Improving Livelihoods of Small Farmers and Rural Women through Value-Added Processing and Export of Cashmere, Wool and Mohair

IFAD Grant 1107 – ICARDA

Pamiri Woman with an Altai breeding buck imported by the project, Badakhshan Tajikistan, November 2010.

Third Progress Report

1 July – 31 December 2010

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1 Introduction

The project team worked on developing all components of mohair and cashmere value chains in Northern and Southern Tajikistan: 1) Angora and cashmere goat breeding; 2) fiber collection and processing and 3) production & export of luxury yarn and products. In Kyrgyzstan the project continued training women's group in producing exportable felt handicrafts and strengthening connections between wool producers and felting groups. In Iran the project collected the baseline information on cashmere production and quality of Raeini goats in Nomad flocks, established a nucleus breeding system with eight selected nomad farmers and explored options for organizing women groups.

Activities in Northern Tajikistan included:

1. Continue working with breeding nuclei formed from 2 flocks of white goats and 8 flocks of dark Angora goats which were established in the mating season of 2009.
2. Organizing collection and import of Angora goat semen from Texas, USA to improve genetics of white Angora, in particular fiber fineness and reducing kemp.
3. Planning centralized mohair purchase, dehairing and carding in 2011 to increase volume and efficiency of yarn production.
4. Developing new knitted products and setting up knitting groups.
5. Developing new products from adult mohair such as carpets and blankets.
6. Training women in dying yarn with chemical and natural dyes.
7. Continuing test-marketing of yarn and knitted products.

Activities in Badakhstan, Tajikistan included:

1. Bringing in cashmere-type bucks from the Altai region of Russia to improve homogeneity of flocks and fiber quality.
2. Distribution of imported breeding bucks to villages and initiate community based breeding.
3. Processing best fiber collected in the spring 2010 into yarn. Planning improvements in fiber harvesting and dehairing in 2011.
4. Using the best cashgora yarn & local patterns to produce first samples of knitted products (Jurabe socks, hats) for export.
5. Organizing trainings in dying yarn with chemical dyes.
6. Establishing linkages with new partners including AKF, Merci Corps, FAO cashmere project and cashmere producers and processors in Afghanistan to support fiber dehairing, combing and processing.

Activities in Naryn, Kyrgyzstan included:

1. Establishing ties between Merino wool producers, livestock scientists and felting groups to organize raw material supply to felting groups.
2. Working with selected Merino wool producers on improving wool quality and overall productivity in their flocks.
3. Training women's groups in new felting techniques, design and color combinations.
4. Training groups in producing quality felt products for export and test-marketing their products on regional and US markets.
5. Training women's groups and group leaders in strengthening and improving their organizations.

Activities in Kerman Province, Iran included:

1. Completion of the analysis of baseline survey on Raeini goat production.
2. Establishing a base database on cashmere quality for evaluating breeding progress.
3. Establishing nucleus breeding schemes in 8 selected nomad goat flocks.
4. Collection of fiber samples from breeding bucks currently in service and candidates.
5. Exploring best options for organizing women groups for cashmere processing.

As a result of the project activities in Central Asia 30 women groups with 317 members have been formed. This development has been delayed in Iran but the female members of the 30 nomad families are involved in cashmere harvesting and breeding activities. In total about 236 goat and sheep keepers with a total number of about 14,000 animals are involved in various project activities; however the number of farmers intensively involved in breeding is smaller (see Annextables1-3 for more detailed information). While the number of farmers includes the goat keepers in Badakhshan; their animals are not included in the below overview table. The structures of the breeding programs are still being developed; so far the women groups that have been formed in each village are also sharing the imported Altai bucks.

