their loans.

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[6]Hornby L., *Mongolia: Living from loan to loan: Since the commodities boom turned to bust, the country has traded self-sufficiency for indebtedness*, in Financial Time, September 13, 2016.

[7]Empson E., "*Portioning loans: cosmologies of wealth and power in Mongolia*", inFraming cosmologies: The anthropology of worlds, Allen Abramson A., and Holbraad M., (edited), Manchester University Press, 2014, p. 182-198.

[8]Sneath D., *Transacting and enacting: corruption, obligation and the use of monies in Mongolia*, in Ethnos, 71(1), 2006, p. 89–112.

Exchange of goods is a big part of Mongolian rural economy due to lack of disposable income amongst herders. In many pastoral societies selling livestock is a main source of income, but not in contemporary Mongolia. A major reason for this is that many herder families are in the process of building up their herds and/or have too few animals. They are therefore reluctant to sell except entire animal but only those products that do not involve slaughtering (UNDP, 1994)[9]. This is even more the case for households with few livestock. According to 2015 provincial data, nearly 4600 households (out of 6858) of Sukhbaatar province own less than 200 livestock.

According to Finke (2003:209)[10], there are additional reasons for the reluctance to market livestock. One is that prices are considered too low and subject to frequent changes. Barter within local, personal networks in which exchange values are less precisely calculated (the second type of barter) often involves livestock. Most households with an excess of agricultural products will try to barter some of it for livestock. Bartering livestock is also often resorted in order to obtain costly items, such as motor vehicles or motorbikes. Large livestock is often obtained in exchange for hay or fuel. In our study, we try to determine the prevalence of debt and barter exchange in the Mongolian countryside.

2.2. Methodology

2.2.1. Survey

All of our interviewees were introduced to the ethics of our research and gave their permission to use all of the photographs, records and data produced during the research. A specifically designed questionnaire was used for each target group. The field research was implemented as follows: the team asked prepared questions in a form of an interview and gave the respondents an opportunity to address the issues in their own way, the team filled in the survey. In some cases, follow-up questions were asked to deepen the understanding and meaning.

Subjects of this part of the research was divided into 2 groups: financial institutions and individuals. Financial institutions include Banks, Non-Bank Financial Institutions, Credit Cooperatives, "Lombard"/pawnshops. Individuals are grocery shops and herders, who are lending money or goods to other herders or to their relatives.

In total, 61 observations in Part 1. See the following table which shows each group and sampling size. We had 18 grocery shops in three soums and 6 banks. There were a "Khan Bank" and a "State Bank" in each target soum. There were no non-bank financial institutions and pawnshops in these soums. However we sampled them from the province center, Baruun-Urt. A credit cooperative was sampled from Baruun-Urt as well. We assumed that herders with more than 150 livestock per household members have a certain capability to lend. Hence, a preliminary list of

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[9] *Poverty and the transition to a market economy in Mongolia*, Mongolia: United Nations Development Program, 1994. Ulaanbaatar.

[10] Finke P., *Does privatisation mean commoditisation? Market exchange, barter, and gift giving in Post-Socialist Mongolia*, in Anthropological Perspectives on Economic Development and Integration Research in Economic Anthropology, Vol 22, 2003, 199–223.

herder households was prepared based on this criteria beforehand. Selection was narrowed down to 10 lenders for each soum.

Respondent group		Survey sample	Total
1.	Banks	6	13
2.	Non-Bank Financial Institute	1	
3.	Credit cooperatives	2	
4.	Lombards/Pawnshops	4	
5.	Grocery shops	18	18
6.	Lending herders	30	30

2.2.2. Field visit

Banks

Two banks were visited in each target soum (total 6) and officers were interviewed. Branches of "Khan Bank" and "State bank" operate in each of the soums. No one has refused to participate in the survey. However one of the interviewees was a new staff not knowingsome specific data related to 2015.

Image 4: The tiny Khaan Bank branch in the center of Uulbayan where most herders contract loans – Credit: Regis Defurnaux 2016

Non-bank financial institutions

Although 3 interviews were planned with non-bank financial institutions in Baruun-Urt, only 1, founded in 2004, was found and provided answers to the survey.

Non-bank financial institutions do not operate in the 3 target soums.

Credit cooperatives

Interviews were planned with 3 credit cooperatives either in Baruun-Urt or in our three target soums.

Only one, established in 2005, is operating in the province capital. The institution has 30 members each of whom must pay an annual membership fee of 6000 MNT. The credit cooperative provide loans only to their members.

Lombard/ Pawnshops

There are five operating pawnshops in Baruun-Urt but none at soum level in the targeted area. We interviewed 4 of those pawnshops as one of them was closed on the day. Only owners were surveyed since none has employees.

The pawnshops are located in the city center. Their typical customers are residents of Baruun-Urt as well as herders. The owners of pawnshops said *"we do not enquire on the identity of our clients so we do not know whether they are actually herders or not"*. They are only familiar with their loyal customers, who have been visiting their pawnshop since a long time. There are no pawnshops in Asgat, Khalzan and Uulbayan soums.

One of those 4 pawnshops leads various kinds of activities. The owners buy antique objects and run a loan service at the same time. If a customer pay back his loan at the bank, he can ask to get the debt restructured by the pawnshop.

One of the owners of the pawnshop is a member of an association that protects and safeguards antique objects from selling to foreigners, especially to Chinese. Therefore, he also buys antiques himself.

Grocery shops

As planned beforehand, we interviewed 18 grocery shops in the three target soums. In Asgat there are 5 grocery shops and 6 in Khalzan. There are five grocery shops and two goods shops in Uulbayan. Two shops do not give loans to customers because they have a debt burden themselves.

Lenders

In general, we had difficulties with interviewing individual families. We preselected the families, thanks to the data given by People in Need, according to the criteria defined. In the field there were few problems with locating our selected families. Some selected families have changed their place of residence and they don't live in their bagh. They left to live in Baruun-Urt or their soum center or another soum. Some families have changed their camp and we could not find them. For some households the head or the wife of the household were absent on that day. Their children were not able to answer our inquiry. However, at total of 30 households were surveyed.

2.3. Results

Out of 61 participants surveyed, 43 responded that they provided loans in 2016. The total number of borrowers was 3,047 in 2015 and decreased to 2,013 in 2016. Borrowing has decrease by 1/3mainly due to the sharp decrease in borrowers from pawnshop. (Table 4 below)

Pawnshop owners assume that people are getting more cautious, as they might lose their collateral in case they don't repay the loan. Another likely reason is the actual very high interest rates.

Table 4: Number of borrowers in 2015 and in 2016 in different lending schemes

Respondent group	Number of borrowers in 2015	Number of borrowers in 2016
Banks	138	141
Non-Bank Financial Institute	12	15
Credit cooperatives	11	11
Pawnshops	2500	1500
Grocery shops	348	314
Lending herders	38	32
Total	3047	2013

According to the survey, the highest recorded amount of loan is 50 million MNT provided by banks and 30 million MNT by lending herders. Pawnshop and non-bank financial institution offer 5 million MNT and shops, 300,000 MNT. The average amount of loan taken out is 4,466,512 MNT.

In 2015, 43 out of 61 participants indicated the limit of their single loan amount. 75 % of 43 loan providers lends 5 million MNT to the highest extend and 9 % of them lends 20-50 million MNT. 81 % of 42 loans of 2015 lends up to 500 thousand MNT. As we can see, the majority of the lendershave the capacity to lend more than 1 million MNT.

2.3.1 Loans provided by financial institutions

The most common types of loans provided by the banking institutions are:

- Herder Loans,
- Pension Loan,
- Consumer Loans

In our study, all banks proposed Herder Loan product and 66% proposed Pension Loans and Consumer Loans products.

For those banks, the flow of accepted loans has been steady between 2015 and 2016. During the first half year of 2015, 81 herders got loans whereas 84 herders were provided with loans in the same period of 2016. As of the second half year of 2015, 57 herders got loans, same figure as for 2016.

Table 5: Seasonality of lending 2015 against 2016, per type of lender

	2015		2016	
	1st semester	2nd semester	1st semester	2nd semester
Loans from banks (6)	81	57	84	57
Loans from NBFIs (1)	n/a	12	n/a	15
Credit cooperatives (1)	2	9	2	9

Amount of loan

Financial institutions define the maximum amount of loan to 14.4 million MNT and minimum amount of loan to 281,000 MNT. For the risky borrower the maximum amount is limited to 3.7 million MNT. The definition of 'risky' varies amongst the types of institutions. For banks, it is either a borrower who failed to repay his loan on time or one who has taken multiple loans; for non-bank financial institutions it is more simply a borrower who isn't paying back on time.

The table 6 below illustrates that all institutions have a capacity to lend at least 5 million MNT, except credit cooperative. Their lending capability is low because they only work with their members, who pay a membership fee and cooperate through economic activities, such as selling wool. Also, they only lend money to their registered members.

