Community Action in Integrated and Market Oriented Feed-Livestock Production in Central and South Asia Project

First Technical Report (Draft) on Theme 1 Socioeconomics

for the period from 1 June 2006 to 31 December 2007

Methodology

Research team selectively analyzed livelihoods and market access of population. Researchers used a Rapid Rural Appraisal (RRA) for collecting the baseline information on major livelihood strategies of rural residents. The RRA method was also used to find out other socioeconomic indicators including assets' distribution, marketing constraints, demography, and employment, (Aw-Hassan et al., 2003). Data on assets' distribution was further used to break the households into groups and rank them according to their welfare (La Rovere et al., 2006). Group discussions were used for conducting a Participatory Poverty Assessment (PPA) to determine the poverty criteria as perceived by the community and to link them to the livestock flocks and other assets of smallholders (Salmen, 1995).

In Kazakhstan, 150 households of Akdala village participated in the preliminary survey. In Kyrgyzstan, 100 households in Ak-Beket village shared their views on livelihoods and livestock production practices. More than 50 informants including householders, producers, processors, sellers, middlemen (procurers), and buyers of the angora mohair were interviewed in Sogd province by the project team located in Khujand.

Kazakhstan - Shymkent

Activity 1. Analysis of rural livelihoods in Kazakhstan

Collaborators: Principal Investigator, Dr. N. Alibaev; Head of the Chair of Economics and Accounting at International Kazakh-Turkish University after Yassavy, Uskenov M., students: Abulgaziev S., Kanseitov R., Toyshibekova G.

Rural livelihoods were analyzed on the project site, Akdala village in Arys district of the Southern-Kazakhstan province located at 9 km from the district center, Arys town, and 90 km from the province center, Shymkent city.

Population of the village is 4,776 people constituting 462 households that own the majority of livestock, although each household has a small number of animals. There are 712 families in the village that own 2,270 heads of cattle, 40,827 sheep, 568 horses, 294 camels, and 9,530 chickens.

Land area of the village is 133,760 ha including 90,800 ha of agricultural lands. Rangelands occupy the largest area of 76,800 ha, the area of hayfields forms 3,000 ha, and 3,000 ha are used for cultivation of forage crops, while the area under other crops is 8,000 ha.

Climate is harsh and continental with a relatively soft and short winter and long and hot summer.

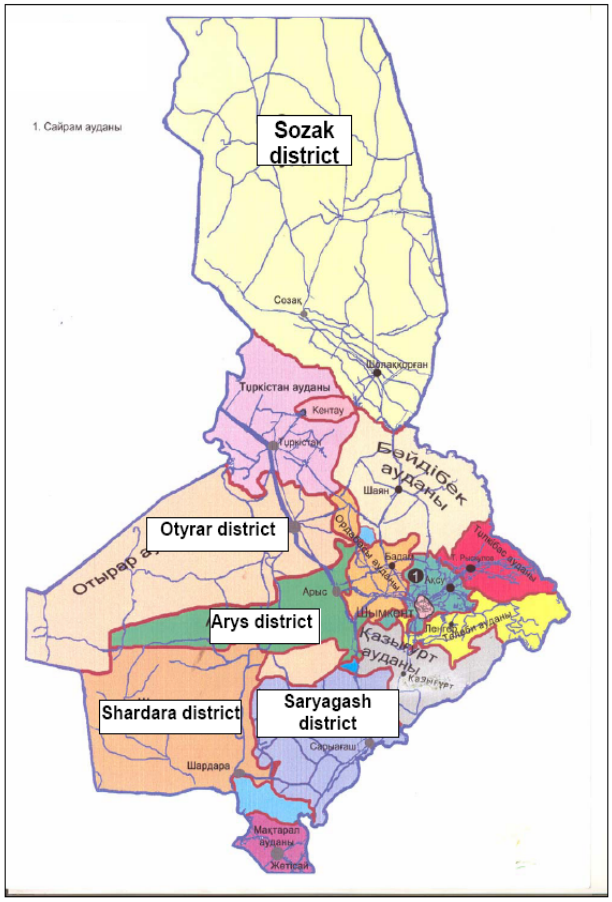
Crops are typical for semi-desert steppes. Ephemers are the major components of the grass cover including desert sedge, bulbous bluegrass (Poa bulbosa), and others that are a good forage in both fresh and dry forms throughout a year, especially well consumed by sheep. Grass cover remains green for not more than 50-60 days. The dominating crops include wormwood (Artemisia) – a shrub consumed by sheep throughout a year except hot summer period, and (Alhagi camelorum) camel's-thorn. Yield of these rangelands forms 400 kg/ha.

Water is pumped out by pumps from wells and partly taken from Arys and Syrdarya rivers. Major water source for cattle are mines with a depth of 5 – 56 m. Water in these mines varies from low saline to bitter.

This village can be reached from Shymkent by a paved road and by railway. Farmers are connected by dirt roads that are difficult to use in winter and spring. The village and the above mentioned cities are connected by paved roads.

In Akdala village, there is a secondary school and a hospital for 20-30 people. Akdala village as a rural district consisting of the central farm "Akdala", farm no. 2, farm no. 4, Ontam, Tokarkol, and Togayly. The closest main city is Arys, railway junction with the population of 45 thousand people. And about 700 thousand people live in Shymkent city.

Map 1. South Kazakhstan Province



Map 2. Project site

In February 2007 collaborators including students were trained on socioeconomic research methods. Numerators (conducting the preliminary survey) were trained on collection of the socioeconomic data.

Rapid Rural Assessment (RRA) was conducted in May 2007 to obtain information on livelihoods. It was found out that rural residents get their main income from production of livestock that is sold at local level – in the village or animal markets located in Arys and Shymkent cities.

Preliminary survey of 100 households in Akdala village owning 10 and more sheep was conducted to identify the types and quantity of available livestock. On these 100 households, there are 28,216 sheep including 15,574 karakul sheep and 12,642 fat-tail sheep; 1,342 heads of cattle including 510 cows; and 137 horses including 34 mares. At the same time there are households with no livestock that depend mainly on subsistence crop production and social allowances. Primary observations show that about 30% of HHs have no livestock or keep only 1-2 sheep.

Table 1. People's perceived indicators of poverty in Akdala village, Arys district

Capital	Very poor	Poor	Moderately well-off	Well-off
Natural	from 0 to 5 sheep, usually has homestead land plot	from 5 to 50 sheep, 0.03-0.05 ha of land	from 50 to 100 sheep, 1-3 ha of land	100 and more sheep, over 3 ha of land
Human	Secondary or incomplete secondary education	Secondary education, special secondary education, incomplete higher education	Higher or secondary education	Higher education
Financial	No cash	Regularly short of cash	Has sufficient cash	Has enough money
Physical	Home appliances (refrigerator, TV set)	Cart, motorcycle, bicycle	Car, truck or tractor	Tractors, different equipment, trucks and cars

Activity 2. Evaluation of the technological options on rural livelihoods in Kazakhstan

Collaborators: Principal Investigator, Dr. N. Alibaev; Head of the Chair of Economics and Accounting at International Kazakh-Turkish University after Yassavy, Uskenov M., students: Abulgaziev S., Kanseitov R., Toyshibekova G.

In general, from February to May 2007 all sheep were kept in winter stalls. Forage for winter period is prepared in spring and summer on natural hayfields. Concentrated feed is bought at markets. If there is no opportunity for a householder to prepare forage for winter, during the forage preparation period an average household purchases 20 kg of natural hay for 85 Kazakh Tenge (KZT) per kg, and 20 kg of alfalfa hay for 100 KZT/kg. In winter period, the price for these forages increased by 2-3 times.

Main period for selling of animals for meat is August, September, and October. Lambs are mainly sold after weaning at a 4-4.5 month age. Mating of sheep occurs in October and November, and ewes are rarely sold for meat as they are used for reproduction.

There is a horizontal organization between households in Akdala village. This includes formation of joint flocks for grazing and pooling of animals for selling at the market to minimize transportation costs.

Dairy cattle are mainly kept for provision of milk for family members. Horses are kept to meet the need of the family in a horse meat as a national product of Kazakhs. Some householders fatten horses and then sell them at markets.

In Akdala village, 462 households keep sheep, cattle, and horses. The majority of rural residents are involved in production of 2 sheep breeds: Karakul and the Kazakh fat-tailed. Cattle of local breed and crossbred of different generations with the bulls of the Kazakh white head breed used only for meat production. There are also crossbred black-and-white dairy breed with very low milk productivity within 1,800-2,000 liters during lactation. Horses of the Kazakh Zhabe breed are kept for meat production.

Major technological processes applied in households can be described as follows:

January, February – wintering of animals (usually animals are kept in sheep-folds and grazed on local rangelands, if the weather is appropriate);

March, April – lambing of animals;

May – spring grazing of animals (shearing of sheep);

June -July – summer grazing of sheep;

August – summer grazing of sheep (weaning of lambs from ewes);

September – fall grazing of sheep;

October – fall grazing of sheep (mating of sheep);

November, December – wintering of animals.

Researchers identified the following 4 livestock production systems applied in households of Akdala village:

System 1 – in the morning animals graze on local rangelands near the village and in the evening they return to the village. In this system, smallholders form several groups to pool their animals into the larger flocks. Each group member then grazes the joint flock (*tabun*) on a rotational basis;

System 2 – in this system, animals are also sent to local ranges in the morning, and in the evening the flock returns to the village. The difference is that smallholders hire a shepherd who regularly grazes their animals. In average householders pay to shepherd 70 KZT per sheep a month, and 150 KZT for each cow;

System 3 – animals graze on local ranges from spring to fall, and in winter period each HH take their animals to keep them in stalls;

System 4 – animals graze on the remote rangeland with the corresponding infrastructure: sheep-fold, etc.

Analysis of different livestock production technologies shows that utilization of a certain technology depends on welfare of rural people.

Livestock production constraints mainly include lack of forage for a winter period as well as high prices for feed and forage. Households also specified lack of funds for development of production, increasing prices for production inputs (materials and fuel) as major impeding factors.

Farm "Kasimbay" and households "Abdukarim K.", "Ergesh", and "Andas" were selected for analysis of the livestock production in households.

Calculations show that 3,612 KZT are required for keeping of one sheep in winter period (120 days) (see Table 2). Costs for keeping of one head of cattle form 17,640 KZT, and 28,440 KZT per horse.

The most optimal is fattening of fat-tailed sheep in winter period. Costs of fattening of a 40 kg lamb form 3,612 KZT. At the end of the fattening period the live weight of this sheep will be about 75 kg. After slaughtering a farmer can get 41 kg of meat. Price per kg of meat is 550 KZT. The total income producer gets will be 22,550 KZT. Live weight gain of 25 kg for a fattening period means additional 13.7 kg of meat, if converted into meat. This gives an income equal to 7,535 KZT. The net profit forms 3,923 KZT.

Table 2. – Cost of forage / feed per head of animal in winter period

#	Animal type	Name of forage / feed	Daily norm per head (kg/day)	No. of feeding days	Feed for 120 days, kg	Cost of 1 kg of forage / feed, KZT	Total cost, KZT
1	Sheep	Forage	2.5	120	300	9	2,700
		Concentr. feed	0.4	120	48	19	912
2	Cattle	Forage	10	120	1,200	9	10,800
		Concentr. feed	3.0	120	360	19	6,840
3	Horses	Forage	20	120	2,400	9	21,600
		Concentr. feed	3.0	120	360	19	6,840

Activity 3. Analysis of lamb markets and farmers market access in Kazakhstan (Lambs)

Collaborators: Principal Investigator, Dr. N. Alibaev; Head of the Chair of Economics and Accounting at International Kazakh-Turkish University after Yassavy, Uskenov M., students: Abulgaziev S., Kanseitov R., Toyshibekova G.

Householders get their main income from livestock production. They sell live animals or carcasses, and big animals (cattle and horses) are usually slaughtered and cut into several parts (*zhilik* cut) so that each household could get its share.

Prices for meat are based on supply and demand. Depending on its gender, age, and health condition, livestock is sold at different prices and through different channels:

Channel I – selling to middlemen occurs at a farm gate;

Channel II – producers themselves sell their animals at markets;

Channel III – selling of livestock to processing enterprises.

Rural residents sell their animals in the village or at the major animal markets in Arys and Shymkent cities. Arys market located at about 100 km from Shymkent city; Jyldyz market located at the border of Shymkent city; and Shymkent market located in the city. Jyldyz market is open only on Wednesdays early in the morning, while both Arys and Shymkent markets operate only on Sundays.

The business volume of the Jyldyz market is 300-500 sheep depending on the season. About 5 middlemen operate at this market. Seller has to pay 150 KZT for each sheep he sold.

At the lamb market located in Arys town about 1,000 sheep are sold every Sunday, and there are 5-7 middlemen at this market. The market fee of 200 KZT is charged per sheep sold, and no fee should be paid, if animals are not sold.

Lamb market in Shymkent is the biggest, its daily business volume forms 1,500 sheep, and up to 10 middlemen work there. The market fee at this market is 300 KZT per sheep sold.

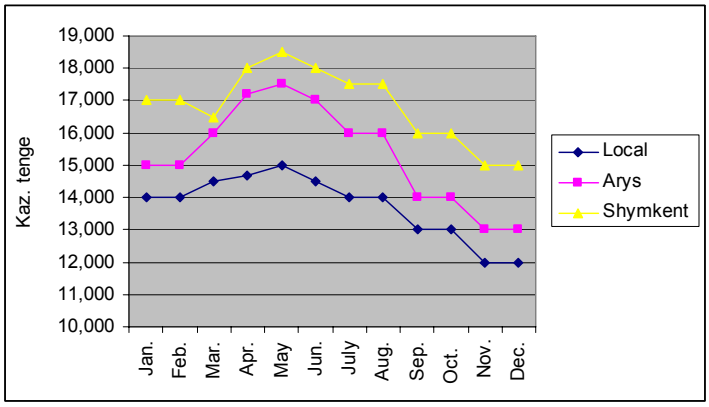
Except animal markets there are also fatteners who can always sell fattened lambs throughout a day right from their houses located in Shymkent city. Usually there are several houses in a row practicing selling of fattened lambs. Weekly business volume of each fattener is 30-40 lambs. Between producers and buyers the deal is mainly undertaken on the spot. Prices at the market and meat shops and stalls are the source of the market information for the smallholders.

Based on observations and interviews with informants it can be concluded that fatteners located in Shymkent city benefit from lamb sales for six days a week, except Sunday, when the lamb markets are open (see Table 4). Their advantages are the location, i.e. proximity to the richest consumers, readiness to sell animals for 24 hours a day, and a good quality of lambs being sold.

Meat prices recorded in July 2007 in Akdala village by animal types were as follows: mutton – 450 –500 KZT/kg, beaf – 350 – 400 KZT/kg, and horse meat – 400 – 450 KZT/kg. In Arys city, price per kg of meat formed: mutton – 450 – 500 KZT, beaf – 380 – 420 KZT, horse meat – 470–520 KZT. In Shymkent city, meat prices were 550–580 KZT, 450 – 480 KZT, and 550 – 570 KZT, accordingly.

Data on lamb prices at the livestock markets were collected for 2007 (Table 3). Prices for a fattened adult ram are indicated on Diagram 1. Sheep prices gradually increased in average by 15% from January to May 2007. Then, due to the supply of the newly born lambs, prices started to decrease. In September, the price decline continued because of the inflow of the culled animals to the livestock markets.

Diagram 1. Price of the fattened ram at livestock markets in 2007

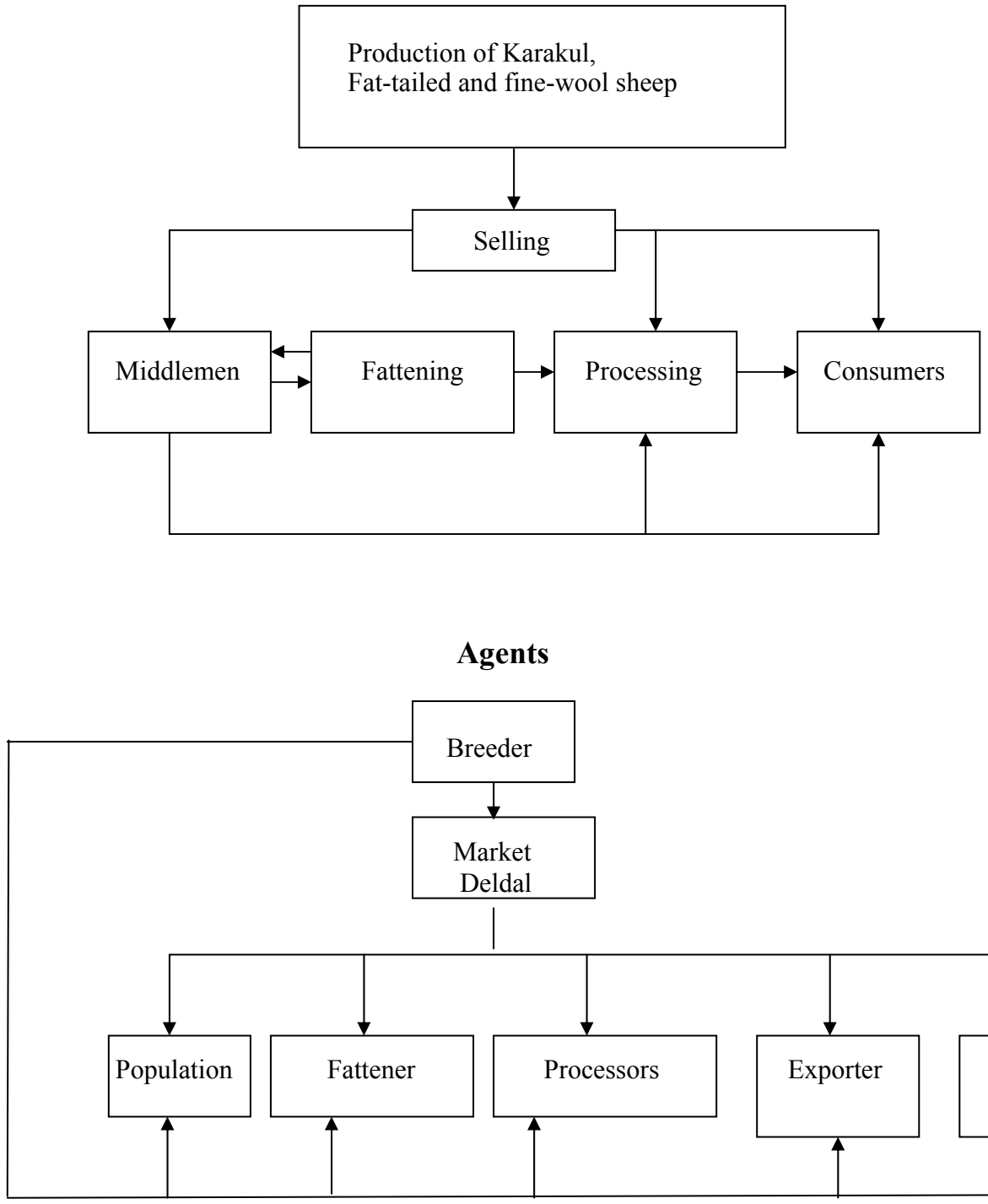


Lamb price depends on breed, age, sex, fatness, development, and health. The lamb price analysis considering the mentioned factors is planned to be conducted in 2008.

Table 3. Average monthly prices of animals at lamb markets in 2007 (in KZT per head)

Months	Markets	Sheep			
		Mature animals		Young animals	
		Fat-tailed	Karakul	Fat-tailed	Karakul
January	Local	14,000	8,000	6,000	4,000
	Arys	15,000	9,000	7,500	4,500
	Shymkent	17,000	10,000	8,500	4,800
February	Local	14,000	7,500	5,800	4,000
	Arys	15,000	8,500	7,000	4,300
	Shymkent	17,000	9,000	8,500	4,600
March	Local	14,500	8,200	6,200	4,500
	Arys	16,000	8,800	7,500	4,800
	Shymkent	16,500	9,700	9,000	5,200
April	Local	14,700	8,600	6,500	4,800
	Arys	17,200	9,200	8,000	5,200
	Shymkent	18,000	9,900	8,500	5,600
May	Local	15,000	9,000	6,800	5,000
	Arys	17,500	9,500	8,500	5,800
	Shymkent	18,500	10,000	9,000	6,500
June	Local	14,500	8,500	6,500	4,500
	Arys	17,000	9,500	7,500	5,000
	Shymkent	18,000	9,800	8,500	6,000
July	Local	14,000	8,000	6,000	4,000
	Arys	16,000	9,000	7,000	4,600
	Shymkent	17,500	10,000	8,000	5,500
August	Local	14,000	8,000	6,000	4,000
	Arys	16,000	9,000	7,000	4,600
	Shymkent	17,500	10,000	8,000	5,500
September	Local	13,000	7,500	6,000	4,000
	Arys	14,000	8,500	7,000	4,500
	Shymkent	16,000	9,500	8,000	5,500
October	Local	13,000	7,500	6,000	4,000
	Arys	14,000	8,500	7,000	4,500
	Shymkent	16,000	9,500	8,000	5,500
November	Local	12,000	7,000	5,500	3,500
	Arys	13,000	8,000	6,500	3,500
	Shymkent	15,000	9,000	7,500	4,000
December	Local	12,000	7,000	5,500	3,500
	Arys	13,000	8,000	6,500	3,500
	Shymkent	15,000	9,000	7,500	4,000

Figure 1. Sheep market value chain of the Southern Kazakhstan province



Break-up of the retail meat price of the fattened lambs along the marketing chain (Table 4) shows that the share of the value added in the retail price forms 52.3% for a producer, 6.5% for a trader, 27.4% for a fattener, 3.2% for a 2nd trader, and 10.6% for a butcher (Diagram 2).

