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PASTURE-GREENGOLD

Final report on the study of value chains for live animals/meat and hides/skins in Mongolia

Final Report as at 31 July 2015

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GEFAK

A d d r e s s

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LIST OF ABBREVIATIONS

APUGs – Association of Pasture Users Groups

AFPUG – Aimag Federation of Pasture Users Groups

GG – Green Gold project of SDC

HACCP - Hazard analysis and critical control point

HH - Herder Household

LLC – Liability limited company

MMA- Mongolian Meat Association

MALI- Mongolian Association of Leather Industry.

MNS – Mongolian National standard

PUG – Pasture Users Group

SDC – Swiss Agency for Development and Cooperation

SME – Small amd medium enterprise

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INTRODUCTION

The “Green Gold” project of the Swiss Ageny for Development and Cooperation (SDC) has the overall goal of improved livelihoods for herders and reduced poverty in rural Mongolia. “Green Gold” empowers herders to secure user rights for their traditional rangelands in order to motivate them to manage those pastures in a more sustainable manner. The project was started in 2004 and is now in its fourth and final phase.

The major achievement of the GG project has been the active involvement of 40,000 herder households in 1200 Pasture User Groups (PUGs) which were established in 126 soums and the formation of associations of PUGs (APUGs). 534 PUGs have made rangeland use agreements with local governments, and 10 APUGs have received mandates to implement government projects.

60 cooperatives have been established, with a total equity of 824 million MNT, playing active roles in organization and technical support for livestock production, processing and marketing. In five aimags secondary cooperatives have been established which are able to market produce and goods at even larger scale and can provide storage and processing facilities.

The marketing component C4 of the “Green Gold” project started November 2013. Its main expected outcome is to facilitate market access by linking herders to processing companies and to increase the income of herders. The geographic focus is on selected soums with yak and camel herders in these seven Western aimags: Arkhangai, Bayankhongor, Bayan-Olgii, Gobi-Altai, Khovd, Uvs, Zavkhan.

The marketing component successfully worked for increasing the supply of yak down and camel wool and linking herder cooperatives and processing companies with each other. Therefore based on these working experiences starting from January 2015 the Marketing Component was awarded by SDC with the additional mandate to consult the upgrading of the value chains for meat and hides/skins in Arkhangai and Zavkhan aimags.

This pilot project aims firstly at analyzing the meat and hides/skins value chains (VC), to elaborate a VC upgrading strategy which is agreed with the stakeholders. Secondly the VC upgrading strategy is to be translated into a detailed support program and operation plan which is then executed in pilot implementations in close collaboration with the stakeholders.

ONE. RESEARCH PROGRAM OF THE VALUE CHAIN STUDY

1.1. Objective of the study

The objective of the study is to analyze preparation and supply as well as demand of live animals, meat, hides and skins as well as the current situation of the value chain connecting the project target regions to the processors and markets and to identify ways to develop it further.
The study was conducted by a team of independent researchers, who are experienced in the agricultural sector, including professionals from the Mongolian Meat Association and Mongolian Association of Leather Industry.

The supply study was conducted in selected soums of the two pilot aimags in order to collect data from herders, herder groups, PUGs, herder cooperatives as well as representatives from Agriculture Department and Department for SMEs, secondary cooperatives. It covered the following issues: resource potential (volume and quality) of raw material, sales of live animal, meat and hides/skins, main sales channels, ways to establishing direct links between herder cooperatives and processors, role of cooperatives in the value chain of meat and skin/hides, training needs on strengthening the capacity of cooperatives, PUGs and APUGs; and issues of improving the value chain and the quality of products.

The selection of soums was discussed and agreed with the two AFPUGs at the beginning of study. In Arkhangai aimag the study covers all soums which participate in the of GG project. In case of Zavkhan aimag a selection was necessary due to the large number of participating soums. It was based on the following criteria: carrying capacity of pasture related to number of animals, little access to markets and ecological zone. For example, Erdenekhairkan soum has 167,000 animals but has only 3,869 ha rangeland and needs to reduce the number of livestock. Tosontsengel and Bayantes soums have local meat processing companies which provide easier access of herders to the market.

The demand study was conducted in selected processing companies in Ulaanbaatar and Darkhan with interest to buy meat and hides/skins from herder cooperatives in the pilot aimags. Itcovered the following issues: volume, quality, prices and seasonality of demand of animals for slaughtering, processing and production capacity, technology and actual capacity, main markets (including export) of processed and semi processed products and demand of products.The main goal of the study is to analyze preparation and supply as well as demand of live animals, meat, hides and skins as well as the current situation of the value chain connecting the project target regions to the processors and markets and to identify ways to develop it further.

Moreover, as the result of the study will be used for further planning and implementation of pilot project it also has the following objectives:

- Find out any possibility to identify a need oriented structure of the market demand and supply for meat, hides and skins and other related products,
- Identify channels through which herders supply meat, hides and skins and other related products to the market,
- Identify difficulties faced by herders when they supply meat, hides and skins and other related products to the market and selling them for their own needs,
- Identify challenges that come up with procurement and processing by cooperatives and businesses in the meat, hides /skins and related products sector,
- Do mapping of the value chains for meat, as well as hides/skins,
- Elaborate a strategy for the upgrading of the value chains for meat and hides/skins and to increase the value added,
- Identify possibilities that enable herders and meat as well as hides/skins processors to overcome difficulties faced by them,
- Identify ways to motivate involvement of stakeholders in the value chains for meat as well as hides/skins particularly herder groups, PUGs and herders' cooperatives and make them more active.

1.2. Methods of the study

Data for the study were collected from primary and secondary information sources at soum, aimag and national level.

In the pre-study step, the team explored and consolidated information on the value chains for meat, hides/skins and other related products and work done in respect to it. Also reports of programs and projects implemented in this field as well as the Government resolutions and statistical data were studied.

Secondary information relevant to production and sales of meat, hides/skins and other related products throughout Mongolia and in the target regions was taken from statistical information and sources of research work done by researchers and other sources of official information.

The collection of data was done through questionnaires, forcus group discussions and interviews:

- **Questionnaire:** taken from herders, cooperatives in the selected soums from the targeted aimags and selected processing companies with various specifically formulated questionnaires.
- **Interview**: with heads of cooperatives and PUGs about urgent issues for preparation and supply particularly, issues to improve quality and volume of raw materials .
- **Focus group discussion**: were organized in each soum with 8-12 people, including staff of Soum Governor Office as well as Animal health breeding unit, local consumers and members of herder cooperatives.
- **Additional information** was taken by prepared tables from officials of Soum Governor Office.

For analyzing the study data, computer programming methods and SPSS program were used. The study conclusion has been made based on analyses of data collected through questionnaire methods, interviews and focus discussions (The forms of questionnaire, interviews and discussions and guidelines to conduct the study are enclosed, see annexes 1 to 2).

1.3. Study objects of the supply study

The study was conducted in the GG soums in the aimags Zavkhan and Arkhangai. The responding herder households were selected on basis of the number of livestock with an error of sampling of 0.05 and probability of 95% (see annex 3). The study covered 7 selected soums of Zavkhan aimag and 4 soums of Arkhangai aimag, which represent other soums in terms of location to market and environment condition.

Table 1. Number of herder households covered by the study

Aimag	Number of herder households	By number of livestock			
		Up to 100	101-200	201-500	Above 501
Arkhangai	110	39	30	30	11
Zavkhan	199	56	43	70	30
Total	309	95	73	100	41

In total 309 herder households (HH) were involved in the study in both Aimags, which includes 95 HH with livestock up to 100 heads, 73 HH with 101-200 heads, 100 HH, with 201-500 heads and 41 HH with as more than 501 heads.

Moreover, 19 cooperatives and 33 consumers were interviewed. 23.8% of total surveyed persons were female and 76.2 % were male.

The study team has organized focus group discussions in 12 soums and with 78 representatives, including soum administration officers and consumers.

Table 2. Number of persons in focus group discussions and interviews

Aimag	Number of persons in group discussion and interview	Interview	
		Cooperative	Customer
Arkhangai	55	13	25
Zavkhan	23	6	14
Total	78	19	39

1.4. Study objects of the demand study

The demand study of the meat value chain involved in total 12 processing companies, of which 8 are meat processing companies, which are located in Ulaanbaatar, Darkhan and Erdenet, while 3 companies are located in the project targeted aimags. They represent the key actors for assessing the present situation of meat processing plants.

The demand study for the hides/skins value chain involved 21 processing companies, which were officially listed by the Mongolian Association of Leather Industry in accordance with the regulation on providing premium of hides/skins.

TWO. STUDY ON THE VALUE CHAIN OF LIVE ANIMALS AND MEAT

2.1. Executive summary

Main conclusions of the study

Nowadays when the number of livestock in Mongolia has reached its maximum level some issues have been identified which determine the establishment of a more sustainable system of supplying animals and meat. The main points can be summarized as follows.

1. The possibility to maintain the pastoral animal husbandry in future is limited due to the fact that the carrying capacity of pastureland is vastly exceeded in many regions. Yet herders still have the interest to raise their animals and there is no mechanism to restrain them.
2. As a consequence of growing number of animals, there is an excess resource of meat over the domestic needs, which creates broader opportunity for exporting meat.
3. However, hygiene and sanitary requirements of importing countries can hardly be met due to the out dated technology of the meat processing companies, the unproductive herd structure and existence of animal infectious diseases.
4. There is no proper system of processing firms for collecting livestock. Because of that the two parties herders and processors cannot directly interact with each other, and the price for meat is increased as it goes through several trading stages to reach the end-users. However, some meat processing companies are interested to buy directly from herders and likewise herders also want to sell to the companies but there is a lack of a framework to implement this.
5. These processing companies are open to collaborate with cooperatives established by herders that deal with the supply of livestock for slaughtering. However, to some extent herders do not trust the financial capacity of those cooperatives and prefer to deliver raw materials on their own directly to the market.
6. Each soum from Arkhangai and Zavkhan provinces has the potential to supply 1200 to 1800 tons of livestock besides fulfilling the local needs. Processing firms like “Zavkhan Khuns”, “MakhMarket” LLC, “Darkhan Meat Foods” LLC and Mongol Makh LLC in Uliastai, Darkhan and Ulaanbaatar are interested to purchase livestock from Arkhangai and Zavkhan provinces. To this end a sort of mediation is required which enables an effective cooperation between the interested herder cooperatives and processing companies.
7. For meat processing companies’ one reason of not being able to buy livestock is the lack of working capital due to the low turnover in the past. Therefore, an access to working capital is needed especially for those companies that are going to prepare meat reserves and export meat to overseas.
8. There is an impression that the installed meat processing capacity in Mongolia is sufficient for the country’s needs. If there are processing companies which are closed because of lack of business is does not make sense to establish even more processing facilities. The priority should be to optimize the use of the already installed processing capacity in the country.
9. In order to ensure food safety for Mongolians and to support meat export it is required to do slaughtering of animals under the integrated procedure. This is important in terms of hygiene and quality of meat as well as to use by-products in complete way. There is a situation where the quality of hides and skins as well as intestines and other by-products is low and by-products are largely wasted.

Main recommendations for the project

The following activities are proposed for the project implementation period until end of 2016 in order to solve problems at all levels of the value chain. Achieving effective results will increase livestock prices for herders and improve their income; will help processors to enjoy steady supply of live animals; will fulfil needs of the customers with good quality meat at reasonable prices throughout the year and will help to develop the meat sector as an export potential of the Mongolian economy.

1. To inform all stakeholders on the results of the value chain analysis and to discuss with them on the upgrading strategy and agree on the joint plan of action.

2. To qualify the herder organizations in the selected soums to improve the provision of inputs to the herders, e.g. by making contract agreements with veterinarians, establishing nucleus herds etc.
3. To conduct technical training for herders in the selected aimags and soums especially for hygienic slaughtering and skin/hide preparation, to provide them with market information as well as to qualify them for their roles in the value chain.
4. To consult primary and secondary cooperatives on the marketing of livestock including management, rights and duties of members, market information etc. To develop a business plan for cooperatives for selling livestock and to implement it by identifying meat supply capacity in the selected aimags and soums and by establishing sales contracts with appropriate local and UB processing companies.
5. To consult the local and UB meat processors on improved ways to ensure a steady supply of livestock for slaughtering through direct linkages with cooperatives, on improving their infrastructure and the product quality and on accessing external finance.
6. To consult the MFA and the Meat Association with a view to analyse the legal environment of the meat sector and to develop a proposal for changes and to addressing the organizations concerned with implementation. This refers especially to the regulations concerning local traders of livestock as well as wholesale centers for meat processing.
7. To consult media and provide information to them on improving the awareness of consumers towards better quality of meat processed under hygienic conditions and with ensured animal health and traceability.
8. To help the actors solving issues of exporting meat on a regular contract basis by providing information on market and trade opportunities as well as regulations for exporting meat to Russia and China and by selecting overseas market segments.To consult the appropriate facilitating organizations such as MFA, Meat Association, Institutes, banks etc. on improving their contributions to the value chain for meat.
9. To consult all relevant actors on developing a stable value chain for meat from the selected aimags to the national level and to help value chain actors to implement it in order to ensure objectives and expected outcomes of the Green Gold project.

2.2. Analysis of live animals and meat supply

2.2.1 Overview of the livestock sector in Mongolia

Livestock is a key traditional sector of Mongolia and it employs 25.9 percent of the total workforce as herders and produces over 20 percent of GDP of the country. Although during the last 10 years the output of livestock products has increased 2.16 times, the share of livestock sector in GDP is decreasing. This is due to the intensive mining sector development in recent years and the effects of the dzud climatic disaster in the winter 2009/2010.

Table 3. Growth and share of livestock sector in GDP (%)

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Percentage of livestock sector in GDP	22.3	26.6	26.0	27.7	24.3	25.6	19.2	15.9	19.4	20.3
Growth of livestock sector output, %	100.0	127.8	136.0	159.2	166.6	173.4	138.3	134.8	184.4	216.4

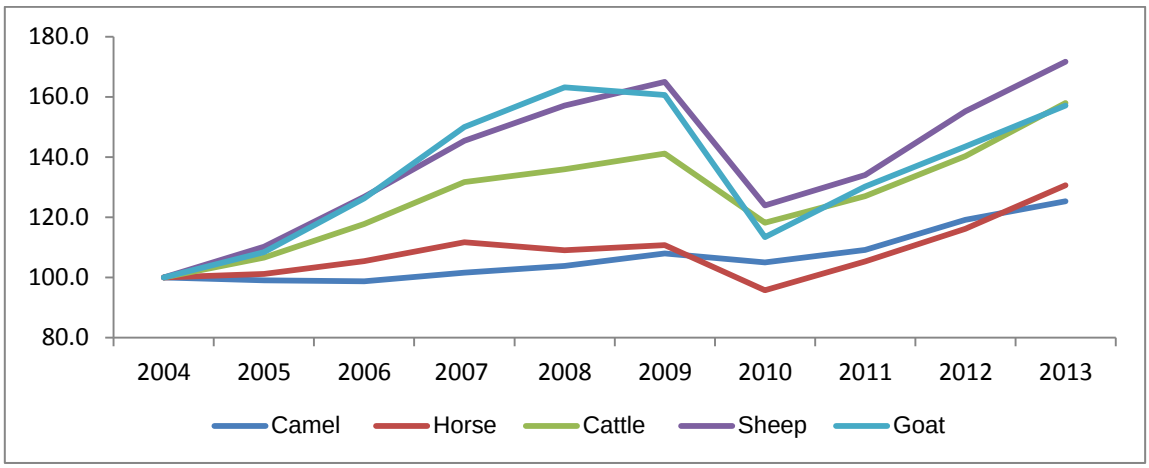
Source: Mongolian Statistical yearbook 2004-2013

Livestock remains a strategic economic sector, despite of its declining share in the nation's economy. The livestock raw material market is based on comparatively stable consumption although pastoral livestock production is depending on climate factors. Growth of meat output is much behind the growth of the livestock sector in general.

Between 2004 and 2014 the total number of animals increased by 85.1% from 28 million to 51.9 million. There is an evidence that this is a result of both quantitive and qualitive growth. As a calculation shows

47.5 percent (100-52.5) of overall growth in the total livestock output is contributed by quantitive growth while 52.5 percent[1] is contributed by the increase in productivity.

Figure 1.Growth of livestock population by type (2004=100)



There is a strong change in the composition of the livestock population. During the last 10 years, the number of cattle, sheep and goats are increasing due to the higher marketability of their products compared to the slow growth in horses and camel population. However especially the fast growth of goats is considered to be harmful for the pasture productivity.

The Livestock sector produces main food items such as meat and milk products for human consumption as well as raw materials - hides, skins, wool and cashmere for processing industries. The output of these products is continuously increasing due to the growth of livestock population and the increase in human consumption. The latter is caused by population growth as well as changing consumption patterns.

Table 4. Growth of meat production (2004 = 100)

	2004	2005	2006	2007*	2008	2009	2010	2011	2012	2013
Growth of meat production, %	100.0	94.2	87.4	96.6	113.4	137.9	103.1	106.6	112.9	127.9

Source: Mongolian Statistical yearbook 2004-2013

The next table shows that the meat production for mutton and goat meat increased from 2004 to 2013, while for beef it was more or less stagnant. This is one result of the shift in herd composition mentioned above.

Table 5. Production of main types of meat, '000 tons

Products	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Meat by slaughter weight	195.2	183.9	170.7	188.5	221.3	269.1	201.2	208.0	220.4	249.7
Of which:										
Beef	53.8	45.3	44.2	46.6	56.3	58.6	45.2	53.6	59.7	56.5
Mutton, goat meat	96.2	93.4	88.4	107.0	119.9	168.9	127.5	124.3	123.6	156.7
Pork	0.2	0.2	0.2	0.6	0.2	0.3	0.2	0.2	0.4	0.5

Source: Mongolian Statistical yearbook 2004-2013

The per-capita consumption of meat and meat products is increasing. For example, the per-capita meat consumption in 2013 increased by 15.3 percent (in slaughter weight) versus 2004, including a 420 percent increase in the consumption of industrially processed meat. However, in 2013 the consumption of industrially processed meat products made up only 7.9 percent of the total meat consumption. There

[1] ((216.4-100)-(45.1 million heads/28.0 million heads*100-100)/116.4)

are no statistical data on the share of industrially slaughtered meat cuts in the total meat consumption. However, this share is estimated at 10%. The reasons for this low share of industrially processed meat will be explained below.

Table 6. Per-capita meat consumption, kg

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Per-capita meat consumption in slaughter weight, kg	77.5	72.2	66.2	72.1	83.7	100	73.5	74.6	80.7	89.4
Out of which Per-capita consumption of industrially processed meat products, kg	1.7	1.9	3.0	2.6	4.5	6.8	4.4	4.7	4.8	7.1

Source: Mongolian Statistical yearbook 2004-2013

The increase in the livestock population of 27.9% exceeds the increase in domestic demand for meat of 15.3%. This points at the neccessity to look for new meat markets in terms of regions and/or products.

On the other hand, the pasture capacity and the animal density also require keeping the livestock population at a rational level. The 2014 statistics tells that the carrying capacity of pastures is exceeded by 86 percent over its recommended level.

Table 7. Pasture carrying capacity in Mongolia, 2014

Pasture carrying capacity, '000 sheep units	Present number of animals in sheep units, 2014	Difference	Pasture overloading, %
53,864	99,976	-46,112	86

Source: Author's calculation

The above statistics and the study findings conducted among herders, herder cooperatives and wholesale consumers point out the necessity of forming a rational procurement and supply system of animals and meat products and on the future business – driven livestock development. It should be based on the careful study of the related issues at national and local level.

2.2.2. Volume and seasonality of meat preparation

Arkhangai aimag:

In total, Arkhangai used 667,700 heads of animals for consumption in 2014, which es equal to the averagy of 15.5% of the total number of animals at the beginning of the year (see table below).

As regards the types of animals the use of animals was as follows, so horse and cattle were used below average and sheep and goats above the average.

- Horse (6.3% of total number of horses at beginning of the year)
- Cattle (9.4% of total number of cattle at beginning of the year)
- Sheep (22.5% of the total number of sheep at beginning of the year)
- Goat (23.4% of the total number of goats at beginning of the year).

Table 8. Volume and structure of consumption of animals in all 19 soums of Arkhangai aimag, 2014[2]

№	Soums	Total heads at start of year	Used for		% in total at start of year	
			Sale on market	Own consumption	Market sale	Own consumption
1	Ikhtamir	283,580	27,845	14,123	9.8	5.0
2	Chuluut	164,157	12,445	5,148	7.6	3.1
3	Khangai	99,545	10,174	3,922	10.2	3.9
4	Tariat	220,273	27,644	8,439	12.5	3.8
5	Undur-Ulaan	292,522	30,439	12,107	10.4	4.1
6	Erdenemandal	420,445	54,627	17,205	13.0	4.1
7	Jargalant	219,573	26,742	7,558	12.2	3.4
8	Tsetserleg	290,757	39,406	11,951	13.6	4.1
9	Khairkhan	290,717	43,356	10,628	14.9	3.7
10	Battsengel	320,005	33,111	18,310	10.3	5.7
11	Ulziit	234,305	23,504	8,491	10.0	3.6
12	Ugiinuur	232,959	36,502	11,420	15.7	4.9
13	Khashaat	280,542	37,274	13,058	13.3	4.7
14	Khotont	244,673	21,650	9,736	8.8	4.0
15	Tsenkher	240,022	17,514	7,777	7.3	3.2
16	Tuvshruuleh	109,611	8,317	4,888	7.6	4.5
17	Bulgan	93,138	9,271	3,411	10.0	3.7
18	Erdenebulgan	158,173	15,446	7,163	9.8	4.5
19	Tsahir	97,771	14,480	2,692	14.8	2.8
	Total	**4,292,768**	**489,747**	**178,027**	**11.4**	**4.1**

In general, 92.5 % of the total consumption was small livestock (sheep, goats) while 7.5 % was large livestock (cattle, horses). In 2014 the total consumption increased by 6.4 % compared with 2013. From the total consumption of animals, 73.3 % was sold in the market and 26.7 % was used for the household consumption. Compared to the previous years, the number of animals sold in the market has increased by 26.7% and the number of animals used for own consumption has increased by 7.4%. Based on this it is assumed that herders had relatively more interest in selling their animals to the market and had more livestock available to do this.