Banks offer the highest amount of loan. Pawnshops define the uppermost limit of loan to 5 million MNT. The limit is the same for non-bank financial institutions. But some pawnshops limit their loan to 1 million. They are private institutions so they define their limit of loan by their individual capacity.

The table shows that minimum amount of loan goes as low as 10,000 MNT for pawnshops.

As seen from the below table, 25% of the surveyed banks lend a maximum of 5 million MNT. 12,5% of the banks lend a maximum of 50 million MNT. Both banks and non-bank financial institutions defineda lower limit of loan for risky borrowers that is very limited.

Table 6: Limit of loan amount for maximum, minimum and risky case

Type of Institutions	Maximum amount of loan – regular risk –	% of institutions	Minimum amount of loan – regular risk –	% of institutions	Maximum limit – risky borrower –	% of institutions
Banks	5,000,000	25%	100,000	37.5%	-	-
	10,000,000	12.5%	300,000	12.5%	1,500,000	12.5%
	20,000,000	25%	500,000	12.5%	5,000,000	25%
	50,000,000	12.5%	1,000,000	12.5%	10,000,000	12.5%
Average	21,250,000	-	475,000	-	5,500,000	
Non-bank financial institution	5,000,000	12.5%	100,000	12.5%	700,000	12.5%
Credit cooperative	500,000	12.5%	50,000	12.5%	-	-
Pawnshop	5,000,000	25%	50,000	25%	-	-
	3,000,000	25%	30,000	25%	-	-
	2,500,000	25%	10,000	25%	-	-
	1,000,000	25%	10,000	25%	-	-

Payback terms of loan

As seen the above table, the average term of loan by non-bank financial institutions and credit cooperatives are 12 months, and only 1 month for pawnshop.

Within the official banking system, average payback term differs between the various types of loan:

- Herder loans – 15 months
- Pension loans – 21 months,
- Consumer loans – 18 months

In general and except for pawnshops, herders may take out a loan for a period of one year or more, with registered banks offering the most comfortable terms. Offered payback period of banks are the longest. Likely responding to the quick needs of cash but also to very high rates, pawnshops lend money for the shortest period.

Table 7: Payback terms by loan type and frequency of occurrence in surveyed banks

Activity of Institutions	Type of Loan	Term of Loan (in month)	Number of Bank
Banks	Herder Loan	12.00	4
		18.00	1
		24.00	1
		Total	6
	Pension Loan	12.00	1
		24.00	3
		Total	4
	Consumer Loan	12.00	2
		15.00	1
		36.00	1
		Total	4

Herder Loan is the preferred product for herders, thanks to the livestock based collateral system. However, few households have the Pension Loan but none of the interviewees have taken a Consumer loan.

Interest rates

Information onthe product specific and/or average interest of loans has been gathered from 12 financial institutions and is illustrated in the figure below:
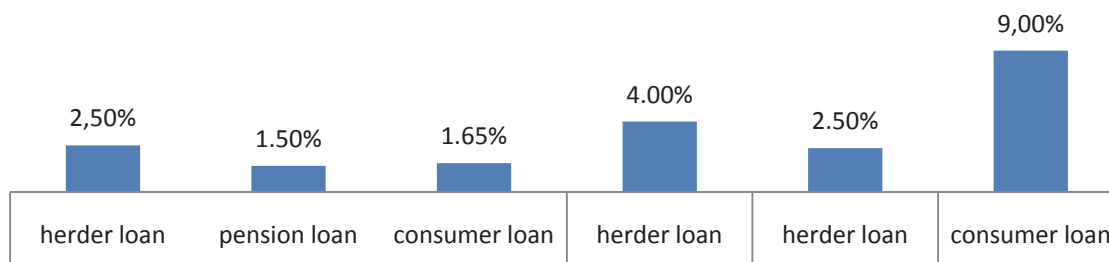
Collateral

Forms of deposit and collaterals vary greatly depending on the type of institution and their practices and policies.

Commercial banks accept only cattle, real estate, fixed or current assets as collateral.With the Herder's Loan specifically, banks have designed their product with pastoralist lifestyle in mind.The minimum amount required as collateral is 100 animal equivalent sheep[11]. The value used for calculation of the loan size is 30% of the livestocklocal market price. Other required documents for loan issuance include an officiallivestock headcount confirmation letter and an inventory of other valuable assets. Furthermore, the confirmation of the herding experience of the borrower is sometimes required. Failure to pay back a loan means seizure of livestock.

Pension Loans has no other physical collateral than the pension benefit received monthly by the borrower and that could be seized by the bank in case of repayment.

Consumer Loans guarantee for the bank lies in the saving account

For non-bank financial institutions involved in the survey, precious jewelry and gold, silverware andprecious snuffboxes are used as collateral.

For pawnshops, jewelry and all antique items serve as collateral as well as sometimes electrical goods, mobile phones and computers.

If borrowers don't repay their loans, pawnshops and non-banks resell the collateral items through their networks.

All institutions, except credit cooperatives, demand collaterals. Collaterals mostly guarantee a good loan repayment, because the deposited items are seized in case of failure to pay back. According to our study, no bank has had to seize collateral in 2016.

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[11]For standardization purpose of the value or needs of livestock, these are notionally transformed into equivalent sheep units by counting as follow: 1 camel as 4 sheep; 1 horse as 5 sheep; 1 cow as 6 sheep; and 0,7 sheep as 1 sheep, or a sheep as 1 sheep.

Table 8: Various types of collateral accepted by lending institutions

Type of collateral		Number of Institution
Banks	Livestock	6
	Electrical goods	1
	Ger, fencing and awnings	2
	Real estate	2
	Furniture	1
Non-bank financial institution	Jewelry	1
Credit cooperative	None	1
Pawnshop	Jewelry	4
	Antique items	2
	Electrical goods	2

Repayment and loan request load periodicity

The lenders are obliged to pay the interest on the loan from the first term and prior to capital reimbursement.In most cases and for herders, the **loan repayment** is made by cash and

repayment is divided into 2 periods per year: winter and spring. Herders are mostly able to repay their loan after selling their livestock in fall and cashmere in spring.

The biggest difficulties encountered by all 6 commercial banks are herders having no cashat hand, dzud, livestock disease and price drop for livestock product. As well, difficulties arise from contacting with borrowers and borrowing money for not itself, but another one. But for non-bank financial institutions, communication issuesare the most difficult and for credit cooperative, the most serious problems and risks are generated from herders having no cash on hand and the price drop for livestock products. For pawnshop, price drop for livestock products and unknowing assets pledged as collateral are issues. Moreover, some individuals borrow money on behalf of someone else that often can't afford to pay the loan back. For example, Batmunkh, one of our interviewers, borrowed money from the bank for his brother. He has a repayment problem. Another case shows that the elderly borrow money for small children studying at university.

As for the **periodicity of loan requests**, the research highlighted a couple of findings:

Overall, for herders, the demand for loans has been similar for 2015 and 2016 with similar periodic peaks.

Banks have very limited demand for loans in February, March and July. However they face a peak in requests in May and June, August and September, corresponding respectively to the period before the sales of cashmere and the schooling related expenses

Alternatively for non-bank financial institutions, the peak of the demand ranges between March and June (for credit cooperative only in June).

Customers approachpawnshops the most in February, August, and September.

Table 9: Load of loan requests per month and per type of lending institution

№	Month	1	2	3	4	5	6	7	8	9	10	11	12
1	Banks	√							√				
2					√				√				
3					√	√			√	√			
4						√	√		√		√		
5						√	√		√	√			
6												√	√
7	Non-bank financial institution			√	√	√	√						
8	Credit cooperative						√						
9	Pawnshop								√	√			
10		√	√						√	√			
11			√			√	√		√	√			
12			√					√					
	Most demand months	2	3	1	3	5	5	1	8	5	1	1	1

2.3.2 Credit and loans from grocery stores

In regards to loans taken from individuals such as grocery shop owners and neighbors or relatives, a total of 18 grocery shop owners where interviewed with two not giving out loans or credit.

Amongst them, goods were sold on credit to 348 people in 2015 with this number decreasing to 314 in 2016. Although the number of loans given decreased, the demands increased in 2016 but were refused. Shop owners argue that they limited the sale on credit due to a more limited financial capacity. Owners explained that their capacity of loans were limited; giving goods on credit to too manyputs at risk the shop's operations and stock levels.

On average, the maximum one-time creditwas 278,750 MNT and minimum 48,687 MNT. The average limit of credit given by store owners was 492,000 MNT. Shops sell their goods on credit by the average term of 28 days. Some shop owners also lend money but take pension book or the welfare book asguarantee.