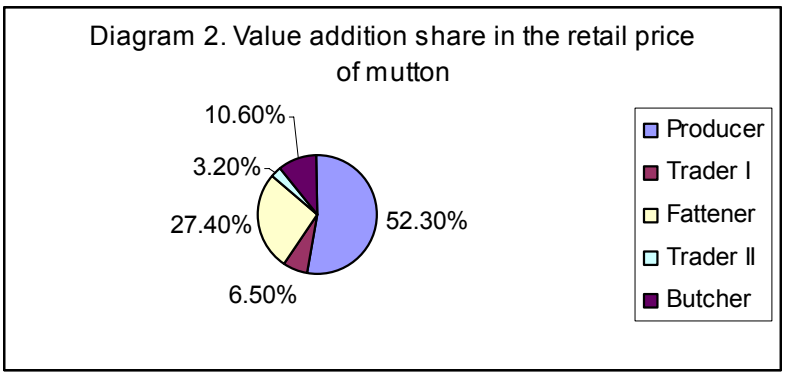


Table 4. Decomposition of fattened lamb retail value along the marketing chain

Agent	Item	KZT / head
Breeder	1. Transportation cost	100
	2. Commission	100
	3. Marketing cost (item 1+ item 2)	200
	4. Selling price	8,900
	5. Farm gate price (item 4- item 3)	8,700
	6. Value added share of the retail price (%) (item 4÷ item 33)	52.3
Trader	7. Transportation cost (outside of the Arys district)	200
	8. Commission	200
	9. Marketing cost (item 7 + item 8)	400
	10. Selling price	10,000
	11. Profit margin (Kaz. tenge) (item 10- item 4- item -9)	700
	12. Profit margin (%)(item 11÷ item 4)	7.9
	13. Value added share of the retail price (%)(item 10- item 4) ÷ item 33	6.5
Fattener	14. Transportation cost (inside South Kazakhstan province)	100
	15. Commission and scale fee	-
	16. Marketing cost (item 14+ item 15)	100
	17. Production cost	3,612
	18. Selling price	14,662
	19. Profit margin (Kaz. tenge) (item 18 - item 10 - item 16 – item 17)	950
	20. Profit margin (%)(item 19 ÷ item 10)	9.5
	21. Value added share of the retail price (%) (item 18 - item 10) ÷ item 33	27.4
Trader	22. Transportation cost (inside the Arys district)	100
	23. Commission	100
	24. Slaughter fee	-
	25. Marketing cost (item 22 + item 23 + item 24)	200
	26. Selling price (carcass and by product)	15,199
	27. Profit margin (Kaz. tenge)(item 26-item 18-item 25)	337
	28. Profit margin (%)(item 27÷ item 18)	2.3
	29. Value added share of the retail price (%)(item 26- item 18) ÷ item 33	3.2
Butcher	30. Transportation cost (inside the Arys district)	100
	31. Slaughter fee	500
	32. Marketing cost (item 30+ item 31)	600
	33. Selling price (carcass and by product)	17,000
	34. Profit margin (Kaz. tenge)(item 33-item 26-item32)	1,201
	35. Profit margin (%)(item 34÷ item 26)	7.9
	36. Value added share of the retail price (%)(item 33- item 26) ÷ item 33	10.6

Kyrgyzstan

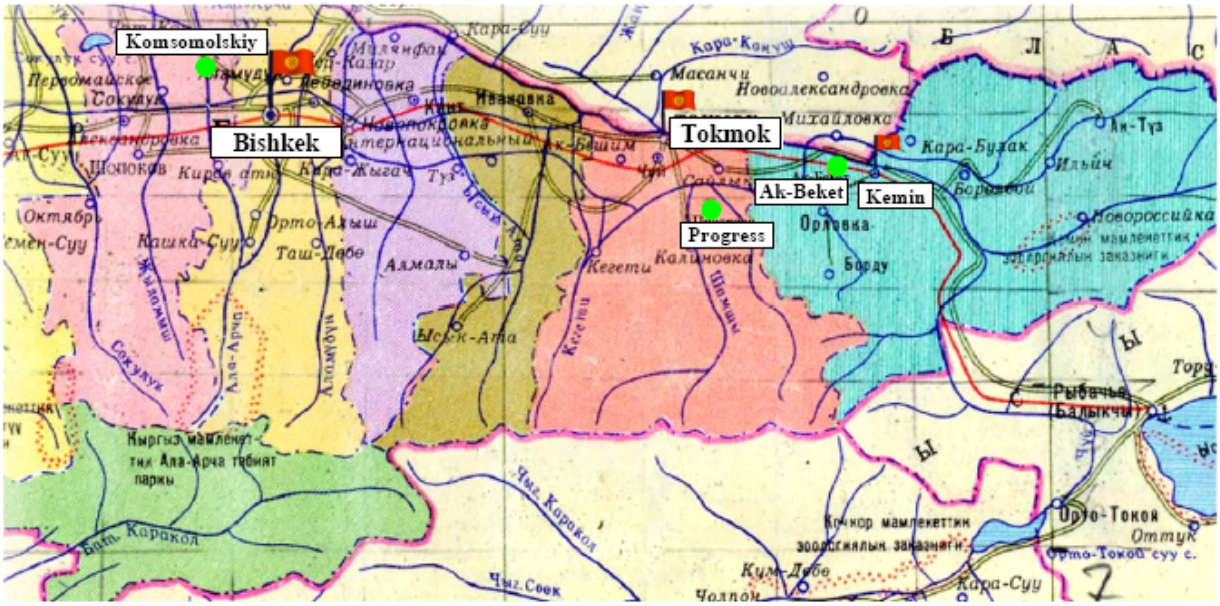
Activity 1. Analysis of rural livelihoods

Research team: Isakov Jaik, Kyrgyz Agrarian University, Osmonaliev U.O., Ajibekov B.A.

According to the workplan for the first year implemented activities included studies of rural livelihoods and household types, identification of the poverty level, and determination of income sources and assets' distribution by household types. Two medium scale farms, "Alymseit" in Kemin district and "Kenesh" in Chuy district, and 20 households in villages "Donaryk" of Chuy district and "Akbeket" of Kemin district were selected for implementation of above mentioned activities.

Major income source of the rural households is agricultural production including both crop cultivation and livestock production. Majority of smallholders (85%) are involved in forage crop production. Forage is partly used for feeding of their animals and for selling. Vegetables, fruits, and food crops (wheat and maize) are grown mainly for personal consumption by about 15% of households. For example, farmer Borgoev obtained income of 10-15 thousand Kyrgyz soms from produced beat, onion, potato, maize, sunflower, and alfalfa in 2006.

Map 3. Major livestock markets and villages in the project site



In Ak-Beket village, there are 178 households and 694 residents. The social infrastructure of the village includes one school, a club, a kindergarten, and a library. The only agricultural cooperative "Kyzyl-October" leases 704 ha of irrigated land from residents of this village. The cooperative provides employment for 105 people.

Because of low incomes some people went to work in CIS countries. About 20 people from Ak-Beket village work as construction workers in Kazakhstan, and 5-6 people went to Russia to work in a construction sector.

From January to June 2007 about 100 households have been interviewed to find out the information on the following indicators:

1. types of farms;
2. livestock, land, and other assets;
3. sources of income;
4. poverty level;
5. major outlets;
6. relations with other farmers.

Table 5. People's perceived indicators of poverty in research sites of Ak-Beket village

Capital	Very poor	Poor	Moderately well-off	Well-off
Natural	from 0 to 5 sheep no land	from 5 to 40 sheep, 0.03-0.05 ha	from 40 to 100 sheep. 0.01-0.03 ha of land. Sometimes leases the land	100 and over sheep. Leases 3 and over ha of land
Human	incomplete secondary, ill	completed secondary education (school, college)	higher, specialized secondary education, healthy	Usually higher
Financial	hired farm worker (regular indebtedness)	up to 100 Kyrgyz som (temporary debts)	from 100 to 500 Kyrgyz som (no debts)	500 and over Kyrgyz som (sometimes lend money)
Physical	do not have physical assets (i.e. refrigerators, laundry washer)	motorcycle, car	car produced in CIS countries	Tractor and other equipment, foreign cars

According to the results of preliminary interviews, in Ak-Beket village 36% of people are rich, 53% are moderately well-off, 9% are poor, and 2% are very poor. These categories are based on the poverty criteria shown on Table 5. Average annual income obtained from selling of live animals and agricultural products by farms "Alymseit" and "Kenesh" formed about 80,000 Kyrgyz soms. According to the rural residents they are considered as well-off farmers. The rest of the 20 households have their cropland, animals, and equipment. They are moderately well-off, as their income covers daily expenses and is not enough for savings to be used in future.

Activity 2. Evaluation of the technological options on rural livelihoods
Collaborators: J. Isakov, U. Osmonaliev, B. Ajibekov

Rural residents with low income and urban population with the increasing wealth are the general features for the time being. Major relationship between these contrasting conditions is the agricultural value chain: rural population produces food and other agricultural products consumed by the people in urban centers.

During studies of the lamb markets it was identified that consumers consider the fat content of lamb meat as the major factor positively affecting its price. In this regard they are suggested to apply fattening of lambs instead of selling of lambs directly.

For this reason the researchers analyzed costs of fattening (see Table 6). In a 20 day period a fattener can make a profit of 33.8 USD from fattening of 10 sheep. And practicing of the Nagul system with grazing during the warm seasons and supplementing during the winter season provides an annual profit of USD 402.8 for 10 sheep (Table 7).

Table 6. Sample budget for sheep fattening

Activity	Quantity	Price per unit in Kyrgyz Som	Total cost in Kyrgyz Soms	Total cost in USD (1$=37.7 KGS)
Beginning of fattening, costs				
Procurement of lambs	10 heads	3,100	31,000	822.3
Feed	100 kg	8	800	21.2
Forage	25 bales	65	1,625	43.1
Shearing	10 heads	30	300	8
Total costs			**33,725**	**894.6**
After 20 days, selling				
Lambs	10 heads	3,500 (considering the weight gain)	35,000	928.4
Total income			**35,000**	**928.4**
Total profit			**1,275**	**33.8**

Table 7. Sample budget for sheep rearing using grazing (Nagul) system

Activity	Quantity	Price per unit	Total cost in Kyrgyz soms	Total cost in USD (1$=37.7 Kyrgyz soms)
Beginning of the year, costs				
Procurement of 1.5 year old coarse wool ewes	10 heads	2,500	25,000	663
Grazing of sheep	10 heads	25	250	6.6
Payment for the rangelands	10 heads	4	40	1.06
Forage	90 bales	40	3,600	95.5
Concentrated feed	315 kg	5	1,575	41.8
Veterinary services	-	5	50	1.3
Medicines	-	50	500	13.3
Total costs			**31,015**	**822.7**
End of the year, selling				
Wool	10 x 2.5 kg	40	1,000	26.5
Lambs	6 heads	1,200	7,200	191
Ewes	10 heads	3,800 (considering weight gain)	38,000	1,008
Total income			**46,200**	**1,225.5**
Total profit			**15,185**	**402.8**

This comparative analysis of the production options shows that for smallholders it is more profitable to fatten lambs before selling. The only constraint here is the lack of funds for procurement of feed and services needed for fattening.

Activity 3. Analysis of lamb markets and farmers market access
Collaborators: J. Isakov, U. Osmonaliev, B. Ajibekov

Major markets for agricultural products are located in the urban village Kemin, Tokmok town (Chuy province), and Bishkek city. Only meat products are sold in urban village Kemin (4-6 carcasses of sheep for a week-end). Due to low demand for meat products in Kemin, householders in Ak-Beket village have to sell live lambs. For this purpose they need to transport their animals to Tokmok town and spend 50-80 Kyrgyz soms per head of small ruminants and 150-350 KGS per head of cattle and horse. All roads from Ak-Beket village to markets (35 km up to Tokmok, 97 km up to Bishkek) are paved. Middlemen visiting villages buy lambs at low prices that reduce farmer's income.

There are two marketing channels for lambs. In the first channel producers sell lambs to middlemen, while in the second channel lambs are directly sold by producers to consumers or other farmers who want to expand their livestock flocks.

According to analysis of the lamb markets about 30% of lambs is marketed to middlemen for further reselling, about 30% is sold to fatteners, and the other 40% are sold directly to consumers and farmers expanding their flocks.

Table 8. Average price for lamb meat at different markets in 2007

(Kyrgyz Soms/kg)

#	City	Month					
		01	**02**	**03**	**04**	**05**	**06**
1.	Kemin	160	165	165	170	170	175
2.	Tokmok	170	175	175	180	185	180
3.	Bishkek-1	175	180	180	180	185	185
4.	Bishkek-2	165	170	170	175	180	180

As shown on the table 8 the average meat price in Bishkek was 175 KGS, while in Tokmok it was 170 KGS. That indicates the higher demand for meat and higher purchasing power of consumers in Bishkek. Additional marketing costs include transportation, keeping and feeding of animals.

Data show that at all markets the lamb price increased from January to June by 15-20 Kyrgyz Soms per kg. One of the reasons of this increase is that in summer flocks are sent to summer rangelands that leads to less supply of meat at the markets.

Table 9. Average price of 2-year old coarse wool lamb in 2007 at different markets (KGS/head)

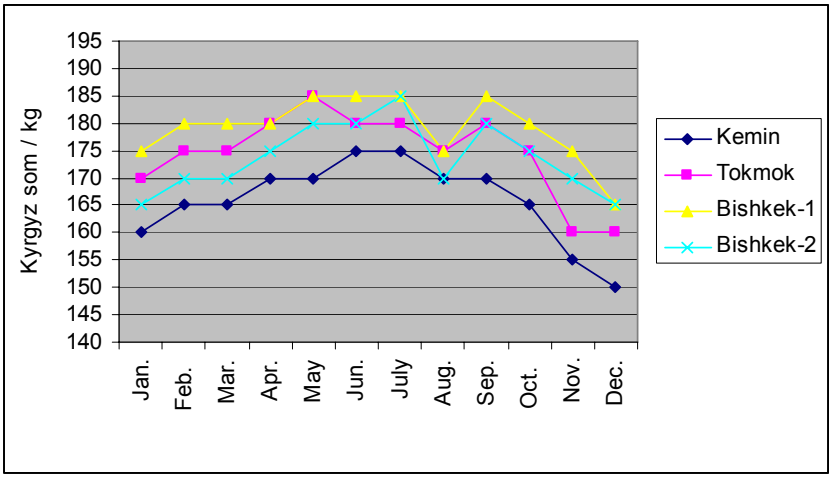
#	Village / town	Month					
		01	**02**	**03**	**04**	**05**	**06**
1.	Kemin	2,100	2,350	2,450	2,500	2,550	2,600
2.	Tokmok	2,500	2,650	2,750	2,800	2,850	2,800
3.	Bishkek-1	2,600	2,800	3,000	3,050	3,100	3,100
4.	Bishkek-2	2,550	2,800	3,000	3,050	3,150	3,100

The price difference between lamb markets in Bishkek and the Tokmok market forms 150-300 KGS. Lamb prices in Bishkek are about 400-500 KGS higher than at the Kemin market.

Some meat retailers have a network of farmers who directly supply slaughtered animals to them upon instructions obtained from retailers by mobile phone. This developed network removes a list of risks involved in lamb meat marketing (dying of some animals during transportation and other risks).

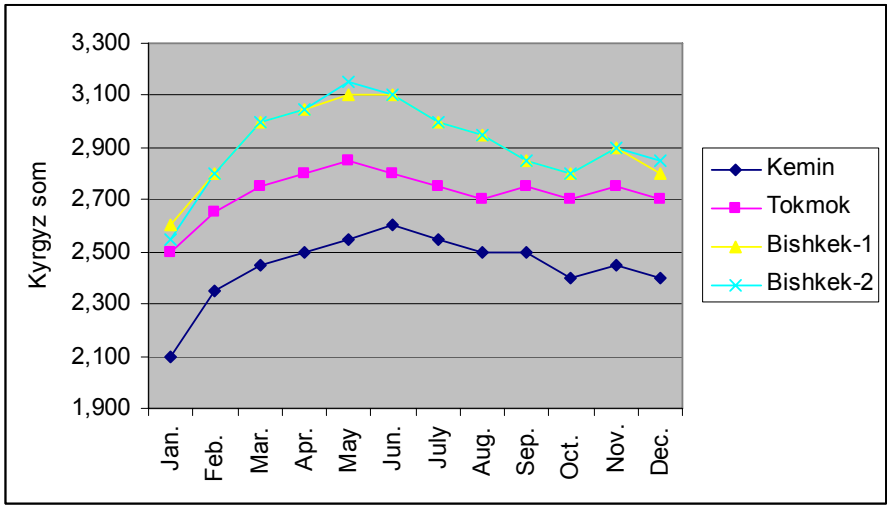
The collected mutton price data show that by the end of 2007 mutton price decreased at all markets compared to summer (Diagram 3). This decline of prices was mainly caused by an increased supply of mutton that resulted in the corresponding price adjustment to absorb the surplus.

Diagram 3. Monthly average mutton price at different markets in 2007



In the livestock markets, starting from June there was an increase in supply of the weaned lambs for sale that led to the price decline in the 3rd quarter of 2007 (Diagram 4). This downward trend then continued after September due to the sales of the culled animals and willingness of sheep producers to sell all surplus sheep to minimize the expenses for procurement of the winter forage. The lowest prices were recorded over the year in Kemin, prices in Tokmok were in average 300 Kyrgyz som higher than in Kemin, and the average price difference between livestock markets in Kemin and two markets in Bishkek formed 450-500 Kyrgyz som with the highest lamb prices observed in Bishkek. The cheapest lambs are traded at the market in Kemin, the farthest from Bishkek. This negative relationship between distance from Bishkek and lamb prices holds also in case of the Tokmok market. Higher supply of animals in the remote livestock markets mainly explain low lamb prices in Kemin, while in Bishkek the profit margin of the middlemen, transaction costs, and higher demand from the urban population contribute to the above mentioned price difference.