Table 9. The type of livestock consumption of herder's households (calculation by study team)

Types of use	Livestock	Selected soums in Arkhangai Aimag				Average
		Chuluut	Tariat	Ikh tamir	Undur-Ulaan	
Live animal	Horse	48.5	31.4	48.1	22.2	37.6
	Cattle	75.1	26.5	19.6	22.4	35.9
	Sheep	35.9	26.0	17.3	19.7	24.7
	Goat	47.2	8.0	10.8	15.5	20.4
Slaughtered animal	Horse	9.1	11.4	23.1	45.6	22.3
	Cattle	7.3	30.1	43.0	49.1	32.4
	Sheep	43.5	34.6	41.7	61.9	45.4
	Goat	28.3	48.5	41.9	43.8	40.6
Own consumption	Horse	42.4	57.1	28.8	32.2	40.2
	Cattle	17.5	43.4	37.4	28.5	31.7
	Sheep	20.6	39.5	41.0	18.4	29.9
	Goat	24.5	43.5	47.3	40.8	39.0

[2]Arkhangai Statistics for Agriculture 2014, page 73

The above table shows in the cells marked in red that the largest share of cattle (35.9%) is sold as live animals. The largest share of sheep (45.4%) and goats (40.5%) are slaughtered by the herders themselves. Herders sell slaughtered sheep meat and goat meat which have high demand in the market. They use horse meat, which has low market demand, mainly for their household's consumption.

Table 10. The sales types of animals on the market i selected soums, percentage

Types of sale	Types of animal	Chuluut	Tariat	Ikh tamir	Undur-Ulaan	Average
Live animal	Horse	84.2	73.3	67.6	32.8	64.5
	Cattle	91.1	46.8	31.3	31.3	50.1
	Sheep	45.2	42.9	29.4	24.2	35.4
	Goat	62.6	14.2	20.5	26.1	30.9
Slaughtered	Horse	15.8	26.7	32.4	67.2	35.5
	Cattle	8.9	53.2	68.7	68.7	49.9
	Sheep	54.8	57.1	70.6	75.8	64.6
	Goat	37.4	85.8	79.5	73.9	69.2

Table 10 shows that on average 30.9% to 64.5%of the animals are sold alive on the market while on average 35.5% to 69.2%are slaughtered and then the meat sold on the market. There are considerable differences between the types of animals, as small animals (sheep, goat) are mainly slaughtered while the majority of large animals (cattle, horse) are sold alive. There are also differences between these selected soums which depend largely on the distance from the market. For example, 91.1 % of the total cattle of Chuluut soum were sold alive while only 31.1 % of the cattle from Undur-Ulaan soum were sold alive. This is explained by the fact that the local buyers (changes) are more active in soums which are far away from the main roads as herders have less direct access to the markets. This is the case for Chuluut soum.

Zavkhan aimag

According to statistics information of Zavkhan aimag, 14.2 % of its animals were used, of which 9% was sold on the market while 5.2% was used for own household food consumption.

Table 11. The use of livestock in Zavkhan aimag by soums

№	Soums	Total heads at beginning of year	Used for		% in total at beginning of year	
			Sale on market	Own consumption	Market	Own consumption
1	Aldarkhaan	198,901	12,135	8,629	6.1	4.3
2	Asgat	40,515	2,934	1,953	7.2	4.8
3	Bayantes	114,006	7,585	3,002	6.7	2.6
4	Bayankhairkhan	111,164	17,291	4,164	15.6	3.7
5	Durvuljin	152,483	6,975	7,174	4.6	4.7
6	Zavkhanmandal	103,508	7,583	4,396	7.3	4.2
7	Ider	108,066	9,008	6,817	8.3	6.3
8	Ikh-Uul	211,068	19,421	16,903	9.2	8.0
9	Numrug	98,919	12,668	5,335	12.8	5.4
10	Otgon	159,527	15,851	6,389	9.9	4.0
11	Santmargats	146,663	15,664	5,024	10.7	3.4
12	Songino	77,352	9,713	5,037	12.6	6.5
13	Tosontesengel	151,808	12,307	10,000	8.1	6.6
14	Tudevtei	91,596	14,481	4,888	15.8	5.3

15	Telmen	138,844	15,123	9,903	10.9	7.1
16	Tes	105,402	7,291	4,542	6.9	4.3
17	Uliastai	111,087	6,333	5,568	5.7	5.0
18	Urgamal	111,487	5,822	7,005	5.2	6.3
19	Tsagaankhairkhan	67,225	3,195	4,242	4.8	6.3
20	Tsagaanchuluut	67,963	5,543	5,188	8.2	7.6
21	Tsetsen-Uul	130,548	16,696	7,393	12.8	5.7
22	Shiluustei	88,595	5,795	4,811	6.5	5.4
23	Erdenenkhairkhan	167,651	17,815	5,674	10.6	3.4
24	Yaruu	141,508	13,197	7,473	9.3	5.3
	Total	**2,895,886**	**260,426**	**151,510**	**9.0**	**5.2**

Based on the expenditure survey of the herders, it was found that 14.2% of total livestock numbering 2.89 million, that is 10.7% of horses, 16.8% of sheep, 13.6% of cattle, and 17.7% of goats were used. From this 9.0% was sold on the market and 5.2% was used for own consumption.

Herders usually disburse their animals based on capacity of pasture, weather conditions, and household expenditures. The herders from e.g. Bayankhairkhan, Numrug, Tudevtei soums have used more animals than the aimag's average while herders from e.g. Bayantes, Tosontsengel, Ider, and Otgon soums have used fewer animals than aimag's average.

Table 12. Animal use by type, in percent

Types of use	Livestock	Selected soums in Zavkhan Aimag							
		Ider	Toson-tsengel	Telmen	Otgon	Erdene-khairkhan	Bayan-tes	Tsesen-Uul	Average
Sale in market	Horse	96.7	36.7	85.2	79.5	73.3	58.8	91.7	74.6
	Cattle	74.7	31.3	66.7	66.3	48.3	44.6	81.1	59.0
	Sheep	64.9	47.6	63	76.9	67.7	69.1	73.9	66.2
	Goat	62.1	42.7	62.8	77.4	63.6	68	75	64.5
Own consumption	Horse	3.3	63.3	14.8	20.5	26.7	41.2	8.3	25.4
	Cattle	25.3	68.7	33.3	33.7	51.7	55.4	18.9	41.0
	Sheep	34.1	52.4	37	23.1	32.3	30.9	26.1	33.7
	Goat	37.9	57.3	37.2	22.6	36.4	32	25	35.5

In 2014 and on averag, 74.6 % of horses, 59.0 % of cattle, 66.2 % of sheep, and 64.5 % of goats were sold on the market and the remainder was used for household food consumption. On average one household used 50 animals annually, of which 33 for sale and 17 for own comsumption.

Table 13. Types of sales, in percent

Types of use	Types of animal	Ider	Toson-tsengel	Telmen	Otgon	Erdene-khairkhan	Bayan-tes	Tsetsen-Uul	Average
Live animal	Horse	97.7	100	56.5	100	73.3	58.8	91.7	82.6
	Cattle	57.7	52.4	35.7	88.1	48.3	44.6	81.1	58.3
	Sheep	57.4	26.9	70.6	94.1	67.7	69.1	73.9	65.7
	Goat	54.1	34.4	59.3	93.3	63.6	68	72	63.5
Slaughtered	Horse	2.3	0	43.5	0	26.7	41.2	8.3	17.4
	Cattle	42.3	47.6	64.3	11.9	51.7	55.4	18.9	41.7
	Sheep	42.6	73.1	29.4	5.9	32.3	30.9	26.1	34.3
	Goat	45.9	65.6	40.7	6.7	36.4	32	25	36.0

From the total use of animals, 82.6% of horses, 58.3% of cattle, 65.7% of sheep, 64% of goats were sold alive on the market while herders have slaughtered 17.4%, 41.7 %, 34.3% and 36.0% respectively for selling the meat on the market.

The study also analysed the seasonality of the supply of livestock by herders. The results are provided in the table below and are presented by the number of responding herders with their preferred season for sles of livestock.

Aimags	Preferred season for livestock sales by herders (number)				Total
	Summer	Autumn	Winter	Spring	
Arkhangai	6	85	16	20	127
Zavkhan	16	84	25	16	141
Total number	22	169	41	36	268
Average in %	8.2	63.0	15.3	13.4	100

Most herders (78%) are interested to sell their livestock in autumn and winter, when the animals have the maximum live weight. Then herderfamilies also need cash income to provide stocks for the winter. Only a minority of herders (8.2%) is interested to sell livestock in summer, because the animals have not yet reached the maximum weight and the need for cash income is less. However, in summer the herders could achieve higher prices per kg of live weight, since the demand for meat exceeds the supply. It is recommended to consult herders to shift their livestock sales partly from autumn to summer.

2.2.3. Potential for meat supply

The following calculation of the meat marketing potential of the selected soums in two pilot Aimags is based on their total meat production and own meat consumption. It shows that the sales potential of 4 soums in Arkhangai Aimag is 8,024.5 tons and in 8 selected soums in Zavkhan Aimag is 42,124.6 tons. On average each of the selected soums has potential to market meat of 1,525 tons per year in Arkhangai aimag and 5,025 tons in Zavkhan aimag.

This supply potential could be achieved even with the livestock population at the present level. However, the sales volume is actually much below these figures which results in higher growth of animals and more pasture degradation in the future.

Table 14. Supply potential of meat in selected soums' of Arkhangai and Zavkhan aimags

Soums	Num-ber animals	Capacity, tons	Con-sump-tion, tons	Consumers					Sales capacity
				Scho ol	Kind er-gar-den	Hos-pital	House-hold	Cafes	
Chuluut	164,157	1,590.5	353.4	2.5	3	0.5	347.4		1237.1
Ikhtamir	283,580	2,251.3	505.2	5.9	2.7	0.5	496.1	28.6	1717.5
Tariat	220,273	1,785.7	467.5	8.5	4.8	0.7	453.5	30.0	1288.2
Undur-Ulaan	292,522	2,397	536.0	6	2.7	0.5	526.8		1861.0
Arkhangai total	**960,532**	**8,024.5**	**1862.1**	**22.9**	**13.2**	**2.2**	**1823.8**	**58.6**	**6103.8**
Ired	108,066	3,256.8	156.8	2.1	2.5	1.0	151.2		3100.0
Telmen	138,844	1,790.9	190.9	3.6	2.0	0.5	184.8		1600.0
Tosontsen-gel	151,808	1,514.5	514.5	4.8	3.6	1.5	504.6	65.2	1000.0
Otgon	159,527	3,258.6	258.6	3.2	1.8	0.8	252.8		3000.0
Tes	105,402	4,676.4	176.4	4.2	3.6	0.4	168.2		4500.0

Bayantes	114,006	4,641.1	141.1	2.3	3.2	1.2	134.4		4500.0
Erdenekhairkhan	167,651	9,213.5	213.5	0.7	1.8	0.5	210.5		9000.0
Tsetsen-Uul	130,548	13,772.8	272.8	1.8	1.8	0.4	268.8		13500.0
Zavkhan total	**1,075,852**	**42,124.6**	**1924.6**	**22.7**	**20.3**	**6.7**	**1875.3**	**65.2**	**40200.0**

Source: Calculation by study team

If the livestock population growth is kept annually at 6.5% ($= \sqrt[10]{\frac{51.9\ million\ animal}{28{,}0\ million\ animal}}$) the average growth rate over the last 10 years), the number of animals in each soums can increase by 28.2-31.2%. Therefore each soum's meat production potential will increase by about 30%. While this could be an important additional source of household incomes of herders it is unwanted as it will lead to an excessive use of the pasture land and contribute to its further degradation.

This shows that improving the livestock and meat procurement system is not only important for the stable operation of the meat processing plants but also to improve herders' livelihoods and to prevent further pastureland degradation. Therefore, it is suggested to intensively advertise this opportunity to give herder households the right understanding for improving of herders' livelihoods by bringing their animals into the meat value chain.

2.2.4. Sales systems of live animals, meat and by-products

According to the survey there is no single procedure for sale of livestock and meat, and they are sold through many different channels, while sale of by-products is often done through one channel only. From the survey result it is seen that herders have two types of assets to sell: live animals and meat from own slaughtering of animals.

There are different channels for sales of live animals and meat from slaughtered animals. 90.6 per cent of live animals and slaughtered animal meat is sold through interim traders (changes, agents) while only 6.6 percent is sold by herders themselves to the market. In comparison to that herders hardly sell to cooperatives and PUGs.

From the survey it is seen that there is no arrangement for sales of live animals and meat directly from herders to processors. The dominant channel for sales of live animals and meat through interim traders (changes) has disadvantages for herders and consumers. Herders receive low prices as changes need to charge their overheads and consumers receive meat of low quality since health inspection and traceability are not guaranteed by changes. With regard to improving the existing marketing channels , there were many proposals from herders made in the study. They propose that animals should be purchased by cash from the farmgate; a bonus should be provided for sales of live animals comparable to the one for skins/hides; meat and live animals should be sold through cooperatives directly to the processors. This can be supported in the sense that in a functioning market economy there should be choices for herders from which they can choose when they are selling their livestock.

Herders sell only small quantities of meat to schools, kindergardens and hospitals in their soum centers. The remaining livestock is sold at cheaper prices to "Changes"-interim traders from the soum and aimag centers. These 'Changes"-interim traders fix a package price for animals including meat and hides/skins which leads to losses for herders compared to selling meat and hides/skins seperately. For example herders loose the premium which is paid by the government for skins/hides which are sold to national processors (2.500 MNT for skins and 15.000 MNT for hides). Therefore, it is considered that there is a need to enable herders to sell directly to industries and end-users without any other interference in between. Direct selling includes the sales through cooperatives because they are owned and steered by the herders themselves.

As regards timing of sales of animals and meat there are in general two periods during the year when herders need cash: in mid-August to prepare their children for schools and to pay tuition-fee for their children who are already students, and in late January to prepare for the "TsagaanSar"- Traditional Lu-

nar New Year Holiday. The peak slaughtering periods of animals are therefore during July/August and November/December in each year.

Reasons for herders to sell animals and meat are often related to their need of cash money or to the excess number of livestock above their own household needs. Whereas reasons of not selling their animals are related to the low number of livestock and when they do not have much needs for cash money. In such cases herders are interested to increase their herd but not to sell them.
Herders have expressed the following reasons for selling/not selling their livestock:

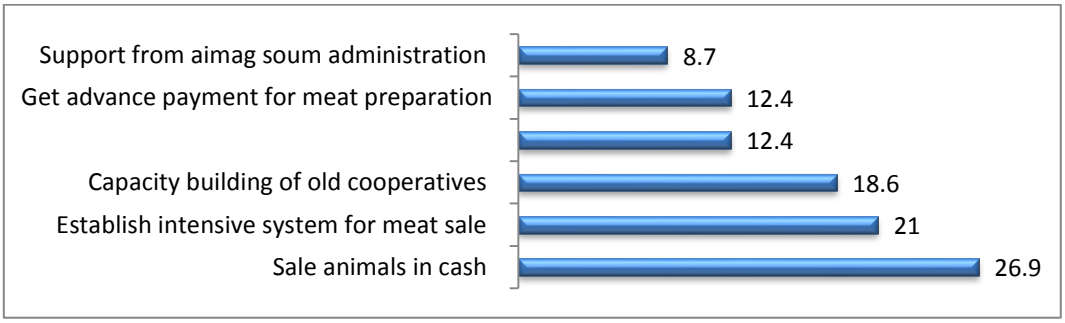
Reasons to sell animals	Reasons to keep animals
➢ Carrying capacity of pastureland is exceeded ➢ Number and heads of livestock is increased ➢ Climate condition ➢ Tuition fee for students ➢ To buy assets ➢ Wedding and other events ➢ Herders' migration to better pasture area/ fee charged for using alternative or emergency pasture area (otor) increases cost ➢ High interest for bank loan ➢ Assistant herder is not available	➢ No agreement on the price ➢ Additional income from bonus for wool ➢ Herders with many animals prefer to bring live animals themselves to the market as for wholesale ➢ Herders who have animals up to 100 prefer to increase their livestock ➢ Selling for loan ➢ Animals do not cost high as their physical body is smaller/underdeveloped resulting from unorganized breeding operations that goes on its own way

An indication showing how herders trust cooperatives is the herders' answer to the question "Is it possible to organize selling of animals and meat through cooperatives?' 72.5 per cent of the participants answered positively and 27.5 per cent negatively. From here it is seen that herders are ready to do sales of animals and meat through cooperatives.

Herders were asked if they agree to sell their animals or meat to cooperatives without any advance payment but by negotiating a price for meat which will be paid later based on trusting their cooperatives. 90 per cent of herders involved in the survey answered that they cannot agree with the current condition of cooperatives' capacity. From here it can be concluded that it the current situation only 10 percent of the herders can trust their cooperatives and are likely to sell their livestock and meat through cooperatives if no advance payment is provided. Therefore it can be concluded that herders expect some part of the total sales value as advance payment.

Based on the survey on the potential trust by herders in cooperatives it is considered possible that herders sell livestock and meat through cooperatives in case they can solve some issues. In the short term cooperatives can function as intermediary between herders and processors just like a change, however with the difference that the sales margin is not taken by the change but is returned to the herders themselves. This increases their income compared to selling through changes. In the long term cooperatives should have sufficient financial capacity to purchase animals and meat. They should have then access to small-scale slaughter houses at soum level with storages to keep meat and should be able to establish contracts on the sales of meat and solve transportation issues as well.

Figure 2. Support requested by herders for improving sales of live animals and meat, %



Note 1

There is a complete failure in finding assistant herders in our soum. Nowadays, we find them from 'Yaruu' and 'Tudevtei' soums. Increase in monthly salary rate for assistant herders makes costs for livestock running go up. It is needed to reduce number of livestock and improve their quality because there is a limited possibility to have many animals.

From interview with herders in Erdenekhairkhan soum, Zavkhan aimag

In summing up the main challenges faced in selling live animals are as follows:

1. Herders believe that they should receive the prices valid in Ulaanbaatar when they sell their live animals in the aimags. They do not take into consideration that transport costs need to be deducted from the local prices. This is one reason why herders and processors can hardly reach agreements on the sales price.
2. There are no slaughtering facilities in local areas that work on regular basis thoughout the year to buy live animals. Changes and agents of processors are only active in the main slaughtering period from September to November.
3. The cooperatives are still lacking the capability to establish integrated arrangements with meat processors to supply live animals and meat.
4. Herders have lack of knowledge to understand animal husbandry as a business and therefore they have little incentive to sell animals when the price is high.
5. There is no possibility to bring live animals and meat to the Ulaanbaatar market in immediate response to changing demand due to the long distances from many aimags.
6. Cost for transportation and bringing live animals on their foot is high etc.,

2.3. Analysis of live animals and meat demand

2.3.1. Processors and their procurement system of live animals and meat

Today, over 100 larger and small-scale slaughtering plants and meat processing plants are operating and processing meat and semi-processed meat products throughout the country. 70 percent of them are located in the capital city of Ulaanbaatar and in its satellite regions (especially in Emeelt to the West and Nalaikh to the East) while about 30 percent are in the aimags.

The sector also includes 43 companies processing plants with small and medium size capacity for meat processing. They are able to do slaughtering of animals, cooling, freezing and storing carcass and internal by products (organs and intestines), processing ready-made products and selling them at domestic and foreign markets. Out of them, 17 are located in the western region, 14 are in the central region including Ulaanbaatar, 7 are in the Khangai region and 5 in the eastern region. According to information obtained from the Meat Association of these facilities only 20 or less than 50% are currently operating (6 in the western region, 4 in the Khangai region, 8 in the central region including Ulaanbaatar and 2 in the Eastern region). The study covered about 15 of the currently operating facilities while those which are not operating could not be contacted.

There is sufficient potential to provide about 50 percent of the meat demand in organsed markets if these companies and workshops could use their full operational capacity. Unfortunately, even the 20 companies which are currently operating are using only half of their installed capacity..

The slaughtering facilities procure live animals from the western, central and eastern aimags by means which are described in the next table.

Table 15. Procedures of live animals and meat procurement

Procuring agency	Person(s) procuring animals	Transporter	Means of payment
Meat plants	Company agents operating from UB	Company transport	Cash
	Company agents op-	Company transport	Cash, Partial advance pay-

	erating in the aimags		ment and final payment
Local agents	Herders	Trekking	Payment in cash after receiving at the plant
		Private transport	
	Agents and changes (individual traders)	Private transport	Partial advance payment and final payment

In most cases, meat plants use their trucks for transporting large and small animals purchased from herders. In some cases, wealthy herders transport their animals and meat on own vehicles and sell them in accordance to the orders of the slaughtering plants. There are some herders who are in long-lasting partnership with slaughtering plants, which are open to such agreements with reliable herders and agree prices for animals and meat. In most cases, slaughtering plants purchase animals and meat directly for cash at delivery. Sometimes, they conclude agreements with reliable brokers and provide them with advance payments to purchase animals and meat in the aimags.

The study shows that 6 of the surveyed slaughtering plants delegate their own agents to buy animals and meat (5 with own local agents and 1 through local changes). In the case of 3 slaughteringplants herders can also bring their animals directly to plants and they buy directly from herders.

Table 16. Procurement of live animals by processing companies

Company	Own representative	Local representative	From herders	Change
Erdenet makh market	1		1	
Mongema	1			
Erdmiit	1			
Makh impex	1	1	1	1
Darkhan meat foods	1	1		
Mongol makh expo	1	1		
Makh market		1		
Sayan –Uul		1	1	
Total	6	5	3	1

Most meat plants appoint their representatives in aimags rich in animals and buy live animals and pay for live weight. Meat plants procuring animals in rural areas usually have local permanent suppliers. This allows them to buy well conditioned animals and meat of high quality. The direct supply of animals by herders expands meat purchase, but sometimes the quality of animals does not meet the standard requirement.

Meat processing plants have enough facilities in terms of slaughtering of animals, meat processing, cooling and freezing storages. Therefore, they are capable to purchase, slaughter and process year around, but they can't use their capacity. The reason is that herders are most interested in selling their animals in October to December when they are well conditioned.

The study shows that meat plants prefer to purchase animals and meat directly from herders through their agents as they believe involving cooperatives and changes (individual traders) would increase the costs. . However it can be argued that purchasing through cooperatives with their very efficient purchasing network even at herders level would be at lower costs than through any other alternative.