Shop owners do not take collateral to secure the credit. 88.9 % of shopkeeper interviewed in the survey answered that no interest rate *per se* is claimedbut that instead the prices of goods are higher on credit with some customers complain about the price. Also some shops have prices related to the season. For example, in summer a pack of flour of 25 kilos is 27000 MNT and in winter it increases up to 28000 MNT.

Looking at the periods with a higher loan/credit request for goods in 2015 and 2016. It appears that the load is higher in winter and autumn and lower in spring and summer. It might be related with the fact that herdsmen consume more dairy products within their diet in summer but also to the fact that from autumn on, no more cash is generated from their livelihood and they face only expenses till the cashmere season. Moreover, the Lunar New Year celebrations in February incur major expenses for which borrowing money or good is often the only solution.

Figure 2: Seasonal loan frequency
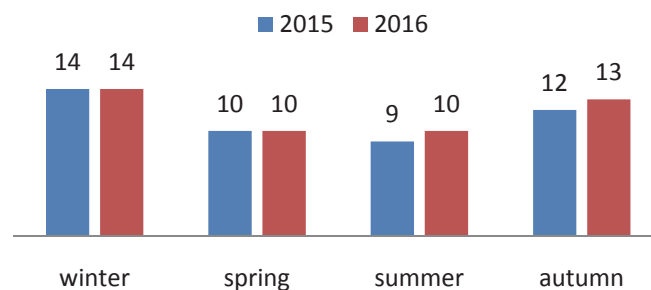
Goods boughton credit usually are, by occurrence, first:flour and soap, cleanser, toilet paper; second: rice, sugar, tea, oil and salt. Clothes and vodka are seldomly bought on creditbut never candies.

		flour	rice	sugar	candies	vodka	other food	home items	clothes	other
What do herders buy on credit?										
Valid	least	1	3	8	8	3	1	2	4	1
	middle	6	8	5	3	1	5	5	2	3
	much	8	4	1		2	4	6	4	1
	Total	15	15	14	11	6	10	13	10	5

Overall, the store owners assert that herders are much better at paying back their credit than the residents of soum centers.

As form of repayment, all shopsaccept animals for credit repayment as well as some livestock based products. As shown in the chart below, 42 % agree to take cattle hide and sheep skin; 33 % consider cashmere and meat and 8% milk, dairy products and sheep wool repayment methods.

The stores value these products according to the current market price.

Figure 3. Type of repayment accepted per occurrence
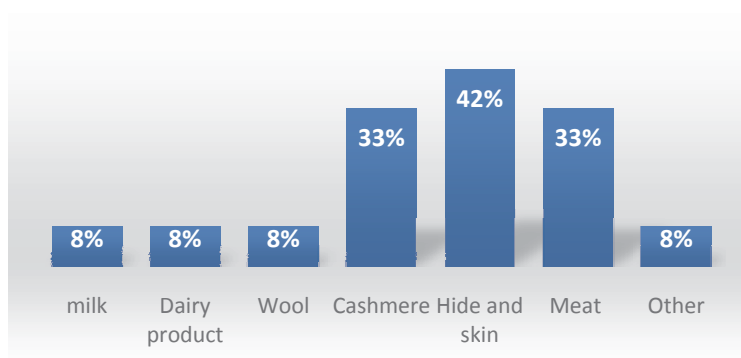
17 owners of shopkeepers outlinedtheir current difficulties in providing goods on credit. 94% of them considered highlighted as the most serious the drop in livestock commodity price and 76 % answered that livestock disease and dzud disaster have the most adverse effect. We see here that the drop in meat and livestock products price affects of course directly herders as borrowers but also indirectly lenders.

2.3.3 Loans provided by individual herders

A total 30 herders with more than 150 animals were pre-selected to be surveyed (with only one who did not answer and 13 who did not provide any loan).

Amongst these, in 2015, 9 herders lent money to 38 individuals and in 2016, 7 herders lent to 32 individuals. 58.3 % lent money to their relatives and 16.7 % lent to friends and 16.7 % lent to their neighbours and 8.3% lent to their acquaintances. The scheme remains very localized within the closest family and social network.

The scheme seems limited in scope and volume likely because lenders do also have limited income generating activities and current debt in banking institutions

Most herders limit their loan to a maximum of 5 million MNT, similar to non-bank financial institutions and pawnshops. In one rare case in the survey, the amount was much higher at 30 million MNT. On the other hand, herders lend amounts as low as 10,000 or 20,000 MNT to satisfy more basic, every day needs.

Herders do not really fix any term for loan between each other. Lenders highlight the fact that borrowers cannot refund their loan withinthe exact term but pay back when it becomes financially possible. Amongst the survey group, herders lend money without collateral or interest rate, except for one person who mentioned amonthly interest rate of 1.8%. However,the guarantee relies mainly on trust.

For herders who lend money, higher demand periods are February,August and September correlated to the Mongolian Lunar New Year and the education related expenses.

Generally, borrowers refund their loan by cash but in some cases they pay back in-kind with livestock, cashmere or felt.

Asked about the challenges faced, 25 lending herders answered that for 72 % the most serious issue is linked withlivestock products price drop, 68 % the most critical issuelack of disposable income amongst herders in debt. Eventually, for 32 %, dzud and livestock diseases are the most important factors on the generation of abnormal loan repayment.

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3. Analysis of household economy for typical herder households

3.1. Literature review

According to Badarch's study conducted in 2002[12], a typical Mongolian herder household of 5 members is capable of producing enough raw materials and products to provide for their household needs and make extra earnings by selling the rest, if they own at least a number of 350 livestock, consisting of a proportionate number of 5 different animal kinds.

Unfortunately, the majority of herder households in Mongolia own insufficient numbers of livestock for a wider production. Also, the relative inefficiency of the pastoral livestock extensive farming is caused by severe weather and natural conditions.

The net income of the household who makes a life and earningsout of selling raw products from livestock farming constantly fluctuates and is highly seasonal. For example, a typical household, depending on the regional centre, sells 85–98% of their yearly wool and cashmere stock – one of their main sources of income – during the period between the months of April and August, with the wool price being defined by the local resellers and buyers from the city (Nansalmaa Ts., 2002[13]). Moreover, during the months between September and November, the herders earn by selling their livestock (mainly meat but also by-products of slaughtering such as hides and skins).

In general terms, producers must be free to choose their preferred markets and sales channels. Unfortunately, in case of individual small herder families, who are geographically dispersed and overly dependent on external conditions, it is common that their products are resold 3 – 4 times through various middle-sellers before there are processed or consumed. Moreover, with families having no means to further process and refine their raw products, value of their stock is confined to the low prices of a raw material. Herder families usually have very little savings, making them particularly vulnerable to risks, natural or man-made.

3.2. Methodology

3.2.1. Survey

The following methods were used to achieve the goals and objectives put forward in the study: qualitative research methods and focus group discussion method. SPSS software was used to process statistical data collected by means of sampling.

The field research was implemented in the following way: the team asked pre-prepared questions and gave the respondents an opportunity to address the issues in their own way. In some cases, further questions allowed to investigate further.

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[12]BADARCH S, Complete study of meat market of Mongolia, PhD Dissertation, UB, 2002, University of Agriculture of Mongolian, p138.
[13]NANSALMAA Ts., Herder families and their ways of farming, Academic research paper. vol 31, UB, 2002, University of Agriculture of Mongolian, p129-131.

Researchers also organized focus group discussions for clarifying the difficulties of winter preparedness and specifics of each target soum. Relevant findings allowed the team to modify the questionnaires accordingly or get leads to fine-tune the survey process and interactions with herders

Aspecifically designed questionnaire for herders was designed and used to collect data on households' demographic, socio-economic characteristics, economy, borrowing patterns and dzud coping strategies.

Household economy including annual income and expenditure of 2016 was further analyzed according to 5 key indicators: salary, pension and social welfare, livestock sale, livestock goods, and labor.

Expenditures where considered under 12 categories of items:
- Food
- Utensils
- house maintenance
- fuel (coal, wood and dung)
- education,
- health,
- expenses related to herding activity
- hay
- transportation
- communication
- expenses related to festivities
- taxes

Additionally, the research considers the loan/credits of each of the surveyed household

The sampling size of research was 61 households, considered as representative in regards to anthropology good practices. Focus was made on the most vulnerable herders tentatively approached by the number of livestock per household member.

For this research, 4 categories corresponding to a decrease level of vulnerability were tentatively define as below:

Category 1: less than 10 livestock per household member,
Category 2: between 11 and 20 livestock per household member
Category 3: between 21 and 30 livestock per household member
Category 4: between 31 and 50livestock per household member

For each category, 15 households were surveyed corresponding to 5 households from each target soum.

Households are further disaggregated into the additional vulnerably categories (disabled, elderly, number of children, single headed household.