Diagram 4. Average price of a 2-year old coarse wool lamb in 2007 at different markets



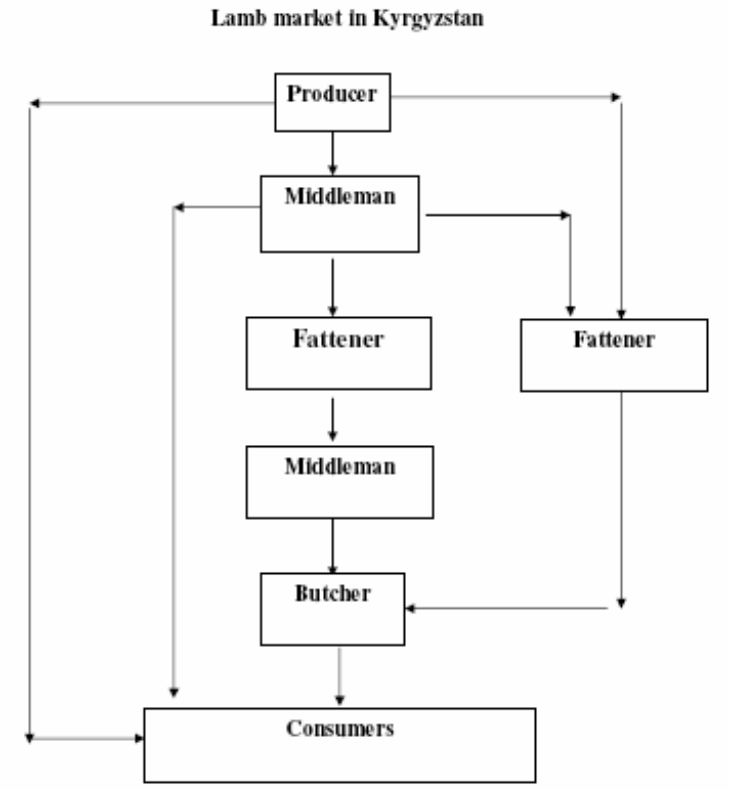


Table 10. Livestock markets in Chuy province

Town / village	Commodity / animals sold	Market size (ha)	Distance to Bishkek (km)	Business day	Services	Number of middlemen	Daily business volume
Kemin	Meat	0,02	100	Saturday and Sunday	Fridge, veterinary examination, weights	-	1-2 carcasses
Tokmok	Live animals	3.6	65	Saturday and Sunday	Concrete fencing, guards, stall, fridge, veterinary examination, weights, transport services	about 25	1,000 – 1,200 sheep and 80 – 100 goats
Bishkek-1 (Stariy Tolchok)	Live animals	0.8	-	regularly	Concrete fencing, guards, stall, storage room, shearing facility, veterinary examination, weights, transport services	about 10	180 – 220 sheep and 40 – 50 goats
Bishkek-2 (Bayat)	Live animals	0.4	-	regularly	Concrete fencing, stall, storage room, shearing facility, veterinary examination, slaughter house	5	25-30 sheep and 5-10 goats

Table 11. Decomposition of fattened lamb retail value along the marketing chain (for 2 year old Kyrgyz coarse wool fat-tailed lamb)

Agent	Item	Kyr. Som / head
Breeder	1. Transportation cost	35
	2. Commission	50
	3. Marketing cost (item 1+ item 2)	85
	4. Selling price	2,800
	5. Farm gate price (item 4- item 3)	2,715
	6. Value added share of the retail price (%) (item 4÷ item 33)	57.6
Middleman I	7. Transportation cost	50
	8. Commission	50
	9. Marketing cost (item 7 + item 8)	100
	10. Selling price	3,200
	11. Profit margin (Kyr. Som) (item 10- item 4- item -9)	300
	12. Profit margin (%)(item 11÷ item 4)	10.7
	13. Value added share of the retail price (%)(item 10- item 4) ÷ item 33	8.9
Fattener	14. Transportation cost	60
	15. Commission and scale fee	50
	16. Marketing cost (item 14+ item 15)	110
	17. Production cost	300
	18. Selling price	4,000
	19. Profit margin (Kyr. Som) (item 18 - item 10 - item 16 – item 17)	390
	20. Profit margin (%)(item 19 ÷ item 10)	12.18
	21. Value added share of the retail price (%)(item 18 - item 10) ÷ item 33	16.4
Middleman II	22. Transportation cost	40
	23. Commission	50
	24. Slaughter fee	150
	25. Marketing cost (item 22 + item 23 + item 24)	240
	26. Selling price (carcass and by product)	4,480
	27. Profit margin (Kyr. Som)(item 26–item 18– item 25)	240
	28. Profit margin (%)(ст.27÷ст.18)	6
	29. Value added share of the retail price (%)(ст.26-ст18) ÷ст.33	9.8
Butcher	30. Market fees (wheelbarrow, selling place, veterinary check, weights)	85
	31. Slaughter fee	30
	32. Marketing cost (ст.30+ст.31)	115
	33. Selling price (carcass and by product)	4,860
	34. Profit margin (Kyr. Som)(ст.33-ст.26-ст.32)	265
	35. Profit margin (%)(ст.34÷ст.26)	5.9
	36. Value added share of the retail price (%)(ст.33-ст26) ÷ст.33	7.8

TAJIKISTAN (Khujand)

Introduction

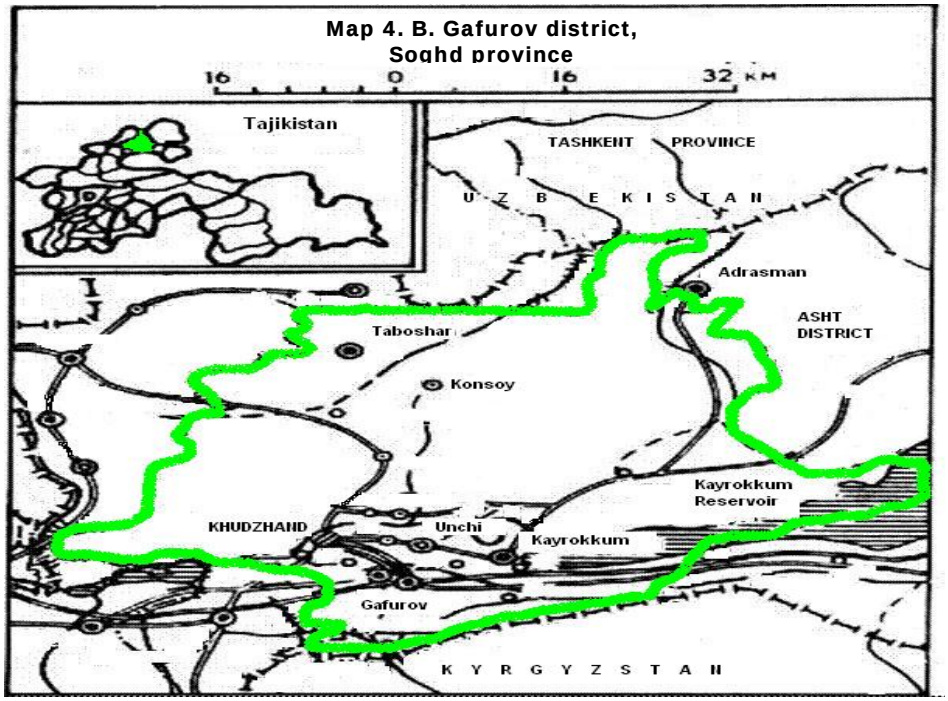
After the collapse of the Soviet system the collective farms in Tajikistan were reorganized to agricultural cooperatives, private farms, and household farms. During the post-Soviet period there was a dramatic decline in livestock production. Recently flocks of small ruminants in households started to grow and now almost reached those of the agricultural cooperatives in the Northern Tajikistan.

Farmers and householders involved in livestock production experience shortage of knowledge on farm management that changes during transition to market relations. This is especially the case in Tajikistan where the market reforms started later due to the civil war. The most common characteristics of farmers and householders are the lack of information on new technologies and existing outlets for their products, and insufficient cooperation and integration with other entrepreneurial entities (especially in sphere of primary processing). Production constraints include overgrazed rangelands, shortage of fodder in winter period, high transportation costs, inaccessible veterinary services, weak promotion of goods, underdeveloped and inefficient banking system, and complicated access to credit.

Geography and definition of research area

Ismoil Jamoat of the Bobojon Gafurov district in the Soghd province of Tajikistan is located on the western bank of Syrdaria river, at the foothills of the Kuramin mountain range and in the Syrdaria arid rangelands, at 32 km to the northeast of the provincial center – Khudzhand city. It borders with the Tashkent province of Uzbekistan in the north, the Asht district of the Soghd province in the northeast, and Kholmatov community of the Gafurov district in the west.

Total area of the Jamoat is 68.67 thousand ha. The irrigated land area is 5,979 ha while ranges occupy 33,396 ha. The climate is dry and moderately hot. Winter temperatures in the plains could be as low as -3 to -5 ^{o}C. Snow cover is usually 3-7 cm. Sharp frosts are observed once in 3-5 years when night temperatures fall down to -25 ^{o}C. In these occasions the snow cover could be 20-30 cm. The average annual rainfall is 300-400 mm.



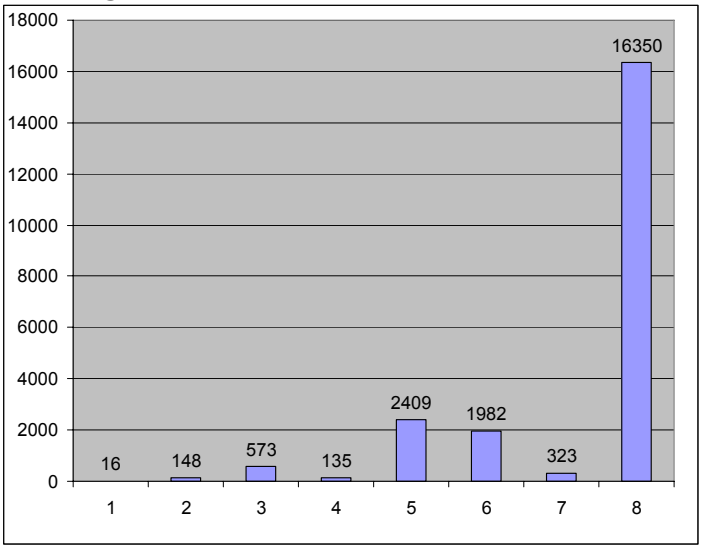
Population of the Jamoat in 2004 accounted for 21,535 people including 11,091 women, and as of 1 January 2007 it reached 21,936 people meaning a 1.8 percent annual increase. Out of the total population in the Jamoat 2,409 people work in agricultural cooperatives; 135 people – in dekhkan

(private) farms; 573 people – in educational system; 148 people are involved in healthcare, and 16 people in administration office of the Jamoat (Diagram 1).

According to the Jamoat administration data the monthly average salary in 2006 formed: 78.5 Tajik Somoni (TJS) or 22.8 USD for those who get a salary from the state budget (staff of the Jamoat administration, schools, and healthcare offices); and 40.27 TJS (11.7 USD) for the staff of the agricultural cooperatives. Level of the salary paid to agricultural workers remains the lowest compared to the other sectors.

The number of unemployed out of the capable part of the population forms 323 people or 1.5%. Small part of male population (9.2% or 1,982 people in 2006) goes to work in Russia, Kazakhstan, and other CIS countries. Administration of the jamoat keeps records on those going out of the country to earn for living. However, all people are registered, as if they went to Russia, and no other country is mentioned.

Diagram 5. Distribution of Human Resources



Note: 1- administration staff; 2 – medical staff; 3 – teachers; 4 – workers of dekhkan farms; 5 – workers of agricultural cooperatives; 6 – migrant workers; 7 – the unemployed; 8 – smallholders and others

Source: the Jamoat administration office

Center of the Jamoat is located in Kalai Kukhna village bordering with Chordara, Chimdakoil, and Pilol villages (Diagram 6). According to the administrative division there are 22 villages in the Jamoat (see Table 12). On its territory there are 3 agricultural cooperatives, 27 private dekhkan farms, and 4,168 households. Compared to 2004, the number of households increased by 156 households or by 3.8% as of 1 January 2007. Annual data on households show that from 2004 to 2005 the number of households went up by 51 households or 1.2%, while from 2005 to 2006 there were 105 newly established households (2.6%), implying that there is an increasing trend.

Table 12. Administrative Division of the Jamoat

#	Name of the Village	Households			Population			Including:		Incapable population (younger than 14 years old)
								Men	Women	
		2004	2005	2006	2004	2005	2006	Only for 2004		
1.	Yangikishlok	618	623	636	3,355	3,384	3,421	1,627	1,728	1,090
2.	Karachingil	157	159	163	1,177	1,128	1,090	571	606	383
3.	Shokadam	77	78	81	718	640	530	348	370	233
4.	Apon	115	118	121	662	662	664	321	341	215
5.	Takli	8	8	9	68	68	69	33	35	22
6.	Abreshimchi	12	12	12	73	73	73	35	38	24
7.	Kipchok	172	176	181	929	932	939	451	478	302
8.	Gulobod	146	149	156	704	711	717	341	363	27
9.	Uyas	684	695	715	4,121	4,157	4,220	1,999	2,122	1,339
10.	Terak	79	81	84	402	405	410	195	207	131
11.	Kurgancha	227	231	237	1,202	1,209	1,221	583	619	391
12.	Komsomol	283	288	294	1,402	1,412	1,418	680	722	456
13.	Okbulok	5	5	5	27	27	28	13	14	9
14.	Boshkuruk	5	5	6	31	31	31	15	16	10
15.	Olmali	17	17	18	96	96	96	47	49	31
16.	Kalai Kukhna	435	438	447	2,048	2,064	2,096	993	1055	666
17.	Chordara	357	359	366	1,785	1,797	1,819	866	919	580
18.	Ravot	135	137	141	703	713	717	341	362	228
19.	Dusti	156	157	161	782	791	797	379	403	254
20.	Pilol	190	192	196	932	942	950	452	480	303
21.	Azhdarli	15	15	16	108	108	108	52	56	35
22.	Chimdakoil	119	120	123	508	516	522	246	262	165
	Total	**4,012**	**4,063**	**4,168**	**21,535**	**21,886**	**21,936**	**10,444**	**11,091**	**6,894**

Due to significant differences in soil, climatic, relief, and historical conditions population distribution and density in the Jamoat are very non-uniform. People mainly live in plain zones with irrigated agriculture differing by a higher economic development of the territory.

Table 13. Administrative division of the Jamoat by the territory

Distribution of villages								
Agricultural cooperative B. Gafurov			**Agricultural cooperative I. Khamzaliev**			**Agricultural cooperative T. Kushatov**		
Village	**HHs**	**Popul.**	**Village**	**HHs**	**Popul.**	**Village**	**HHs**	**Popul.**
Yangikishlok	636	3,421	K. Kukhna	447	2,096	Uyas	715	4,220
Part of Dusti	100	495	Chordara	366	1,819	Kipchok	181	939
			Chimdakoil	123	522	Gulobod	156	717
			Ravot	141	717	Kurgoncha	237	1,221
			Pilol	196	950	Komsomol	294	1,418
			Part of Dusti	61	302	Karajingil	163	1,090
						Apon	121	664
						Takli	9	69
						Okbulok	5	28
						Terak	84	410
						Abreshimchi	12	73
						Olmali	18	96
						Shokadam	81	530
						Boshkuruk	6	31
						Azhdarli	16	108
TOTAL:	**736**	**3,916**		**1,334**	**6,406**		**2,098**	**11,614**

Villages by administrative territories of agricultural cooperatives are distributed as shown on Table 12 with the highest number of households as well as population located on the territory of the agricultural cooperative named after T. Kushatov.

*Major towns located close to the target villages are the followings:

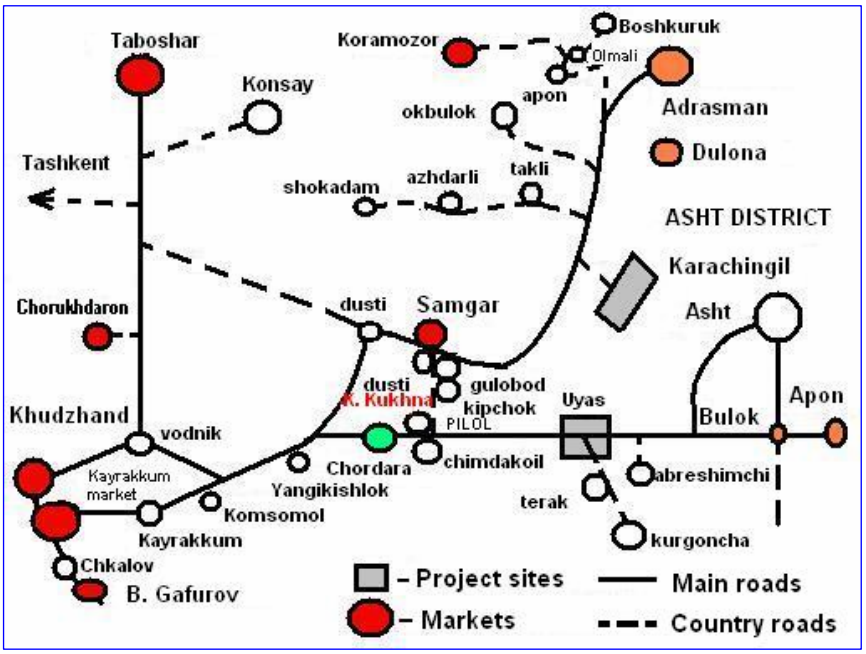
- Khujand located at 25 km from the center of the Jamoat, Kalai Kukhna village;
- B. Gafurov located at 29 km from the Jamoat center;
- Kayrakkum (21 km);
- Chkalov (27 km);
- Taboshar (45 km);
- Adrasman (38 km);
- urban village Chorukhdaron (24 km);
- urban village Konsay (35 km).

All towns and urban villages mentioned above, except Adrasman, are located in the B. Gafurov district.

Roads

Main road connecting villages in the Ismoil Jamoat with the provincial center (Khujand), district center (B. Gafurov town) and other towns and districts is the highway, and car is the main mode of transport. There are three main highways: Khudzhand – Adrasman, Khudzhand – Asht, Khudzhand – Taboshar (see Diagram 6). These are all paved roads passing through the research sites. Roads to the villages are covered by gravel. Condition of roads is satisfactory. However, during the rainy season in spring mudflows partly destroy the asphalt cover of roads.

Diagram 6. Roads in Ismoil Jamoat



Major source of livelihoods

Households in Ismoil Jamoat mainly generate their income from crop production, breeding of small ruminants and cattle. Major agricultural activities in the foothill zones include livestock production, gardening, cultivation of cereals and forage crops, and in the plane area farms grow cotton, fruit trees, grapes, cereals vegetables, sometimes they grow forage crops, melons and gourds (see table 14).

Table 14. Land distribution and activities of agricultural cooperatives and dekhkan farms

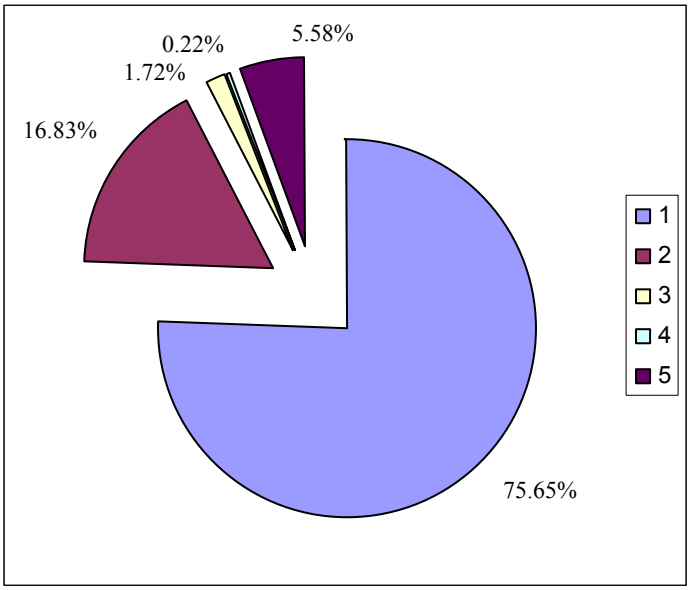
#	Farm Name	Land area, ha	Activities
1.	Agricultural cooperative T. Kushatov	51,947	Cotton production, grain production, gardening, livestock production.
2.	AC I. Khamzaliev	11,557	Gardening, viticulture, grain production, vegetable growing, livestock production.
3.	AC B. Gafurov	1,180	Gardening, viticulture, grain production, vegetable growing, livestock production.
4.	Dekhkan farms	150.9	Gardening, viticulture, grain production, vegetable growing
	Total:	64,849.9	

*** Agriculture**

Due to the lack of the infrastructure, remote location, climatic conditions, and relief, people in the Jamoat living in the foothills are involved in livestock (mainly goat) production, while cultivation of cereals and forage crops is a rare practice. Some householders grow vegetables to meet family needs. Apricot, almond, and walnut trees are also grown in this area.

Land and ranges are mainly managed by agricultural cooperatives. Agricultural cooperative T. Kushatov occupies 75.65% of total land area in the Jamoat, and it is one of the biggest goat breeding farms in the province. It also owns 26,218 ha or 78% of rangelands.

Diagram 7. Distribution of land areas in Ismoil Jamoat



1 - AC T. Kushatov; 2 - AC B. Khamzaliev; 3 - AC B. Gafurov; 4 - dekhkan farms; 5 - households and others

Land area and quality for the time being do not meet the needs of population in the Jamoat. Increasing population puts more pressure on unchanged developed land area and causes low land fertility also affected by water and financial resources.

Herders grazing the joint flocks can earn 3.5 TJS (1.02 USD) each month per animal, or 350 TJS (102 USD) for grazing of a joint flock with 100 animals.

Table 15. Structure of land area as of 1.01.2007.

Classification of land areas	Available land area (ha)			Area (ha)
	Cooperative B. Gafurov	Cooperative I. Khamzaliev	Cooperative T. Kushatov	
Tillage	99.31	311.74	1944	2355.05
Perennial plantings	597	790	817	2204.00
Stony land	-	842.11	480.00	1322.11
Rangelands	-	6501	26218	32719.00
Shrubbery	2.98	-	51	53.98
Land under roads	41.48	6.0	307	354.48
Land under water	-	311.48	2125.0	2436.48
Land under construction	-	1.15	420	421.15
Other lands	28.49	3559	18474	22061.49
Farmlands	34	308	110	452
Presidential lands	41	48	110	199
Forests	-	21.52	1600	1621.52
Rainfed lands	-	-	1544	1544.00
TOTAL:	844.20	12700.00	54200.00	67744.20

Population in foothill zones (villages Karojingil, Takli, Okbulok, Shokadam, and Ajdarlik) are mainly involved in livestock production including Angora goats, indigenous (jaydara) goats; and indigenous (jaydara) sheep, while farmers in plain areas (Yangikishlak, Komsomol, Kalai kukhna, Chordara, Chimdakoil, Ravot, Dusti, Pilol, Gulobod, Uyas, Kipchok, Terak, Kurgoncha, and Abreshimchi) in contrast to foothill population undertake cotton production, gardening, rice and cereal production, poultry and livestock production. Few households grow melons and gourds.

In plain parts of the jamoat agricultural cooperatives, dekhkan farms, tenants, and private farm owners cultivate

- food crops: cereals including wheat, barley, maize, rice;
- legumes: haricot; forage crops: alfalfa, maize for silage, rape, fodder beet;
- fiber crops: cotton;
- vegetables: tomato, cucumber, potato, carrot, turnip, red beet;
- fruits: apricot, apple, persimmon, grapes, cherry, sweet cherry, plum;
- and other crops: walnut, almond, and mulberry trees for cocoon production.