Although in recent years, many herder cooperatives were established and raw materials are traded through the Commodity Exchange, the procurement of animals and meat is taking place outside of this system. Herders support cooperatives and market their raw materials through them and so receive subsidies for some products (sheep wool, camel wool, skins and hides). However, herders don't allow cooperatives to market animals and meat that would make up the major part of their income.

Herders refuse to market animals through cooperatives because of the following reasons:

- Insufficient experience and capability of cooperatives;
- Insufficient capacity of cooperatives to provide cash payments;
- Lack of their legal and operational regulations,
- Lack of knowledge and information, as well as professionals

The Agricultural commodity exchange could in principle also market live animals and meat. However it has started only two years ago with trading cashmere and sheep wool has not yet taken up the trading of meat and live animals.

However, meat processing plants face the following problems in purchasing enough animals for their full capacity:

- Insufficient export market for meat and semi-processed meat products due to limited quota and volume of available products;
- Perception of people that meat from animals slaughered in the traditional way has better quality and taste;
- Customers'preference to buy cheap meat from animals slaughtered in the traditional way due to their low purchasing power to buy industrially processed meat;
- Weak financial capacity of the plants to buy enough raw materials (live animals and meat);
- High interest rate of bank loans;
- Lack of proper market channel enabling purchase of animals and meat by processors.

During the questionnaire survey, the meat processing plants have proposed the following suggestions to change the present meat procurement system.

Table 17. Suggestions by processors for improving the meat procurement system

Suggestion	Percentage in total
Providing the meat plants with working capital	47.5
Conducting training and advertisement for consumers	22.3
Regulation to enforce industrially processing of all meat necessary for densely populated settlements	27,4
No need to change the present meat procurement system	2.8

In order to supply the customers with hygienically safe meat, it is suggested to issue a necessary legal document for supporting the meat plants with working capital to use their full capacity, accustoming the consumers to use only standard quality meat, and supplying the densely populated cities and settlements with industrially processed meat.

2.3.2. Meat plants in Arkhangai and Zavkhan aimags

In rural areas, there are a few plants designed for slaughtering of animals and meat primary processing and producing final products. In Arkhangai aimag, there is only one animal slaughtering and meat processing plant while there are 5 such plants in Zavkhan aimag. Out of them, "Munkhud Badrag" LLC produces sausages and others are specialized in slaughtering animals and meat processing.

Table 18. Meat plants in Arkhangai and Zavkhan aimags

Plant name & address	Number of employees	Direction of production	Technical capacity per day	Presently used capacity in percent
"Khangai Food" meat factory, Arkhangai aimag	60-70 persons	Industrial slaughtering of animals and preserving meat in storehouse	200-250 large animals, 600-1000 small animals, storehouse with capacity of 1000 тons	Presently 30-40% of capacity is used. Last two years, 1300-1400 tons of meat exported to Russian Federation, 100 tons of meat sold to the aimag meat reserve.
Zavkhan Meat Expo, Tes soum, Zavkhan	5 permanent employees & 22 seasonal workers	Animal slaughtering & meat primary processing	300 sheep & goats and 50 large animals	Annually, slaughtered 500 large animals
Tes Shim Cooperative, Tes soum, Zavkhan	42	Animal slaughtering & meat primary pro-	150-160 sheep / goat, 50-60 large animals	Slaugthering 2 months, sheep&goat 2000, large animals 1450

Plant name & address	Number of employees	Direction of production	Technical capacity per day	Presently used capacity in percent
		cessing		
"Makh market" LLC, Tosontsengel soum, Zavkhan	15	Animal slaughtering & meat processing, grading and packaging	80-120 large animals and 200 sheep / goats, storehouse of 300 tons	Less than 10 percent of the annual capacity
"Munkhud Badrag" LLC in Uliastai city, Zavkhan	6	Different kinds sausage production	Produces daily 300 kg of sausages from 50-150 kg of meat, annually 30-40 tons of sausages	Presently over 60 percent of its capacity
"Zavkhan Food Groups" LLC, in Uliastai, Zavkhan	30	Animal slaughtering & meat processing, grading and packaging	Slaughtering daily 500 large animals, 1500 sheep & goats, processes 15 tons of sub-products	Less than 20% of annual capacity is used

The plants engaged in animal slaughtering and meat primary processing use 10 to 40 percent of their projected capacity while the sausage factory uses about 60% of its full capacity. The processors consider the following reasons why their capacity is underused:

1. Financial problems: lack of working capital;
2. Industrially processed meat is less marketable on the domestic markets;
3. High meat prices, less animals for sell, reluctance of herders to sell their animals
4. and seasonality in supply of animals and meat.

The sausage factory is linking the underuse of its capacity and slow marketing its products with the big import of sausages from Ulaanbaatar.

In most cases, the animal slaughtering and meat primary processing plants purchase animals for cash from herders in the nearby soums and aimags through their own representatives. They aim to purchase well-conditioned and healthy animals, for which certificates from veterinary offices are available. However, they can't purchase enough numbers of animals because of the lack of working capital. In other words, their available cash limits the purchasing of animals. Most plants procure animals in May to November and carcasses from December to January.

Presently, they purchase animals and meat through casual dealing, without permanent partners and agreements. However, the meat plants are interested in building partnerships with permanent suppliers of animals and meat based on agreements which identify obligations of parties. Some of them initiated this. For example, Zavkhan Food Group LLC tried to build up a partnership with permanent supplier herders by offering its shares to them for buying animals in advance and making final payment and dividend, later. However, the initiative wasn't understood well and supported by herders.

The local meat plants are supportive to procure animals and meat through reliable cooperatives entrusted by their member herders. However, building reliable financial strength is most important for such a partnership as they think.

In addition, there are some other issues for local meat plants to consider. Meat plants buying live animals can sell animal hides and skins to relevant processors on behalf of the herders to give them the opportunity to get the government subsidy for selling hides and skins to national processors. They can also allow the supplier cooperatives to market the sub-products such as intestines. By principle cooperatives share their surplus with their members (herders). This is a good foundation to build partnership relations between herders, cooperatives and meat plants for reliable procuring of animals and meat.

Presently, the absence of a functioning livestock and meat procurement system causes many interlinked problems. For example, the presence of infectious animal diseases leads to closing of foreign markets. The excess supply keeps prices for animals and meat lower on the domestic markets and consequently, herders prefer to keep their animals alive instead of selling them. However, low selling of animals reduces herders' incomes and livelihoods. Further, the large herd causes environmentally negative impacts and exceeds the pasture carrying capacity. This, finally, could be a potential danger or shrinking opportunity of pastoral livestock and reduced prices for animals and meat.

2.3.3. Meat production and processing

In 2014, totally in Mongolia 257.500 tons of meat was produced annually from domestic livestock. From this only 25.000 tons were produced through industrial processing which is only 9.8% of the total meat production. The remaining 90% of animals were slaughtered by herders, local changes or sub standard slaughtering facilities in Emeelt and nalaikh. As a consequence the industrial slaughtering planst are using only 16.2% of their installed slaughtering capacity.

As of 2013, the industries produced around 2,300 tons of products with 30-60 varieties from meat and by-products, and sold them at domestic and overseas markets. Processed meat production increased 4 times in the last 10 years including slaughtered animal meat, canned meat and ham/sausage processed by the companies. It means that the companies share in total meat production has increased from 5.8 percent in 2004 to 17.9 percent in 2013 and again dropped to 9.8 percent in 2014.

Table 19. Major products of meat companies, tons

Products	2004	2010	2011	2012	2013
Animal (raw) meat	4,300	12,000	13,200	13,200	19,800
Canned meat	75.2	178.4	114.6	130.0	231.2
Types of sausage	1 ,272.2	1,734.8	2,204.4	2,222.7	2,347.2
Total volume of meat / meat products	5,647.4	13,913.2	15,519.0	15,'552.7	22,378.4
Total share of processed meat in total meat production	5.8	13.9	14.9	14.1	17.9

Source: Statistical book of Mongolia 2004-2013

The processed meat production increased from 5.8% to 17.9% in total meat production. This was possible because the average amount of its consumption per capita increased from 1.7 kg in 2004 to 7.1 kg in 2013.

The meat prepared by traditional hand cutting method is 92.8% of total meat consumption among the population. Meat prepared by the traditional method goes through many stages of storing, transportation, wholesaling and retailing until it reaches the end-users. There is hardly any health inspection of live animals or quality control of meat at any of these stages. In combination with the low hygiene standards at slaughtering the quality of the meat is considered inferior to that of industrially process meat..

The quality standards referring to meat have been updated and the following new standards are introduced with the aim to promote meat export and introduce quality management systems into meat production:

- MNS 5998:2009 A model of the "Hazard analysis and critical control point" system (HACCP)
- MNS 2456:2009 "General requirements for meat and meat products, and for sorted and cut beef into pieces"
- MNS 2457:2009 "General requirements for meat and meat products, and for mutton and goat meat sorted and cut into pieces".

Besides meat itself there are also some other by-products such as:

- Hides and skins from big and small animals
- Intestines/Gut
- Internal organs (liver, lung, kidneys, heart, internal fat, large/small intestines, third stomach of ruminants-omasum, appendix, paunch etc.,)

- Other parts (head, leg, horn, hoof, bone, blood, soft tissues, cartilage, foot, eyes, pancreas, other gland, marrow, fiber and cud)

Internal organs are sold directly for food consumption of the population whereas by-products are sold as raw materials for next processing phases of the production.

Small part of the by-products is processed into final products (liver paste, aspic/ meat stock etc.) and major part is sold to the market without any processing. Hides and skins as well as intestine from big and small animals are mainly sold to interim traders (see below the study on skins/hides).

Meat companies are extensively using engineering and technology from Russia while the companies "Mon gema", "Makh impex" and "Mongol makh expo" are using the European Union technology along with equipment from Germany, Japan, Korea and China. (See details in Annex 5)

The surveyed plants engaged in meat purchasing, processing, preserving and marketing, have between 13 and182 permanent employees, of which 12.8% are engineering and technical personnel. During the peak of the slaughtering season in autumn, they provide more job places, employing between 30 to 70 seasonal workers. In general, they have enough professional staff.

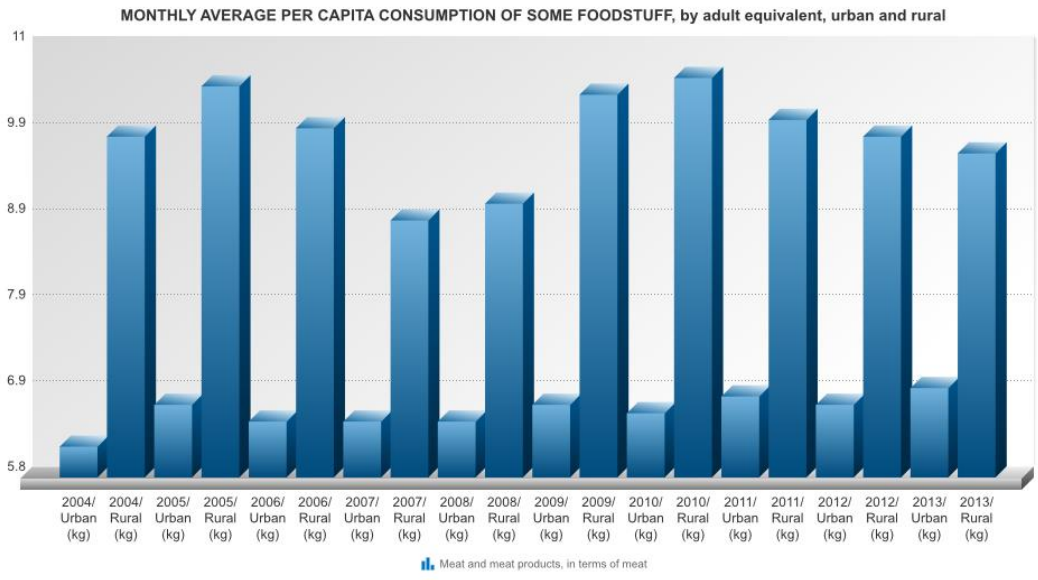
"Erdmeat" Co. Ltd and "Darkhan Meat Foods" LLC are introducing new technology of weighing (air weighing-machine) as well as a slaughtering method which ensures immediate death of the animals with minimal suffering. In general, it is considered that the techniques and technologies of Mongolian meat industries are outdated compared to the world meat production development.

2.3.4. Domestic market for meat

Processed meat and meat products, and by-products are sold in two markets, the "domestic market and external markets". Both of them are intended for food consumption of the population and raw materials of the production. Internal organs are sold directly for food consumption of the population whereas by-products are raw materials for next processing phases of the production.

The domestic market is by far the dominating market for meat and meat products in Mongolia. This is due to the fact that the export to foreign markets is nearly negligible (see below). The Mongolian population has a high and stable demand for meat consumption, which amounts to monthly about 9kg in rural areas and 7 kg in urban areas.

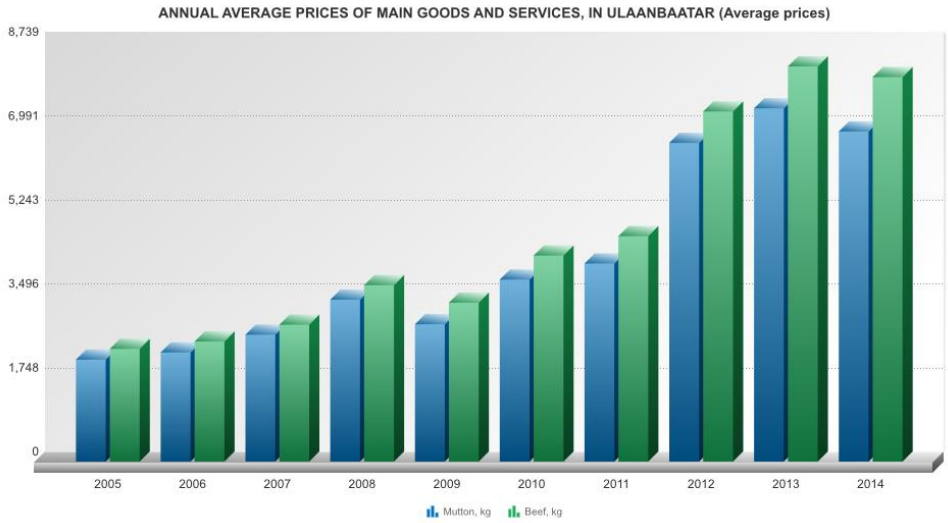
Figure 3.Monthly consumption of meat and meat products in rural and urban areas



Source: Statistical yearbook 2014

Considering this stable demand for meat and the explosion of the demand it is remarkable that the prices for meat have steadily increased since 2005.

Figure 4. Retail price of beef and mutton in Ulaanbaatar (MNT)

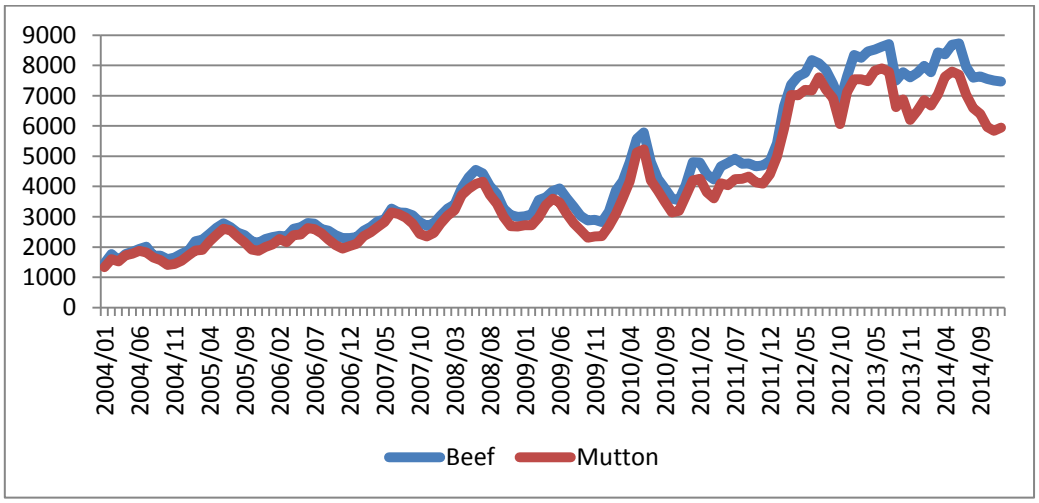


Source: Statistical yearbook 2014

Especially from 2011 to 2012 there has been a considerable price increase of about 60 percent (around 5.000 MNT / kg to 8,000 MNT / kg). It is also noteworthy that the price for beef increases faster than that for mutton.

The following graph shows that inside the steady upward trend of prices there is a pattern of price fluctuations during each year whereby prices are higher in the summer months and lower in the winter months. This is due to the much larger meat supply during the main slaughtering period in winter.

Figure 5. Price fluctuations of beef and muttion in Ulaanbaatar (MNT)



Source: Statistical book of Mongolia 2004-2014

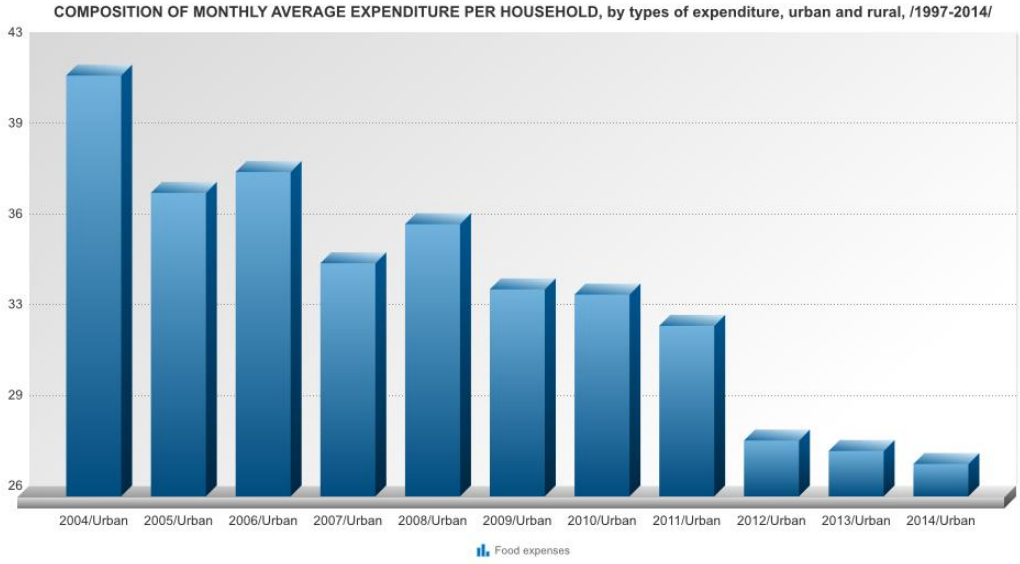
The remarkable increase of the meat prices in 2012 and their high level since then can probably be explained by the increase of income of the urban population which has been especially high in that same year. This can be seen in the following graph.

Figure 6. Montly income per household urban and rural, comparison previous month

Source: Statistical yearbook 2014

As a consequence of the steadily increasing income of the urban population they are spending a decreasing share of their income for food stuffs including meat. The following graph shows that in urban households the share of expenditure which is used for buying food has been reduced from around 41% in 2005 to around 27% in 2014. Therefore the actual price of meat becomes less important for them and consequently sellers of meat (markets, shops, etc.) can establish much higher prices.

Figure 7. Composition of montly average expenditure per household



Source: Statistical yearbook 2014

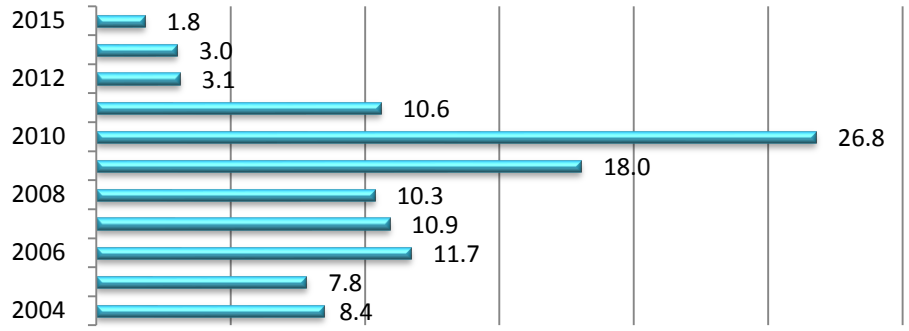
It appears that this phenomenon was used to the advantage of meat sellers. It can be expected that this can be maintained as long as the positive development of urban incomes continues. It has the consequence that the domestic meat prices remain relatively high and therefore export of meat to foreign appears less attractive (see next section).

2.3.5. Export markets for meat

Meat export amounted to 8.400 tons in 2004, but decreased to 1.800 tons in 2014. This is despite the growth of the processed meat production. As of today, only 13.4% of total processed meat produced by the meat companies is exported.

Meat production is potentially an important part of Mongolia's export that can earn foreign exchange. Mongolia exports horse meat, beef, mutton and goat meat to Russia, China, Japan, Korea, Iran, Kazakhstan, Vietnam and other countries. The maximum quantity was 26.800 tons in 2010 and the minimum was 1.800 tons exported to Russia and the People's Republic of China in 2014. The peak in 2010 can be explained by the pressure to sell livestock which was felt by herders before and after the dzud winter disaster in 2010). Other influences are exerted by the political environment which supports or inhibits export and imports respectively.

Figure 8. Meat export, tons



Source: Statistical book of Mongolia 2004-2014

The decrease in export of meat and meat products is related among others to the production technology of the current animal husbandry and level of the processing industry's development. While meat of Mongolian animals is considered as a pure natural product, it does not meet international requirements for veterinary and food product hygiene and quality. In order to increase meat export it is needed to improve the health status and traceability of livestock and to improve the processing quality of the meat production.

The issue of exporting meat from Mongolia was intended to be improved with regard to Russia and China as result of the efforts of the government focusing to increase meat export. Accordingly the companies mentioned below have received permissions to export meat abroad in 2015.

Table 20. Authorized meat export in 2015 /tons/

Name of plant	Beef	Horse meat	Goat meat	Total
Darkhan meat foods	1256	613		1869
Makh impex		160		160
Makh export		242		242
ANDM	220	500		720
Mon Tuva	100	200	100	400
Bum Nomin		200		200
Sooton	100	240		340
EDGS		120		120
Total	1676	2275	100	4051

Equipment and technology for slaughtering of animals and meat processing in those 8 meat plants that have permission to export meat to Russia and China meet requirements of the importing countries. However, it must be noted that until June 2015 the planned export has not yet been implemented. It remains to be seen if it can indeed materialize as planned. Even then 56.1 percent of total meat for export would be lowly priced horse meat, and 41.3 percent beef, and remaining 2.6 percent is goat meat.