3.2.2. Field research

Sampling

The three target soums have a total population of 1,074 herder households out of which wereinterviewed 61 families due to logistics constraints and according to the table below:

Table 11: Sampling of herder household in targeted soums

Category	Household of Khalzan	Household of Asgat	Household of Uulbayan	Total
0-10 (category 1)	4	2	6	12
11-20 (category 2)	5	8	4	17
21-30 (category 3)	5	4	5	14
31-50 (category 4)	6	6	6	18

Focus group discussion

Focus group discussions were plannedfor a minimum of 5 people.Despite the logistical challenges to gather herders, the seasonal difficulties to travel and the workload, this was achieved at center soum level.Thanks to a wide panel of attendees representing the livestock sector, a context based understanding of the region was reached.

In Asgat soum, twobagh governors, a veterinarian and three herders participated.

In Khalzan, the soum governor, the head of citizen representative assembly, the head of livestock insemination department and its assistant, a medical doctor and two honored herders participated

In Uulbayan, thesoum governor, a governor office officer, two bagh governors, the head of citizen representative assembly, the head of sector of livestock insemination, a veterinary and a herder attended.

3.3. Results

Characteristics of households

On average, interviewed families count 4 members(between 2 and 8 members per household.Two single headed household not benefiting from social welfare but livingnext to relatives.

The table below disaggregates the surveyed household by additional vulnerability.

Table 12: Additional vulnerabilities of surveyed households

	Category 1 HH	Category 2 HH	Category 3 HH	Category 4 HH
Children 0-11 months	1	2	-	5
Children 1-17 years	8	14	9	15
Elder people (50 years & older)	8	6	7	6
Disabledpeople	2	4	3	5
Single headed	1	-	-	1

Number of livestock of households

In the absence of the most recent statistics (livestock of end 2016, compiled in January of the next year, the number of livestock for households involved in the survey can be estimated accounting for the number of livestock in 2015, subtracting the winter 2015-16 casualties and addingthe offspring from 2016 as shown in table below:

Table 13: Number of animal head per family and per category

Category			Number of livestock in 2015	Number of death animals due to Dzud 2015-2016	Number of newborn in 2016	Number of livestock in 2016
#1	Number of HH	Valid	11	12	10	12
		Missing	1	0	2	0
	Mean		41	15	17	46
	Minimum		6	3	3	9
	Maximum		64	29	53	84
#2	Number of HH	Valid	17	17	17	17
		Missing	0	0	0	0
	Mean		78	23	31	77
	Minimum		40	1	3	14
	Maximum		145	51	72	201
#3	Number of HH	Valid	14	14	14	14
		Missing	0	0	0	0
	Mean		121	33	39	145
	Minimum		57	3	16	47
	Maximum		176	62	94	471
#4	Number of HH	Valid	18	18	18	18
		Missing	0	0	0	0
	Mean		251	67	64	159
	Minimum		41	7	7	24
	Maximum		671	253	295	387

The loss of animals during dzud is between 27% and 37% depending on the categories, with the 1st category losing on average a high 37%.

The loss of animals is linked to several factors. The most important factor is the winter camp. We interviewed the households about their winter camp. Only 3 households of the 1st category have a proper winter camp against 9 households without. The families of the other categories have relatively more winter camps. For example, 13 households of the 4th category have theirown winter camp as opposed to5 households who do not have one. 10 families of the 2nd category have acamp in comparison to7 families who do not. 8 households of the 3rd category have a camp while6 households do not. We conclude that the winter camp is an important factor for avoiding loss of animals.

Revenue structure of herdsmen households

The table below recap average, minimum and maximum overall income (as per the 5 indicators - salary, pension and social welfare, livestock sale, livestock goods and labor) for each of the herders' categories.

Table 14: Overall income per herder category

Total Income in 2016			
#1	Number of HH	Valid response	12
		Missing	0
	Mean (MNT)		4,243,266
	Minimum		2,750,000
	Maximum		6,973,000
#2	Number of HH	Valid response	17
		Missing	0
	Mean (MNT)		6,644,235
	Minimum		4,292,000
	Maximum		11,867,000
#3	Number of HH	Valid response	14
		Missing	0
	Mean (MNT)		7,921,285
	Minimum		3,891,000
	Maximum		12,676,000
#4	Number of HH	Valid response	18
		Missing	0
	Mean (MNT)		5,819,938
	Minimum		1,180,000
	Maximum		16,168,000

a.   Salaried work
A few household members do actually have salaried work outside of herding and in urban centers.
3 members of 2 households are employed, total income from salary for the first household is 1 million MNT, and it is 100 thousand MNT for the second. Occupation is poorly qualified in the construction sector(in Baruun-Urt and Ulaanbaatar). For members of households belonging to categories 2, 3, and 4 there is no one who is employed and earning income.

b.   Pension and social welfare
As broken down below, most of the families of the sampling benefit from forms of social protection in the form of benefits.

10 families of 12 households of category 1 receive social welfare and pensions. In category 2, 16 families out of 17 households receive social welfare and pensions. In category 3, 11 families out of 14 households receive social welfare and pensions. In category 4, 17 families out of 18 households receive social welfare and pensions.

Social welfare includes social benefitsencompassa wide range of vulnerabilities or redistribution schemes: disability, maternity, infant care allowance, unemployment,burial related assistance, child support, mother pension for large families, education grant and honored person.

Forms ofsocial benefits are paid either on a monthly basis, either annually or either punctually. For instance, social aid of maternity benefit and infant care allowance is 40,000 MNT/month. Social aid of mother pension for large family ranges between100,000-200,000 MNT/year according to the number of children. Amount of pension depends of years of working and salary of the person. In our study, pensioners have between 230,000 and 250,000 MNT monthly, except one personwho earns 450,000 MNT monthly.

We met families seemingly eligible for social welfare allowances but not benefiting from it. Many families complained that they do not receive aid for child support. They explained that the state has no money, so they receive nothing. Generally, if a household has insufficient income and if it isrecognizedby a social worker,those benefit from 20,000 MNT/month and children of

child allowance. However, some families or family members appear to be administratively in an irregular situation preventing them to benefit from social welfare.

The census performed by Ministry of Labor and Social Welfare over the last months of 2016 will update data on poverty and vulnerability of herder household (the current data used for social allowances are from 2013) and will probably correct discrepancies and abovementioned issues.

The various social welfare allowances distributed by the State when aggregated together represent a large part of total household income, supporting the limited income obtained from animal husbandry. For example,11 households of the third category are having income of 2.5 million MNT from pensions and social welfare on average(the highest source of income of all categories), but 16 households of the second category earn 1 million MNT from pensions and social welfare.

Table 15: Total income from State social benefits per household

Category			
#1	Numberof HH	Valid response	10
		Missing[14]	2
	Mean(MNT)		1,317,600
	Minimum		240,000
	Maximum		3,768,000
#2	Numberof HH	Valid response	16
		Missing	1
	Mean(MNT)		1,062,500
	Minimum		240,000
	Maximum		3,000,000
#3	Numberof HH	Valid response	11
		Missing	3
	Mean(MNT)		2,531,272
	Minimum		240,000
	Maximum		6,360,000
#4	Numberof HH	Valid response	17
		Missing	1
	Mean(MNT)		2,161,647
	Minimum		240,000
	Maximum		10,368,000