Livestock production, especially Angora goat breeding is a very promising direction in agricultural sector. According to several informants during the first years after the collapse of the Soviet Union livestock numbers rapidly declined due to the newly emerged problems. They include reorganizing of collective farms, removal of both financial and material (production inputs) state subsidies (centralized supply of feed for livestock, provision of fuel, etc.). As a result, many farms got bankrupted and still can not reach the level achieved in the Soviet period. Other issues exacerbating livestock production in households include a low level of veterinary services – lack of veterinarians and expensive medicines. During the recent years grasshopper plagues became another issue contributing to forage deficit through wiping out agricultural crops.

Advantage of Angora goat production is that, in addition to meat and milk, and good fertility necessary to maintain the financial stability of households, Angora mohair and products made after its processing (yarn and knitted goods) have demand in both internal and external markets.

Market of sheep wool is depressed, currently wool can be hardly sold at a very low price due to lack of processing enterprises in the province and in the republic.

Table 16. Livestock flocks kept by agricultural cooperatives, dekhkan farms, and households located on the territory of Ismoil Jamoat

#	Name of farm	Quantity of livestock, heads					
		Goats	Sheep	Cows	Horses	Donkeys	Poultry
1.	AC T. Kushatov	14,509	508	204	33	-	300
2.	AC I. Khamzaliev	1,150	350	93	-	-	200
3.	AC B. Gafurov	-	120	48	-	-	200
4.	Dekhkan farms	-	-	-	-	-	-
5.	Households	14,894	6,640	4,104	109	681	6,418
Total		30,553	7,618	4,449	142	681	7,118

Data of the statistical department of the B. Gafurov district show that livestock production increased in 2005 compared to 2004, as there was an increase of livestock in HHs. Flocks of small ruminants in HHs of Ismoil Jamoat in 2006 increased by 999 heads. This is an indication of the favorable conditions existing in the research site for small ruminants, particularly goat breeding.

Table 17. Production of livestock products (as of 1.01.2006)

#		Name of a product					
		Wool (kg)		Meat (kg)		Milk (kg)	
		2004	2005	2004	2005	2004	2005
22 villages	**Total**	270	643	63,626	78,330	49,747	62,676

Households in the villages of the Jamoat process cow, sheep, and goat milk for personal consumption and partly selling at the market (kurut, yogurt). They also process wool for yarn and knitted goods production. Processing of leather is not developed in this Jamoat.

Households located in the medium zones (villages Karojingil, Takli, Okbulok, Shokadam, and Azhdarlik) and foothill zones (Apon, Olmali, and Boshkuruk) mainly keep Angora goats due to existing demand for mohair. Partly they keep Jaydara goats and very few Jaydara sheep as natural and climatic conditions are not appropriate for sheep rearing. That is why for the HHs it is more profitable to keep goats.

Recently payment for grazing of livestock on rangelands has been increased: starting from 2005 livestock owners have to pay the monthly rent of 0.88 somoni (0.25$ USA) per head of small ruminant (check the figure) (Forestry resources management body allows grazing for 4 months in summer season). To avoid these additional grazing costs herders of the agricultural cooperatives graze their own animals (especially Angora goats) on the remote rangelands in one flock with the livestock of agricultural cooperative.

In addition, bad veterinary services remain an important issue leading to worsening condition of livestock production. Veterinarians can be found only on large farms. Due to this reason smallholders mainly slaughter sick animals. Services of veterinarians are chargeable, and people pay at least 1 somoni plus additional cost of medicines procured in Khujand and B. Gafurov town. No more veterinary drugstores are available in other areas of the Jamoat.

As mentioned earlier the major agricultural income source depends on the location of the villages.

Table 18. Prices for agricultural products at the markets

Name of a product	Unit	Market prices (in somoni) Jan. 2007, 3.44 TJS = 1$ USA							Khujand Dec. 2007 3.50 TJS = 1$ USA
		Khujand	Kayrakkum	Jamoat Ismoil	Chorukh -daron	Taboshar	Adrasman	Appon Asht district	
Fresh apricot	kg	0.50	-	0.30-	-	0.50	0.50	0.50	3-00
Dried apricot	kg	2.50	2.50	2.00	-	2.50	2.50	2.50	12-00
Walnut	kg	3.00	3.00	2.50	-	3.00	3.00	3.00	5-00
Almond	kg	6.00	6.00-	5.00	-	6.00	6.00	6.00	10-00
Cocoon	kg		-	-	-	-	-	-	-
Egg	pcs	0.35	0.35	0.30	0.30	0.35	0.30	0.30	0.50

One of the income sources for households growing apricot trees is selling of dried apricots. One kilogram of dried apricots at the provincial markets costs depending on the yields 7-12 somoni or USD 2.5 – 3.5 (data for 2005), and at the markets of Russia 150 and more Russian rubles.
Another commodity contributing to income generated by the HHs is cultivation of almonds. It can be sold for 11-22 somoni or USD 3.20 – 6.40 (data for April – May 2007).

Cocoon production also gives some income opportunities for householders living in a lower plain zone. In April-May they grow cocoons in their houses. Cocoons are usually purchased by the agricultural cooperatives and further processed by the only silk-mill in the province, Tajik-Vietnamese JV. Cooperatives pay to householders 1 somoni per kg of cocoons. Each HH depending on its opportunities produces 60-100 kg of cocoons. Mulberry leaves are the main feed for a silkworm. In addition to money obtained from sales of cocoons households also keep branches of a mulberry tree being a source and reserve of fuel. To improve the quality of the mohair yarn, silk can be added during its production.

Mohair yarn production is one of the most profitable activities for local residents. Mainly women are involved in this value adding activity. Different knitted goods including shawls, socks, mittens, pullovers, sweaters demanded by the people in the province. One of the knitters advised that some middlemen procure 10,000 pares of socks for a season for further reselling at the markets of Russia. Some of women go to Russia themselves to sell the mohair yarn. Mohair price at the local markets is 25-30 Tajik somoni (7.27 – 8.72 USD), and in Russian markets it is 500 – 1,000 Russian roubles (19.23 – 38.46 USD).

These products are not standardized. There is no any technical requirement for its production, and yarn quality is evaluated by the buyers. All interviewed informants advised that one of the major issues facing yarn production by the householders is lack of mohair processing (cleaning) facilities and deficit of card boards for mohair processing at home. For the time being women undertake the whole technological process manually. They use primitive mechanisms (hand-made manual, foot and electric spinning-wheels) for yarn production. Yarn colors are mainly natural, dyeing is rarely practiced. Dyes sold at local markets are of a very low quality that does not correspond to the needs of yarn producers.

Some people in villages are involved into commercial activities including selling food and consumer goods. Agricultural cooperatives pay to shepherds for grazing of Angora goats a salary of 41.3 somoni (12 USD) per month. Their family members process the mohair and produce knitted clothing.

*** Remittances by destination**

Small part of capable male population goes to work to Russia, Kazakhstan, and other CIS countries. They formed 9.2% or 1,982 people in 2006). So far no data is available on the amount of the remittances from the migrant workers.

*** Definition of poverty by local people**

Households are considered rich, if they have more than 100 Angora goats, more than 50 sheep, 3 or more pedigree cows, 1 or more horses, poultry, a foreign car and modern home appliances, a comfortable house constructed from burnt bricks (it is often a two- storied house with a basement and

verandah) and having no need in funds. Owners of these HHs are governmental officers with an opportunity of additional income generation or having a profitable business.

Middle income families have 20-50 goats, 3-4 sheep, rarely have 1-2 cows, have an old car or no car, have a medium house. These householders work in an organization funded from state budget. They periodically face a shortage of funds. The most part of money collected from sales of animals and livestock products is used for family needs. They are involved into small business. They have a certain access to social services.

Families are said to be poor, if they have no livestock, have low income, have no access to social services, such as medical, educational, communal, etc. They regularly face a shortage of funds. These people usually have health (physical or mental) problems, pensioners and people without profession registered as unemployed and having no regular workplace.

Table 19. People's perceived indicators of poverty in research sites of Ismoil Jamoat

Capital	Very poor	Poor	Moderately well-off	Well-off
Natural	Small land plot 0.1 ha for construction, Old ramshackle house, 3-5 chicken	Small land plot (0.1 ha) for construction, Ordinary house Presidential land (0.05 ha) for crop growing Up to 10 goats. 2-3 sheep. 1 donkey 5-10 chickens	Small land plot (0.1 ha) for construction , Ordinary house Presidential lands (0.05 ha) for crop growing 20-50 goats 10-15 sheep 1-2 pedigree cows 5-10 chickens 1 donkey	Small land plot (0.1) ha for construction , Comfortable house 100 and more goats. 40 and more sheep. 3-4 pedigree cows 1-3 horses 20-30 chickens orchard
Human	Secondary education Uncompleted secondary education Chronically sick Physically or mentally handicapped	Secondary education Uncompleted secondary education Chronically sick Physically or mentally handicapped	Higher education Secondary and special education	Higher education Secondary and special education
Financial	No cash Social pension Humanitarian aid Pensioner State support	No cash Social pension Humanitarian aid Unemployed State support	Shortage of cash Social pension Humanitarian aid Remittances from CIS countries Children's dependant Unemployed	Have enough money State officer Worker of a law-enforcement institutions Entrepreneur Farmer
Physical		No / cart, bicycle	Old car Motorcycle bicycle Old home appliances	Foreign car Tractor Modern home appliances Computer

Source: data collected from informants

Presidential lands are provided to low income people (staff of the state institutions, families that lost their breadwinners, veterans of Great Patriotic War (1941-1945) and the war in Afghanistan, and labor veterans) according to the Decrees of the President issued in 1996 and 1998. They are given for the lifetime utilization, and it is prohibited to undertake any construction or to grow fruit trees and vine on them. These lands can be used only for cultivation of cereals, vegetables, and forage crops. Usually these 0.05 ha plots are located close to the households.

*** Levels of poverty as perceived by local people**

Level of poverty is differentiated by local people by an extent of access to resources, means of production, markets, and social services. Food security is a major priority of the population in this zone. In the first line people mention high prices for food and basic goods. The other two factors specified by local population are limited access to social services and lack of access to financial resources. In combination these factors determine vulnerability of people in a certain zone.

Poor natural resources, isolation from the foreign markets, and underdeveloped domestic market all make the income generating activities of HHs in foothill zones inefficient in comparison to valley regions.

Most interviewed people say that many HHs are in a bad situation and have a subsistence level of agricultural production. Population of the Jamoat is extremely vulnerable and seriously depends on climatic conditions. Moving of capable population living in foothill areas to the sector of migrant workers going to Russia and other CIS countries to support their families has become one of the consequences of the economic crisis and reduction of production.

*** Types of farms according to assets and livelihood strategies**

By the ownership forms farms on the territory of the Jamoat are classified as follows: 1 state breeding farm; 3 agricultural cooperatives, 27 dekhkan (farmers) farms with and without legal status (private, family, partnership), and 4,168 households.

Description of production systems

Table 20 indicates the costs and income that can be obtained from procurement of 10 Angora goats at the beginning of the year and selling of goats, kids and mohair in a one year period. By the end of the 1st year a household will be able to generate a profit of 145TJS or 42.15USD.

And their products such as milk and wool are used for partly cottage processing for further consumption by family or selling at the markets.

Feed and forage base in the research sites, especially in the villages located in upper zones of the jamoat), as stated above, is very weak, and importing of the concentrated feed from other regions is very expensive. Due to this reason on this territory and around research site, there are 2 regularly operating markets in Khudzhand city, B. Gafurov and Asht districts (see table 21). There are also many sales outlets on the streets selling feed for livestock. There is a developed network of middlemen supplying feeds. Agricultural cooperatives, dekhkan (farmers) farms and processors of agricultural products (cotton-cleaning plants, butter-making plants, and flour mills) are all involved in feed production.

There is a seasonal fluctuation of forage and feed prices. During harvesting of forage crops and cereals, production and processing of agricultural products prices are lower while in winter season they go up by 25 – 30%.

Table 20. Sample of a production budget for 10 Angora goats (1$=3.44TJS)

Activity	Quantity	Price per unit	Total cost in TJS	Total cost in USD
Beginning of the year, costs				
Procurement of goats	10 heads	40	400	116.20
Grazing of goats	10 heads	6	60	17.44
Payment for the rangelands	10 heads	3.50	35	10.10
Forage	500 bales	1.0	500	147.06
Veterinary services	-	-	10	2.91
Medicines	-	-	30	8.82
Total costs			**1,035**	**300.87**
End of the year, selling				
Mohair	12 kg	20	240	69.77
Kids	8 heads	30	240	69.77
Goats	10 heads	70 (considering weight gain)	700	203.49
Total income			**1,180**	**343.02**
Total profit			**145**	**42.15**

Table 21. Forage and feed prices at the markets of the province (March – April 2007)

Name of feed / forage	Unit	Market prices (in somoni) 3.44 TJS = 1$ USA					
		Khujand		B. Gafurov district		Asht district	
		Sebzor market	Pakhtakor market	Farovon market	Yava market	Appon	Bulok
Barley	kg	0.95	1.00	1.00	1.00	0.95	0.95
Wheat	kg	0.90	1.00	1.00	1.00	1.00	1.00
Maize	kg	0.90	0.90	0.90	9.00	0.90	0.90
Combined feed	kg	1.00	1.00	1.00	1.00	1.00	1.00
Wheat bran	kg	0.45	0.45	0.45	0.43	0.50	0.50
Cotton husk	kg	0.65	0.60	0.60	0.60	0.65	0.70
Cotton-cake	kg	0.90	0.85	0.80	0.85	0.75	0.75
Pressed wheat straw	bale	9.00	9.00	9.00	9.00	9.00	9.00
Pressed barley straw	bale	9.00	9.00	9.00	9.00	9.00	9.00
Pressed rice straw	bale	7.00	7.00	7.00	7.00	7.00	7.00
Alfalfa hay	bottle	1.00	1.00	1.00	1.00	1.00	1.00
Sorghum (white durra)	bottle	1.00	1.00	1.00	1.00	1.00	1.00

***Specialization**

Angora goats are the main source of income. Local HHs practice extensive breeding system with grazing of flocks on rangelands and some forage and feed procured for winter season when it is difficult for animals to find forage on ranges. Angora goats are adapted well to mountain relief and stony soil. No cattle are kept by the households in the foothill zones due to poor rangelands and shortage of feed. Average household flock in the plain zones includes one cow for milk and dairy products produced for family consumption.

Opportunities and constraints of access to…

***Markets**

At all markets, sellers are free to sell their products provided that they pay the market fee. Major problems facing producers are high transportation cost and underdeveloped transport network between villages.

Lack of market information and marketing analysis of domestic and international markets makes it difficult for mohair producers to access the markets in CIS countries directly. Recent regulations introduced by Russia restricting the number of foreign sellers at the markets also reduce their chance to sell the products in Russia without involvement of a middleman.

***Capital**

There is a big demand of population for micro-credits. There is no micro-financial organization operating on the territory of the Jamoat. In addition smallholders have poor knowledge of small business, planning, marketing, and financial management that makes them afraid of borrowing.

*** Natural resources**

For households located on foothills it is impossible to keep animals without grazing on rangelands as they cannot provide enough forage. However, as it's shown in Table 15 of the land distribution in the Jamoat, there are no free rangeland areas available. All rangelands are owned by agricultural cooperatives or forestry management body. Householders have to pay 0.88 TJS (USD 0.25 USA) for grazing of one

small ruminant. In addition the grazing period is restricted to 4 months a year, from June to September. This period can be reduced up to 2 months depending on the season.

Production problems and solutions that producers think

The following general production issues can be specified in relation to smallholders keeping Angora goats:

1. The level of sales of products obtained from goat husbandries goes down due to the import of cheap goods from China;
2. Increased sales of imported goods at the domestic market are caused by low quality of domestically produced commodities;
3. There is a lack of investments for the development of this sector;
4. There is a shortage of knowledge on regulations and legislation related to activity of farmers and households.

Considering obtained data, the following major problems of rural livestock production can be specified:

1. Lack of finance;
2. Lack of the targeted breeding of highly productive goat breeds by farmers;
3. Shortage of feed in winter period;
4. Low level of veterinary services;
5. Limited rangeland area for grazing of animals;
6. High transportation costs;
7. Lack of enterprises on processing of products obtained from goat production;
8. Lack of access to markets in other CIS countries;
9. Lack of qualified staff (veterinarians, agronomists, zootechnicians);
10. Limited irrigated agricultural land area;
11. High feed prices;
12. Lack of state support, difficult natural and climatic conditions, high taxes for rangelands, etc.;
13. Underdeveloped handicrafts in HHs.

Smallholders think that to solve above mentioned problems they would need assistance from international financial institutions (provision of appropriate loans), businessmen (investments to the sector), NGOs (consultations, trainings, assistance in adoption of the new technologies, organization of the exchange between specialists, etc.).

Conclusions

Appropriate conditions exist for Angora goat production in the Soghd province of Tajikistan.
Householders were given land plots for agricultural production.
Research sites: crop production: 55–65%, livestock production – 35-45%.
There is a gradual increase of the households' share in agricultural production.
In the 3rd quarter of 2007 the agricultural cooperatives B. Gafurov and I. Khamzaliev were reorganized to dekhkan farms.
Angora goat production is a promising activity as Angora mohair and yarn has a demand on international market.
Factors like limited access to resources, means of production, and markets, insufficient farm management skills of smallholders are the production constraints.
Major income of householders is generated from selling of mohair, yarn, and knitted goods, selling of kids and goats. The biggest income share is collected in spring and summer time during shearing of goats and kidding period, and during apricot harvesting.

Along with goat production establishment of mohair processing enterprises should be promoted as the significant part of produced mohair is exported to Russia and other CIS countries without any value addition.

For further studying of the livelihoods and market access it is necessary to continue deep analysis of the HHs in project sites by undertaking:

- selection of HHs with different income levels;
- determination of the flock of Angora goats and other animals in HHs and private farms;
- determination of the production volume in HHs;
- determination of the quantity of products sold by smallholders;
- analysis of the most profitable activities of HHs;
- elaboration and introduction of methodical materials on farm management for smallholders.

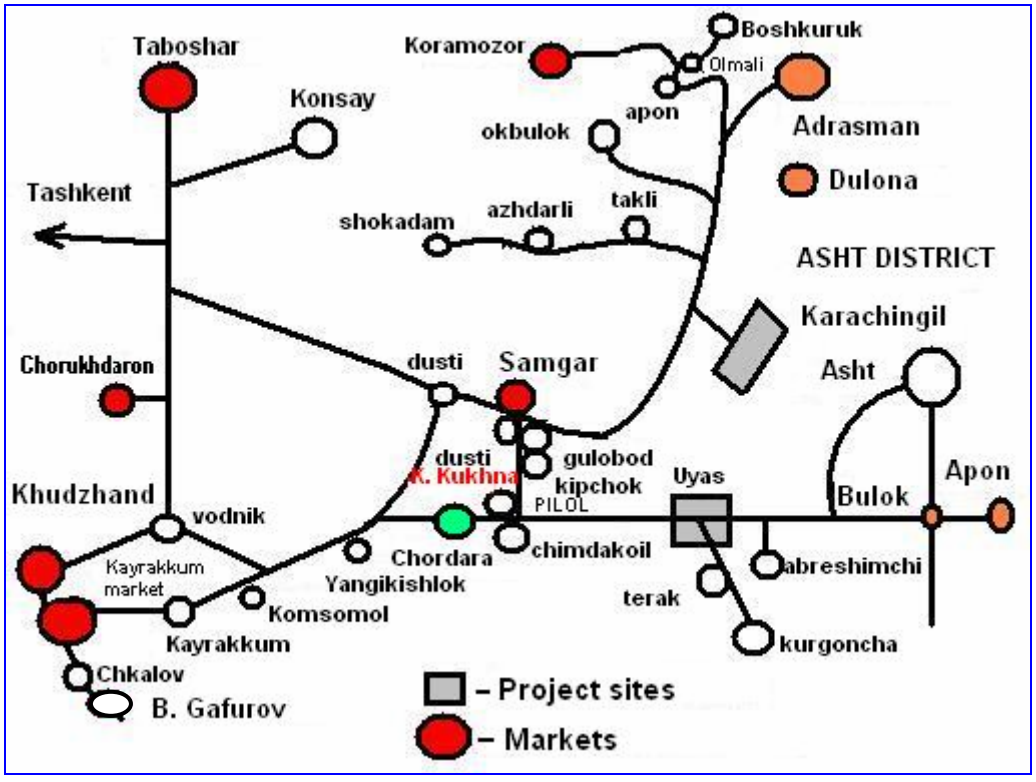
Activity 3. Analysis of mohair goat fiber markets and farmers market access in Tajikistan

Major markets in the area

Major outlets for livestock products are located in Khujand, Chkalov, Kayrakkum towns and in B. Gafurov and Asht districts. Mainly animals and mohair are sold when a household needs cash for some family arrangements or for procurement of food and clothing.

In the region, there are 10 markets of livestock, mohair and wool, and knitted clothing (socks, mittens, pullovers, mufflers, dresses, etc.). Major markets in the research area are described on table 22.