In connection with this market opportunity the meat processing companies are improving their production technology and intensifying activities to correspond to consumer needs. An obstacle to the meat export is the lower price of Mongolian meat in export markets compared to the high domestic price. According to information obtained from the Mear Association Russia for example offers prices for beef meat which are below the actual wholesale prices in Ulaanbaatar.

In addition the high rate of the customs duty and importing tax in the exporting countries have to be considered as well. Currently, importers from Russia are purchasing 1kg beef with USD 3.5 and horse meat with USD 2.8. In addition, 1 Euro customs duty is imposed per 1 kg meat which increases the meat price in Russia beyond the purchasing power in the market[3]. Nevertheless importers from Russia are highly interested to buy more beef and horse meat. However, the Ulaanbaatar retail price exceeds the exporting price which makes is less profitable for processing plants to export meat.

Interesting is the comparison of meat export prices with wholesale price at local markets from the statistics of the foreign trade of the General Customs Office in 2012, for which data are available (see table below). For example the cost for beef in China is higher by 72.9 percent and for mutton by 270 percent. From this follows that there is a possibility to increase export of meat to China.

Table 21. Comparative research on the meat price as of 2012

	Quantity of export/tons/	Amount /USD /	Unit price /USD/			
			Mongolia	Russia	China	France
Beef	3,301.3	965.09	3,421	5,389	5,916	5,238
Mutton	1,775.3	675.14	2,629	6,977	4,009	7,125
Horse meat	4,765.3	1,462.12	3,259			

Source: General Customs Office of Mongolia. Statistical data on goods through foreign trade 2012, FAO-STAT 2012

Animal-originated by-products are also a potential for export. Yet the quantity of by-products that are exported is unstable and there is no certain information about it. According to the customs data in 2012, 511.9 tons of by-products were exported at USD 623 per ton and 347.1 tons of bones at USD 113 per ton. There is also statistical data showing that 5.200 tons of by-products were exported in 2013.

Table 22. Export of by-products, tons

Year	2004	2010	2011	2012	2013
Exported by-products	6,100	2, 000	400	3,600	5,200

All animal originated by-products are not being processed domestically but are exported as raw material. It is required to use opportunities that are available to increase from value added final by-products for export and selling them with higher prices.

2.4. Value chain for live animals and for meat

2.4.1. SWOT Analysis for the live animals and meat sector

As the first tool of analysis the results of the SWOT analysis for the live animals and meat sector are presented. It contains the major potentials which are available and main issues which need to be overcome.

Table 23. SWOT Analysis of the live animals and meat sector of Mongolia

Strengths	Weaknesses
• Meat and other animal products which are exclusively produced by grazing (compared to production countries like Argentina, Urugay, etc.) • Satisfies meat consumption in the domestic market with own production • Mongolian livestock live in a clean environment and have the potential to deliver ecologically pure meat.	• Inconsistent and non systemic policy promoting the different steps of the value chain • Pasturing animal husbandry is not well focused on meat production (herd composition should be focused on younger animals) • Herd composition is not matching meat demand (beef, horse) due to focus on fi-

[3]http://www.unen.mn/content/

• Meat has high consumption rate among Mongolian consumers • Extensive livestock keeping is highly adapted to the natural environment and reduces cost of meat production • There is sufficient processing capacity to increase production without additional investments. • Meat sales contribute largely to the income and livelihood of herders. • Nomadic pastoralist system which is highly adapted to the natural conditions and unique	ber production (sheep, goats) • Livestock in Mongolia is not completely healthy • Meat production requires seasonal specific conditions for preserving and transporting it • Extensive Livestock keeping has high risks (disease, climate, demand). • Meat supply is highly seasonal since intensified livestock keeping is little developed • Absence of experimented models and cost/benefit analysis for semi and intensified animal husbandry • Financial capacity of meat processing companies is low and they have little access to external finance • Utilization of meat processing plants is low and less profitable • No direct linkages exist between herders and meat processors. • Meat and meat products require special condition for storage and transportation • Livestock is very remote from the consumers. • Traditional slaughtering is less hygienic. • Absence of vocational education on livestock raising and business education for herders
Opportunities	**Threats**
• There is an appropriate amount of resources for meat export at limited scale • Overseas market capacity for meat export is good especially for mutton, goat and horse meat. • Opportunity to have a brand product for meat from animals in Mongolia based of good biological capacity • Good opportunity to breed animals with better meat productivity • Good opportunity to develop intensified livestock for meat production • Herders could be connected to processors thrugh cooperatives instead of agents/changes.	• There is a permanent risk of animal infectious and non-infectious disease • Consumers have no regard for hygiene and quality of the meat • Many obstacles for meat export • Meat is cost responsive, and there is a lot of fluctuation in the meat market price at domestic and overseas markets • Meat sector has high risks as a business

From the analysis on the current situation of the live animals and meat sector, it is seen that there is a need to take and implement some utilize the opportunities based on the available strengths.

2.4.2. Value chain for live animals and meat and main problem areas

As the second analytical tool the mapping of the value chain for live animals and meat is presented. The following figure 6 is based on the result of the survey and presents all major actors in the value chain for live animals and for meat. It makes clear that there are four main channels, which connect the livestock of herders to the meat ready for consumption:

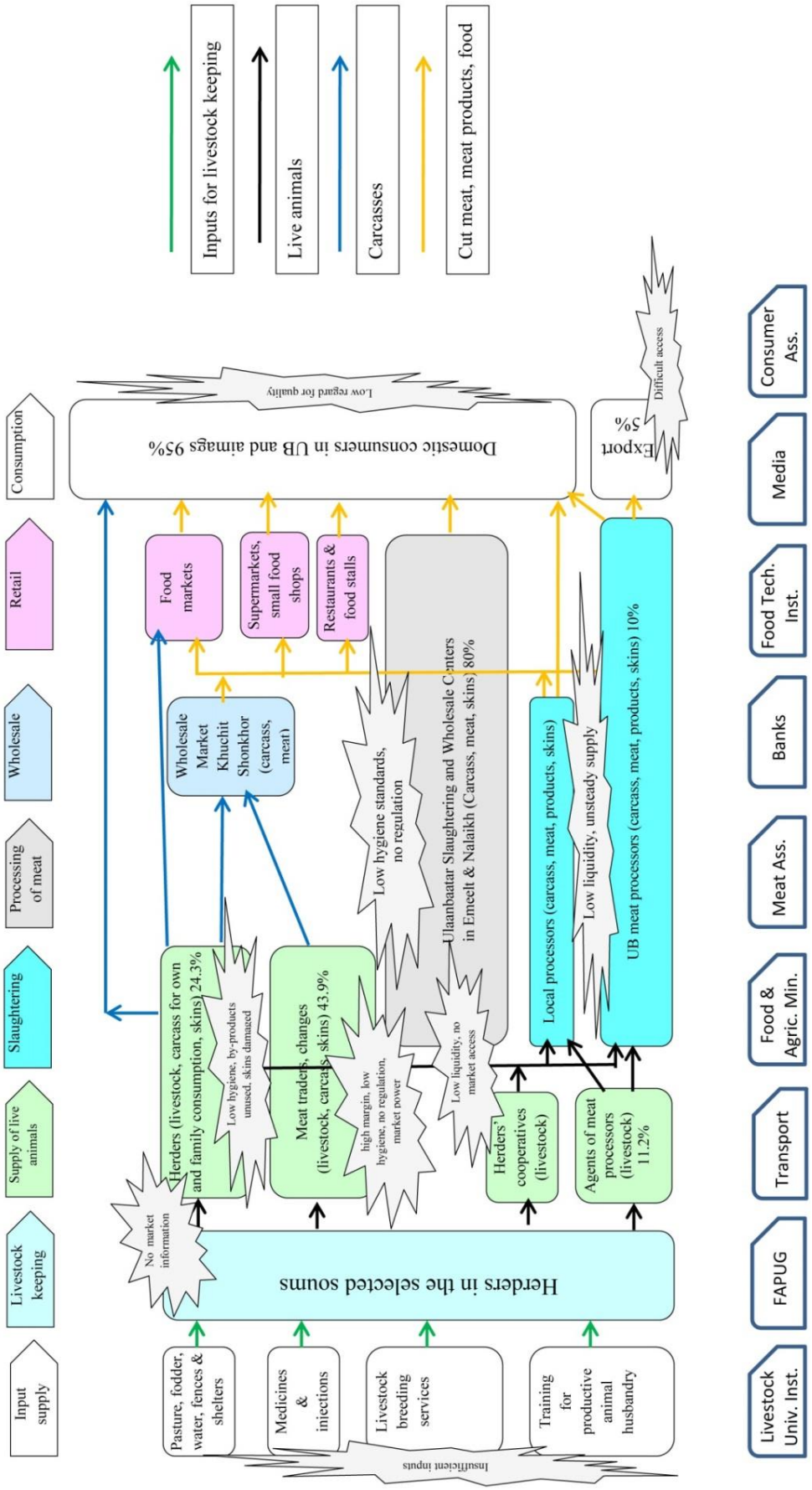
1. Herders partly slaughter animals themselves for their own household use and for sending meat to their relatives in Ulaanbaatar.
2. Changes which are active in the soums collect live animals mainly against cash payment from herders and sell them to processors. These are to a great extent informal processing entities working in the whole meat centers in Emeelt or Nalaikh. Even though these places are not regulated and hygiene conditions are low the major part of the meat supply for Ulaanbaatar is produced here.
3. Many meat processing companies have agents in the aimags, who purchase live animals against cash payment from herders. The animals are driven to the local or UB processors and slaughtered there. The processing conditions are in general up to standard and some processors even manufacture final products like packaged meat and sausages. However, due to liquidity shortages the market share of these processors is very low and the installed volume of processing capacity is used only to a small extent.
4. Cooperatives of herders can obtain live animals from their members and sell them to the local or UB processors. This channel is hardly used so far as it demands direct linkages between cooperatives and processors. In addition, sufficient liquidity is required by processors so they can pay to cooperatives for the animals to be received and cooperatives in turn can make cash payments at least in part to the herders.

From the map on the value chain for meat, it is also seen that there are many informal stages from producers to consumers. And not much additional service to increase value is done at each of these stages except the transportation to the place of consumption. Therefore it is a value chain with little coordination where price is increased downstream with little economic justification. The only major policy intervention is to arrange slaughtering of live animals coming from eastern provinces in Nalaikh District and live animals coming from western provinces at the market “Emeelt” in order to prevent the import of live animals into the capital city. This measure does not avoid a health and environmental hazard but moves it from the city to its environs.

These two markets for live animals and livestock products and raw materials, located at either side of Ulaanbaatar are useful in the sense that animals are slaughtered everywhere by traditional methods. However, they do not meet even basic requirements on proper treatment of livestock and meat hygiene.

The map also shows the main problem areas and challenges of the live animals and meat value chain. They occur where responsibilities of the relevant value chain actors are not fulfilled effectively. In such cases markets do not function properly and the demand for meat in UB creates different marketing channels, which are efficient but of low quality.

Figure 9. Value chain for live animals and for meat and major issue areas



Main issues to be addressed by the upgrading strategy for the value chain for live animals and meat

Measures are to be implemented at all levels of the meat value chain to solve the following issues which were identified in the analysis.

1. Issues at the stage of the input supply:
    - Opportunity to prepare fodder is limited as desertification of pastureland is going on, its carrying capacity is exceeded, and underground water level is retracting.
    - Usage of veterinary medicine and vaccination for animals is low, and veterinary prevention measures are not done in accordance with disease control policies, and there is weak monitoring for it.
    - Improvement of breeding of animals for meat productivity is slowed down, and in general traditional knowledge on extensive animal husbandry is getting lost among the young generation herders.
2. Issues at the level of supplying live animals for slaughtering:
    - Number of live animals to be provided to the market for slaughtering is limited as the herd structure is overaged and not productive (herders tend to keep animals too long before selling).
    - Knowledge and capacity related to the technology and economics for running business-oriented livestock is weak and labor resources are insufficient.
    - Herders have little knowledge of needs and conditions in the meat market.
    - The formal and integrated system for preparation and supply of meat of meat processors must compete with cheaper channels which are of lower quality but are preferred by consumers.
    - Roles and duties of the herders' primary and secondary cooperatives in the meat preparation and supply stage are not certain.
    - All types of meat purchased from herders at lower price come to the consumers with higher price while going through interim-traders without adding any value.
    - Requirements of hygiene and sanitary is not ensured in the meat preparation and supply stage
3. Issues at the stage of slaughtering:
    - Insufficient financial capacity of industrial slaughter houses to purchase large volume of live animals against cash payment.
    - Majority of animals are slaughtered by traditional method in conditions where hygienic and sanitary requirements are not ensured.
    - New standard for slaughtering of animals has just been introduced and needs to be accepted and implemented.
    - Lack of storage facilities to keep carcasses and to ensure steady supply of meat products.
4. Issues at the stage of processing of meat:
    - Sorting of meat is done in too general way of cutting meat by joints and by-products at the meat wholesale centers.
    - Small portion of overall meat is sorted and packaged at the meat processing companies.
    - There is no sorting and packaging of meat body parts in accordance with consumer needs.
5. Issues at the stage of wholesale trade:
    - Wholesale centers do not have sufficient storage facilities to keep meat in accordance with the food technology.
    - Wholesale centers do not meet requirements for hygiene and sanitary conditions.
6. Issues at the stage of retail trade:
    - Retail shops and branches do not have sufficient storage facilities to keep meat in accordance with the food technology.
    - Ensuring hygiene and sanitary requirement for retail sale is low.

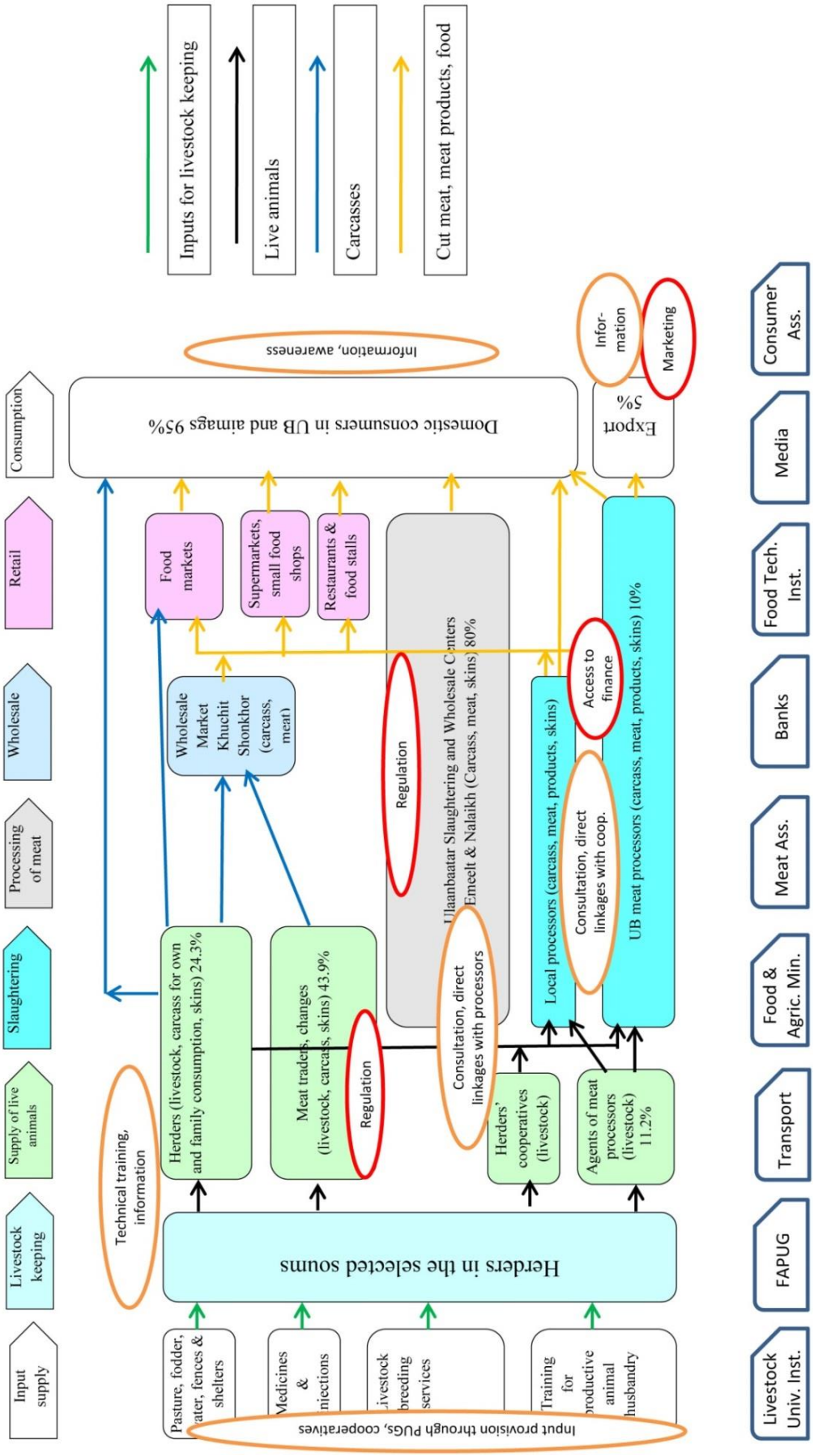
- Location of retail shops and branches does not correspond to places where consumers are located.

7. Issues at the stage of domestic consumers:
    - Little awareness of consumers of need for meat quality according to standards for human food consumption
    - Less choice for consumers,
    - Market price for meat is high
    - Purchasing capacity of consumers is low
    - Considerable distance between customers and producers
8. Issues at the stage of export markets
    - Insufficient capacity of the industry-based meat processing
    - Many obstacles to export meat to foreign countries
    - Little knowledge of market needs and conditions in foreign countries

2.4.3. Value chain for live animals and meat and main intervention points

The following figure 7 shows again the value chain for animals and meat including the intervention points which are proposed in order to overcome the issues in the value chain which were presented above.

Figure 10. Main intervention points for the upgrading of the value chain of live animals and meat



The main intervention points can be summarized as follows.

1. The inputs for animal husbandry of herders can be improved by involving herder groups, which identify shortages, arrange services and monitor results. As regards the GG project the main actors here are the PUGs and the cooperatives. For example, cooperatives can conclude general service agreements with veterinarians to ensure the veterinary services for all animals which are owned by the members at the required quality and at fair prices. Cooperatives can also engage in establishing nucleus herds for breeding of improved livestock with focus on meat productivity.
2. Herders require technical training on appropriate slaughtering of animals for their own consumption and for providing meat to relatives. This includes the primary treatment of hides/skins and by-products according to standards of the processors. However, they must also be informed about the advantages to market animals through their cooperatives to industrial processors. This can be helped by providing updated market information to them especially about the current prices in UB.
3. Cooperatives can play a much larger role in marketing live animals to the local and UB processors. In order to do so they need linkages with these companies, enhanced by visits on the spot between processors and cooperatives. In addition, the cooperatives require consultation to improve their management system so they can perform the tasks in animal marketing, including ensuring health documentation and traceability of animals. Here it can be explored if cooperatives can be enabled to organize local public markets for the purchasing of live animals from herders. This can be combined with a health check and issuing of relevant documentation.
4. The processors require consultation on establishing direct linkages with herder cooperatives in order to ensure the steady supply with animals according to their production plan. Further they need support in gaining access to external finance in order to prefinance the collection of animals from herders through the cooperatives. Advice is also required in improving the technical infrastructure and the quality of finished products.
5. The main suppliers of meat to UB are the wholesale centers in Emeelt and Nalaikh. However they produce with low hygienic conditions and without official inspection. Here is great need for tough regulation, which ensures that the interests of consumers as concerns food safety are guaranteed. Introducing and enforcing such regulations are mainly tasks for the Ministry of Food and Agriculture and the UB City Administration.
6. The same need for regulation also refers to the local changes, which are the main connection between the herders and the wholesale centers. Changes should be required to fulfill specific conditions in order to operate, such as ensuring traceability of the animals, providing documentation for health of animals. It is expected that many changes are unable to fulfill these requirements and therefore cooperatives will play a larger role in the market.
7. This must be combined with providing information and awareness to consumers so that they see the need for meat processing according to good health standards. This also includes the acceptance of higher prices for industrially produced meat.
8. The export of meat and meat products is an important source of foreignb exchange for Mongolia. Indeed there is a vast market potential in Russia, China, Japan and other countries. However the low prices offered and tight regulations and red tape make the acces to these markets difficult. In order to overcome this information on market conditions in the relevant countries is required. Also support is required to actually help processors achieving sales contracts to foreign countries at profitable prices. This last aspect is task especially of the Ministry of Food and Agriculture and the Meat Association.

2.4.4. Strategy and action plan for upgrading the value chain for live animals and meat

Main objectives for value chain development:

- To improve efficiency of the meat production through increase of animal health, meat productivity and breeding of animals
- To introduce advanced technology to the industrial meat processing
- To ensure health documentation, traceability and quality of meat,
- To provide sustainable development with reduced risks in meat production and minimizing its seasonal feature

- To qualify the selected actors in the meat value chain to better perform their roles
- To help actors in the meat value chain to gain access to financial resources
- To improve the interest of consumers in better quality meat.
- To support the export of meat products and by-products.

Activities for value chain development

Measures to be implemented at all levels of the meat value chain have been identified to solve the above issues which were identified in the analysis.

The following activities are proposed to be done during the project implementation period until end of 2016 in order solve problems at all levels of the value chain. Achieving effective results will increase livestock prices for herders and improve their income; will help processors to enjoy steady supply of live animals; will fulfil needs of the customers with good quality meat at reasonable prices throughout the year and will help to develop the meat sector as a major potential of the Mongolian economy.