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[14] "Missing" means that number of household do not benefit from any pension and social welfare.
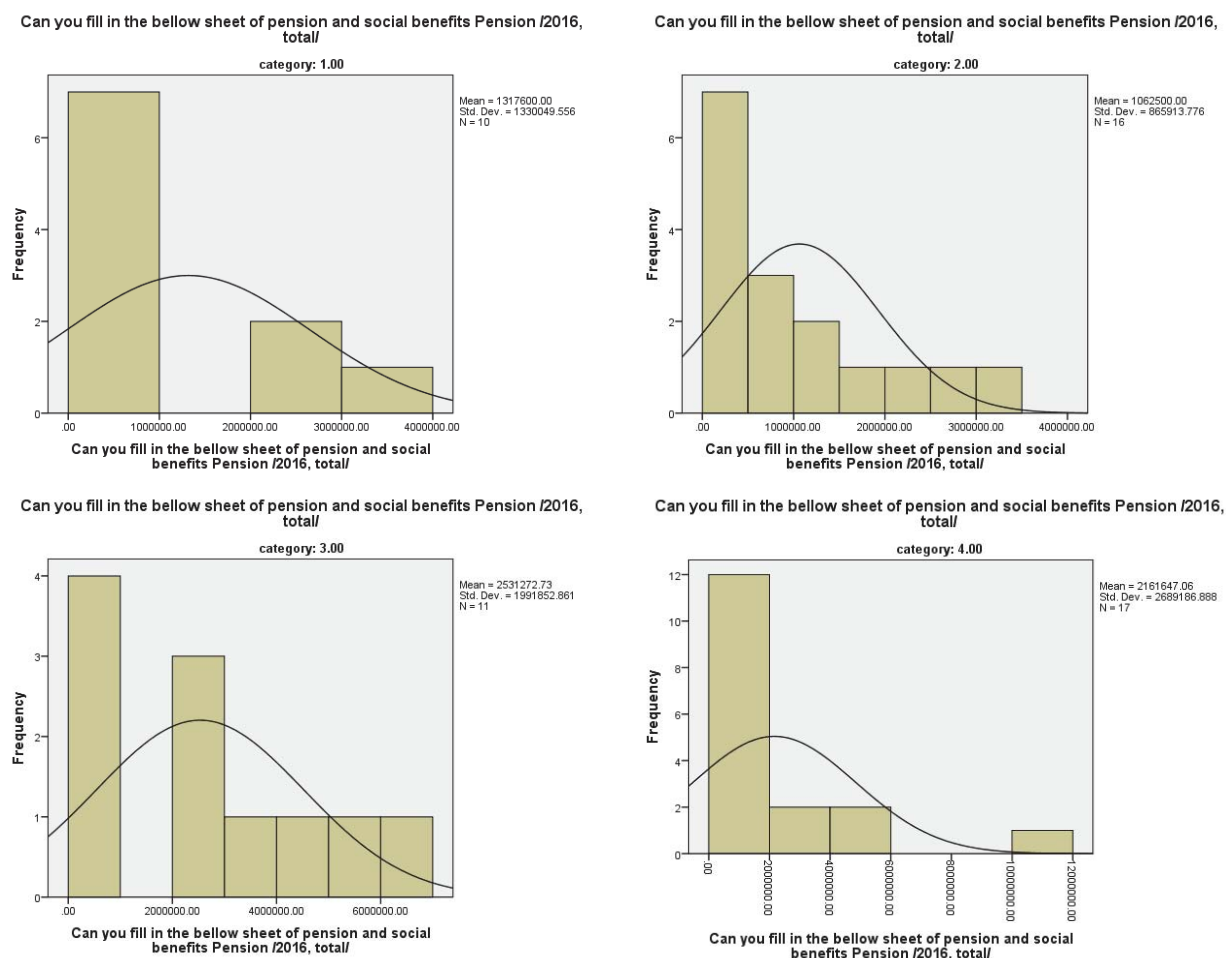
c.   *Income generated directly from animal husbandry*

Income from livestock is divided into two parts: sale of livestock and sale of livestock products. Let us consider each of them.

Income from sale of livestock:

The sale of livestock includes live animals and meat. We see in the following table the number of animals sold during the year 2015 and 2016in all categories. We note that in 2016 category 1 sold fewer animals compared to the previous year. The other categories sold more animals than the previous year.

	Number of animals sold in 2015	Average per household in 2015	Number of animals sold in 2016	Average per household in 2016
Cat 1 0-10	86	7,1	67	5,6
Cat 2 11-20	189	11,1	198	11,5
Cat 3 21-30	259	18,5	264	18,8
Cat 4 31-50	411	22,8	436	24,2

Table below illustrate the average income made by each category of herder from the sale of livestock, logically increasing together with the number of head owned. However, there is a big gap between the incomes generated by the 2 first categories. Prices are calculated according to respective year's market prices.

Table 17: Total income generated from the sales of livestock per household in 2015 ans 2016

Category			2015	2016
#1	Number of HH	Validresponse	12	12
		Missing	0	0
	Mean (MNT)		324,583	350,833
#2	Number of HH	Valid response	17	17
		Missing	0	0
	Mean (MNT)		1,195,294	877,941
#3	Number of HH	Valid response	14	14
		Missing	0	0
	Mean (MNT)		1,265,000	1,490,714
#4	Number of HH	Valid response	18	18
		Missing	0	0
	Mean (MNT)		1,981,944	1,770,000

Destocking of livestock happens massively in autumn when the animal are fattened and before the winter.
Socially, this timing also correspond to the need of disposable income for education purposes in families with children in school age.
The seasonal sale allows also herders to diminish their need of preparedness (hay and fodder) and the selection process where they can reform the weakest animals before the winter strikes.
However this seasonality creates a massive influx of offer on the market that contributes to price adjustment and decrease of the value of the meat

Income from livestock products

Livestock products comprise cashmere, wool, skin and hide. Out of these, cashmere is, with a value between 55,000-67,000 MNT/kg has the highest value, compared to sheep wool priced at 200 MNT/kg.

The table below shows the contribution of livestock products to the households' income generation.

Table 18: Total income generated by sales of livestock products per household in 2015 and 2016

Category			2015	2016
#1	Number of HH	Valid response	12	12
		Missing	0	0
	Mean(MNT)		511,050	427,075
#2	Number of HH	Valid response	17	17
		Missing	0	0
	Mean(MNT)		770,705	417,647
#3	Number of HH	Valid response	14	14
		Missing	0	0
	Mean(MNT)		1,322,607	1,557,142
#4	Number of HH	Valid response	18	18
		Missing	0	0
	Mean(MNT)		1,591,027	946,436

In 2016 total income from livestock product decreased for most of herders, probably caused by the death of adult cashmere goats in winter/spring 2016. The loss averages at 6.4% compared to 2015.

d.   *Wage work*

Within the surveyed sampling, more than 30% of the household provide their workforce to a third party, besides taking care of their livestock.

The part of income generated is important, seemingly more for the first herders categories that for the ones with more livestock.

From the view of average yearly amount of income, the first category is 2,5 million MNT, and it is 4,3 million MNT for the second category. For the third category, yearly income is 3,7 million MNT, and it is 1,6 million MNT for the fourth category. The average amount of this type of income is higher than income from wage and herdsmen households do not conduct their own business, but do work for other households.

In the following table, we see further details about the work and jobs taken on by the four categories. There are more accomplished works that include herding livestock for other families, combing goats to obtain cashmere, shearing sheep for wool, collecting neighbors' cow dung and building fences. All categories are involved in combing goats. Three categories are involved in herding livestock for other families and wool shearing. The 4th category is the least involved in those activities, whereas categories 1 and 2 are the most involved. Also, we see that all categories, except the 4th, earn their living by taking on short jobs. In other words, households with fewer livestock seek employment and jobs more.

Herding another family's livestock, combing goats and shearing wool are paid in cash. For example, herding pays between 100,000 MNT and 250,000MNT monthly depending on the

number of livestock to herd. For combing goats and shearing wool the payment varies. Sometimes it is paid per day or by the number of goats sheared. Sometimes works are paid in livestock, hay and cow dung. In sum, families with few livestock are involved in the work. Labor income is very important for families with small herds.

Table 19: Households in each category engaged in wage work

	Category 1	Category 2	Category 3	Category 4	Total
Herding another family's livestock	4	4	4	1	13
Shearing sheep	1	2	3	1	7
Combing goats (cashmere harvest0	4	5	3	4	16
Slaughtering animals	1	1	1	-	3
Preparing hay for neighbors	1	-	-	-	1
Collecting cow dung for neighbors	1	2	1	-	4
Building fences	1	1	1	-	3
House construction	-	1	-	-	1
Manufacturing gers	-	-	1	-	1
Vaccinating animals against parasites	1	-	-	-	1
Total	**14**	**17**	**8**	**6**	

We see all sources of revenue for all four categories. The following chart shows that the 1st, 2nd and 3rd categories have the highest income from paid work. The second highest is the income from pensions and social welfare. For the 4th category, households have the highest number of livestock and their income from livestock sale is 1,700,000 MNT. This is the highest amount compared to other categories, but not the most significant source of income for this category.