Diagram 8. Distribution of markets in Ismoil Jamoat



Dzhuma bazaar in Khujand is under reconstruction, and yet it does not look like an organized marketplace. It is planned to be constructed in 2009. Sellers simply put their mohair, yarn and knitted goods on the ground. Sellers use their own weights. Sales volume depends on seasonal demand: when it is high, sales form 2,000 - 3,000 kg, and when demand is low, only 500-1,000 kg of mohair are sold. Maximum 200-300 kg of yarn can be purchased during the peak season, and 50-100 kg, if less people are willing to buy it.

Table 22. Animal and mohair markets in the Ismoil Jamoat

Town / village	Commodity / animals sold	Market size (ha)	Distance to Khudzhand (km)	Business day	Services	Number of middlemen	Business volume
Khujand (Dzhuma)	Mohair	5 (including 0.03 ha for selling of mohair and yarn)	-	Friday	n/a	5 – 8 (mohair)	1,000 – 3,000 kg
	Yarn	0.03	-	Friday	n/a	2 – 5	100 – 300 kg
	Knitted goods	0.03	-	Friday	n/a	2 – 5	20 – 30 pairs of socks, 5 – 10 pairs of mittens, 1-3 sleeveless jackets, etc.
Kayrakkum	mohair	11 (including 0.2 ha for mohair, yarn, and knitted goods)	5	Sunday	n/a	5 – 8	500 – 2,000 kg
	yarn	0.2	5	Sunday	n/a	5 – 15	50-200 kg
	knitted goods	0.2	5	Sunday	n/a	4 – 7	25 – 45 pairs of socks, 15 – 30 pairs of mittens, 3-5 sleeveless jackets, 12 -15 shawls, etc.
	livestock	0.1	5	Saturday, Sunday	V, F	over 50	-
Samgar	livestock	2 (including 0.05 ha for selling of animals)	32	Saturday	V, F	up to 20	-
Chorukhdaron	livestock	1 (including 0.015 ha for selling of animals)	8	Wednesday	V, F	12	-
Taboshar	mohair	1.5 (including 0.01 ha for mohair and yarn)	20	Saturday	n/a	4-7	300 – 1,500 kg
	yarn	0.01	20	Saturday	n/a	2-5	50 – 200 kg
Koramozor	mohair	2 (including 0.01 ha for mohair and yarn)	65	Saturday	n/a	6	200 – 1,000 kg
	yarn	0.01	65	Saturday	n/a	3	50 – 150 kg
Adrasman (Asht district)	mohair	2.5 (including 0.015 ha for mohair and yarn)	63	Saturday	n/a	8	2,000 – 3,000 kg
	yarn	0.015	63	Saturday	n/a	6	200 - 400
Dulona (Asht district)	livestock	0.08 (0.01 for selling of	58	Saturday	V, F	17	-

		animals)					
Apon (Asht district)	mohair	6	57	Saturday	n/a	15 – 20	2,500 – 6,000 kg
	yarn	6	57	Saturday	n/a	10 - 16	100 – 600 kg
	knitted goods	6	57	Saturday	n/a	8 - 12	30 – 60 pairs of socks, 25 – 50 pairs of mittens, 8 – 15 sleeveless jackets, 15 -25 shawls, etc.
	livestock	0.04	57	Saturday	V, F	over 50	-
Bulok (Asht district)	mohair	4 (0.04 for mohair, yarn, and knitted goods)	50	Sunday	n/a	15 – 20	2,000 – 4,000 kg
	yarn	0.04	50	Sunday	n/a	8 – 14	100 – 600
	knitted goods	0.04	50	Sunday	n/a	6 - 10	20 – 40 pairs of socks, 15 – 30 pairs of mittens, 3 – 5 sleeveless jackets,
	livestock	0.03	50	Sunday	V, F	over 50	-
V: veterinary unit **S**: Stall **F**: Fence **Sc**: Scale **n/a**: not available Source: market survey							

Kayrakum bazaar is located in B. Gafurov district between Khujand, Kayrakkum, Chkalov, and B. Gafurov towns. The market is not equipped, and there are no counters so that sellers put their products on the ground or use self-made counters for selling mohair yarn and knitted goods. Provincial livestock exhibitions are organized at this market.

Samgar bazaar is located in a desert area close to Dusti village.

On the territory of the Jamoat, there is an animal and food market operating once a week, on Saturdays. However, there is no regularly functioning stationary market due to scattered location of the villages as well as lack of transport connection and other communication means. Major markets for selling and procurement of goods are markets in Khujand and Gafurov towns. Major exported products include yarn and Angora mohair, handmade mohair goods, livestock, almonds, walnuts, and dried apricots. Major imported products are flour, oil, rice, soap, matches, clothes and shoes, fuel (due to lack of electric power line people use the generators working on a petrol or kerosene), feed for livestock and poultry.

Table 23. Prices for animals and livestock products at the markets

Name of livestock (products)		**Unit**	**Market prices (in somoni) (March-April) 2007, 3.44 TJS = 1$ USA**							**Khujand Dec. 2007 3.50 TJS = 1$ USA**
			Khujand	**Kayrakkum**	**Jamoat Ismoil**	**Chorukh daron**	**Taboshar**	**Adrasman**	**Appon Asht district**	
Angora goat		head	-	75-110	75-110	70	70-100	-	70-100	180
Jaydara goat		head	-	80-100	80-100	75	75-110	-	70-100	180
Sheep		head	-	350	350	350	350	-	350	400
Cow		head	-	800	800	700	700	-	750	900
Bull calf for fattening		head	-	450	350-500	350	350	-	400	500
Offspring	**calf**	head	-	250	220-300	200	200	-	250	280
	lamb	head	-	180	180-200	150	150	-	180	200
	kid	head	-	30-50	35-40	30	30	-	35-50	50
Mohair of Angora goat		kg	25-35	25-35	-	-	25	20-30	20-25	35

Name of livestock (products)		Unit	Market prices (in somoni) (March-April) 2007, 3.44 TJS = 1$ USA							Khujand Dec. 2007 3.50 TJS = 1$ USA
			Khujand	Kayrakkum	Jamoat Ismoil	Chorukh daron	Taboshar	Adrasman	Appon Asht district	
Mohair of Angora kid		kg	15-20	15-20	-	-	17	15-20	12-15	20
Sheep wool		kg	up to 1	1	-	up to 1	up to 1	1	1	1
Angora yarn		kg	25-30	25-30	-		27	28-35	27-30	35
Mohair socks		pair	2	3	-	-	2	2	2	5
Mohair mitten		pair	2	3	-	-	2	2	2	4
Mohair pullover		pcs	15	20	-	-	15	15	15	20
Mohair shawl		pcs	25	35	-	-	25	25	25	70
Meat	**Beaf**	kg	9-10.50	-	-	10	10	10	10	12
	Lamb	kg	13-14	-	12	12	12	13	13	15
	goat meat	kg	-	-	09-10	10	10	10	10	12

Source: data collected by the researchers at the markets.

Production

Mohair and knitted goods are produced by people facing a shortage of funds. During the recent years genetic breed quality of the flock has worsened. Consequently, goat productivity, meat and mohair production per head significantly declined. In the first years of adaptation of Angora goats in the district, meat production per head formed 30-40 kg and annual mohair production was 6-7 kg. Nowadays only 20-25 kg of meat can be produced from each goat, and annual mohair sheared from each goat is 0.7-1.3 kg, rarely 2 kg. Mohair quality has been also decreasing and significantly worsened. Mohair does not have a luster and its natural color is faded. These trends reflect the worsening flock management, keeping, and feeding conditions.

Householders shear their goats and sell mohair at local markets. Those producers who are able to process mohair and produce yarn keep a part of mohair. Income from the sold mohair is then used for procurement of basic goods.

Wholesalers buy more than 1,000 kg of mohair for reselling to other buyers or processors. Small scale processors are usually women-housekeepers who buy 5-10 kg of mohair for further processing and yarn production at home. Then produced yarn and/or knitted clothes are sold at the market, and the funds are partly used for family needs and partly for procurement of a new portion of mohair.

Wholesalers practice procurement and accumulation of big amounts of mohair at low prices in spring. Then they store mohair and either wait for the buyers from CIS countries or expect for the price increase by end of summer or beginning of fall. Wholesalers are mainly urban residents, and sometimes there are people from the Asht and Mastchinsk districts. There are three types of wholesalers: procurers, processors, and middlemen. Small scale buyers come from CIS countries including Russia, Uzbekistan, Kyrgyzstan, and Kazakhstan. Both men and women participate in market transactions. Women dominate among processors, while the majority of wholesalers are men.

Organization

Vertical organization of production and marketing of mohair in the research site is very weak. In the Jamoat, there is no joint venture between producers, buyers, and processors. Each participant of the marketing chain acts independently. Joint activity is developed rarely between producers and buyers. It is mainly observed between relatives or close friends. In this type of relations, producer entrusts produced mohair or yarn to buyer before collecting money to maximize his income. Upon accumulation of the required volume of mohair, the buyer exports mohair out of the country. Mohair is further sold at attractive prices, and the final settlement with the producer is made after return of the wholesaler. These are one time deals that do not continue the parties' responsibilities. Deals between buyers and sellers are usually made in cash. In most cases market deals are made on the spot with the immediate settlement. There is a lack of mohair processing enterprises, associations and other entrepreneurial activity that leads to chaotic relations between producers, buyers, and processors.

Fattening

Sandy-pebble soil in this region does not allow growing of truck crops, forage cereals required for feeding. Forage and feed are procured at local markets. Smallholders graze their animals on rangelands that have also degraded due to overgrazing by the increasing number of the agricultural animals. In winter period, animals cannot access forage under a snow cover, that is why householders feed their livestock upon return from pastures. Producers feed their animals mainly in the evening by 100 gr. of feed per head. Depending on the income of the household feed can contain barley, oats, combined feed, cotton cake, bran, alfalfa, etc.

Aggregation of products

The conducted study of Angora mohair producers and buyers shows that these categories of people do not establish union or society to accumulate their products into one big consignment for selling at the market or sending to buyers. However, they share information on promotion of goods, agree with each other on offering the same price to buyers. Rural smallholders do not trust each other, and, trying to avoid arguments on mohair quality, they try to sell their products themselves.

Agricultural cooperatives also do not aggregate their mohair.

Another reason of the producers not joining to unions or societies is lack of knowledge on entrepreneurial activity, lack of organizations, and lack of reliable and regular marketing channels. Wholesale customers change every year, and their activity is spontaneous and chaotic.

Classification of products

Studies show that mainly unwashed mohair of yearling and older goats are sold at all markets in Soghd province. Shearing is done in spring before season of rains and hot weather to avoid perspiration of animals that negatively affects the mohair quality. Mohair should be of the same length and thickness and have a luster to be sold at a higher price. Depending on the market demand mohair of Angora goats is classified by color, luster, length, thickness, cleanness, and structure. Yarn made of Angora mohair is classified by color, thickness, cleanness, the number of nodules per unit of length, availability of dead fibers, and composition.

Goods made of the mohair of yearling goats have the highest value in western and US markets due to its lowest thickness of fiber and softness (for example, Angora mohair produced in SAR) (see Dr. L. Brent's report for the IFAD project, 2007). At local markets producers do not care much about the quality of mohair produced by yearlings. This type of mohair is undervalued and can be marketed at a low price of 12 – 20 TJS per kg depending on its quality.

Cleaning

Producers market both dirty and scoured mohair. Mohair is scoured by women by using the manual carding machines. Some produced sell small portions of the cleaned mohair. The market price for washed mohair fluctuated between 25 and 35 TJS in 2007. Demand for clean mohair is not high.

Packaging

At local markets small volumes of mohair and yarn are sold without packaging. For transportation smallholders use sacks. Middlemen and procurers also use sacks for storing. Mohair is kept in warehouses for selling to big buyers. During exports of mohair out of the country, it is pressed and packed into 40 kg coarse calico bales.

Coordination between buyers and suppliers

The market price is set according to the supply of and demand for mohair. There is no coordination between producers and buyers.

Quality control

Buyers evaluate the quality of mohair visually and manually. There is no technical standard at markets. Sellers do not have a certificate of origin for mohair. During selection of mohair buyers consider such factors as the same length and thickness, luster, less foul, lack of dead fibers, etc. No one uses parameters set during the Soviet Union including thickness of fiber measured in microns and length of fiber in centimeters for certain age and gender groups of goats.

However, when mohair is exported from Tajikistan, it should go through a quality test. Senders are given certificates of origin issued by branch of the Tajikistan Chamber of Commerce and Trade in Soghd province. In certificate, mohair is usually classified as consolidated, i.e. collected from several farms.

Reduction of risk for buyers

Risk facing the buyers is concerned with the quality of the mohair or yarn being sold. Study of the mohair and yarn markets shows that not all producers pay attention to the quality. The main reason is that smallholders have insufficient knowledge and experience on goat breeding, selection, and other flock improvement activities. Many of them keep goats as natural savings. In addition the quality of mohair depends on flock quality, feeding, rearing conditions, and shearing technology.

Buyers (middlemen or wholesale procurers) need certain knowledge to identify the actual quality of mohair. Some buyers come to the market with a specialist. In that case risk concerned with the product quality depends on the buyer himself.

Buyers can experience the following risks:

Marketing risks:
- possible changes in market situation;
- quality and rating of the product are not studied;

Financial risks:
- sources of finance are not determined;
- possible delay in settlements for the products by foreign buyer;

Organizational risks:
- season (failing to target the season of high demand and the highest mohair market prices).

Mohair market value chain

Value chain of the mohair market in Soghd province is shown on Diagram 9.

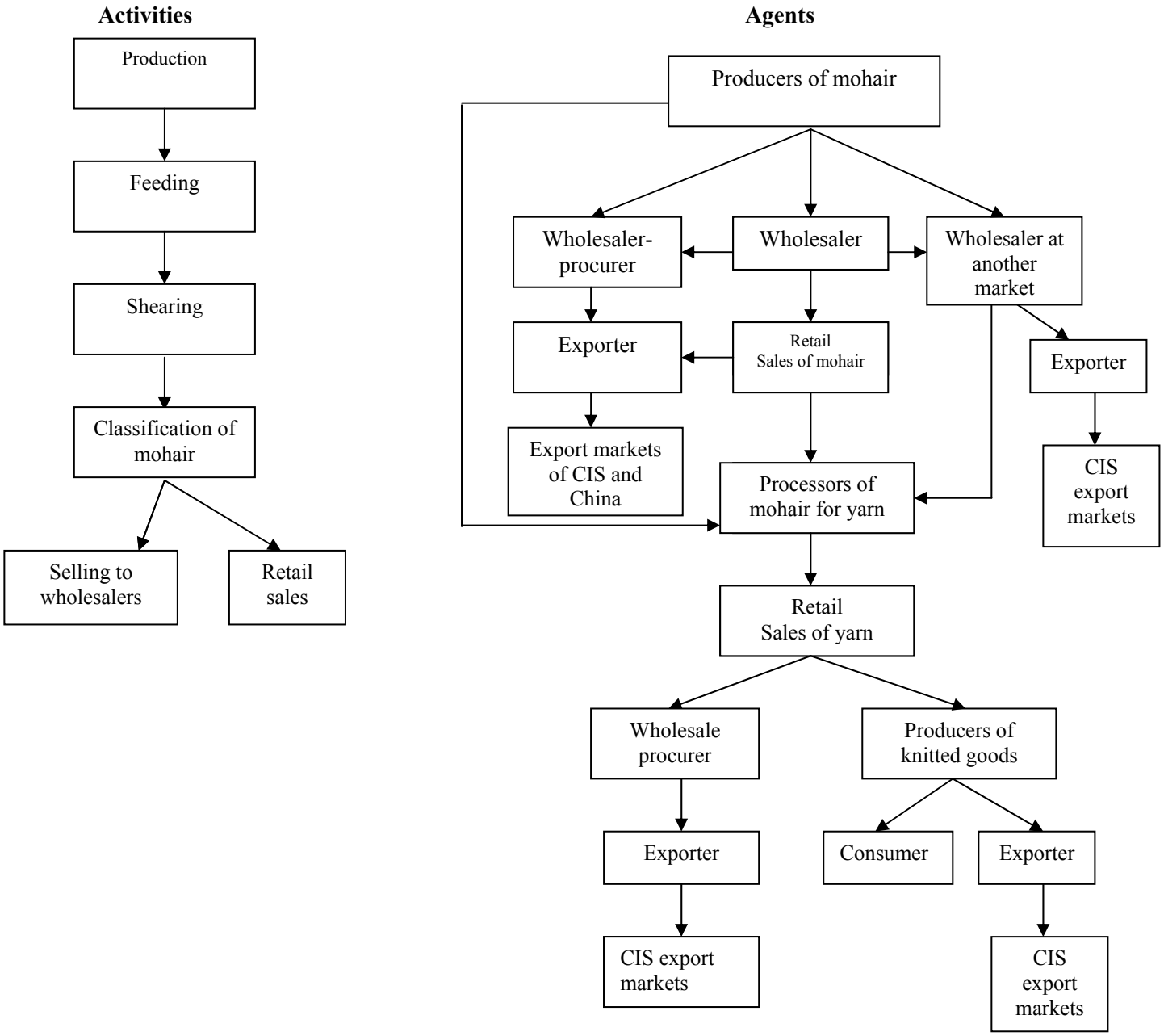
The following agents have specific functions at the market:

- Wholesaler – middleman buying mohair from producer and selling it at the market without any value addition, i.e. mohair is resold in the same condition as it had been procured

- Wholesale procurer – middleman buying mohair from producer and undertaking the following activities:
    1. storage;
    2. sorting of mohair (by color, quality, length, etc);
    3. presale preparation of the mohair (advertising, searching for buyers, contract, obtaining of required documents for customs;
    4. packaging;
    5. sending of mohair to buyer.

- Wholesaler at another market (for example, at the nearby district) – middlemen who speculates over place.

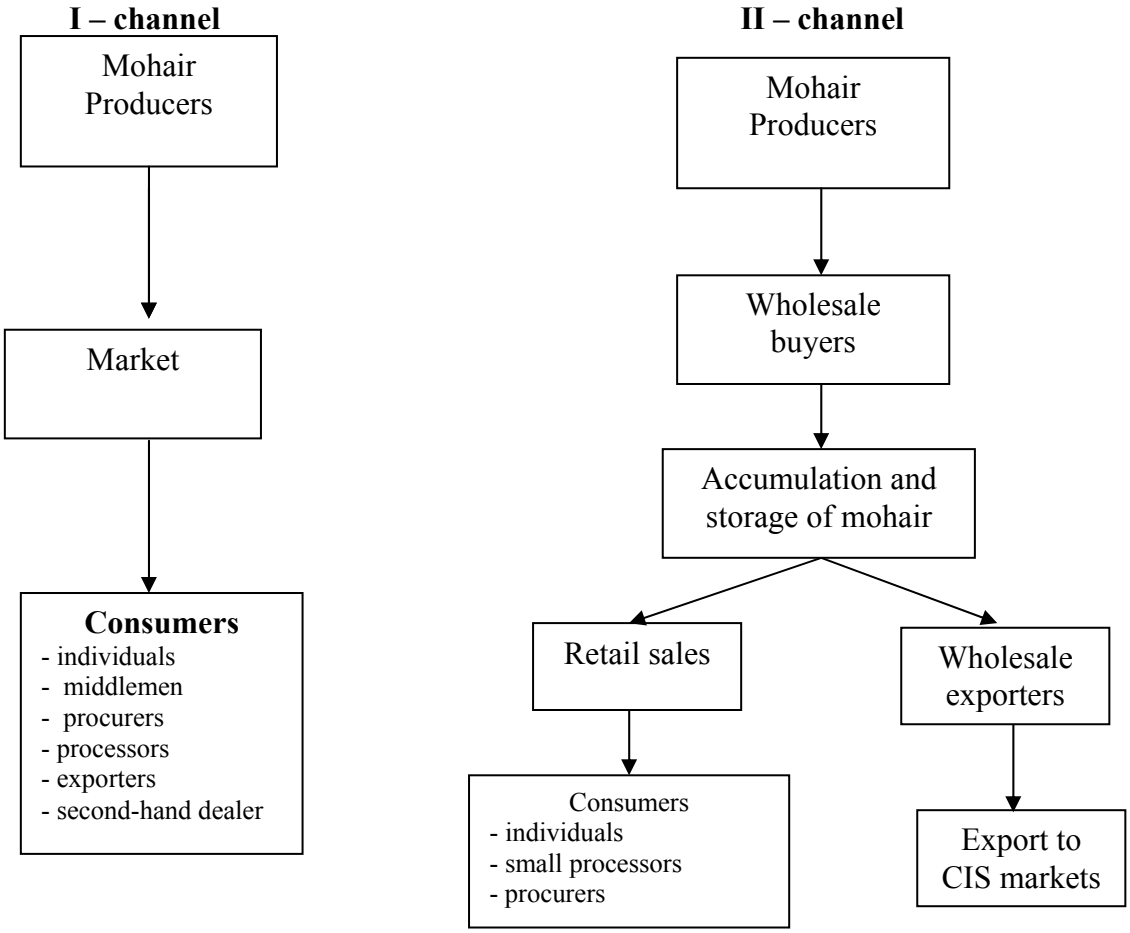
Diagram 9. Value chain: mohair markets of the Soghd province



Marketing channels

The following three marketing channels for mohair exist in Tajikistan:

Diagram 10. Mohair marketing channels



As shown on the Diagram 10 (channel I) producer has a direct marketing channel to market. All functions of trader are undertaken by the producer himself. As for the supply of products to wholesale buyers (channel II), the latter sell products through their channels: supply from the warehouse to market through their sellers, selling to procurers and export to CIS markets, selling to processors.