1. To inform all stakeholders on the results of the value chain analysis and to discuss with them on the upgrading strategy and agree on joint plan of action.
2. To qualify the herder organizations in the selected soums to improve the provision of inputs to the herders, e.g. by making contract agreements with veterinarians, establishing nucleus herds etc.
3. To conduct technical training for herders in the selected aimags and soums especially for hygienic slaughtering and skin/hide preparation, to provide them with market information as well as to qualify them for their roles in the value chain.
4. To consult primary and secondary cooperatives on the marketing of livestock including management, rights and duties of members, market information etc. To develop a business plan for cooperatives for selling livestock and to implement it by identifying meat supply capacity in the selected aimags and soums and by establishing sales contracts with appropriate local and UB processing companies. To consukt cooperatives on organizing local public markets for the purchasing of live animals from herders including health check and relevant documentation.
5. To consult the local and UB meat processors on improved ways to ensure a steady supply of livestock for slaughtering through direct linkages with cooperatives, on improving their infrastructure and the product quality and on accessing external finance.
6. To consult the MFA and the Meat Association with a view to analyse the legal environment of the meat sector and to develop a proposal for changes and to addressing the organizations concerned with implementation. This refers especially to the regulations concerning local traders of livestock as well as wholesale centers for meat processing.
7. To consult media and provide information to them on improving the awareness of consumers towards better quality of meat processed under hygienic conditions and with ensured animal health and traceability.
8. To help the actors solving issues of exporting meat on a regular contract basis by providing information on market and trade opportunities as well as regulations for exporting meat to Russia and China and by selecting overseas market segments.To consult the appropriate facilitating organizations such as MFA, Meat Association, Institutes, banks etc. on improving their contributions to the value chain for meat.
9. To consult all relevant actors on developing a stable value chain for meat from the selected aimags to the national level and to help value chain actors to implement it in order to ensure objectives and expected outcomes of the Green Gold project.

Proposed action plan for upgrading the value chain for live animals and meat

It is necessary to make the roles and tasks of herders, cooperatives, processors etc. participating in the value chain for animals and meat more productive and sustainable. This plays an important role in ensuring the effective operation of the value chain and increasing the income of all actors including herders. These tasks are contained in the proposed action plan for upgrading the value chain for live animals and meat:

In the following a first version of the action plan is presented, by which the above strategy can be implemented through the project and its partners, as well as by other stakeholdes and facilitators of the value chain for live animals and meat.

Table 24. Action Plan for upgrading of the value chain for live animals and meat

№	Objective	Activities	Methods	Implementer
1	To obtain live animals and meat with high quality	To prepare handbook on high quality slaughtering and meat processing and traceability. To organize technical training for herders in the selected aimags and soums especially for hygienic slaughtering to provide them with market information and qualify them for their roles in the value chain.	Elaborate handbook and conduct trainings for herders and cooperatives jointly with representatives of processors.	Meat Association, processors, cooperatives, proejct unit
		To make animals healthy, to cover more animals with veterinary services	Support agreements between veterinarians and herder cooperatives.	MFA, local veterinary and breeding departments, herder cooperatives.
2	To ensure the reliable and traceable supply of live animals to processors	To consult cooperatives and to introduce their representatives to the processors, to support direct agreements between cooperatives and processors. To consult exploring the possibility to establish local public markets for purchasing of live animals from herders.	Match making, visits, contract template, elaboration of business plans	Herder cooperatives, meat processors, Meat Association, project unit
3	To raise the awareness of domestic consumers on high quality and hygienice meat processing.	The domestic consumers are informed abot the benefits of hygienic and high quality meat processing.	To support the production of information materials, videos etc.	Meat Association, project unit
4	To explore the international market for meat and meat products	The processing factories / manufacturers identify market potential abroad.	To support the provision of information on international market potentials and requirements.	Meat Association, project unit
5	To improve the legal environment of the meat sector and to develop a proposal for changes.	To consult the MFA and the Meat Association with a view to analyse the legal environment of the meat sector and to elaborate changes. This refers especially to regulations concerning local traders of livestock as well as wholesale centers for meat processing.	Consultation of stakeholders, joint elaboration of analyses and proposals, information of media.	Association, project unit.

In order to implement the above action plan the stakeholders have to fulfill their specific responsibilities:

1. The herders as livestock owners are responsible for healthy conditions of the livestock, and to identify types, number, age, sex of animals which they are willing to sell. This information shall be given to their respective cooperative rhrough the PUGs/APUGs. Then herders establish agreements with the cooperative and fulfill their contractual duties, and if satisfied with the services collaborate with the cooperative on regular basis. In such a case they restrain from selling livestock to local changes.
2. Herder's cooperatives receive information from their members on the animals ready for sale. Alternatively they inform members which animals they wish to purchase. They make agreements with the members and fulfill their own duties. If agreed by the members livestock may also be purchased from herders who are not members. Cooperatives make then agreements with processors on delivery of livestock, including type, number, time, price, payment conditions, traceability, transportation and supply issues, and fulfill the responsibilities stated in the agreement. Apart from that, cooperatives support regular partnership relations with the processors. The cooperatives also make arrangements with local service providers such as veterinarians to obtain regular and up to standard services for animal health. If deemed feasible they also establish nucleus herds for creation of livestock with higher meat productivity.
3. Meat processing companies agree with cooperatives on the supply of the required livestock and fix this in written agreements incl. type, number, time, price, payment conditions, traceability, transportation and other supply issues. They cooperate in accordance with the contract and fulfill their responsibility. They also support regular partnership relation with cooperatives and restrain from dealing with changes in the aimags. The processors take initiative to access the required sources of external funding. This may include special funding arrangements with cooperatives, by which livestock is purchased against limited advance payments and later full payment. Processors intensify sales in domestic markets; develop better and more products and take initiative to enter foreign markets.
4. The MFA and Meat Association undertake to support the meat value chain. To this end they pursue improvements of the policy and legal environment of the meat sector. This includes the better regulation of the functions of local meat changes and wholesale meat centers, in order to enforce the legal requirements and to ensure food safety for the consumers. They also provide information on potential export markets and support processors in entering these markets.
5. The component 4 Marketing of GG project consults and supports the stakeholders in implementing the above action plan.

THREE. STUDY ON THE VALUE CHAIN OF HIDES/SKINS

3.1. Executive summary

Main conclusions of the study

1. The animal outtake in the survey region Arkhangai and Zavkhan aimags is 14.8% and 16.2% respectively. In Arkhangai aimag 73.3% of the taken out animals where sold alive on the market while in Zavkhan aimag this figure is 63.2%.
2. Zavkhan aimag prepares 225.100 pieces of hides/skins annually out of its capacity to prepare 412.900 pieces per year. Arkhangai aimag prepares 232.000 pieces of hides/skins annually to the market out of its total capacity to prepare 542.900 pieces per year.
3. Overall, 83.8% of hides/skins are sold locally, while 16.2% are delivered and sold on centralized markets. Herders supply their raw hides/skins to the following purchasers: 1.4% local factories, 26.4% local brokers, 14.7% factories in aimag center and Ulaanbaatar, 54.5% to cooperatives and 5.9% to PUGs, respectively. Compared to the previous year, the volume of raw materials supplied to cooperatives has increased.
4. Herders state the following expectations on their membership in cooperatives (multiple answers): 59.5% to create shared property, 70.9% to supply their raw hides/skins, 31.6% to protect pastures, 15.6% to sell their animals and meat and 11.6% to sell their other products.
5. About 57.6% of respondents see it necessary to conduct training about higher quality of hides/skins preparation incl. requirements of processors. The main training methods requested by herders are demonstration training and individual practical training.
6. Capacities of hides/skins processing factories have increased from year to year but they used only 67.8% of their potential capacity in 2013. Only few factories do initial and deep processing of 1.6 mln hides/skins, which accounts for less than 20 % of total volume of hides/skins. The other processing companies only execute semi-processing up to wet-blue stage.
7. 54.8% of skins and 3.5% of hides were exported mainly a wet-blues. Other products except “wet blue” are sold on the domestic market. The main purchasers in the domestic markets are manufacturers of boots, gloves and coats.
8. Processing companies state that wet blue demand is increasing and processed leather and chrome leather demand is decreasing. The competitiveness of leather processed by domestic factories is weak due to its quality indicators such as skin errors, resilience, dye quality and odor.
9. Factors such as raw material quality, price and shortage of financial resources influence business and operations of skinsIhides processors,
10. Leather processing factories grade hides/skins when they source it from cooperatives and pay specific prices for each quality. But processors do not grade it when it is collected by changes and pay an average price to them. This different treatment may become a barrier for collaboration between processors and cooperatives.
11. The equipment of processing factories is outdated and mostly dedicated for initial processing only. They have less capacity for deep processing and for manufacturing commodity products. The main challenges that factories face are: availability of raw materials, shortage of working capital, high price of raw materials, and lack of professional workforce.
12. Processing factories purchase 42% of its raw materials from brokers while 58% are purchased from the cooperatives. This shows that representative and contractual system has been able to support the supply network.

Main recommendations for the project

The following activities are proposed to be done during the project implementation period until end of 2016 in order solve problems at all levels of the value chain. Achieving effective results will increase raw material prices for herders and improve their income; will help processors to enjoy steady supply of hides/skins; will fulfil needs of the markets with high quality semi-processed and final products and will help to develop the hides/skins sector as a major potential of the Mongolian economy.

1. To inform all stakeholders on the results of the value chain analysis and to discuss with them on the upgrading strategy and agree on joint plan of action.
2. To qualify the herder organizations in the selected soums (i.e. cooperatives, PUGs) to improve the provision of inputs to the herders, e.g. by making contract agreements with veterinarians, establishing nucleus herds etc.
3. To conduct technical training for herders in the selected aimags and soums especially for hygienic slaughtering and skin/hide preparation, including taking skin off, spreading, separating head and legs, drying, stapling, storage and transport. Further on the proper treatment of small animal intestines. Herders must also be informed about the advantages to market hides/skins through their cooperatives to industrial processors.
4. To consult primary and secondary cooperatives on the marketing of hides/skins including management, rights and duties of members, market information etc. To develop a business plan for cooperatives for selling hides/skins and to implement it by identifying supply capacity in the selected aimags and soums and by establishing sales contracts with appropriate processing companies. In addition more storafe facilities for hides/skins can be supported,
5. To consult the hides/skins processors on improved ways to ensure a steady supply of hides/skins through direct linkages with cooperatives, on improving their equipment and the product quality and on accessing external finance.
6. To consult the MFA and the Leather Industry Association with a view to analyse the legal environment of the hides/skins sector and to develop a proposal for changes and to addressing the organizations concerned with implementation. This refers especially to the regulations concerning premium payments for hides/skins and the regulation of local traders of hides/skins.
7. To help the actors solving issues of exporting semi-processed and finished products by providing information on market and trade opportunities as well as regulations for exporting to China and to selected overseas markets.
8. To support the establishment of an intestines processing unit at Tarit Soum herder cooperative.
9. To consult the appropriate facilitating organizations such as MFA, Leather Industry Association, Institutes, banks etc. on improving their contributions to the value chain for hides/skins.

For more details on the proposed concrete activities see the action plan below.

3.2. Analysis of hides and skins supply

3.2.1. Volume of hides/skins preparation

Skins and hides are a livestock product in addition to meat. In Mongolia 100% of skin from slaughtered anmimals for meat consumption and 97% of skin from animals which died from other causes are used.

During the past 3 years, 10.945 million pieces of animal hides/skins were prepared annually on average. This comprised 0,3% camel hides, 2.4% horse hides, 4,7% cow hides, 47.4% sheep skins and 45,2% goat skins. The lower than average figures in 2011 and 2012 were consequence of the dzud winter disaster in 2010 during which many livestock died.

Table 25. Preparation of hides and skins, thousand pieces

Types	2010	2011	2012	2013	2014*
Total	16 784.7	8 743.8	8 767.6	10556,7	13791,9
Camel			30,3	25,8	43,9
Horse	395.4	208.0	247.0	242,5	301,7
Cattle	717.4	446.6	472.8	473,9	598,6
Sheep	6 981.6	4 384.6	3 720.1	5166,8	6682,2
Goat	6 368.3	3 258.0	4 022.2	4640,8	6165,5

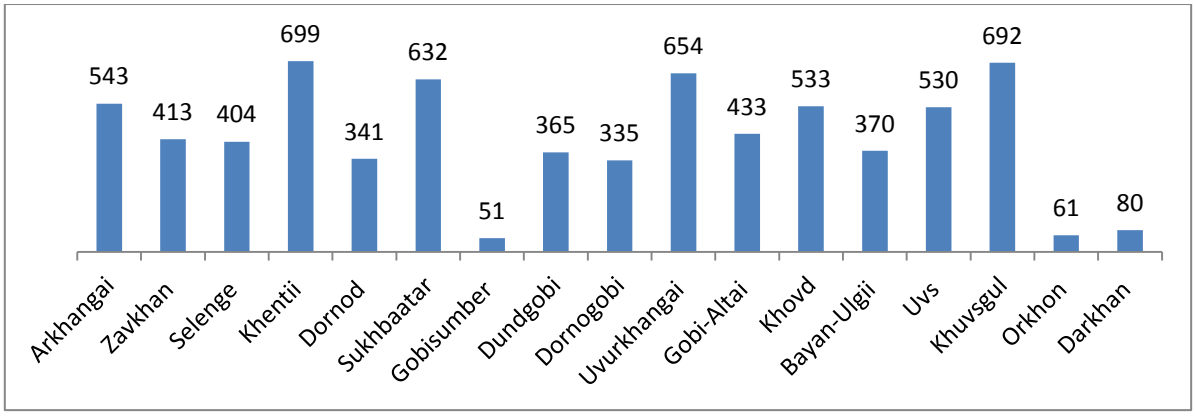
Mongolia prepares 1.0 million pieces of large animal hides per year and if we consider an average weight of 17 kg, 17,000 tonnes of leather are prepared yearly. This represents 0.3% of 5.5 million tonnes of leather that are prepared throughout the world.

Mongolia prepares 9.0 million pieces of sheep and goat skin per year and if we consider an average weight of 3 kg, 27,000 tonnes of small skins are prepared yearly. This represents 4.4% of 621,000 tonnes of small animal skin processed worldwide.

37.2% of all skins and hides are collected in winter, 5.6% in spring, 21.3% in summer and 35.9% in autumn[4]. Therefore 73.1% of all hides and skins are collected in the autumn and winter months, which are the main period for slaughtering of livestock.

Based on the number of livestock that is used for meat consumption, 33.7% of the total collection is prepared in the Khangai region, 24.1% in the Central region, 22.3% in the Western region, 18.9% in the Eastern region respectively and 1.1% in Ulaanbaatar.

Figure 11. Potential of hides and skins, thousand pieces



Source: Statistical data

Zavkhan and Arkhangai aimags prepare 955.9 thousand pieces of hides and skins, representing 9.5% of the total in Mongolia. 457.000 (47.8 percent) pieces of the total hides and skins potential in the above two aimags is prepared by local herders whereas 498.900 (52.2 percent) is from live animals which are sold from these aimags to processors in other areas.

Live animals from Zavkhan aimag are sold to Khuvsgul and Bayan-Ulgi aimags and Ulaanbaatar too. Within the aimag, they are also sold to meat processing plants in Uliastai, Tosontsengel and Tes soums. Quantity and location for hides/skins preparation is identified to comply with the sales channel for live animals.

Preparation of skins and hides in Arkhangai aimag

Approximately 90.7% of skins and 93.5 % of hides of slaughtered animals are sold on the market. If hides and skins are in the stage after wool and cashmere removal, they tend to be disposed off instead of being sold. Few herders use disposed hides and skins of cattle and horse to make leather strings and storage bags for their household use or to sell their home made products to the market.

The percentage of skins and hides of animals that were used for consumption and food are sold is presented in the following table.

[4]- S.Khandsuren – Main marketing issues of preparation and production of skins and hides, Ph.D thesis, 2001, page -77, 2001

Table 26. Sale of hides/skins by herders, percentage[5]

Types of animal	Soums				Average
	Chuluut	Tariat	Ikh tamir	Undur-Ulaan	
Horse	100	83.3	98.0	84.3	91.4
Cattle	100	93.4	94.2	86.4	93.5
Sheep	100	98.0	82.8	84.4	91.3
Goat	100	89.9	74.0	98.7	90.7

Based on the research results, the following approximate estimation of the potential preparation of hides/skins in Arkhangai aimag can be made.

Table 27. Potential volume of hides/skins in Arkhangai aimag

	Soums	Total	Types of hides/skins			
			Horse	Cattle	Sheep	Goat
1	Ikhtamir	15393	1725	2435	6280	4952
2	Chuluut	9830	91	3061	3759	2920
3	Khangai	6787	420	2471	1978	1917
4	Tariat	7957	356	1696	3680	2225
5	Undur-Ulaan	14777	431	1339	8071	4936
6	Erdenemandal	26673	2363	1731	14885	7694
7	Jargalant	11501	786	646	5792	4276
8	Tsetserleg	10262	330	49	5763	4119
9	Khairkhan	14161	2225	500	7590	3846
10	Battsengel	19975	2112	612	9751	7498
11	Ulziit	12545	1705	968	5627	4245
12	Ugiinuur	15665	801	688	7780	6397
13	Khashaat	19675	1879	862	10004	6930
14	Khotont	11270	1640	549	3490	5591
15	Tsenkher	8046	908	13	3359	3766
16	Tuvshruuleh	2131	77	222	1139	694
17	Bulgan	7049	758	1731	1354	3206
18	Erdenebulgan	10028	1146	372	4341	4169
19	Tsahir	8275	147	1552	3356	3219
	Total	232000	19900	21500	108000	82600

In total Arkhangai aimag has the preparation potential of 542.900 pieces of skin and hides, out of which 232,000 pieces are prepared in the aimag and 310.900 pieces are prepared in other aimags by the processing facilities located there. From the total 20% are hides of big animals and 80% are skins of small animals.

Preparation of hides and skins in Zavkhan aimag

About 92.5-100% of hides of slaughtered large cattle and 90.8-94.5% of skins of small livestock were sold on the market. The hides and skins after the stage of wool and cashmere removal are usually disposed off and few herders use it to make leather strings.

The potential volume of hides/skins prepared in Zavkhan aimag was calculated based on the above information and survey data.

[5] - Calculation by study team

Table 28. Potential volume of hides/skins in Zavkhan aimag

№	Soums	Types of hides/skins				Total
		Horse	Cattle	Sheep	Goat	
1	Aldarkhaan	255	402	4745	6496	11898
2	Asgat	85	165	1461	1056	2767
3	Bayantes	131	188	2391	2533	5243
4	Bayankhairkhan	199	360	5916	3004	9479
5	Durvuljin	170	116	3772	4797	8855
6	Zavkhanmandal	83	81	3111	3263	6539
7	Ider	242	520	5133	3337	9232
8	Ikh-Uul	596	2093	12900	6527	22115
9	Numrug	390	451	5421	2742	9003
10	Otgon	266	616	6273	3929	11084
11	Santmargats	199	246	5756	3507	9707
12	Songino	172	316	4790	2567	7844
13	Tosontesengel	470	1093	7008	4741	13311
14	Tudevtei	277	367	6111	2479	9235
15	Telmen	428	640	9427	3591	14086
16	Tes	2733	362	3316	2633	6585
17	Tosontsengel	128	278	3242	3572	7220
18	Urgamal	114	71	4390	3766	8341
19	Tsagaankhairkhan	36	155	2556	2229	4977
20	Tsagaanchuluut	114	92	3431	2957	6595
21	Tsetsen-Uul	180	300	7012	4792	12283
22	Shiluustei	111	152	3143	2934	6340
23	Erdenenkhairkhan	186	193	6660	4018	11057
24	Yaruu	284	239	7042	3640	11205
	Total	5390	9493	125008	85111	225113

Zavkhan aimag has the capacity to prepare 225.100 pieces of hides/skins per year. This volume consists of 2.4% horse hides (5.400), 4.2% cow hides (9.400), 55.5% sheep skins (125.000) and 37.8% goat skins (85.100).

3.2.2. Sales of skin and hides

The Mongolian Government has issued the resolution dated Nov 30, 2013 which coordinates activities providing monetary incentives to cooperative member herders, who supply their hides/skins to domestic processing factories. Its annex 2 regulates monitoring activities of monetary incentive provisions and how to report on them. The Mongolian Leather Association (MALI) has organized the following activities within the framework of implementating this resolution.

- A cooperation among Animal Protection Foundation of Mongolia, National authority of animal husbandry and breeding, administrations of 21 Aimags and 330 soums, Aimag departments of agriculture and SME, Aimag animal breeding and animal husbandry departments was established. On this basis 2,400 trainees received trainings on how to prepare skins when slaughtering animals, on technology to preserve raw material quality, storage, requirements for transportation, on standards for quality grading etc. In addition, handouts were given to herders, citizens with livestock and cooperative members.
- 1,500 people were nominated as representatives among the trainees and were certified. There are 80 representatives appointed in Zavkhan aimag and 93 in Arkhangai. A three-partite agreement is established between nominated representatives, MALI and processing plants.
- Depending on the volume of aimag and soum potential for hides/skins that can be collected, in the first stage 500,000 invoices with a value of 25 million MNT each are issued to purchase raw

skin from herders and citizens with livestock. The premium for hides amounts to 15.000 MNT and for skins amounts to 2.000 MNT.

- The new system to collect skins and hides not through brokers but directly from the soums has been established. For instance, MALI and processing companies established contracts with representatives in each soum. Contracted suppliers purchase skins and hides from herders, citizens with livestock and slaughter houses and carry out initial quality protection measurements at primary processing units and then sell them to processing factories at market price.

MALI had started to take part in the leather value chain since 2013 and is developping it together with soum veterinary and breeding units and cooperatives by establishing contracts with them. In 2014 through this supply channel leather processing companies received 837.500 pieces of skin and hides from 31,196 herders and processed 754.400 pieces. In the supply channel various stakeholders participate such as experts from soum administration, herder cooperatives, PUG, herders, MALI and processing companies.

The AFPUG of Arkhangai and Zavkhan aimags, where the Green Gold project is being implemented, have made contracts with "Darkhan Nekhii Co.Ltd" for the period 1 November until 31 March 2015. While the contract allowed a supply volume of up to 50.000 hides and skins only about 10% of the volume was actually delivered. The main reason for not fulfilling the contract was the unavailabilitiy of funds to pay in cash for the hides/skins collected from herders.