Figure 5. Detailed income of each category
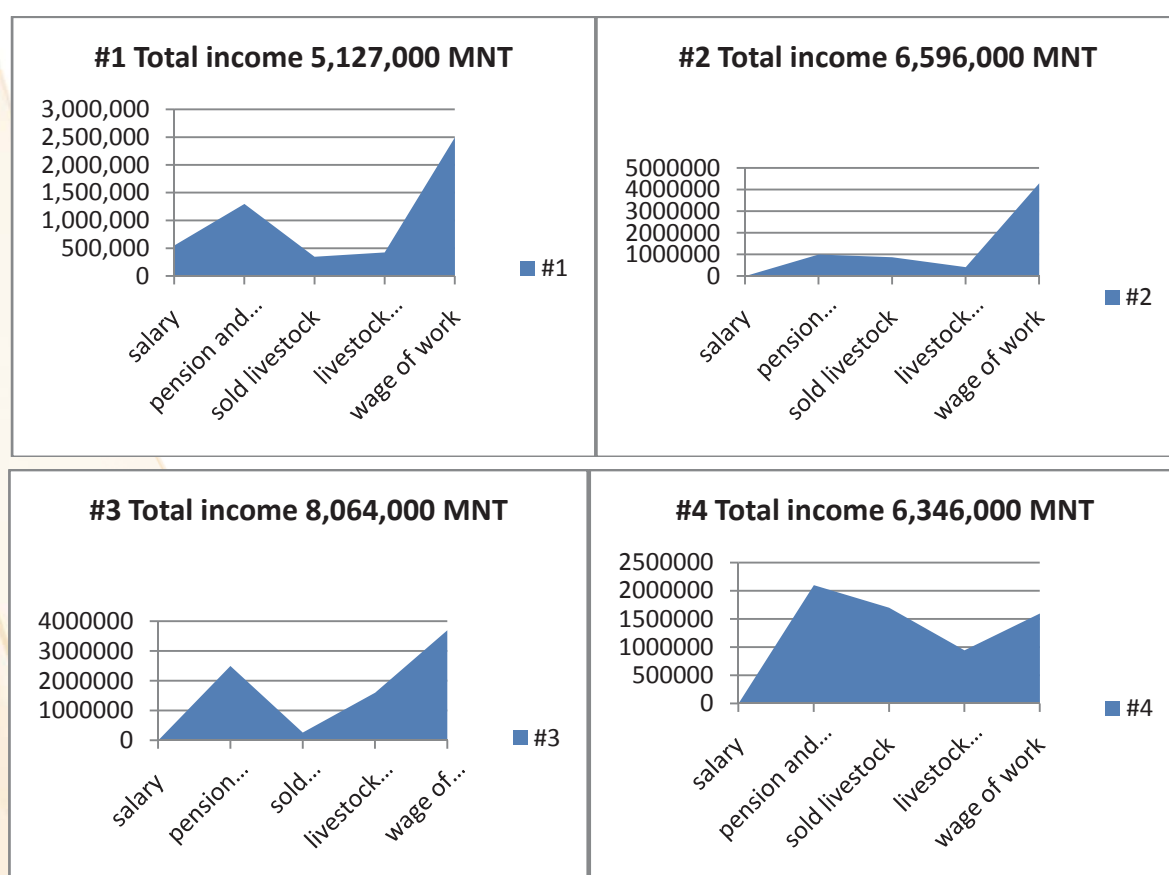
The total income of all the herdsmen participating in the survey comprises 46% of paid labor, 26% of pensions and social welfare, 13% of animal product sales, 12% livestock sales and 3% salary. In sum, the main income of these households comes from wage for labor and pension and social welfare. Generally, herders are not employed, but the sale of livestock and livestock products is not their main source of income.

The cycle of income and expenditure of a herder household is as follows: Without working to earn money, herders generate income through the sale of livestock and livestock products, which takes placemainly during two seasons of the year,in spring with the sale of cashmere and in the end of autumn with the sale of animals. Banksunderstand this cycle and accept repayments during these two seasons. In summer, the production of dairy products and the sale of wool brings little money so the herder often sells some animals, but in winter there is no revenue.

Our findings suggest that the highest expenditurescome in the beginning of autumn with the expenditure for education, and in winter with celebration costs for the Lunar New Year. In addition, expenses for vehicle maintenance and fuel have become prominent in household budgets. These are consistent throughout the year, just like food. If we check the accounts, winter shows constant loss. In autumn, there is a gap as most expenses are incurred at the beginning of autumn, while income only comes at the end of the season. During some periods of the year the revenue is completely zero. If there is a dzud, the family income will decrease overall. We will analyze the effects of dzud in the following section.

By comparing the income from 2015 and 2016 we can see the effect of dzud on household income in 2016. The following table and the figure show us the income from the sale of animals and livestock products for 2015 and 2016. In 2015, the sum of income for all categories was 8.805.000 MNT, while in 2016 it fell to 6,583,000 MNT (a 25% decrease). This decrease was caused mostly by lower sale of animals and livestock products. Households lost 31% of their income from the sale of animals and 20% of their income from animal products. This indicates how dzud negatively impacted on herder households' budgets.

Table 20: Income from livestock and animal products sale in 2015 and 2016

Category	Income of 2015		TOTAL 2015	Income of 2016		TOTAL 2016
	Sale of animals (MNT)	Livestock products (MNT)		Sale of animals (MNT)	Livestock products (MNT)	
#1	324,000	511,000	835,000	350,000	427,000	770,000
#2	1,200,000	770,000	1,970,000	878,000	418,000	1,296,000
#3	1,200,000	1,300,000	2,500,000	264,000	1,600,000	1,864,000
#4	1,900,000	1,600,000	3,500,000	1,700,000	946,000	2,646,000
TOTAL	4,624,000	4,181,000	8,805,000	3,192,000	3,391,000	6,583,000

Figure 6. Income from livestock and animal products sale in 2015 and 2016
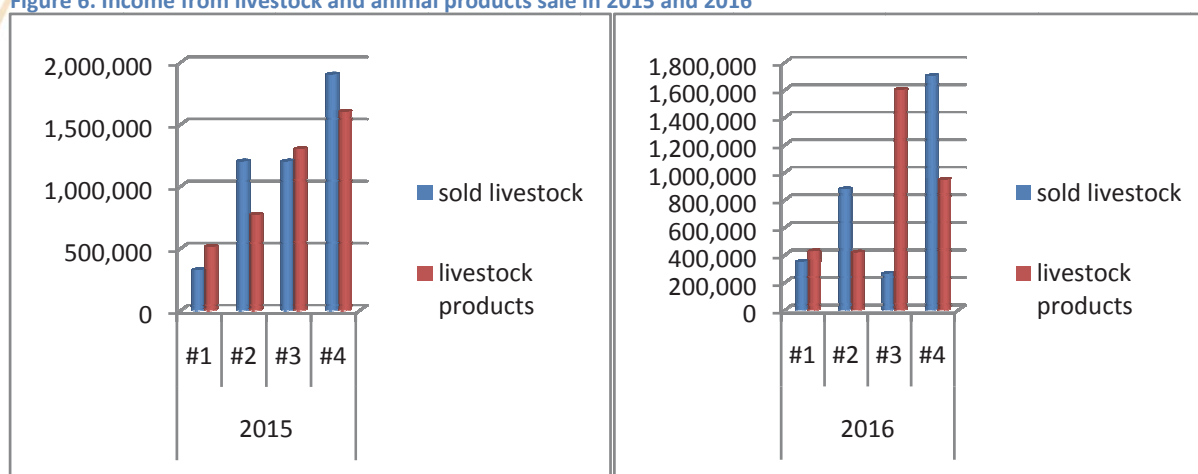
Expenditure structure of herder household

Expenditures have been considered by 12 categories of items including food, utility, house maintenance, heating fuel (coal, wood and cow dung), education, health, herding-related activities, hay, vehicle costs, communication, festivities, and tax.

As of 2016,the expenditure of the 12 herder households belonging to the 1st category ranged from a minimum of 1,2 million MNT toa maximum of 18,5 million MNT, averaging at 6.6 million MNT. For the second category, expenses ranged from 994 thousand MNT to 18,3 million MNT, with an average of 5,9 million MNT. For the 14 households belonging to the third category, the minimum expenditures were 2 million MNT, maximum 12,7 million MNT and average 5,9 million MNT. The 18 households in the fourth category, spent a minimum of 1,2 million MNT to a maximum of 21,3 million MNT, with average costs at 7,1 million MNT. The following chart presents the composition of the expenditures in the 12 categories listed above.