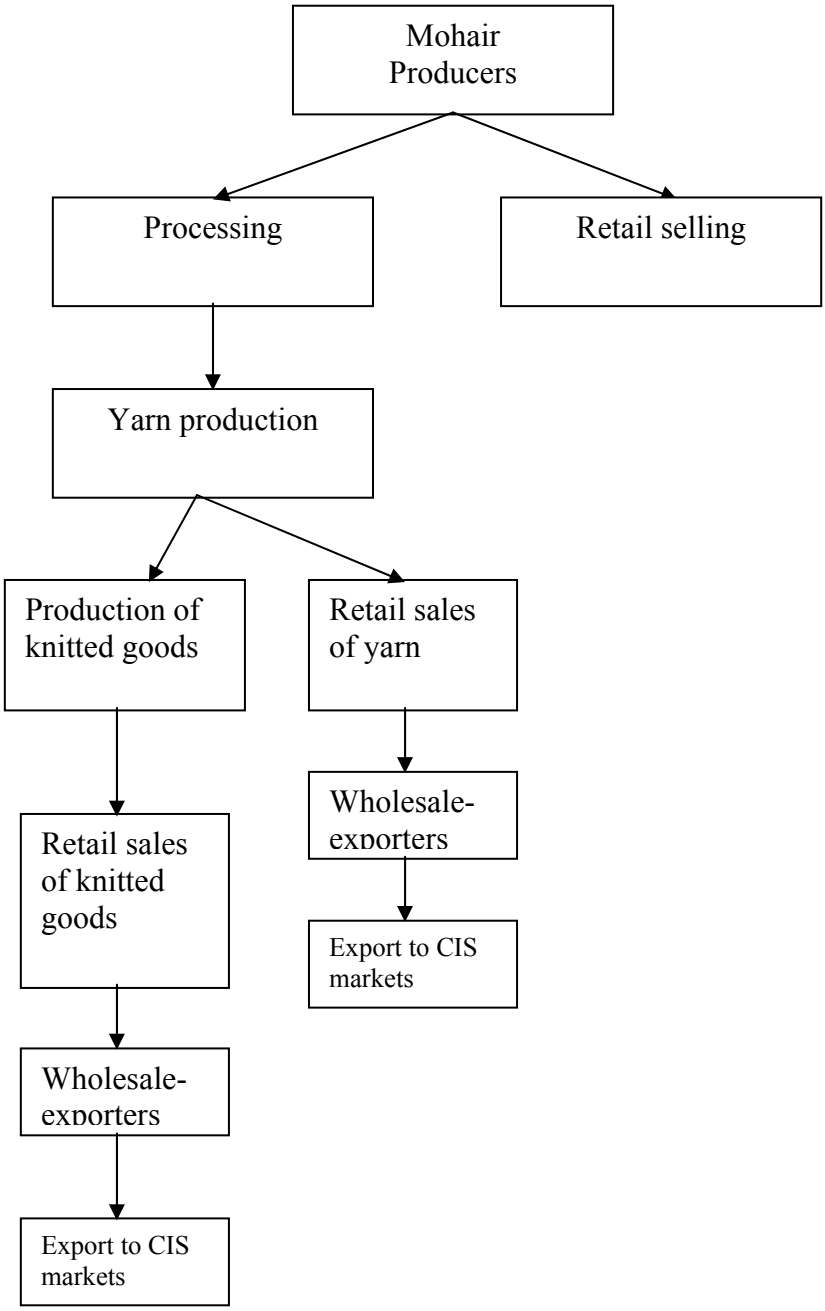
For small-scale suppliers (up to 20 kg of mohair) there are the following channels for marketing of mohair:

- I channel of retail trade (direct supply to the market);
- II channel of wholesale supply.

For large-scale (up to 500 kg of mohair) producers the following channels can be described:

- I channel of retail trade (direct supply to the market);
- II channel of wholesale supply
- III mixed channel (partial processing for yarn and retail selling)

III – channel



The number of buyers by type and for each channel is described below:

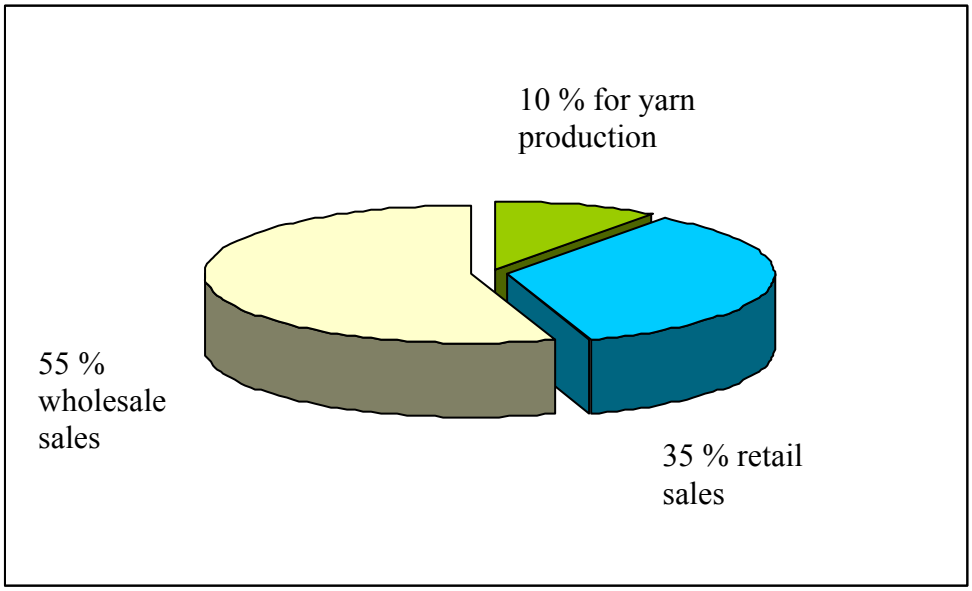
In channel I:
- individuals - (1- до 10 buyers);
- middlemen - (1-3);
- procurers - (1-3);
- processors - (private 1-10; firms 1-3);
- exporters - (1-2);
- second-hand dealers - (1-5).

In channel II:

- middlemen - (1-3);
- procurers - (1-3);
- processors - (firms 1-3);
- exporters - (1-2);
- second-hand dealers - (1-5).

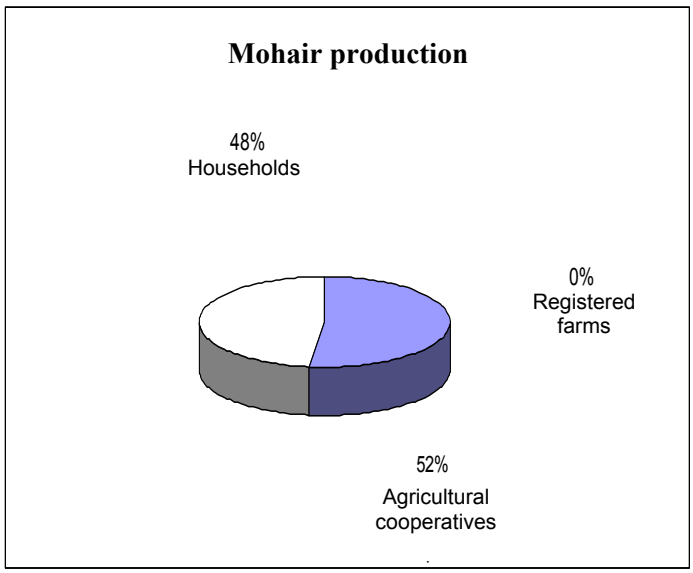
In channel III:
- middlemen - (1-3);
- procurers - (1-3);
- processors - (firms 1-3);
- exporters - (1-2);
- second-hand dealers - (1-5).

Diagram 11. Shares of the product going to different channels



Source: middlemen selling big volumes of mohair (100 and over kg)

Diagram 12. Shares of different farm types producing mohair and keeping mohair goats



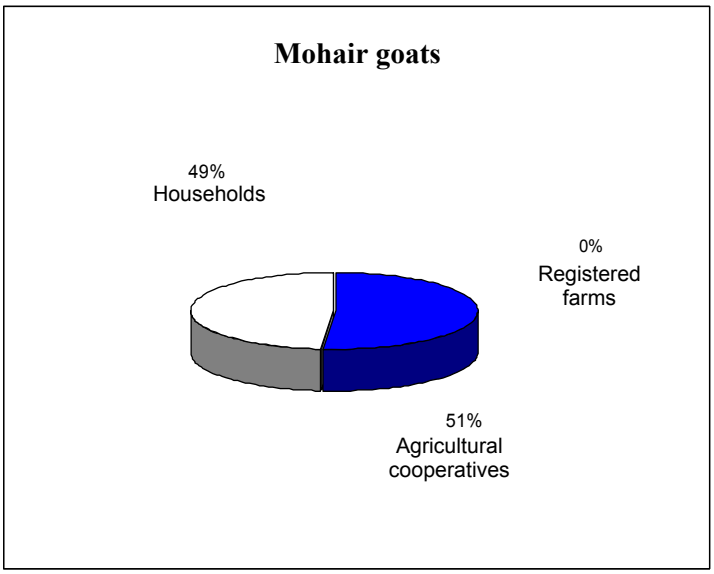


Table 24. Distribution of mohair goats and agricultural products by farm types

Name of the product	Unit	Total produced volume		Agricultural cooperatives		Registered farms		Households	
		Total	%	Total	%	Total	%	Total	%
Mohair goats	heads	30,553	100	15,659	51	-	0	14,894	49
Mohair	kg	23,519	100	12,200	52	-	0	11,319	48
Yarn	kg	-	100	-	-	-	0	?	100

Conclusions on mohair market analysis

Rapid study of mohair market in Soghd province shows that it is unstable and heavily depends on the wholesale customers from Russia. It is difficult to predict the expected number of foreign buyers. For householders with small number of goats it is difficult to access markets in Russia directly due to high marketing costs involved. This uncertainty puts more pressure on mohair producers with a subsistence income level who can not wait for a long time and need cash for daily expenses. As a result, middlemen with more financial resources and storage facilities benefit from low mohair purchasing prices in spring season and high selling prices in fall.

Mohair producers in most cases do not sort the produced fiber by quality or other criteria. Such value addition activities as sorting, packaging, and washing of mohair are mainly undertaken by wholesale procurers who are interested in selling big volumes of mohair to customers at markets located in Soghd province or to CIS countries. Middlemen mainly live in urban areas.

Lack of information, shortage of financial resources, and inability to efficiently market mohair make producers less organized.

Mohair prices depend on the season, distance between the local markets and central markets and marketing costs. The extent of each factor's impact on mohair price will be identified upon completion of the mohair producers' survey in 2008.

Mohair producers can increase their income from production by meeting all requirements of customers, correctly determining the product cost, and establishing of his own mohair processing system.

Results of the quick market research show that, due to lack of the complete information about product, inappropriate classification practices, and fiber condition, mohair and yarn prices are very low to meet all production costs. Further market studies will help to identify the ways to increase income from mohair goat production.

Information on middlemen-exporters and mohair buyers in 2006 is indicated on table 25.

Table 25. Exports of mohair from Soghd province for 2006

Date of export	Destination	Name of commodity	Customs value (USD)	Weight (kg)
17.04.06	Turkey	Mohair of goat	40,800.00	24,000
25.05.06	Turkey	Mohair of goat	39,100.00	23,000
06.06.06	Russia	Mohair of goat	36,077.00	30,064
12.08.06	Turkey	Washed mohair	11,900.00	7,000
18.08.06	Russia	Washed mohair	21,712.00	18,094
26.07.06	Russia	Goat mohair	10,000.00	14,840
09.06.06	Kazakhstan	Goat mohair	26,975.00	26,675

Note: Data collected from the Customs Committee of Soghd province.

Diagram 13. Dynamics of the mohair price in 2006

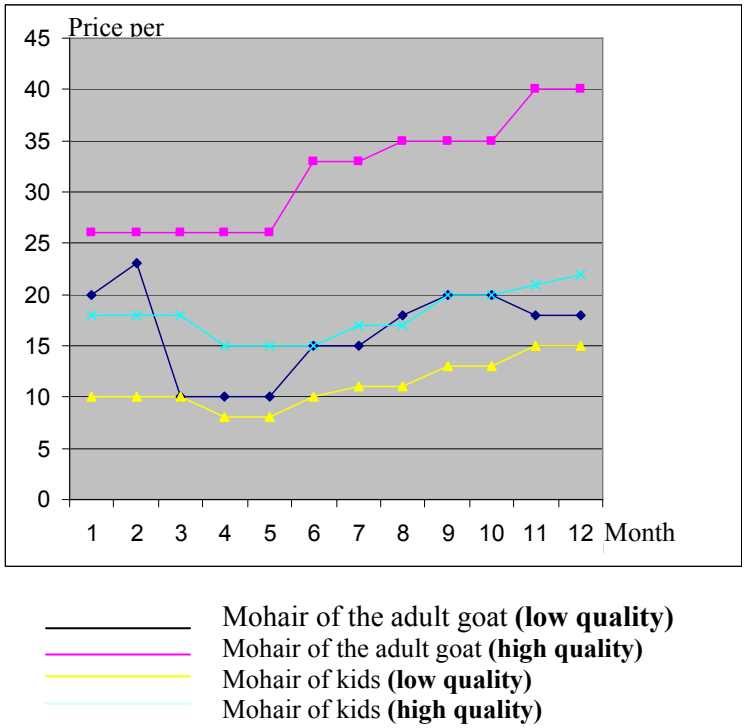


Diagram 14. Dynamics of the mohair price in the 1st half of 2007

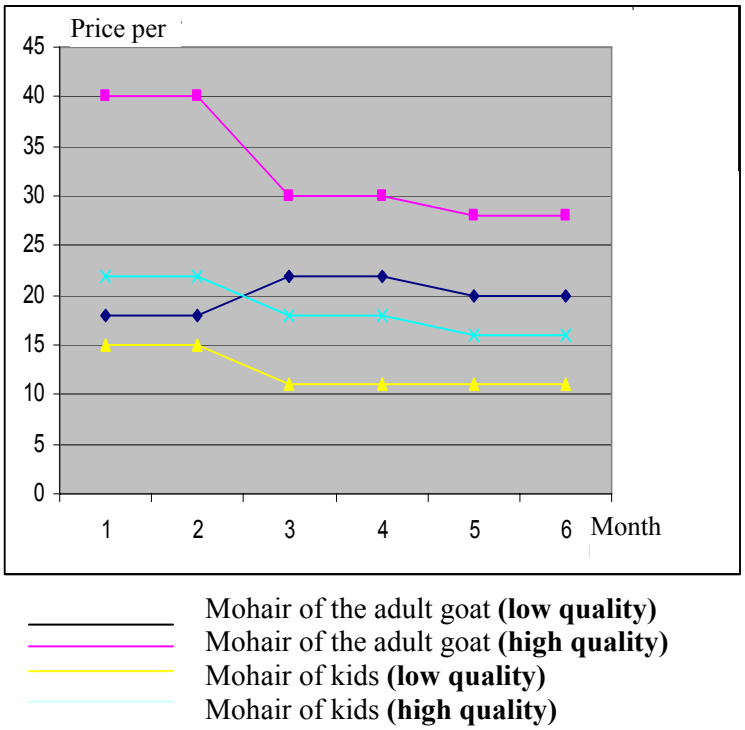


Table 26. Decomposition of Angora mohair retail value along the marketing chain

Agents	Item	Tajik Somoni/ 10 kg
Mohair producer		
	1. Transportation cost	5.00
	2. Commission	1.00
	3. Marketing cost (item 1+ item 2)	6.00
	4. Selling price	250.00
	5. Farm gate price (item 4- item 3)	255.50
	6. Value added share of the retail price (%) (item 4÷ item 26)	85
Middleman		
	7. Transportation cost (100 km from the market)	5.00
	8. Commission	1.00
	9. Marketing cost (item 7 + item 8)	6.00
	10. Selling price	267.50
	11. Profit margin (TJS) (item 10- item 4- item -9)	11.50
	12. Profit margin (%)(item 11÷ item 4)	5
	13. Value added share of the retail price (%)(item 10- item 4) ÷ item 26	6
Value adding wholesaler		
	14. Transportation cost (inside the province, 150 km from the market)	5.00
	15. Commission and scale fee	0.00
	16. Marketing cost (item 14+ item 15)	5.00
	17. Production cost (storage of the product in warehouse)	1.35
	18. Selling price	280.00
	19. Profit margin (TJS) (item 18 - item 10 - item 16 – item 17)	6.15
	20. Profit margin (%)(item 19 ÷ item 10)	2
	21. Value added share of the retail price (%) (item 18 - item 10) ÷ item 26	4
Middlemen-exporter		
	22. Transportation cost (within the province)	5.00
	23. Commission (costs of Certificate, Sanitary Certificate, and customs duties)	1.50
	24. Payment for storage and packing	1.35
	25. Marketing cost (item 22 + item 23 + item 24)	7.85
	26. Selling price	295.00
	27. Profit margin (TJS) (item 26–item 18– item 25)	7.15
	28. Profit margin (%)(ст.27÷ст.18)	3
	29. Value added share of the retail price (%)(ст.26-ст18) ÷ст.26	5

Tajikistan (Dushanbe)

Introduction

Tajikistan is an agrarian country with 73% of the population living in rural area. After the collapse of the Soviet Union and civil war this country has gone through perceptible economic and social shocks.

There was an economic decline in the Republic. Agrarian sectors were also affected by the economic crisis. By 1997 agricultural production decreased by more than 50% compared to 1991. In 1997, there was the following decline in production: meat by more than 60%; milk – by 70% and eggs – by 94.3%, and their processing dropped by 91.4%. Per capita domestic production of livestock products decreased from 63 to 94.5%. Occurred macroeconomic and microeconomic decline negatively affected income of the population, poverty rate has increased and in 2006 formed 64% (in rural area it was even higher). There are both physical and economic constraints for access to food that endangered the food security of the country.

Activity 1. Analysis of the newly established production systems
Collaborators: G. Safaraliev and A. Kadirov

The conducted analysis shows that in the agroindustrial complex of Tajikistan, there were serious structural reforms, especially in its agricultural sector (still ongoing), that predetermined establishment of different types of farms – from big state farms to small private farms and various forms of dekhkan (peasant) farms.

Analysis of the newly established production systems indicates that there are three major production forms determining variety of types of agricultural enterprises established as a result of reforms.

List of the newly established production systems in agricultural sector as of 01.01.2007:

I. Agricultural enterprises:

1.1. state agricultural enterprises;
1.2 collective farms;
1.3 joint-stock and leased agricultural enterprises;
1.4. subsidiary, newly established and other agricultural enterprises.

II. Dekhkan and farmers' farms (DFFs):

2.1 collective DFFs;
2.2 individual DFFs;
2.3 family DFFs.

III. Private:

3.1. households (family communities);
3.2. farms of individual families;
3.3. farms of individuals.

In the categories 1.3. and 1.4., the collective enterprises still represent the largest part of privatized farms.

Table 27. Different production systems in agriculture and their agricultural land areas in Tajikistan as of 01.01.2007.

Production systems	Quantity	Total land area		Arable land area		Rangeland area	
		ha	%	ha	%	ha	%
1. Agr. enterprises	1,419	2,576,777	34.62	175,370	22.58	1,104,892	37.10
2. DFF	28,388	4,577,391	61.49	528,806	68.08	1,779,652	59.76
3. Private	759,701	289,706	3.89	72,599	9.34	93,635	3.14
Total	789,508	7,443,874	100	776,775	100	2,978,179	100

Big part of the agricultural cropland in the republic, 34.6%, is still concentrated in the public sector. Although these categories of farms own 20.6% of arable land, 28.5% of natural grasslands, and large area under forage crops, they produce only 5-6% of livestock products. State farms mainly own state seed producing and breeding farms, land of research institutes, subsidiary farms of the Ministry of healthcare, Ministry of education, and several big industrial enterprises. The number of state farms gradually decreases. As of 10.01.2007, they owned 5.4% of arable land and 3.5% of irrigated land area. Unfortunately, the area of forage cropland decreased since 1991 by more than 52%, with the biggest decline of the area under perennial forage crops.

Table 28. Different production systems in agriculture and their agricultural land areas in Vakhdat district as of 01.01.2007.