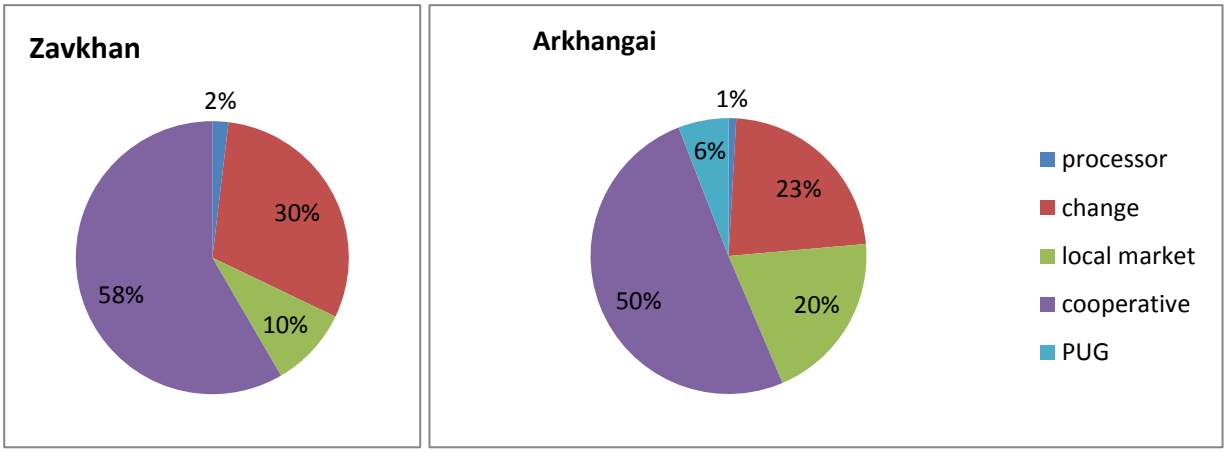
In principle, the cooperation between herder cooperatives and processing factories in the raw materials supply network has created opportunities to enforce raw material preparation standards and to produce products with high quality raw materials. Due to this the hides/skins value chain is being changed. This can be seen from the following table.

Table 29. Changes of sales channel

Market location	This analysis 2015	GG monitoring report by IRIM in 2013.
Locally (countryside)	83.8	38.2
Delivered to the market at aimag/national level	16.2	61.8

83.8% of the herders, who participated in the research, have sold their animal skins and hides in their region, which is 45.6 % higher than 2013. Due to this they can save time and the money will stay in the region.

Figure 12. Sales channels of hides/skins (percentage)



The main market channel are cooperatives, to which 50 or 58 % of herders supply their skins and hides. Other channels are changes (23-30%), local market (10-20%) and only 1-2% sell directly to processors.

It is noted that as a result of the incentive paid by the government, the activities of cooperatives were revived and trust between cooperatives and herders was created. For instance, 3,974 households from Zavkhan aimag have supplied 89,552 pieces of skins and hides to processing factories and have created an opportunity to receive monetary incentives of MNT 315.9 million in 2014. This volume of supplies made up 39.7% of the Aimag's total volume of skins and hides.

In general, leather processing faces the following challenges:

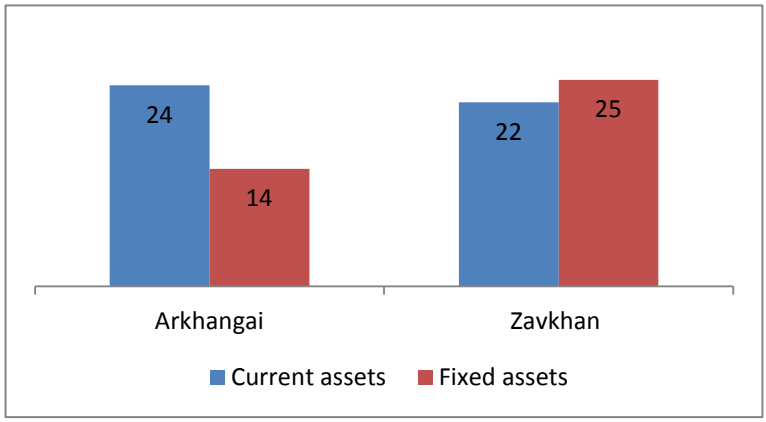
1. Processing factories grade hides and skin when receiving them from cooperatives which led cooperatives to face losses,
2. The financial situation of the processing factories is not stable so there is delay in making premium payments.
3. The price decreases when intestines are frozen inside the hides/skin.
4. No grading done by herders due to inadequate knowledge about the criteria of processing factories.
5. No storage warehouses available in local areas which leads skins to become dirty, dried up and broken from dog bites.
6. Herders don't fold or stretch up leathers,
7. Quality of intestine is low due to not being prepared according to the standard,
8. Cooperatives are not able to stock up skin and leather during the winter slaughtering period due to their financial resources.

Moreover, the government has not distributed the full amount of incentives to the herders and this causes uncertainty between herders and cooperatives. This makes it questionable if herders will provide their animal skin and hide raw materials to cooperatives.

3.2.3. Cooperation between herders, cooperatives and processors

The Mongolian Government has passed and started implementation of resolution #173 on "Social program to develop cooperatives" on 10 June 2009. Furthermore, to support cooperatives, the government has stated in the regulations of incentives of wool, skin and hides to herders that only members of cooperatives can receive the premuim which became effective since July 1 of 2014. This has created a situation, where herders must become members of cooperatives in order to get the premium. However, it can be noted that the membership of herders in cooperatives is actually not checked, which enables also non-members to take advantage of the premium.

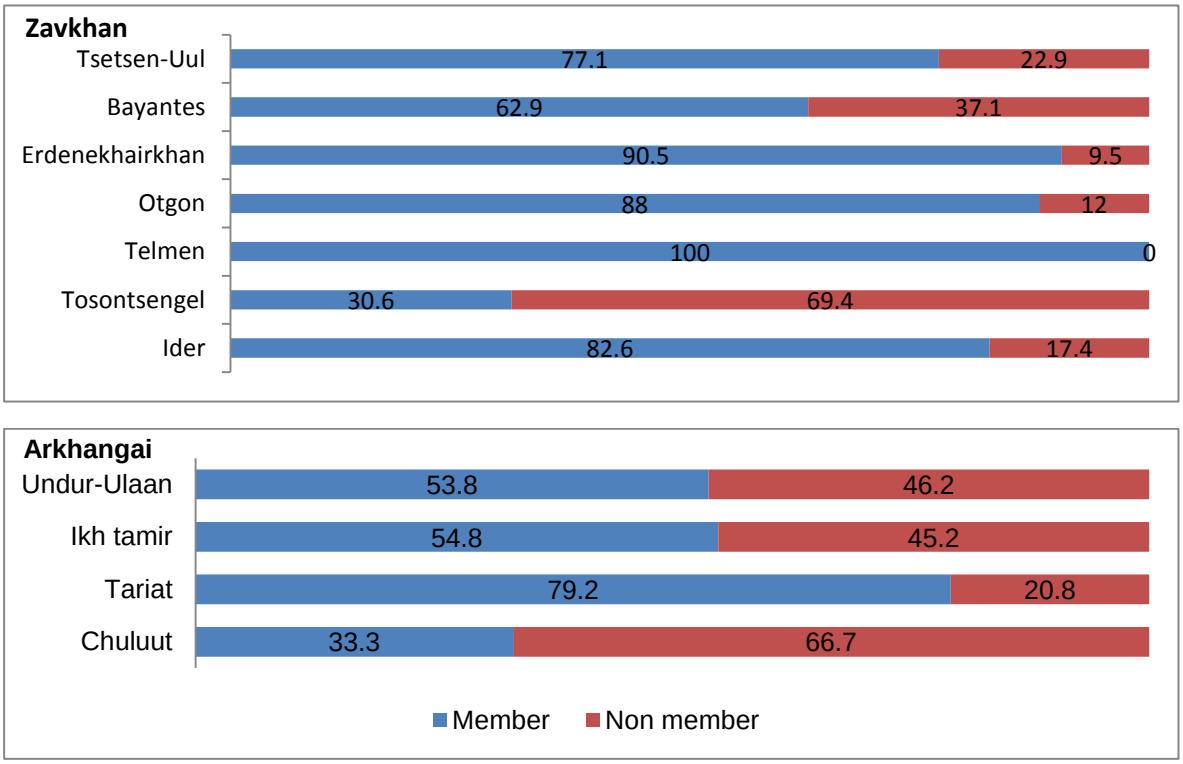
Figure 13. Assets of cooperatives on average, million MNT



When comparing these indicators per member of cooperatives between Zavkhan aimag and Arkhangai aimag, the working capital is higher by 0.08 mln (0,12-0,04), the fixed assets by 0.11 mln MNT (0,13-0,02), which makes the cooperatives in Arkhangai economically more valuable. Tavan erdeniin khiimore cooperative from Arkhangai aimag is the largest cooperative involved in the survey with 850 members. "Numan zaya" cooperative of Zavkhan aimag operates with only 9 members.

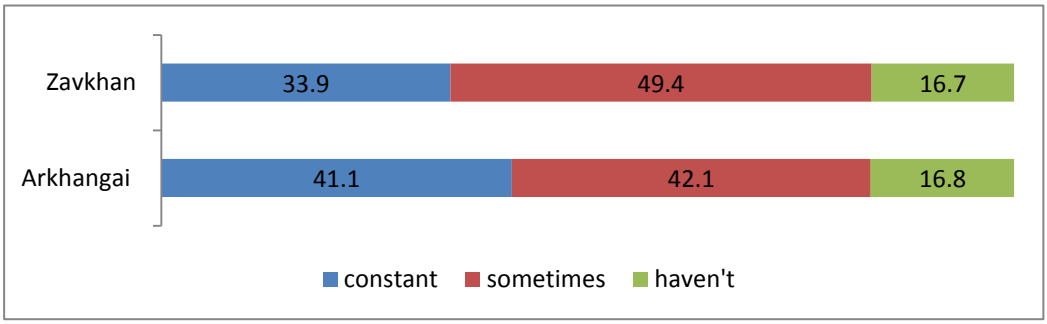
The cooperative membership rate of herders can be estimated in the following manner. In total 309 people have participated in the research and 196 (63.5%) of them are members of cooperatives. It can be estimated that 55.9% of Arkhangai herders and 67.5% of Zavkhan herders are member of cooperatives.

Figure 14. Membership rate of herders in cooperatives



The Chuluut soum of the Arkhangai aimag has the lowest membership rate of 33.3 % while the Telmen soum of the Zavkhan aimag has the highest membership rate of 100%. Depending on cooperative activity the trust of members to their cooperative is different in the soums.

Figure 15. Cooperation between member herders and cooperatives



“Altan aldar” cooperative in Zavkhan Aimag opened a shop for the herders and is planning to organize animal breeding activities and to pay dividends to its members. These initiatives are increasing trust of herders for their cooperative. For instance, 60.9 % of herders who were involved in the survey said it is important to strengthen their cooperative.

Cooperatives in Erdenekhairkhan, Telmen and Ider soums of the Zavkhan aimag and Chuluut and Ikh-Tamir soums of the Arkhangai aimag have stable operations, while other cooperatives have limited operational functions that caused herders to have only skin and hide raw material supply relationship with cooperatives. Cooperatives can serve herders in the following areas.

Table 30. Types of cooperation with member herders (multiple answers)

Aimag	Soums	Type of cooperation				
		Create share capital	Sell wool and skin	Sell animals and meat	Processing raw material	Protect pasture
Arkhangai	Chuluut	3	9	1	0	0
	Tariat	12	18	0	1	6
	Ikhtamir	8	23	1	0	5
	Undur-Ulaan	4	24	1	3	1
Zavkhan	Erdenekhairkhan	14	20	2	4	1
	Bayantes	14	19	3	1	3
	Tsetsen-Uul	17	28	1	2	7
	Ider	12	19	5	1	6
	Tosontsengel	7	21	8	4	9
	Telmen	7	8	2	4	6
	Otgon	15	23	5	2	16
Total		59.5	70.9	15.3	11.6	31.6

From all members of cooperatives:

- 59.5%- cooperated to create shared properties
- 70.9%- cooperated to sell their hides/skins raw materials
- 15.6%- cooperated to sell their animals and meat
- 11.6% cooperated with cooperatives to sell their other products.

It is assumed that the main reason to join cooperatives is to receive the incentives for hides/skins supplies.

Note 2

When we became a member of a certain cooperative we have paid MNT 35'000 to create shared properties. So far I haven't received any profit. For now, I'm still a member of the cooperative, in order to just get the incentives (i.e. government premium) of skin and hide supplies.

From an interview with a female herder from Sangiin dalai bagh, Tsetsen-Uul soum, Zavkhan aimag

Although it is important to establish cooperatives, participation of the members is still quite weak. It seems there is often tendency where they think the director of the cooperative is obliged to do everything and the expectation of members is not realistic.

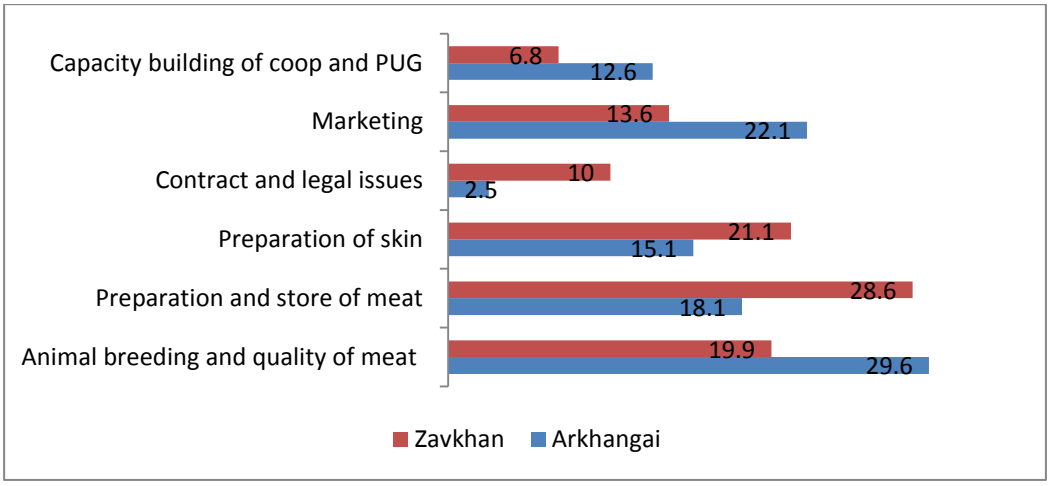
3.2.4. Training needs of herders

The quality of skins and hides of animals has direct relation with infectious and non-infectious diseases, plant structures, and climatic conditions, methods of slaughtering and storage of raw materials. But the lack of a quality based pricing system causes herders to pay less attention to the quality of skin and hide raw materials.

Overall 28.9 % herders have participated in some sort of trainings. Out of this 34% participated in meat preparation training, 37.4 % participated in meat and meat products' quality assurance trainings, and 28.6 % enrolled in contract management training.

When herders were asked if they have an interest to participate in training, 203 out of 234 people (86.8%) responded positively. And 19.1% responded that they need training in skin and hide raw material preparation. The first step in improving the quality of raw material is to conduct training on raw material preparation to herders.

Figure 16. Training needs of herders



15.1% of herders from Arkhangai aimag and 19.1% of herders from Zavkhan aimag expressed their interest to participate in raw material preparation training. They demand to organize practical trainings with examples to show to participants because over the past several years, herders have participated in many training which were based on theoretical knowledge and they weren't much effective.

Table 31. Preferred training methods

Aimags	Types of training		
	Provide a handouts	Practical training	Demo training
Arkhangai	26.9	37.0	36.1
Zavkhan	27.1	34.7	38.2
Average	27.0	35.8	37.2

37.2 % of herders considered that practical trainings are more effective. The preparation of high quality raw materials starts from the initial production. Therefore, it's important to organize practical trainings and provide life based experience. The processing factories considers that its necessary to organize training about benefits of healthy animals, methods to keep animals healthy, standard requirements of skin and hide raw materials, technologies of nursing and protection of raw materials to herders.

Note 3

The volume of low quality raw materials has increased because purchase of skin and hide by piece is allowed. Moreover, factories receive more damaged raw materials if it is not prepared correctly in initial stage, including wrong incision (cut), or dried under the sun etc,.

Leather Association

On the other side the processing companies indentified the following training needs of herders:

Training needs of herders, %

• Tretament of skins and hides for protecting the quality	42.9
• Preperation standard MNS60-2013	33.3
• Importance of animal health	23.8

3.3. Analysis of hides and skins demand

3.3.1. Hides/skins processing factories in Mongolia

107 small and medium leather factories operated in 1998 when the transition to market economy and privatization took place. The number dropped to 66 in 2003 and currently there are only 34 processing factories. 16 of them carry out final processing, 2 factories process fur and produce end products and

another 16 of them do semi-final processing. There are over 100 small leather and fur processers and thousands family businesses, which represent the sector today.

16 leather processing factories have the capacity to process 4‘000-8‘000 small animal skins daily, 4 factories process 200-1‘000 large and small animal skins daily, 12 factories have weekly capacity of processing 50-70 large animal hides. The overall capacity of the factories to carry out primary and end processing is 20.0 million small animal skins per year. This capacity is two times larger than the number of animal skins which are currently collected.

There are 32 leather processing factories located in Ulaanbaatar and 2 in Darkhan. Darkhan Nekhii and Darkhan Minj are operated in Darkhan and have regular businesses. 30 factories out of 32 in UB have their businesses in Khan-Uul district while 2 are in Bayangol district. The majority of these factories are private businesses except 1 that is state owned, 7 of them are shareholding companies.

Until the year 2000, all the leather used to be exported as raw material. Since 2001 old factory facilities were rented by Chinese, and since 2005 they started processing leather using the wet-blue tanning technology[6]. Since 2007 factories started to produce processed products and from 2012 started to make final leather goods.

21 factories, specialized in producing hide and leather and manufacturing ready products, were chosen in the study in order to determine the demand for raw materials and the challenges facing procurment of hides and skins and to improve the system of hide and leather production in these factories.

19 of the processors are small scale, 2 are medium scale and 1 of them is a large factory. 5 processors have run for up to 10 years, 6 factories have been running the business for 10-15 years and 3 factories have businesses for 20-25 years and 1 factory has been in the business for 40 years. 2 factories have been running for even 81 years. Darkhan Nekhii, Mongol Shevro and Buligaar factories were established during the planned economy system, 19 factories were founded during the market economy period.

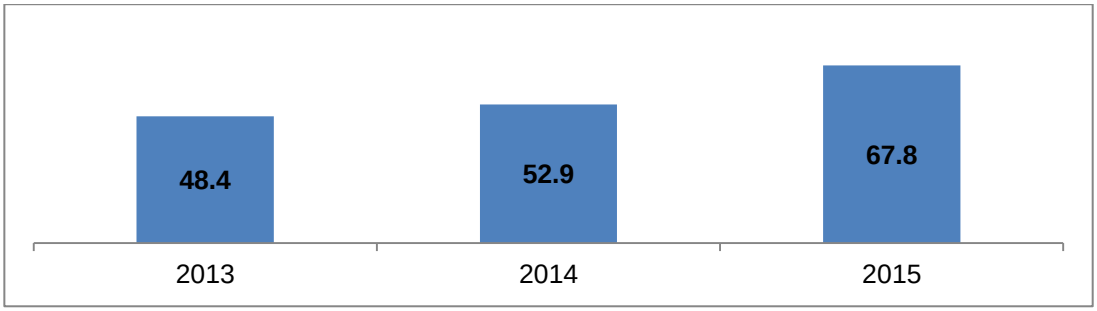
The combined capacity of the factories is to process 3.7 mln pieces of skins and 0.8 mln pieces of hides annually. They have a capacity to produce consumer products using 2.7 mln skins and 0.6 hides. Darkhan minj, Darkhan nekhii and MLTG factories have equipment to produce end products. Shevro, Mon-ET buligaar and Mon-Ireedui factories are capable to conduct deep processing for skins and hides. MLTG company supplies uniforms to national army forces. In 2014, these factories carried out processing for 1.6 mln skins and hides, which equals to 16 % of all prepared skin and hides.

There is a change in leather product demand due to the changes in the climate. This is becoming a reason for the decrease in traditional leather products demanded from the companies. The temperature of Mongolian winter in urban areas is less cold and the winter period gets shorter. This reduces the demand for sheepskin, which is often used inside coats. Therefore Darkhan nekhii company is producing leather goods and leather bags in the near future and striving to supply its products to the international markets with customers of more purchasing power.

In general it was evident that there is a tendency of increase in production capacity of the factories involved in the survey despite its current low utilization. In 2003, processing factories used to utilize only 48.4 % of their production capacity on average, while in 2015 it reached 67.8 %. This is an outcome of policies and measures of the Government to support domestic factories, for example through concessionary loans.

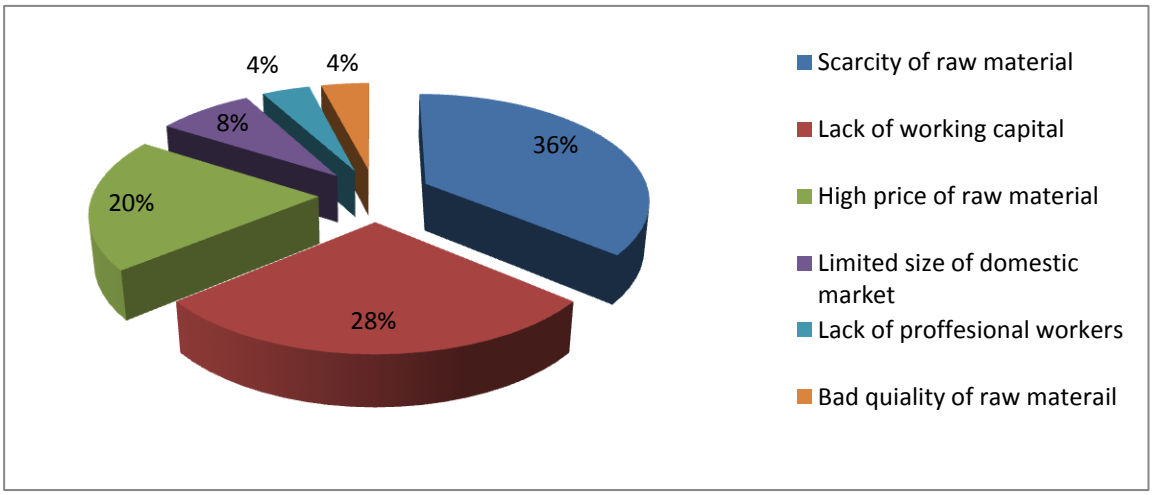
[6] Due to chromium used as tanning chemical the semi-processed leather takes on a pale blue color. Further processes are required to use leather for manufacturing of products

Figure 17. Average utilization of installed production capacity of processing companies,%



Despite of that, it is still a long way for hides/skins factories to reach the full utilisation of their capacities. The main inhibiting factors are the scarcity of raw materials (36%), the lack of financial means (28%), limited size of domestic market (8%), lack of personnel (4%) and high prices for raw materials (4%).