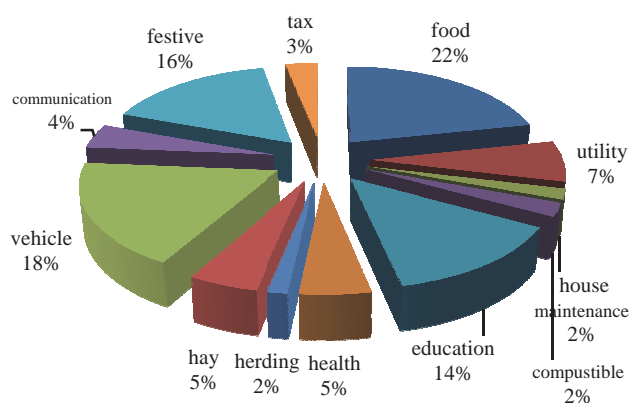**Figure 7. Percent of each expenditure for category in 2016**
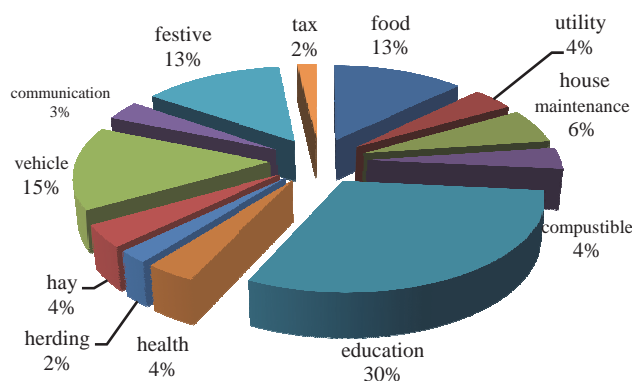
Category 1. Mean expenditure 6.594.566 MNT
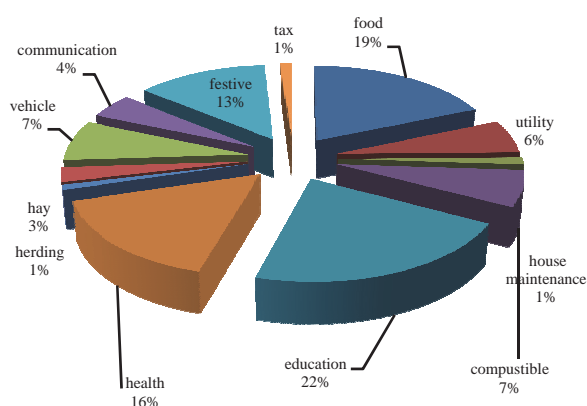
Category 2. Mean expenditure 5.972.362 MNT
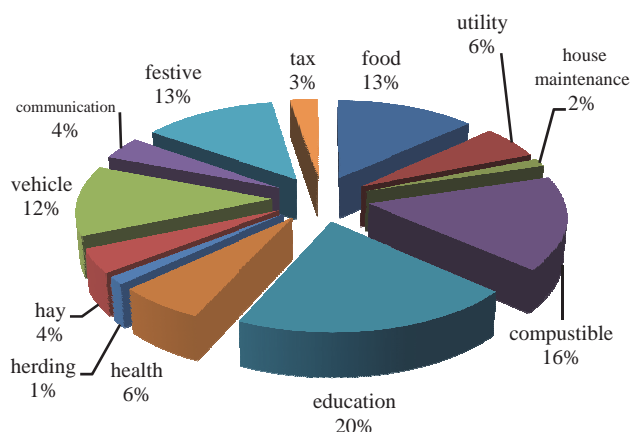
Category 3. Mean expenditure 5.903.514 MNT

Category 4. Mean expenditure 7.125.322 MNT

For the 1st category, 22 % of total expenseswere for education, 19 % of total expenses for food, 16 % for health and each of the three remaining expenses, including tax, herding, and home maintenance, equaled to1 % of the total. The largest expense was for education, whereas the smallest expensesweretax, herding, and home maintenance.

For the 2nd category, 20 % of total expenseswere for education, 13 % of total expensesfor food and festivities, 12 % of the total expenseswere for vehicles, and 1 % for herding.

For the 3rd category, 22 % of total expenseswere for food, 18 % for vehicles, 16 % for festivities, and 14 % for education and each of the remaining expenses including herding, tax, home maintenance, and heatingamounted to 2 % of total expenses.

For the 4th category, 30 % of total expenseswere for education, 15 % for vehicles, 13 % of total expensesfor festivities, and the remaining expenses including tax, and herding amounted to 2 % each.

In sum, herder families spend the most on food and education. It seems that better-off herders can afford and do spend more on festivities (a significant expense for categories 2-4, but not for category 1). The budget for vehicles and fuel is higher for categories of 3 and 4. We see that the

budget for herding activities, tax, maintenance of accommodation, and the purchase of hay and fodder is rather low for all categories.

The 3rd category spends more money on food than any other category.Expenditure for education for 4thcategory is the highest. As we showed earlier, 12 households in this category send their children to school and 3 households send their children to university. The children of the 3rd category do not study at the university, so this category spends less money for education. For 3rd and 4th categories, the expenditure for the maintenance of vehicles and gasoline is in second place. In third place is the budget for celebration during festive seasons. For 1st and 2nd categories their most important expenditure is education and food. Then the health budget or the purchase of fuel is important. We summarize that the expenditure of 1st and 2nd categories is more basic. For the 3rd and 4th categories, their expenditure is more for education, vehicles and festivities.

To summarize, herder households spend 14-30 % of total expenseson education of their children, 13-22 % on food, and 12-18 % ontheir vehicles. Comparatively smaller expensesgo to taxes, herding, home maintenance, heating and communication.

Spending when income is limited

When income decreases, households of all categories will prioritize buying food, except fortwo households who prefer to spend on fuel or the tuition fee of their children. Secondly, they will prioritize fuel, clothes or utility money and thirdly their children's education, health, utility and fuel.

It can be concluded that when income is lower, food security is the most important aspect as it is necessary at anytime. The next most important thing is fuel expenses, as herders aredependent on their motorcyclesand cars for herding their livestock and engine-powered water pumps for access to water.

To cope with the lack of finance, respondent herders indicated they would take loans and to sell livestock. However they have not mentioned taking loans from pawnshops, but would rather borrow only from banks, shops, relatives and friends. Thissuggests that pawnshops are not their main lending channel.

Debt of herder household

58 out of 61 participating households have taken loans, meaning that over 95% of the respondent households were indebted. Debt was most common for households in the first category (all of them had at least one), while the remaining categories included one debt-free household each. Most of the indebted families took loans from banks: there were 31households with one or more bank loans per household. This was followed by loans from shops (19 households), from relatives (4), friends (3), and 1 from a soum fund. For the exact breakdown see the following table.

Table 21: Number of indebted households from all lending channels

Category	Bank	Shop	Relatives	Friends	Other	Total # of indebted households	Total # of respondents	% of indebted households
0-10	5	5	-	2		12	12	100,00%
11.20	5	8	2		1	16	17	94,12%
21-30	7	3	2	1		13	14	92,86%
31-50	14	3	-	-		17	18	94,44%
Total	**31**	**19**	**4**	**3**	**1**	**58**	**61**	**95,35%**

No respondent families took loans from pawnshops, credit cooperatives or non-bank organizations. The main reason was that there were no such institutions available in in local soums, making it difficult for herders to approach them. This shows that the local proximity is one of the main criteria for borrowers. Other criteria include interest rates, loan terms and conditions and the maximum amount available. Also, the credit cooperative that is located in the soum does not credit any loans. We see that shopsare the most popular lending channel after banks.

Families from category 3 and 4 have the highest number of livestock per household, making them more eligible for bank loans. On the contrary, categories 1 and 2 have the lowest number of livestock per family, which makes them less eligible for bank loans, which explains why more of these families have loans from shops. Shops usually lend food and household items, as well as money. There were just 4 families who borrowed money from their relatives. Loans from friends included money and goods such as petrol and livestock.

To estimate the probability of repayment for each category, we compared their annual income and expenditures. The expenditures of the 1st and 4th categories are higher than their income. Therefore, they might have difficulties to repay their debt. In comparison, the 2nd and 3rd categories reported higher income than their expenditures, so it should be possible for them to repay their debt. However, these numbers express average income and expendituresper category, and do not reflect the financial health of individual households.

We also surveyed the families for reasons to take loans. They most commonly mentioned student tuition fees, school and kindergarten supplies for children (such as books, notebooks, clothes, etc.), healthcare fees, and car service costs. Some families reported double loans (taking a new loan to repay an old one). These families explained that they resorted to this measure to compensate for the difference in low prices of livestock and livestock raw products, and increased prices of food and household goods. There were, in fact, several families that took out loans for repaying a different loan. A few took out loans to buy hay and fodder, one to buy an automobile, and fourhouseholds borrowed money to buy livestock. It is also common to borrow food, household supply products, and petrol.

Loans are usually repaid by the money earned by selling wool and livestock. Some families reported that they travel to Ulaanbaatar to find jobs and earn money for the repayment.

Financial literacy

To estimate the level of financial literacy, we asked if herders record income and expense accounts and plan their budget at least bi-annually. Of the 61 interviewed families, only one household answered this question positively. We therefore assume that herder families are not used to planning their budgets or following financial plans.

Winter preparation of herder households

Winter preparation for herder households can be defined by the cost of preserving hay and fodder in a year. We saw in the expenditure section that the budget for the purchase of hay and fodder was low compared to the total expenditure for all categories. However, all categories spend some money for winter preparation.

Households in the first category prepared hay and fodder in autumn and spent an average of 237 thousand MNT. The second category prepared in autumn, winter and spring and spent 553 thousand MNT on average. The third category prepared in autumn, winter and spring and spent 365 thousand MNT on average. Finally, the fourth category prepared in autumn, winter and spring and spent 553 thousand MNT on average.

Although households in all categories prepared hay and fodder for winterization, only half of the 61 interviewed households reported that they did so, indicating a rather low level of preparation. The 2nd and 4th categories spent more money for the winter as opposed to the 1st category that spent half the amount. Many families bought hay and fodder in winter, when prices are higher than in the autumn. For example, fodder price is 10000 MNT in autumn, but increases up to 12000-15000 MNT in the winter. Because of lack of money in autumn, these households resort to buying more expensive hay and fodder in winter. Experienced herders of one lending family explained that they buy their hay and fodder in the beginning of autumn, when it is not expensive and they can buy more.