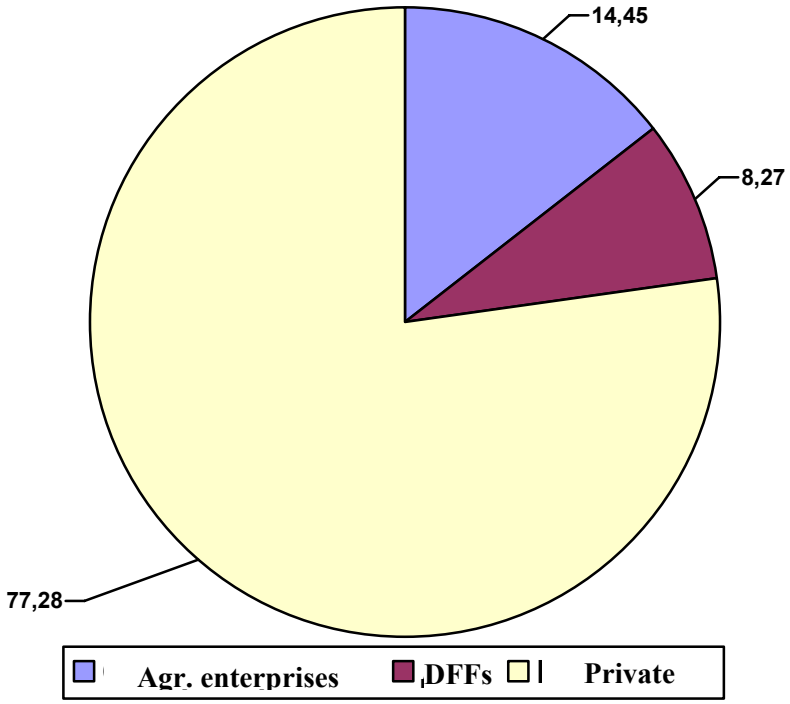
Production systems	Quantity	Total land area		Arable land area		Rangeland area	
		ha	%	ha	%	ha	%
1. Agr. enterprises	42	174,397	93.29	3,050	20.65	23,725	28.53
1.1 state agr. enterprises	3	244	0.13	5	0.03	164	0.20
1.2. joint-stock farms	2	52,048	27.84	1,278	8.65	11,230	13.50
1.3 subsidiary farms	10	176	0.09	108	0.74	0	0
1.4 cooperative farms	3	20,668	11.06	858	5.81	12,150	14.61
1.5. others	24	101,261	54.17	801	5.42	181	0.22
2. DFFs	3,286	11,806	6.31	11,397	77.13	49,032	58.96
3. Private farms		745	0.40	328	2.22	10,400	12.51
Total	3,328	186,948	100	14,775		83,157	100

Data on livestock distribution by production systems of different categories in the country are provided in Table 29.

Table 29. Distribution of livestock and livestock products by different production systems in Tajikistan (01.01.2007)

	total	Agricultural enterprises		DFFs		private	
		head / ton	%	head / ton	%	head / ton	%
	Livestock (thousand heads)						
Cattle	142.8	68.4	4.81	86.3	6.07	1,267.1	89.12
including cows	754.9	20.4	2.70	21.4	2.83	713.1	94.47
Pigs	0.5	0.1	20.00	0	0	0.4	80.00
Sheep	1,955.1	343.5	17.57	189.2	9.68	1,422.4	72.75
Ewes	1,079.6	171.6	15.89	79.9	7.40	828.1	76.71
Share of ewes (%)	55.22		50.00		42.23		58.22
Goats	1,209.7	113.7	9.40	72.6	6.00	1,023.4	84.60
does	680.3	45.1	6.63	25.8	3.79	609.4	89.58
Horses	76.10	10.9	14.32	11.5	15.11	53.70	70.58
	Products (tons)						
Meat	55,867	3,263	5.84	1,590	2.85	51,015	91.31
Milk	544,860	30,459	5.59	16,368	3.00	498,033	91.41
Wool	4,747	728	15.34	282	5.94	3,737	78.72

Diagram 15. Share of small ruminants kept by different farm types



The biggest part of livestock is kept by households and compared to the end of 1990s their share increased as follows: cattle by 45 -50 %; dairy cows - by 60 – 62 5%, and small ruminants – by 40 -45%. Currently they produce more than 91% of meat and milk, although they have only 3 to 9% of arable land; about 3% of rangelands, and 5% of the total forage cropland. The best situation is in registered dekhkan farms that have about 6-8% of livestock, 60% of rangeland resources, 50% of forage crops, while they produce only 2.8 -3.0% of products.

Table 30. Production by different production systems in Vakhdat district for 2006

	total	Agricultural enterprises		DFFs		private	
		tons	%	tons	%	tons	%
Meat	2,493	40	1.6	78	3.1	2,375	95.3
Milk	12,778	416	3.2	930	7.3	11,432	89.5
Wool	41	1	0.25	4	9.7	36	87.8

More detailed information on cropland in pilot district is shown on table 28. In Vakhdat district, regardless insignificant forage cropland, households produce 95.3% of meat, 90.0% of milk, and 88.0% of wool.

Activity 2. Description of sheep production systems, production structure, and constraints for sector development

The first assessment of production systems and sheep production in the pilot district was conducted from March to May 2007. The study was focused on meat producing sheep breeds, mainly on Gissar sheep production. Later, in June, the research design was adjusted according to the guidelines elaborated after the training workshop on methodology of the socio-economic research organized by ICARDA in March 2007 in Shymkent.

Sheep kept in the pilot villages are small and have low productivity. Householders have an extensive sheep production system. Households and small registered farms keep about 92- 96% of small ruminants in the district. Underdeveloped markets and their remoteness, weak development of rural infrastructure, lack of access and irrational utilization of natural rangelands do not allow smallholders to increase sheep production. Production constraints include lack of forage for sheep, lack of access to veterinary services to fight against diseases. Many farmers and householders have to sell their animals any time regardless the season and condition of livestock to rear the remaining animals and to have some income. Many smallholders sell animals when they are in bad financial situation.

The conducted survey of farms and households shows that for last two years (2005-2006) the livestock numbers in many cases show a 3.5 - 5.0% decline, although there is an increasing trend in the district.

In Dusti jamoat, share of the registered farms involved in livestock production forms only 8.3% out of all registered farms. Sheep production is mainly undertaken at a household level. Smallholders keep from 7-10 to 30-50 sheep mainly around villages that leads to serious degradation of the nearby rangelands. Stopping of moving of flocks to remote rangelands and non-utilization of seasonal summer pastures predetermined overgrazing around villages where sheep graze almost throughout a year that led to worsening of bio-botanical composition of rangeland crops.

Table 31. Distribution of livestock on the research territory as of 01.01.2007

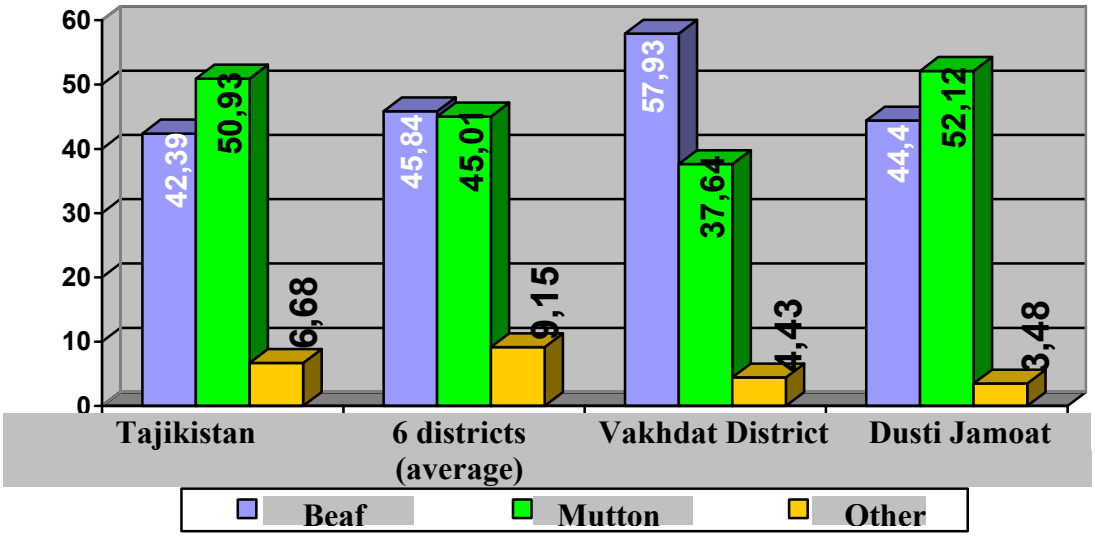
Types of livestock	Vakhdat district	Dusti Jamoat	Share of Jamoat in the district
		heads	%
Cattle	52,783	6,245	11.83
including cows	28,637	3,461	12.08
Sheep	35,500	4,689	13.21
Share of ewes (%)	61.48	57.54	
Goats	36,385	5,065	13.92
Horses	1,481	297	20.05

About 53 farmers and householders were interviewed in villages “Buzbit” and “Turkobod”. The average flock size per household consists of 3 cattle (Lim 0-8); 1 cow (Lim 0-4); 4 sheep and goats (Lim 2 – 37).

In Dusti Jamoat, reproduction indicators of cattle, sheep, and goats are very low. Fertility per 100 cows forms 51 - 53 calves, 85-88 lambs and kids per hundred cows, ewes and does, while potentially they can reach 83-88 calves and 93-98 lambs and kids, correspondingly. Many households don’t have production systems, nagul (grazing of animals on pastures) system, and fattening practices. They sell animals when required regardless the age and condition of animal. Smallholders usually don’t apply selection and culling of reproductive animals. As a result they keep mainly very old ewes and does with low productivity. Rams kept by householders are of a low breed quality, sometimes their breed cannot be identified, crossbreeding of different breeds varying in productivity occurs regularly that would lead to unpredictable segregation.

Share of ewes in the flock of small ruminants used for reproduction is very low at about 53-57%. It is well-known that economic efficiency in sheep production for meat can be achieved at 65-70% share of matured ewes and 22-26% of young ewes in entire flock.

Diagram 16. Share of production of different meat types in 2006 (%)



In Tajikistan, before 1991 share of mutton in total meat production formed 22-24%, nowadays it forms from 43 to 54% depending on the region. And in the pilot jamoat, for last 5 years it has increased by 18.8% and formed 52%. This was attributed to the problem of forage production and very high forage/feed prices that led to growth of the quantity of small ruminants.

Table 32. Sold sheep and goat products

	Small farms and households		DFF
	Up to 15	from 15 to 50	over 50
Sold to processing enterprises	1.01 %	0	2.08%
Sold at the market (live animals)	37.44 %	63.76%	70.01%
Slaughtered for personal consumption, barter and other purposes	61.55 %	29.16%	27.91%

Sheep and goat producers sell the following livestock products: mutton; fat tail; internal fat; viscera; wool; pelts. At domestic market, there is no demand for wool and pelts of small ruminants. Although there are enterprises undertaking primary processing of these products, they work at 10-20% of their capacity. There are middlemen offering very low prices. About 2 thousand tons of wool and over 800 thousand pelts of small ruminants are lost annually in Tajikistan.

Livestock producers in many cases sell their animals at livestock markets according to the visual assessment directly to consumers or through middlemen who evaluate the condition of animals. Existing quality control of the products during sales and veterinary inspection and stations are at low level. That explains a high risk facing producers, buyers, and final consumers.

Major constraints to development of the sector were identified by survey and analysis of the production and feeding systems. These constraints to sustainable development of sheep production at household and small farm level are as follows:

- very high unofficial taxes on arable land and rangelands. Official tax per ha of rangeland is fixed at 4 Tajik Somoni per annum (1.16 USD). About 60% of rangelands in Tajikistan are privatized. These include mainly best rangelands nearby jamoats. In addition there are some people demanding additional unofficial payment (6-8 TJS) for using of trails passing through their rangelands usually used by smallholders for moving of animals to other rangelands;

- lack of the legal base for distribution of available forage resources;
- shortage and imbalanced forage / feed;
- overgrazing of animals on winter-spring rangelands and depletion of natural ecosystem;
- animals kept by the population are small compared to standard fat-tailed sheep;
- restrictions and shortage of irrigated forage cropland;
- lack of infrastructure for transportation of products and sheep to livestock markets or to consumers;
- weak and underdeveloped private veterinary services;
- preventive measures, especially vaccination, are not affordable for households;
- high infertility and mortality of animals;
- financial resources of producers are extremely limited for expanding of production;
- operating markets do not guarantee sales of products and livestock at good prices;
- smallholders consider livestock production as a typical means for subsistence rather than a profit generating sector;
- lack of informative and consultative services on organization of livestock producers;
- lack of small scale local processing enterprises;
- lack of support for establishment of sheep and goat producers' associations;
- lack of legal information and development of legal assistance and system of arguments' resolution;
- there is no market for wool and pelts of small ruminants;
- lack of monitoring and evaluation of livestock production in households.

Activity 3. Analysis of the market prices for agricultural animals over the past 10 years in Tajikistan

Research and available price information for agricultural animals for last 10 years show that livestock prices have been increasing at a high pace. This process can be explained by a very low productivity of livestock produced in Tajikistan and, as a result, low annual per capita meat production equal to 8-10 kg. These data indicate that demand is growing faster than supply.

For example, price for a calve with the live weight of 200-220 kg in the beginning of 1996 was equal to 300 TJS, while by the early 2006 it has increased by 2.6 times, by mid-2007 – by 3.2 times. For the 4th quarter of 2007 the additional increase formed 135 – 150%.

Very high growth rate is recorded for the Gissar lambs. In early 1996 a lamb with a live weight of 50–55 kg could be sold for 75–80 TJS, while at the beginning of 2007 its price reached 250–300 TJS, by the end of 2007 prices increased up to 450 TJS. Lamb price index for 10 years increased by 5.6 times, and for the 4th quarter of 2007 – by 130%.[1]

For the time being in Tajikistan, there is a very high demand for animals for rearing in households and satisfying of demand for meat and processed meat products. Demand for meat and meat products including imports to Tajikistan is satisfied for 11–15% depending on the season. Currently the average daily per capita animal protein intake in the country forms only 8–10 g., while the physiological norm is 48-50 g. meaning that the sufficiency rate is equal to 16–20%, and for rural regions it forms only 10–15%.

Analysis of the livestock market prices (at Vakhdat district and markets around Dushanbe) shows a very high price index for young animals: 4.8 in average for calves; 5.6 for Gissar lambs; 4.2 for goats,

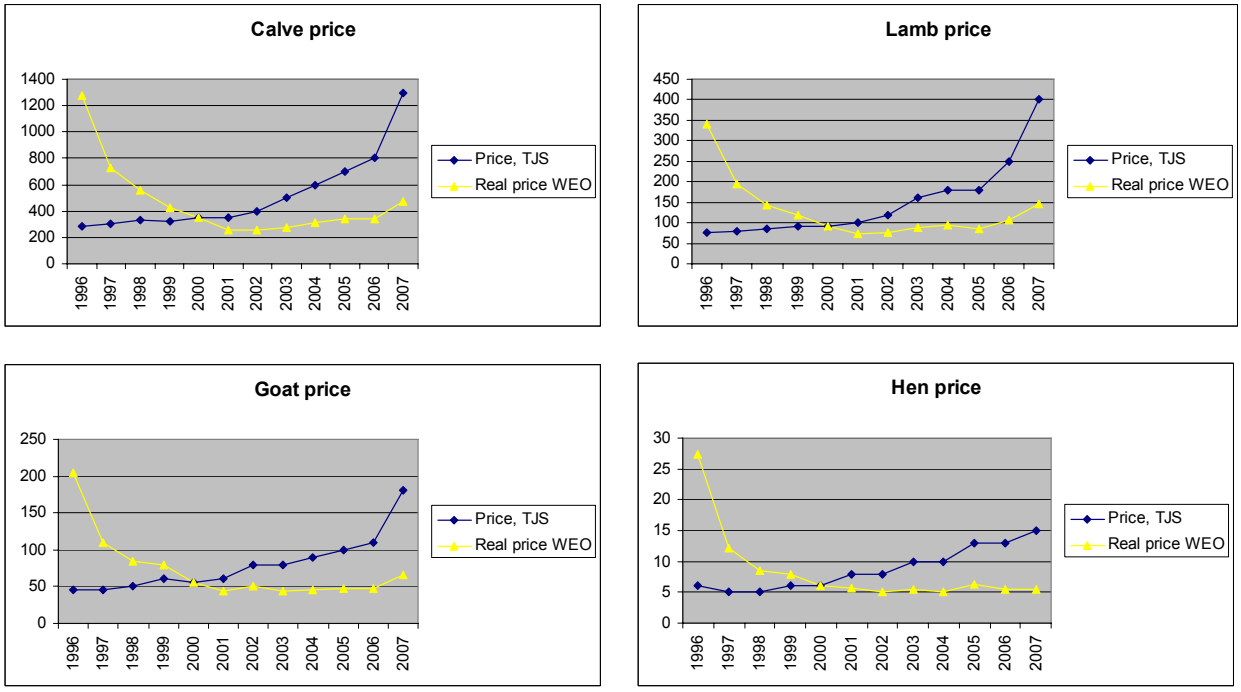
[1] For the price index 1996 is taken as a base year.

and 2.7 for egg producing hens. For pedigree ewes and rams the price index for the mentioned period has increased by 6.5–8 times. At "Sharora" market, Gissar ram (2.5 year old with the live weight of 143 kg) was sold for 1,425 TJS (414 $ US) on 22 Sept. 2007. According to our observations in future (next 2-3 years) the increasing trend for livestock market prices in Vakhdat district and around Dushanbe is expected to remain.

Big demand for livestock products satisfied by domestic production only for 10-12% led to increasing imports of the finished meat products for the last years. For example, in 2001 the imports value formed 1.8 mln. USD, while in 2006 it increased up to 13.3 mln. USD (7.4 time growth). For 9 months of 2007 the growth rate of meat and meat products' imports increased by 52.6% compared to same period of 2006.

Analysis of the nominal and real prices for livestock shows two contradictory trends. The nominal price has been increasing since 1996 with the highest growth recorded in the 2nd half of 2007 due to the rapid increase of the international food prices. However, the real price dropped down by 5-6 times over the period 1996-2001. Some signs of recovery can be observed for calve, lamb, and goat real prices after 2006. Regardless this recent improvement, real prices in 2007 remained 3 times lower compared to those recorded in 1996. The described situation indicates that the real income of householders involved in mainly subsistence livestock production has dramatically decreased making these producers poorer and further exacerbating their access to basic goods and services.

Diagram 17. Nominal versus real prices for agricultural animals, 1996-2007



Source: Data on inflation rates used for calculation of the real prices were used from IMF World Economic Outlook 2007

Multi-market livestock price data analysis

There was a rapid livestock price increase from the 2nd half of September in Tajikistan. From July to September 2007 the growth rate of livestock prices formed 8.5-20.0%, and from September to December it formed 65-70%. Only for the second half of 2007 the sheep prices increased by 200-217% which is the highest price hike for last years.

The conducted market research shows that the highest demand and prices were recorded at the markets around Dushanbe. For example, lamb with the live weight of 50-55 kg at the market in Chorbogh costs 465-500 TJS, while at Vakhdat and Rokhat the lamb price is 20-25% lower, and in rural areas this difference forms 25 -30%.

Recently the newly emerged farmers and householders started paying more attention to livestock rearing because of the attractive lamb prices, and this has in turn led to rapid growth of prices for ewes. Now the prices for good breed animals are higher than those for culled animals. The prices for good breed animals and ewes are 20-25% higher.

Due to lower production cost caused by 8-9 month grazing on rangelands producers prefer rearing of small ruminants that have a higher market demand and lower purchase prices than cattle. Currently share of lamb and goat meat production accounts for over 51%. In Tajikistan, there is a big deficit and high prices for concentrates and grain feed, that makes small ruminants more attractive and profitable than cattle because of their ability to graze distant pastures which reduces feed cost.

For the time being fat-tailed sheep production for meat has a higher priority than other breeds, for example, fine-wool or Karakul, due to lack of demand for wool and pelt and their industrial processing. That is why Gissar lambs are in a higher demand for the last several years, and sheep and goat prices went up rapidly.

Activity 4
Analysis of information on markets and market value chain
Collaborator: G. Safaraliev

During the independence period agricultural markets operating in Tajikistan have been developing spontaneously. As a rule they are not controlled and there are many different unfair middlemen groups. Organized middlemen groups illegally control prices and transportation of agricultural products, especially at livestock markets. Such conditions predetermine complicated access of smallholders to markets where they could meet the increasing demand for livestock products more efficiently. Moreover, monopolistic procurements and processing by several people further exacerbate the situation negatively affecting the economy and income of farmers. Above described situation is observed at livestock markets in Dushanbe and Vakhdat. Livestock markets operate separately from other agricultural markets. Around Dushanbe and in Vakhdat district, there are more than 15 livestock markets operating 3-4 days (regularly on Saturdays and Sundays).

Table 33. Annual average per capita production and consumption of livestock products in Tajikistan

Product	1991	1996	2000	2006
Production				
Meat, kg	13.4	7.8	4.8	8.2
Milk, kg	104.9	29.8	50.6	78.0
Eggs, pcs	81.1	1.0	3.8	15
Consumption				
Meat, kg	26.1	4.0	4.4	8.3
Milk, kg	171	50.4	64.9	72.0
Eggs, pcs	88	11	19	24

Statistical data on level of production and consumption of livestock products is provided on Table 33. More than 73% of population live in rural area, and their consumption of products, especially meat, further decreases. Data show that since 1991 till now consumption of livestock products has been declining dramatically. Actual consumption out of the physiological norm forms: 12.5% for meat; 30% for milk, and 11% for eggs. This is the lowest indicator among CIS and Central Asian countries. For last years import of livestock products in Tajikistan has rapidly increased. However, the consumption remains at a very low level in the republic with the annual population growth rate over 2.2%.