Figure 18. Reasons for low capacity utilization of processors



By summarizing these reasons almost 60% are depending from the raw material market (scarcity, high price, and bad quality of raw material). The strong position of local traders (changes) in the domestic raw material market has negatively influenced the operation of processing companies e.g. in the form of low quality of raw materials.

3.3.2. Procurement of hides/skins raw material

The livestock sector of Mongolia produces a volume of raw material, which exceeds the demand of domestic producers. Yet national producers have to compete with factories owned by Chinese nationals in the manufacturing of raw materials in order to sustain in the market. These foreign owned firms export all their output of semi-processed wet-blue leather to China and are not interested to expand value adding in Mongolia. This competition has a bad effect on national factories, which have recently started to recover from shock of transition economy, thus, have poor financial resources. Even though reasonable improvements have been seen as result of governmental policies aimed to support national producers, they are still far from utilizing their installed processing capacity levels.

The lack of a comprehensive system for the procurement of hides/skins has become one of the challenges facing the national factories. Today, the majority of national factories (42.9%) prepare the raw materials supplied by private sellers, some of them - from the representative for preparation of raw materials for hide and leather factories, directly from the markets of raw materials (23,8% each), some (9,5%) from the local representative hired by themselves.

Acquiring the raw materials through private sellers and markets has become a substantial factor in the rise of prices and poor quality of raw materials due to absence of standardized inspection and production.

Table 32. Sources of raw material supply of hides/skins at processing factories

Raw material suppliers	Share (%)
Get supply from changes	42.9
Preparation through agents registered at the Mongolian Association of Leather Industries (MALI)	23.8
Directly purchase from raw materials market	23.8
Has a representative in countryside	9.5
Total	100.0

Specialised agents and appointed countryside representatives for supply of raw materials work with factories fully based on a contract. This allows the qualitative preparation of raw materials. Buying the raw markets directly from markets and private sellers, even if it is based on a contract, may result in a poor quality despite fulfilment of formal requirements. According to the research, 66.7 % of factories operate based on contract ensuring the supply of raw materials, 9.5 % work without a contract, and 9,5 % carry out their business with their longstanding partner on a non-contractual basis.

Table 33. Modes of procurement of hides/skins by processing factories, in %.

	Shares (%)			
	contract	no contract	longstanding partner	no comment
Specialized representative MALI	100.0			
Raw material market	20.0	20.0		60.0
Changes	66.7	11.1	22.2	
Appointed representatives	100.0			
Total	66.7	9.5	9.5	14.3

Hides/skins processors face numerous challenges related to the current system of procurement. These challenges can be estimated according to their frequency. The most widespread ones are damages at the stage of slaughtering, asymmetry between price and quality, low quality of primary processing of raw materials.

Challenges in the purchasing of hides/skins, average percantage

Damages of hides/skins from slaughtering due to lack of standard procedures	36.4
Asymmetry between price and quality of hide and skins raw materials	33.3
The poor protection of the quality of raw materials in the countryside	15.2
Difficulties of collecting hide and skins raw materials	12.1
The lack of financial means for investment	3.0

The poor quality of hides/skins is directly related to livestock diseases, the structure of pasture, climate conditions, the ways of slaughtering, the storage and transportation of raw materials.

In order to eliminate challenges facing the purchasing of hide and skins, processors suggest first of all to attend to the issues related to treatment, storage and transportation of raw materials.

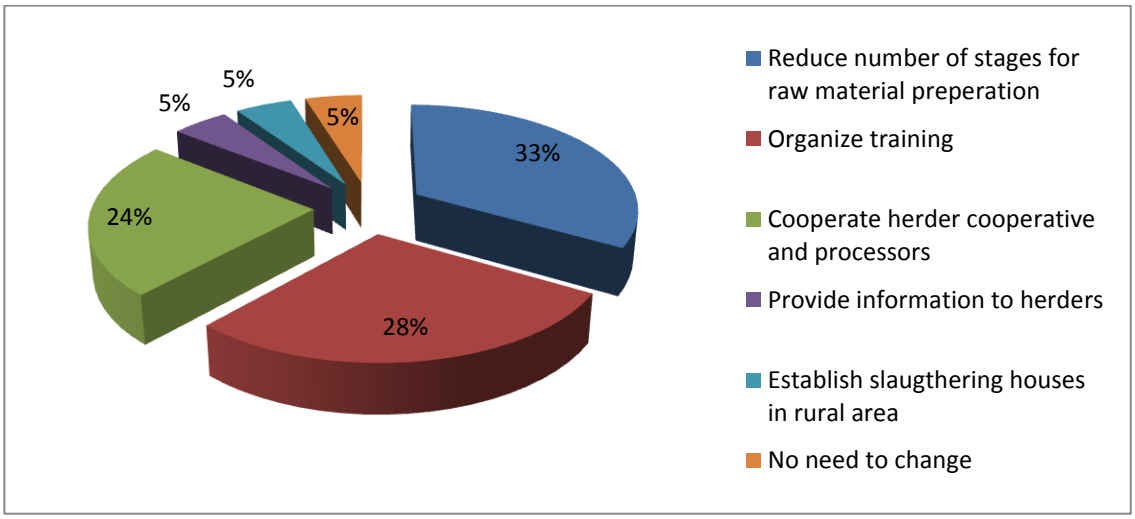
Table 34. Issues related to the preparation of hide and skins, in %

Issues	%
Incorrect preservation and storage	47.1
Treatment 24 hours after slaughtering	41.2
Carrying hide and skins raw materials in specialised vacuum vehicles	5.9
Elimination of conventional method of using table salt to protect the quality	5.9

The conventional method of hand slaughtering is the main issue affecting not only the quality of hides and skins, but also the quality and hygiene of meat and the use of other related products. Therefore, there is need for organising slaughtering in specialised premises according to centralised guidance and standards in the Aimags. By doing so, it prevents difficulties caused by damages of hides and skins as well as in the process of protecting the quality of hides and skins. Furthermore, such measuree will facilitate the export of meat from Mongolia.

Processors emphasise the importance of establishing a centre for treatment of raw materials (13.6%) and preparing raw materials in accordance with standards (86.4%) in the countryside area, in order to overcome challenges faced by the processors.

Figure 19. Opinion of processors for changing of preparation system, %



The current system for processing of skins and hide increases the prices of raw materials for factories and prevents the production of qualitative raw materials. In order to reform this system, the majority of respondents argued that the following actions must be taken:

- to eliminate unnecessary steps of processing raw materials (33.3%),
- to advance knowledge and skills of persons preparing raw materials (28, 6%),
- to enhance the collaboration between herder cooperatives and producers (23,8%),
- to inform herders and to establish specialized premises for slaughtering (5%).

Since this may become a better system of processing raw materials we have investigated the opinions of herders. 90.5 % of herders supports operating the processing of raw materials through herder cooperatives, while 9.5 % expressed their doubts.

On the question whether the herder cooperative should sign a contract on the supply of hides/skins, the survey shows that 76,2% of herders agree, 4,8% hesitate, and 4,8% don't know. Therefore it can be concluded that herders would prefer to have the supply of raw materials organized through the herder cooperatives.

3.3.3. Processing of raw material and types of products

In 2013, 32 hides/skins processing factories have produced products with estimated value of MNT 72.6 billions. From this 89.4 % or MNT 64.7 billion were initial stage processing while 10.6 % or MNT7.9 billion was deep processing.

In 2013, 4.2 million skins and hides were processed, which accounted for 40% of total available raw materials. The other 60% was directly exported as raw material. Compared to 2012 and 2011, the volume of processed skin and hide decreased by 1.4 million and 1.1 million, respectively. This shows that the processing stage faces difficulties.

Table 35. Main products of hides/skins processors

Types of raw material	Types of product	Number of producers	%
Hides	Wet blue	8	24.2
	Chrome	12	36.4
	Box calf	8	24.2
	Crust	5	15.2
	Total	33	100.0
Skins	Leather art	1	4.3
	Fine leather	3	13.0
	Wet blue	3	13.0
	Crust	1	4.3
	Goat skin	6	26.1
	Leather	7	30.4
	Sheep skin garment and shoes	2	8.7
	Total	23	100.0

Processing companies produce 4 types of products from hide and 7 types of products from skins. Overall 21 factories work in the following areas: 7 factories have hides/skins deep processing, 4 factories produce final products and 10 factories have equipment for semi-processing.

The processing companies produced wet blue from 57.4% of skins and 42.6 % of hides. They also produced leather: processed goat skin from 10.3 % and sheep skin garments from 29.4 % of prepared sheep and goat skins.

54.8% of sheep and goat skins and 3.5 % of hides were exported and main importers are China, Spain and Vietnam. In 2014, 93.1 % of prepared hides/skins of large cattle, and 41.5 % of small cattle were exported. The exported skins and hides were sold to China (86.2%), Italy (9.8%), Vietnam (2%), Korea (1.8%) and Japan (0.2%), while all raw hides/skins were exported to China (100%).

Challenges faced by processing factories, by importance

• The lack of diversified equipment causes one factory to do everything	2.1
• High maintenance cost	4.3
• Lack of capacity to produce final products	4.3
• Difficulty in improving its technologies and improving its equipment	4.3
• Too much bureaucracy	4.3
• Chinese traders control raw material market	6.4
• Lack of professional workforce	10.6
• High tax	14.9
• Expensive raw materials	14.9
• Lack of turn-over properties	17.0
• The low quality of raw materials	17.0

The factories consider that the low quality of raw materials, lack of turnover capital, expensive raw materials, high taxes, lack of professional workforce have negative impact on production activities. Because factories have to carry out all production lines themselves, it negatively influences productivity and profit. This requires that the sector needs to develop the factories into a clustering system.

The sale of semi-processed hides/skins products goes under semi processed materials for company production of final products. The factories participating in the study considered that there are demands of final products in Japan, semi-produced products in Italy, Spain and China, and both semi-processed and final products in Russia in case of foreign markets.

In case of domestic market, there is a high demand for semi-processed products, such as wet blue skin, box-calf, and chrome leather while demand for final products is relatively low.

Due to Foot and Mouth Disease (FMD) and other animal infectious diseases, the export of raw hides/skins was prohibited and because of it the share of raw skin and hide in Mongolian total export has decreased and export of semi-processed skins and hides has increased. On one hand, this looks as a positive indicator but on the other hand this causes potential harm to the environment due to low quality processing methods. Even though prices of skin and hide are unstable, Mongolia sells raw materials to China as main importer at prices 3 times lower than world's average. For example, the world's price for one ton of cow skin was USD 3275 while the export price was USD1125 per ton in 2013.

Table 36. Export price of processing companies, US dollar/piece*

		1995	2000	2005	2010	2011	2012	2013
Non processed	Hides of big animal	16.55	13.66	16.01	11.27	10.47	10.77	10.17
	Sheep skin	6.67	6.67	5.70	5.12	4.25	2.97	
Processed	Hides of big animal	220.9	54.1	68.5	39.0	50.7	43.5	40.6
	Sheep leather	47.3	11.6	14.7	8.4	10.9	9.3	8.7
	Goat leather	0.0	10.1	14.7	6.3	7.0	9.1	8.8

*Source: www. Ecustoms.mn

The challenges faced in the market of hides/skins are becoming visible at the stage of sales. Economic difficulties (28.6%), decreased consumers purchasing power (23.8%), unability to fulfill consumers quality requirements (19.0%), and semi-processed skin and hide imported without taxes (14.3%) have negative impacts on domestic sales of skins and hides products.

Table 37. Challenges in sales of products (percentage)

• Various domestic consumers' requirements	4.8
• Lack of experience in foreign markets	4.8
• Right Policy	4.8
• Processed skin and hide without import taxes	14.3
• The quality of products	19.0
• Economic difficulties	23.8
• Consumers purchase power rate is average	28.6

Domestically processed leather with no import taxation in the receiving country negatively challenges the competitiveness of national leather processing factories.

End producers have the following requirements to primary processors: Resilience of leather and quality of dyeing and odor.

Leather processing factories are competing to carry out primary processing for leather and skin collected by Chinese traders instead of improving the competitiveness of processed products. This again is negatively influencing the sector development.

Decision makers are talking about establishing a leather manufacturing industrial park in the last years but no tangible decision was taken so far. This creates quite an expectation for the leather processing factories and prevents them to invest in existing facilities.

3.4. Value chain for hides/skins

3.4.1. SWOT Analysis of the hides/skins sector

The hides/skins processing sector was one of the largest sectors of the Mongolian processing industry. However, due to privatization since 1990, the main base for raw materials and professional preparation workforce stopped operating; the closing of factories caused professional workers to move into

different sector of economy or transferred into non-official sector by making shoes, gloves, and leather jackets and all this caused a decrease in the sector's social and economic responsibilities. Starting from 2012, there was certain growth in the sector but its negative impact to ecology hasn't been decreasing.

As the first tool of analysis the results of the SWOT analysis for the hides/skins sector are presented. It contains the major potentials which are available and main issues which need to be overcome.

Table 38. SWOT Analysis of the hides/skins sector

Strengths	**Weaknesses**
• Enough resources of raw materials • Skins and hides processing factories received discounted loans, and renovated their technologies, • Initial stage of establishing a supply network has started, • Activities of professional associations becoming more effective	• No quality protection for skin and hide products • Not enough storage space in countryside • Low capacities of factories with deep processing • Low financial resources of cooperatives and representatives • The association doesn't advocate its operations and standards to herders, and weak cooperation • The association is less initiative when it comes to cooperation with animal preparation (processing) factories • Lack of professional workforce
Opportunities	**Threats**
• Reasonable premium system for herders for supplying skin and hide raw materials for national factories • Consumers thinking about supporting domestic production has increased • By receiving veterinary service, less damaged skin and hide will be prepared	• If the environmentally negative wet blue production is prohibited then all processing factories at that level are in risk of being suspended. • Coordination and unmonitored import of chemical materials conflicts with "Green Economy" policy of China, as main importer and market can be lost. • Lack of skin and hide hard waste processing factories, pollution caused to ecology by lack of capacity of cleaning facilities

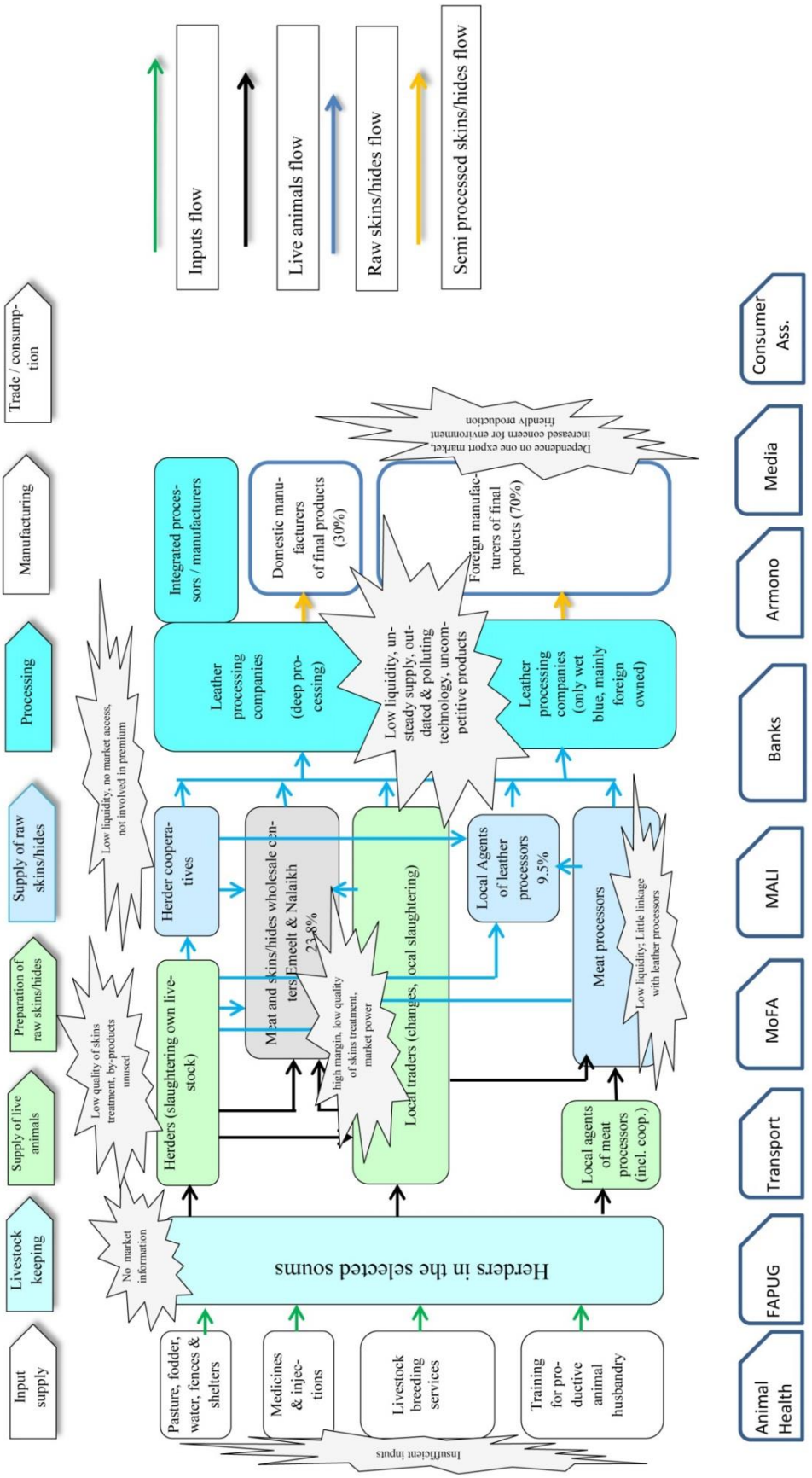
3.4.2. Mapping of the value chain for hides/skins and main issues

As the second tool the mapping of the value chain for hides/skins is presented. The following figure 17 is based on the result of the survey and presents all major actors in the value chain for skins and hides. It makes clear that there are four main channels, which connect the livestock of herders to the leather products made by the processors.

1. Herders partly slaughter animals themselves for their own household use and for sending meat to their relatives in Ulaanbaatar. They sell the skins and hides, which they get from slaughtering mainly to changes.
2. Changes which are active in the soums collect live animals mainly against cash payment from herders. They either sell the live animals to processors (especially processing entities working in the whole meat centers in Emeelt or Nalaikh) or they slaughter the animals in the soums through helpers. They sell the skins and hides to the processors.
3. As a consequence of the governmental premium system for skins and hides there are many agents in the aimags, who purchase skins and hides against cash payment from herders. The raw materials are then sold to the processors in UB.
4. Cooperatives of herders can obtain the status of an official buyer for skins and hides. This enables them to purchase the raw materials and sell it to the processors. This channel is hardly used so far as it demands direct linkages between cooperatives and processors. In addition, sufficient liquidity is required by processors so they can pay to cooperatives for the hides/skins received and cooperatives in turn can pay to the herders.

The map shows also the main problems and challenges of the hides/skins value chain. They occur where functions of the relevant value chain actors are not fulfilled effectively. In such cases markets do not function properly and the demand for raw materials especially from foreign countries creates different marketing channels, which are efficient but of low quality.

Figure 20. Value chain for hides/skins and main issues



As indicated in the above map (Figure 21) the hide/skins value chain faces the following challenges.