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4. Conclusions

Pastoralism is an important part of the Mongolian culture, tradition and identity. Facing repetitive shocks caused by climate change and the difficulty to adapt to an open market economy, this unique lifestyle is more than ever in danger for the 300,000 remaining herders as well as for the entire indirect economy that supports them. In soum and aimag centers, an entire socio-economic network lives in symbiosis with pastoralism, providing goods and services, education and healthcare. Although stretched, value chains based on livestock production play an important role in the national economy and its diversification. Pressing issues such as economic viability of extensive herder practices, increased need for goods and services and the relatively new phenomenon of formal credit push herders' traditional lifestyles to their limits.

Although based on a limited sampling base and a specific target area, the results of this research provide valuable data and suggest trends in lending schemes and borrowing patterns available in rural Mongolia and allow us to draw conclusions and ways forward. More than 95% of surveyed herder households were found in debt, mainly through commercial banks (70%), under the form of credit vis-à-vis grocery stores (50%) or towards relatives and acquaintances (13%). These debts often multiple corresponding to the families' income generating capacity.

At this stage, it is hard to say if this need for cash corresponds to an increase and complexification of the family needs, or if resorting to debt is a coping mechanism to compensate for the lack of income resulting from their lifestyle and hence a matter of survival. Certainly more research needs to be done on this point.

Putting in danger the fragile existing equilibrium between borrowers and lenders, the drop in livestock commodities prices directly threatens the feasibility of lending schemes for banks and for grocery shops. When the actual value of the livestock used as collateral decreases, banks limit the access to credit. On the other end, herders use livestock to pay back some credit and would see their reimbursement capability decreasing. This vicious circle illustrates a strong interdependency of the stakeholders involved and the fragility of the schemes, should natural disasters or man-made actions further destabilize commodity prices.

Although herders have multiple debts and unstable income generating sources, their financial literacy is extremely limited. In this context, multiple and complex factors should be considered in order to properly manage and plan the household budget on annual or bi-annual basis. This wasn't found to be the case and possible development intervention should be envisaged to enhance capacities of the actors, lenders and borrowers alike.

Herders do prioritize their spending, *a fortiori* when income is low. Understandably, the priorities go to food items, fuel allowing access to markets and services, education and healthcare. Winter preparedness spending is not privileged, leading to the vicious circle of vulnerability and poverty and further endangers livestock, composing the very livelihood of herders. The extent of this phenomenon should be more documented for humanitarian and development partners to understand the scope and size of the problem.

The structure of the income across all categories of surveyed herders shows very high dependence on social welfare allowances and on wage earned from workforce provision to other herders. This goes in contradiction with the idea of a resilient and economically viable herding livelihood. A more targeted analysis of actual viability and sustainability of pure herding lifestyle should be considered. For given economic circumstances, a calculation must be made and well documented to define the minimum number of livestock needed to sustain a decent livelihood. Based on these findings, a study following the Household Economy Approach should be performed to adequately determine the gaps and needs of the most vulnerable families and envisage solutions.

In light of all these parameters, it appears obvious that the typology of herders based on number of livestock (commonly agreed by humanitarian partners in case of a disaster) must be modified or at least refined taking into account more factors and related indicators.

5. Annexes

Focus group discussion analysis

In discussion about the difficulties of winterization, 15 out of 20 participants expressed that the main problem is the lack of labourers followed by the high price of hay and fodder. Other major issues included lack of fences and sheds andlack of breeding experience.

Figure 8. Causes of difficulties of winter preparedness
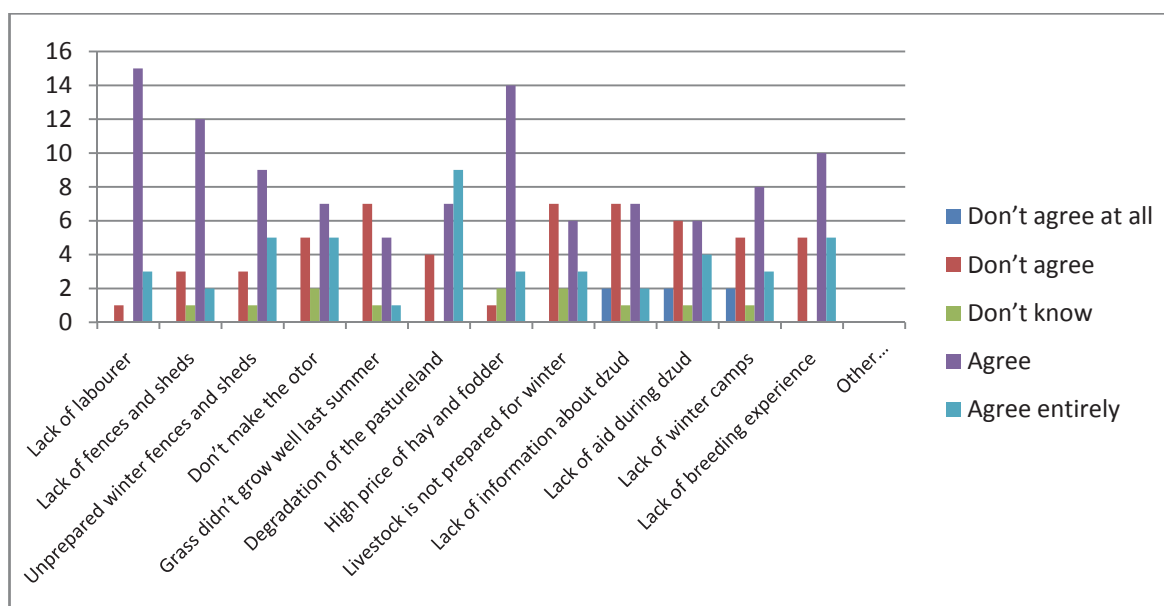
Our participants suggested some solutions:

A. Hay and Fodder

- To develop a strategy for preparing and providing herders with barns and fences, hay and fodder because the prices of hay and fodder increase during winter.
- To purchase enough machinery and equipment for harvesting hay
- Shijirbat, the governor of Uulbayan soum, said that the soum had a stash of more than 30 tons of hay, which helped to balance the hay price, but they needed appropriate machinery for harvesting, baling and wrapping hay.

B. Fences and sheds

- Herders often loose new born livestock during spring. Therefore, it is important to prioritize building and refurbishing fences and sheds for spring.
- Also, there fences are not sufficiently insulated and herders would appreciate more investment in building insulated fences to keep the animals warm during winter.

In summary, the three target soums expressed their need in being provided with harvesting equipment, such as hay bailers, wrappers, in having old fences and sheds refurbished, and new ones built. This would help prevent losing newborn animals during the spring.

C. Training

- To organise training or conferences regarding the degradation of the pastureland, and exchanging experiences;
- To organise training for herders in order to teach and inform them about the importance of efficient use of and sustaining pasturelands and how to choose one correctly
- To organise training on manual harvesting
- To organise training specific for the region

We asked the herders "What kind of measures do you think will help prevent the effects of dzud in your soum?" and the participants suggested that:

A. To fight against mice infestation

One of the major problems that cause pasture degradation is mice infestation. Mice infest and eat away the pastureland. This problem concerns herders and the governors too. Herders used water to fight mice infestation, pouring water into the mouse holes, but the resultswere not satisfactory. The governor of Uulbayan soum Shijirbat suggested that the best way to effectively deter mice is to collaborate with the herders so that they can poison the mouse holes immediately when they see one. All participants agreed that this issue is their top priority.

B. Wells

All participants expressed that they lack wells across their seasonal pastures. This results in the degradation of pasture around the river area. Shijirbat, the governor of Uulbayan soum, said that wells are necessary for decreasing the high stocking rate of pastures, therefore, better managing the pastures. Also, the majority of our participants suggested that digging new wells will help them to rotate pastures.

Soyolsukh, the head of livestock insemination department of Uulbayan soum, said that there were around 7-8 households using the same well for watering their livestock. This influences the degradation of the pasture of the area. Thus, at least 15-20 wells are needed to support the entire soum. The governor of the bagh, Battulga, said that old wells need to be fixed as well.

It costs around 16 million MNT to dig a well, and these are not more funded by public funding. For herders, it is difficult to fund such a project, therefore, a support is needed for individual herders who decide to dig a new well. All participants agreed they needed new wells and fix old ones.

C. Veterinary service

In Mongolia, animal-related diseases are poorly prevented, and there are frequent epidemic outbursts. In 2016, four regions were affected by smallpox infection, and Khalzan soum had three infection zones. Munkhzul, the head of livestock insemination, said that herders did not disinfect their livestock regularly, which caused the spread of parasites. A portable disinfection equipment to pass along the herders would be helpful.

D. Processing raw materials

Most participants suggested opening a small factory for processing raw products locally or a storage facility to preserve the produce would help develop the sector, the area, and ultimately help with addressing the issues they identified as problems.

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Photographs by Regis Defurnaux, 2016

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