Annual growth rate of livestock products' production for 2000-2005 in average formed 11.8%, while starting from 2006 there was a decline recorded at the level of 5.3%, and 3.8% for the first half of 2007.

Diagram 18. Change of average retail and producers' prices for beef

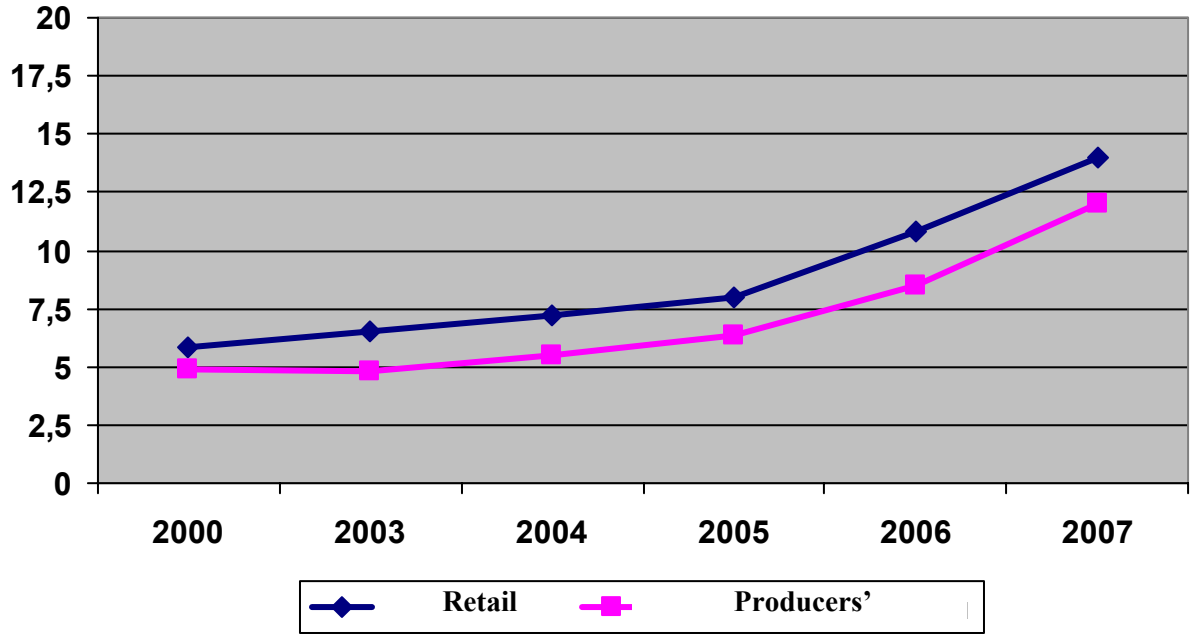
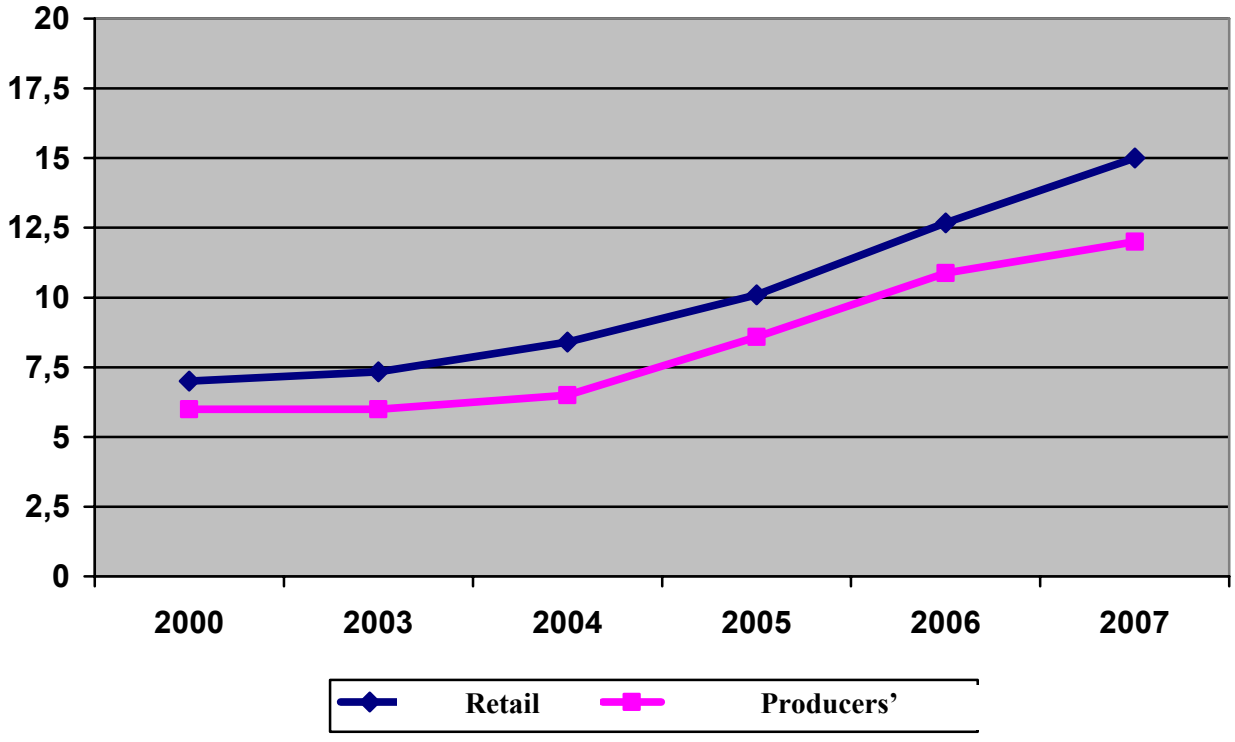


Diagram 19. Change of average retail and producers' prices for mutton



For last 7 years growth rate of retail prices has increased by 2.14 times or by 30.58% in average annually, and for last 2 years this indicator formed 48.52%. For the first half of 2007 the growth rate has increased up to 18.30%, while for producers' prices these indicators were 2.0 times; 28.57%; 39.86%, and 10.29%, respectively.

Analysis of the change of the producers' and retail prices shows that in 2000 the difference formed 16.6%, while in 2006 it reached 25.0%. It implies that 7 years ago producers were loosing 1 Tajik somoni (0.28 USD) per kg of mutton, while now they have a loss of 3 somoni (0.9 USD).

In most cases, when they want to sell the meat of fattened lambs, producers will not be able to sell their products themselves at livestock market due to a big number of middlemen. Middlemen are believed not to play any social and economic role (establishment of rural infrastructure, supply of production inputs, and others), and the only thing they are interested in is procurement of mainly live animals at extremely low prices. Further analysis to be conducted in 2008 will either accept or reject this hypothesis. Marketing channels are mostly illegal. According to our study, only 1-3% of produced mutton is sold to small private processing enterprises due to their low procurement prices. Moreover, big meat processing enterprises use only 3-7% of their production facilities.

Gradual and significant decline of both demand for and supply of agricultural products leads to further distortion of markets in Tajikistan. Supply decreases faster than demand that creates a niche for imports of livestock products often of a bad quality. And the high quality products are often not affordable for many consumers.

Lamb market value chain analysis

During the lamb market value chain analysis operation practices of the following market agents were further clarified:

1- ***Individual wholesale buyers*** mainly procure wholesale numbers and then fatten lambs for selling. Excluding the costs involved for feeding and rearing, the profit forms 18-21% (within 2 months per head of sheep with a live weight of 50 kg farmer can get a profit of 54.4 somoni or 15.8 USD). Within 2 months this agent fattens about 20-25 lambs;

2- ***Seasonal wholesale buyers,*** they buy mainly:
a) in early spring when after wintering animals are marketed at lower prices due to their condition (in addition many farmers during that period need funds for undertaking the field related operations). Upon procurement they send animals to rangelands where they gain 30-35% weight and can be marketed at a 2 times higher price;
b) upon return of animals from rangelands they buy mainly lambs and rams and intensively fatten them. Then they gradually sell them when there is a high demand with the income of about 20-25%.

3- ***Local wholesale buyers*** In each village there are some rich people who know the market demand well. They have their own facilities and good forage resources. Firstly, these people are contacted by smallholders who urgently need money or those who sell 1 or 2 animals and are not willing to transport sheep and face additional costs. Secondly, these buyers visit villages and rangelands on their own cars to procure animals for further fattening and selling during the period of the highest demand (weddings season, family celebrations, etc.)
Local middlemen have similar functions.

4- ***Middlemen at markets*** are usually good specialists who know demand and condition and meat content of sheep (with their dallols, well-known butchers or butcher's shop). This is their informal profession, they buy lambs at the market and resell them at higher prices when possible, or they procure animals for butchers or for someone else and earn good income.

5- ***Butchers owning meat shops*** buy animals for the whole week, usually from 5 to 10 lambs (before different holidays and occasions (Navruz, New Year, national traditional holidays). They usually buy the well fattened sheep regardless their gender, age, and health condition. The only goal they have is to slaughter an animal and sell it at higher price (with profit). At the markets they buy using services of middlemen, dallols. According to their practices, after slaughtering of 50 kg lamb butcher will have 50% of meat. In fact, well fattened sheep (medium and higher than medium) give up to 53-56% of meat), and in addition byproducts of the 1st category (liver, lungs, kidney, and notch) are sold as meat, while byproducts of the 2nd category (limbs, head, and viscera) also have a good demand of local population. In addition, butchers make additional profit on price difference for the fat tail (13%

higher than mutton). According to our research results, butcher makes a 21,3% profit (88.5 somoni or 22.8 USD) from one sheep with a live weight of 76 kg.

6- ***Wholesale agents*** mainly work at the markets located around Dushanbe (Chorbog, Sharora, Rudaki, Karategin, etc.). They use their own transport to go to remote districts (from Pyandj, Parkhar, Kolkhozabad, Temurmalik) and undertake wholesale procurement of livestock from markets, big farms, and registered farms in order to sell them at higher prices during week-ends. They have good market information in Tajikistan. Their profit margin forms 8-15%. However, they often face a high risk. These agents are usually unemployed people.

7- ***Dealers at the regional level*** – they mainly deal with the fat-tailed lambs (Gissar and Tajik breeds), in most cases they buy animals from the markets located close to Dushanbe. Then they deliver animals to the Sogd province (Ura-tubhe and Khujand) and sell them at 18–22% higher price. They transport some 40-50 sheep by truck through two mountain bridgewalls. This route has been newly introduced after building of the tunnel through Anzob bridgewall. Compared to the population of the central and southern parts of Tajikistan people of the Northern Tajikistan have their special mentality, as the latter always prefer mutton with the fat-tail, and there is always a significant price difference. As table 1 shows the mutton price difference forms 13.3–23.0%, while the fat-tail price difference fluctuates between 18.7–28.5%.

Based on the socioeconomic research conducted at project site, Dusti Jamoat and region, the following preliminary conclusions can be made:

- Weakly developed forage base (especially in winter period) is the major problem for all livestock producers. Forage deficit is a consequence of decreased forage cropland area, complete cessation of subsidies and shift from forage crops to commercial highly profitable cereals in irrigated arable land area;
- Sheep production system is broken, smallholders have an extensive small scale production mainly to satisfy the needs of family members;
- Many householders and small farm owners keep livestock mainly as a form of savings to ensure their welfare rather than as an income generating asset;
- Neither big farms (different types of state, cooperatives, and big DFFs), nor collective and family small scale farms nowadays play a significant role in Tajikistan on increasing of livestock production. Households are major producers and suppliers of meat, milk, eggs, and honey to Tajikistan markets;
- Individual, family farms, and households producing livestock do not have access to forage croplands and to remote seasonal rangelands (especially summer rangelands in mountainous area);
- Existing constraints (including complicated access to forage/feed, rangelands, and veterinary services; underdeveloped rural infrastructure, bad access to water, etc.) negatively affect intensive and efficient livestock production, creates conflicts between different groups of farmers, households, and exacerbate degradation of land area and pastures around villages;
- Producers sell the biggest part of their products at local markets rather than to processing enterprises offering lower prices;
- Nowadays small scale producers loose 2-3 Tajik somoni per kg of mutton when they sell live animals or slaughtered sheep;
- Mainly women and children are involved in keeping and feeding of animals at household and individual farm levels;
- The highest share of income in households is generated from selling of live animals, while smallholders get less income from selling of other livestock byproducts;
- Level of farmers' and householders' awareness and their livestock production and feeding practices as well as rangeland management need urgent improvement;
- At local level, households process about 3% of produced products;
- Poverty in the Jamoat still remains very high with more than half of its population consuming less than 2,000 kcal a day.

Diagram 20. Lamb market in Tajikistan

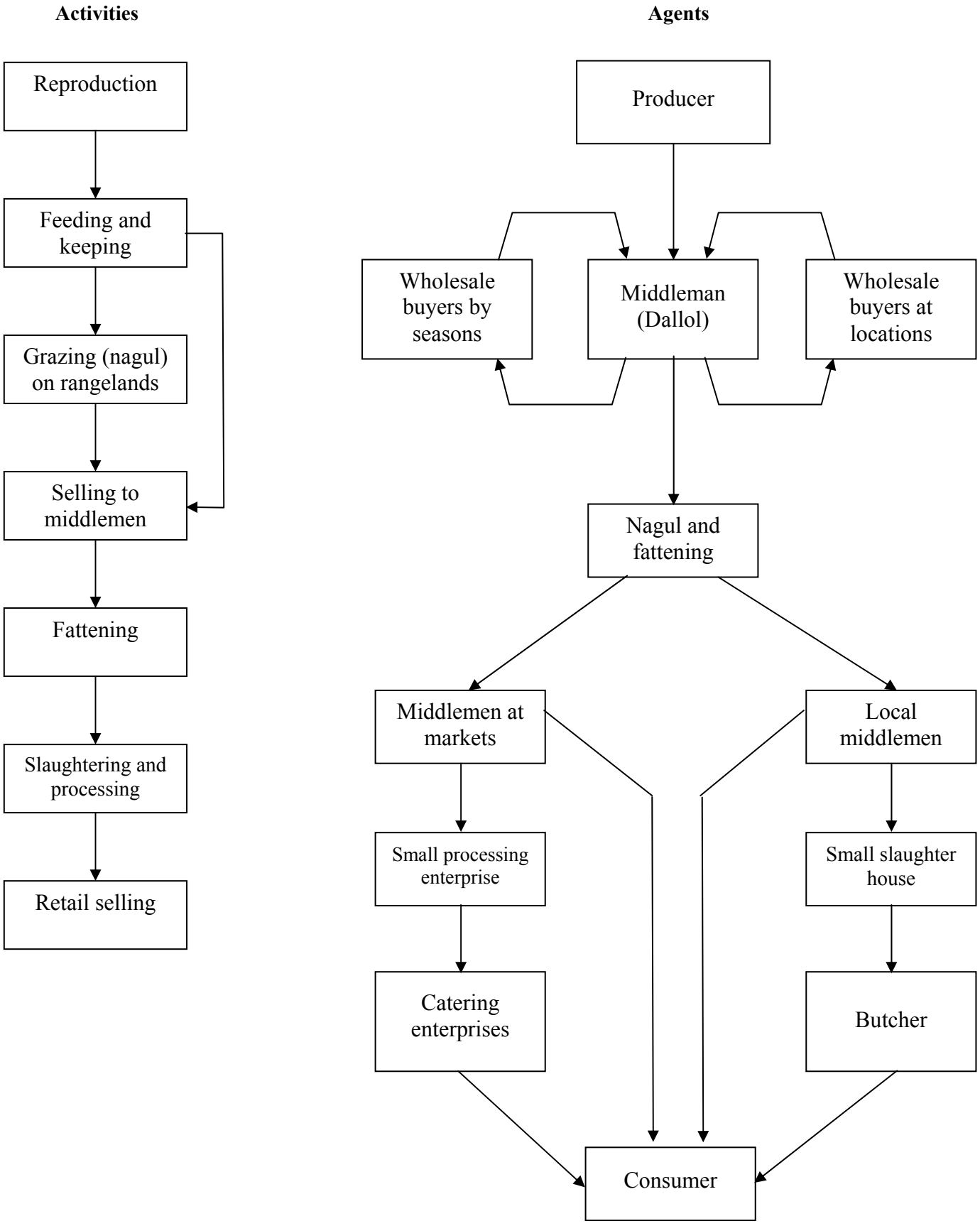
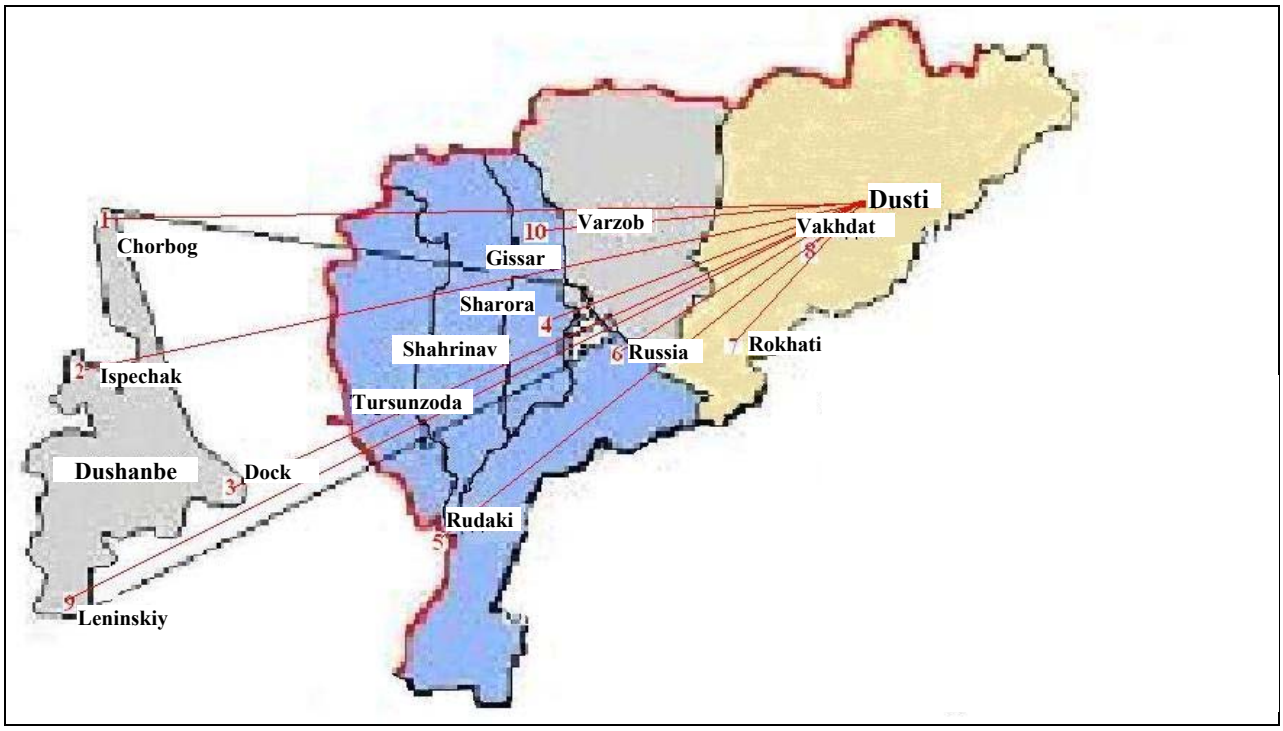


Table 34. Meat and livestock markets located in Dusti Jamoat

#	Town / village	Market size (ha)	Distance from Dushanbe and Vakhdat district (km)	Business day	Services	Number of middlemen	Business volume
Meat markets							
1	Turkobod	0.01	30 and 3	Thursday, Friday, and Saturday	- counters - refrigerator - sanitary and veterinary inspection - weights	-	1-2 carcasses per week
2	Vakhdat	0.5	27 and 0	Everyday (except Monday)	- 7 meat stalls - refrigerator - sanitary and veterinary inspection - weights - packing materials	0	2-3 carcasses per day
Livestock markets							
3	Eskibozor	1.5	32 and 1.5	Saturday, Sunday	- concrete fencing; - guard; - stall for animals; - sanitary and veterinary inspection; - transport services.	25	about 800-1,200 sheep of different breeds and 50-100 goats
4	Chorbog	0.8-1.0	2.5 and 50	Friday, Saturday	- latticed fencing; - guard; - stall for animals; - enclosures, - transport services - slaughter-house - no sanitary and veterinary services - no drinking water - no toilets	15-20	600-800 sheep (more than 75% of Gissar sheep) 100-150 goats
5	Sharora	1.5	8 and 42	Saturday	- concrete fencing; - guard; - stall for animals; - sanitary and veterinary inspection; - transport services; - mobile counters selling sandwiches, tea, coffee and snacks.	20 -40	400-800 cattle, 2,000-2,500 sheep (60% of Gissar breed, 20% of fat-tailed breeds, 20% of other breeds.
6	Leninskiy	2.3	10 and 30	Thursday, Sunday	- concrete fencing; - guard; - stall for animals; - sanitary and veterinary inspection; - transport services; no drinking water and toilets	30-35	220-300cattle, 800-1000 sheep (more than 70% of fat-tailed sheep breeds), 300-350 goats

Map 5. Project site and markets