- Insufficient inputs to the livestock sector: In the value chain for hides/skins this concerns mainly the insufficient veterinary services, which leads to raw materials with skin errors caused directly by ecto parasites (such as ticks, flies, mites, lice, sheep keds) or indirectly by scratching due to pruritis.
- Technical inability of herders and little knowledge on raw material treatment: Herders are insufficiently qualified to slaughter animals in such a way that they do not damage the hides/skins (cuts). More damages are caused by wrong drying, stapling and storing of hides/skins through the herders.
- Technical inability of traders: Local traders (changes) in the soum have large quantities of animals slaughtered by local people. Here the same problems occur as in the case of slaughtering by herders due to the inadequate knowledge on primary quality treatment of raw materials.
- Limited capacity of cooperatives: Cooperatives in principle can perform the functions of official buyers of hides/skins. In doing so they help their members to obtain the premium for hides/skins which are delivered to domestic factories. However, cooperatives have insufficient liquidity to purchase large quantities of hides/skins or storage facilities to store it adequately. They are not able to exercise the necessary quality control and grading of the raw materials. Cooperatives also have weak connections to processing companies to sell the raw materials to them directly.
- Lack of interest to purchase from cooperatives: Due to the problems just mentioned processors are less interested to purchase hides/skins from cooperatives. They fear that the hides and skin processing factory standards are not met.
- Lack of capacity of processors for complete processing of skins and hides: The sector has capacity to semi-process skins and hides and make wet-blue, however, it lacks capacity to manufacture large amount of box-calf, chevrette, and other types of leather.
- Inability of manufacturers to produce final products (clothes, shoes, leather items): "Factories such "Gutal" Co.Ltd, "Mongol Savkhi", and "Sor" Co.Ltd are not working according to their specialized functions. Without producing final products, it will be impossible for the sector to sustain (small chance of sustainability). Many products are not competitive enough to be sold in the international market.
- Lack of skin and hide's solid waste processing factories: Without recycling the wastes, the ecological problems will not be solved.
- Weak collaboration with slaughter houses: There are over 100 slaughter houses in Mongolia, which process 25,000 tons of meat from 1.1 million heads of livestock. This is about 10% of the total number of slaughtered animals. However, skins/hides processing factories rarely collaborate with the meat processors to collect hides/skins from them due to the low quality standard of the raw material.. The slaughter houses sell the skins/hides to Chinese owned semi-processing plants in Ulaanbaatar, which have no regard for quality and export all their output to China.
- Limited financial resources of processors: Processing factories mainly source their financial resources from commercial banks. Their interest is high at up to 20% p.a. and loan period is short at 1 to 3 years only. This creates shortages in turnover. Initiatives are lacking to make investment creating shares at stock market. 3 factories are shareholding companies, 2 of them are partnerships and 16 of all factories involved in the survey are limited liability companies. Because of the finance shortage 40.4 % of all equipment used in leather processing sector is over 10 years old.
- Dependence on one export market: The processing factories are semi-processing skin and hide to be exported to China. This puts all factories in risk of full-stop, in case Chinese traders cancel their production orders. If the Chinese government decides to stop the import of raw or semi-processed skins and hides, Mongolian processing factories are without market.
- Changes in consumer policy: Development policies of China are becoming more and more focused on the "Green economy". There is in future the need to overcome the traditional wet

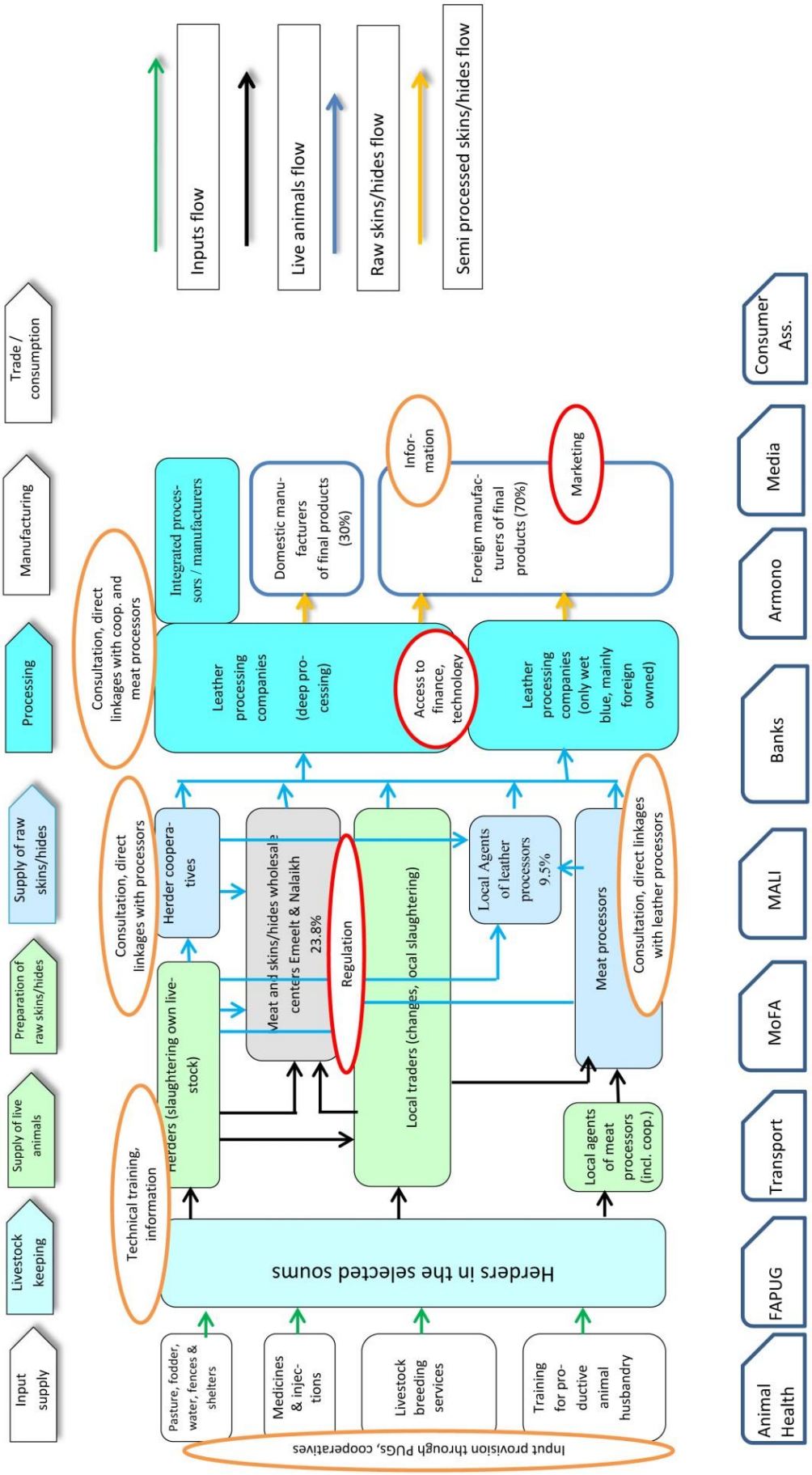
blue tanning technology due to increasing quality requirement in the export markets for environmentally friendly technologies.

3.4.3. Main intervention points for upgrading the hides/skins value chain

The main intervention points for the upgrading of the value chain of hides/skins can be summarized as follows. They are also contained in the value chain map in figure 18 (see following page).

1. The delivery of inputs to animal husbandry (e.g. veterinary services, pasture management) can be improved by involving groups and cooperatives of herders, which identify shortages, arrange services and monitor results. As regards the GG project the main actors here are the PUGs and the cooperatives. For example, cooperatives can conclude general service agreements with veterinarians to ensure the veterinary services for all animals which are owned by the members at required quality and at fair prices. Here the National Veterinary Center on Livestock Health can be a facilitator. Cooperatives can also engage in establishing nucleus herds for breeding of improved livestock. In order to achieve a more productive herd structure herders can be made aware of the benefits of consuming male stock at younger age.
2. Herders require technical training on improved slaughtering of animals without damaging the hides/skins. This also includes training on quality treatment of hides/skins as regards taking skin off, spreading, separating head and legs, drying, stapling, storage and transport. Herders also require training on the proper treatment of small animal intestines in order to use these by-products profitably. They must also be informed about the advantages to market hides/skins through their cooperatives to industrial processors.
3. In connection with the quality treatment of raw materials tests can be carried out to use silicate and other substances on preparation of skin instead of ordinary salt.
4. Cooperatives can play a much larger role in marketing hides/skins to the processors. In order to do so they need linkages with these companies, including visits on the spot between processors and cooperatives. In addition, the cooperatives require consultation to improve their management system so they can perform the tasks in hides/skins marketing. In addition, cooperatives require sufficient liquidity to make at least advance payments when they purchase hides/skins from their herder members. These funds could be provided by processors. Cooperatives can be supported to acquire storage space for hides/skins.
5. The processors require consultation on establishing direct linkages with herder cooperatives in order to ensure the steady supply with hides/skins according to their production plan. The collaboration of cooperatives with hides/skins processors can be actively promoted e.g. through matchmaking events, template for sales contracts. Further they need support in gaining access to external finance in order to prefinance the collection of hides/skins from herders. Advice is also required in improving the technical infrastructure and the quality of semi-processed and of finished products.
6. The export of hides/skins in at last semi-processed stage is an important source of foreign exchange for Mongolia. Indeed there is a vast market potential in China and other countries. In order to support exports information on market conditions in the relevant countries can be provided. Also support is required to actually help processors achieving sales contracts to foreign countries. This last aspect is task especially of the Ministry of Food and Agriculture and the Association of Leather Factories. Market research can also be conducted for intestines and other by-products. Such raw materials which have nearly no production costs can fetch attractive prices in the foreign markets.

Figure 21. Main intervention points for the upgrading the value chain of hides/skins



3.4.5. Strategy and action plan for upgrading the value chain for hides/skins

Measures to be implemented at all levels of the hides/skins value chain have been identified to solve the above issues which were identified in the analysis.

The following activities are proposed to be done during the project implementation period until end of 2016 in order solve problems at all levels of the value chain. Achieving effective results will increase raw material prices for herders and improve their income; will help processors to enjoy steady supply of hides/skins; will fulfil needs of the markets with high quality semi-processed and final products and will help to develop the hides/skins sector as a major potential of the Mongolian economy.

1. To inform all stakeholders on the results of the value chain analysis and to discuss with them on the upgrading strategy and agree on joint plan of action.
2. To qualify the herder organizations in the selected soums (i.e. cooperatives, PUGs) to improve the provision of inputs to the herders, e.g. by making contract agreements with veterinarians, establishing nucleus herds etc.
3. To conduct technical training for herders in the selected aimags and soums especially for hygienic slaughtering and skin/hide preparation, including taking skin off, spreading, separating head and legs, drying, stapling, storage and transport. Further on the proper treatment of small animal intestines. Herders must also be informed about the advantages to market hides/skins through their cooperatives to industrial processors.
4. To consult primary and secondary cooperatives on the marketing of hides/skins including management, rights and duties of members, market information etc. To develop a business plan for cooperatives for selling hides/skins and to implement it by identifying supply capacity in the selected aimags and soums and by establishing sales contracts with appropriate processing companies. In addition more storafe facilities for hides/skins can be supported,
5. To consult the hides/skins processors on improved ways to ensure a steady supply of hides/skins through direct linkages with cooperatives, on improving their equipment and the product quality and on accessing external finance.
6. To consult the MFA and the Leather Industry Association with a view to analyse the legal environment of the hides/skins sector and to develop a proposal for changes and to addressing the organizations concerned with implementation. This refers especially to the regulations concerning premium payments for hides/skins and the regulation of local traders of hides/skins.
7. To help the actors solving issues of exporting semi-processed and finished products by providing information on market and trade opportunities as well as regulations for exporting to China and to selected overseas markets.
8. To support the establishment of an intestines processing unit at Tariat Soum herder cooperative in Arkhangai Aimag.
9. To consult the appropriate facilitating organizations such as MFA, Leather Industry Association, Institutes, banks etc. on improving their contributions to the value chain for hides/skins.

Proposed action plan for upgrading the value chain for hides/skins

In the following a first version of the action plan is presented, by which the above strategy can be implemented through the project and its partners, as well as by other stakeholdes and facilitators of the value chain for hides/skins.

Table 39. Action Plan for upgrading of the value chain for hides/skins

№	Objective	Activities	Methods	Implementer
1	To obtain hides/skins raw materials with less skin errors and treatment damages	To prepare handbook on quality hides/skins treatment. To organize training for herders (members of cooperatives) on requirements and standards of processors.	Conduct trainings for herders and cooperatives jointly with representatives of processors.	Leather Association, processors, cooperatives, GG C4

		To make animals healthy, to cover more animals with veterinary services	Support agreements between veterinarians and herder cooperatives.	MFA, local veterinary and breeding departments, herder cooperatives.
2	To ensure the reliable and supply of hides/skins to processors	To introduce cooperative members and representatives to the processors, to support direct agreements between cooperatives and processors.	Match making, visits, contract template	Cooperatives, processors, Leather Association, project unit
3	To expand the domestic market for semi-processed products and final products	The processing factories / manufacturers introduce their products to local citizens	To support presentations at exhibitions	Leather Association, project unit
4	To explore the international market for semi-processed products and final products	The processing factories / manufacturers identify market potential abroad.	To support the provision of information on international market potentials and requirements.	Leather Association, project unit
5	To utilize the potentials of by-products (especially intestines).	The herder cooperative in Tariat Soum is able to process and sell by products (especially intestines) to domestic buyers.	To support the establishment of an intestines processing plant at Tariat Herder Cooperative in cooperation with the selected buyer.	Tariat Cooperative, selected domestic buyer, project unit.

ANNEXES

Annex 1: Questionnaire for herders

Thank you for sharing your valuable information with our research team. We will use your information only for the study purpose and would like to confirm that your individual information is not transmitted further to any other party.

1. Reference

Number of questionnaire:	
Name of researcher taken questionnaire:	
Date	

2. General information

No	Question	Answer	Code	Step
2.1	Aimag			
2.2	Soum			
2.3	Bag			
2.4	Phone number			
2.5	Sex	Male	1	
		Female	2	
2.6	Age of the herder			
2.7	Education of herder	High	1	
		Special secondary	2	
		Technical vocational	3	
		Complete secondary	4	
		Secondary	5	
		Primary	6	
		No education	7	
2.8	Number of family member			
2.9	Location of winter camp	Until to soum center ….. km		
		Until to aimag center … km		
2.10	Do you have membership in cooperative	Yes		
		No		
2.11	Do you have membership in PUG?	Yes		
		No		
2.12	Total number of livestock 2013			

3. Sales of live animal, meat and skin

	Number of livestock at beginning of 2014	Number of animals sold in 2014			Number of sold skin and hides
		Sold in live	Sold like meat	Used in family need	
Camel					
Horse					
Cattle					
Sheep					
Goat					

4. Main sales channels of meat, skin and small intestines

	Please mark **√ main sales channel**					
	Processor	Change	In aimag and soum center	Thought the cooperative	Thought the PUG	Other please write name

			by yourself			
Live animal						
Camel						
Horse						
Cattle						
Sheep						
Goat						
Meat						
Camel						
Horse						
Cattle						
Sheep						
Goat						
Skin						
Small intes-tines						

5. Sales of by products

	Sale		If yes please mark with **√** main channel				
	Yes	No	Processor	Change	In aimag and soum center by yourself	Through the coop-erative	Unit price, MNT
Intestines							
Fat							
Eyes of cattle							
Pancreas							

6. Opinion of sales

6.1	Which percentage of your total in-come from livestock you get from meat?	Up to 25 percent	1	
		25 to 50 percent	2	
		51 to 75 percent	3	
		more than 75 percent	4	
6.2	Did you enough sales of meat in 2014?	Yes	1	
		No	2	
6.3	If no which challenges faced?	Didn't find buyer	a	
		Didn't agree on price	b	
		Can't reach to market	c	
		Other.....	d	
6.4	If there is haven't any challeng-es how many animals you plan-ning to sale? /Please write number of animals can't sell due to challenges/	Camel	.....	
		Horse	.....	
		Cattle	.....	
		Sheep	.....	
		Goat	.....	
6.5	When you are interesting to sale your live animal?	Summer	a	
		Autumn	b	
		Winter	c	
		Spring	d	
6.6	When you are interesting to sale slaughtered meat?	Summer	a	
		Autumn	b	
		Winter	c	
		Spring	d	
6.5	Which things need to do for	Improve quality of animal	a	

	improving sales of live animal and meat from herders?	Increase number of livestock	b	
		Connect to buyers	c	
		Find constant buyers	d	
		Improve animal health	e	
		Strengthen a cooperative	f	
		Other.....	g	
6.6	Which support need to herders for improving sales of live animal and meat?	Establish secondary cooperative or slaughtering house in soum level	a	
		Capacity building of old cooperatives	b	
		Sale animals in cash	c	
		Get advance payment for meat preparation	d	
		Establish intensive system for meat sale	e	
		Support from aimag soum administration	f	
		Other	G	

7. Partnership herders and coops, coop and processor

7.1	How often your family working with herder cooperative?	Often	1	
		Sometimes	2	
		Without cooperation	3	
7.2	If working with cooperative, which activities are you participating?	Composing a share capital	a	
		Sales of wool and cashmere	b	
		Sales of meat and live animal	c	
		Processing livestock products	d	
		Protecting and using pasture	e	
		Other	f	
7.3	Is it possible to organize sales of live animal and meat through cooperative	Yes	1	→7.4
		No	2	→7.5
7.4	If yes, which conditions more selectable?	Give animals without advance payment to cooperative and get payment after sale	a	
		Get advance payment up to 30 % and then get remaining payment after sale	b	
		With condition of getting share in processors and give animal without advance payment or less advance payment	c	
7.5	If not which reason?	I personally don't believe to managers of coop	a	
		Cooperative haven't finance capacity	b	
		I can sale meat without coop	c	
		Without advance payment I will not sale animal	d	
7.6	What do you think should be done to improve the cooperation between herders and manufacturers?	make contract and distribute advance payment	a	
		to get introduced to manufactures and products	b	
		processors should request their needs beforehand	c	
		offer cost incentives that correspond to the quality	d	
		Other action.....	e	
7.7	Do you have any contract to supply meat with any organization an individual person?	Yes	1	→7.8
		No	2	
7.8	If yes with whom contracted?	Coop /name/.....	a	
		Processor /name/.....	b	
		Change /name/.....	c	
		Other /name/.....	d	
7.9	What is the benefit for you from	I can sell what I planned	a	
		I am sure about the sales price	b	

	having a supply contract?	I can get advance payment when it is required	c	
		I have good relationship with processors	d	
		Other	e	
		There is no benefit	f	

8. Training needs for herders

8.1	Have you ever received a training concerning meat and skin preparation?	Yes	1	
		No	2	
8.2	If yes, which the training was involved?	Standardization of meat preparation	a	
		Quality training of meat and by product	b	
		Conduct business agreement	c	
		Other	d	
8.3	Is training on preparation and quality of meat and by product interesting for you or your family members?	yes	1	→8.4
		No	2	
8.4	If yes which training is more important? /please select 3 main subjects/	Animal breeding and quality of meat	a	
		Preparation and store of meat	b	
		Preparation of skin	c	
		Contract and legal issues	d	
		Marketing	e	
		Capacity building of coop and PUG	f	
8.5	Which training method is more convenient to you?	Provide handouts	a	
		Practical training	b	
		Demo training	c	
			d	

9. Do you know good examples in your soums with regard to sales of live animal, meat, skin and by-products ……
.....
.....

10. Do you have any other opinion with regards to actions from soum and aimag administration?
.....
.....
.....,,,...

Thank you for your participation!

Annex 2. Required information from other stakeholders in the meat value chain

1. Herder cooperative (sample questions):

Name and address of cooperative	
Name and phone number of cooperative manager	
Fixed assets, million MNT	
Current assets, million MNT	
Number of cooperative member	
Interest of supply live animal and meat with cooperation of GG	
Did cooperative find buyer/ partner processing company and supply contract issues	
If find buyer do they provide advance payment	
If not find is there have any hope to find buyer?	
If not find buyer which plan have for sales of live animal, meat?	
The cooperative can give advance payment using your financial possibility and make some project from meat sales?	
Member herders agree to sale animal to cooperatives without advance payment and get payment after sale?	
How many member herders will be agreeing on this condition?	
How many animals can collect on this condition?	

2. Local meat processing company:

Name of processor and address	
Name and phone number of manager	
Number of employers	
Main activity of processors	
Production capacity	

Using production capacity by percentage?						
Reasons of unused production capacity:						
Method and location of meat supply						
Which condition and from whom processors get meat?						
Which season/month preparing meat?						
Which animal and meat mainly preparing?						
Do you have constant suppliers and have contract with them?						
If you not find supplier, do you have any plan?						
Do you have possibilities to give advance payment to herders and operating processing?						
If buy animals by own money/asset or bank credit your company can make profit?						
How did you evaluate possibilities of supply live animal and meat from herder coop?						
In your opinion did herders can trust to coop?						
If herder coop suggest you supply of live animal and meat, do you ready to contract with them?						
Where your company sale skin and by products?	Skin and small intestines					
	By product					
	.....					
Which price you sold in 2014? MNT	Cattle and horse hide	Skin of sheep	Skin of goat	Small intestines	.....	

3. Local organizations/customers in soums

Name of organization (kindergarten, secondary school, restaurant etc) and address	
Name and phone number of manager	
Number of employers	
Main activities	
Annual need of meat	
Where did you prepare meat and how?	
Which condition and from whom processors get meat?	

Which season/month preparing meat?						
Do you have constant suppliers and have contract with them?						
If you not find supplier, do you have any plan?						
How did you evaluate possibilities of supply live animal and meat from herder coop?						
In your opinion did herders can trust to coop?						
If herder coop suggest you supply of live animal and meat, do you ready to contract with them?						
Where your company sale skin and by products?	Skin and small intestines					
	By product					
	.....					
Which price you sold in 2014? MNT	Cattle and horse hide	Skin of sheep	Skin of goat	Small intes-tines	.....	

Annex 3. Number of herder households covered by the study

Aimags and soums	Number of herder households	By number of livestock			
		Up to 100	101-200	201-500	Above 501
Total in Zavkhan	**199**	**56**	**43**	**70**	**30**
Ikh -uul	33	10	5	13	5
Tosontsengel	34	8	7	14	5
Bayantes	32	8	7	12	5
Tudevtei	37	11	9	11	6
Tsetsen-uul	30	10	7	9	4
Otgon	32	9	8	11	5
Total in Arkhangai	**110**	**39**	**30**	**30**	**11**
Ikhtamir	31	13	9	8	2
Chuluut	24	9	6	7	2
Tariat	24	6	8	7	3
Undur-Ulaan	30	11	7	8	4
Total	**309**	**95**	**73**	**100**	**41**

Annex 4. Meat processing companies in Mongolia

No.	Location		Name of the plants	Currently operating /+/
	Regions	Aimags		
1	Western	Uvs	Mon tuva	+
2			Bum nomin	+
3			Uvs makh market	
4		Bayan-Ulzii	Ettransit	+
5			Zermet	
6			Bayan-Ulzii makh market	
7			It impex	
8			Azik	
9			Riskent	
10			Xazna	
11		Khovd	Baruun mongol international	
12			Memo Mongolia	
13			ATABABA	
14		Zavkhan	Zavkhan huns	+
15			EDGS	+
16			Zavkhan makh market	
17			Tes shim cooperative	+
18	Khangai	Orkhon	Erdmiit	+
19			Mon gema	+
20			Erdenet makh market	+
21		Arkhangai	Khangain huns	+
22		Khuvsgul	Khuvsgul makh market	
23		Uvurkhangai	Uvurkhangai makh market	
24		Bulgan	Bulgan makh market	
25	Central	UB	Makh market	+
26			Makh impex	+
27			Mongol makh expo	+
28			Bagakhangain makh	
29			Baganuur makh	
30			Sayan-Uul	+
31			Mongol eco makh	+
32			EMF	+
33			Mista	
34		Darkhan	Darkhan meat expo	+
35			Darkhan makh expo	
36		Selenge	Selenge makh market	
37			Gachuurt makh	+
38		Tuv	Erdene huns	
39	**Eastern**	Dornod	Dornod makh market	
40		Hentii	Makh export	
41			Eviin khuch	
42		Sukhbaatar	Sukhbaatar makh market	
43			Nemer ikh	
Total			**43**	**20**

Annex 5. Production lines and equipment of surveyed meat processing plants

№	Name	Arkhangai		Zavkhan		Aimags with brokers	Technology		Equipment
		Large live-stock	Small live-stock	Large live-stock	Small live-stock		Rus-sian	Ger-man	
1	Erdenet makh market	+	+	+	+	+ 11 aimags	+		Japan, China, Korea
2	Mon gema	+	+	+	+	+ 7 aimags	+	+	Germany
3	Erdmiit	+	+	+	+	+	+		China, Rus-sian, Japan, Korean
4	Makh Impex					+	+	+	Germany Russia
5	Darkhan meat foods	+	+	+	+	+	+		Russia
6	Mongolian expo	+	+	+	+	+ 7 aimags		+	Germany EU
7	Makh market	+	+	+	+	+ 9 aimags	+		Japan, Chi-nese, Russia, Korea
8	Sayan-Uul	+	+			+	+		Russia