Beneficiaries	**Northern Tajikistan**	**Badakhshan**	**Kyrgyzstan**	**Iran**	**Total**
No of women groups	17	9	4	na	30
Total no of women	96	166 [a]	55	na	317
No of farmers	25	166	14	31	236
Total no of goats/sheep [b]	4413	na	2646	7745	14604

[a] In Badakhshan the women involved in processing are also goat keepers and will be involved in goat breeding and production; [b] Goats in Tajikistan and in Iran, sheep in Kyrgyzstan

2 Project Activities in Northern Tajikistan

2.1 Component 1: Characterize production systems and improve fiber production of small ruminants at all target sites

2.1.1 Angora goat production in Tajikistan: decline of cooperative farms and emergence of private farms

There are approximately 200,000 Angora goats in Northern Tajikistan, produced by households (approx. 38%), private farmers (approx. 42%) and by the cooperatives (approx. 20%). Each of the three institutions represents a unique production system. The cooperatives were established on the basis of state farms and are involved in different types of agricultural production including cotton, grains and also livestock. They are operated by local bureaucrats and farm managers many of whom worked for the state farms during Soviet or early post-Soviet period. This group of officials and managers wants to retain control over assets inherited from the state farm system (land, livestock, technology, labor). Managing the so-called cooperatives gives them the opportunity to maintain control, extract rent and continue agricultural production at some level. The cooperatives also offer some employment to the rural population that has no resources to engage in private farming.

Regarding Angora goat production, the cooperatives still own the largest flocks of purebred Angora goats about 2,000-8,000 heads. They continue to follow Soviet-style breeding technology including production of breeding bucks, yearly evaluation of the entire breeding flock, tagging and registration of breeding animals and artificial insemination. They also sort and bail mohair after shearing according to the old Soviet classing system. By following the Soviet practices, the cooperatives contribute to preserving purebred Angora goat production in Tajikistan. However, they clearly are transitional organizations that suffer from diffuse property rights, poor market incentives, unstable management and frequent predation on their assets. As a result their assets are gradually dwindling – their land is being privatized, their livestock is being sold or bartered, their Soviet technology is not being replaced, and their number of workers is decreasing each year. The majority of cooperatives will eventually be dissolved or privatized which means that the future of Angora goat production depends on private producers.

Artificial insemination center organized by a cooperative farm, Asht region, October 2010

The gradual dissolution of large Angora goat flocks owned by the cooperatives is paralleled by the emergence of private Angora goat farmers. Most of the private farmers originally worked as shepherds for the state farms and many continue to work for the cooperatives. They own Angora goats and graze

them together with the cooperative goats. Although most of them would prefer to work independently, they rely on the cooperatives for access to rangelands, which is a key resource needed for goat production. The largest proportion of rangeland is still owned by the cooperatives and its privatization is an extremely complicated process that requires high bribes or personal ties to the authorities. As a result, most private farmers have only "unofficial" or "informal" access to rangelands and sheep pens, which is often tied to their former or current affiliation with the cooperatives. In order to secure their future in goat farming, the farmers will need to formalize their right of access to rangelands and set up a system of range management.

The flocks of private farmers are currently much smaller than those owned by the cooperative farms: between 100 to 600 animals or even smaller.

Farmer Suiumboi uses rangelands without formal rights to the land, Taboshar, April 2010

The final and most numerous group of Angora goat producers are households that own 5 - 20 Angora goats each. Households give their animals to farmers to graze and pay them per head or graze their goats around the village in a communal flock. Household producers generally do not follow any breeding strategy and have the fewest resources invested in Angora goat production. Due to an unorganized breeding of different types of goats in village flocks, it is likely that the number of Angora crosses will keep increasing and eventually purebred Angoras will be rare or nonexistent in household flocks.

Household flocks of Angora goats include a large percentage of crossbred animals, Takeli village, October 2009

2.1.2 Opportunities and challenges for private Angora goat producers

The cooperative farms do not have a long-term future in Angora goat production and village households lack the capacity to produce purebred Angoras in community flocks where breeding happens randomly. Therefore, the future of Angora goat production in Tajikistan depends on effective development of private Angora goat farms. Whether private farmers develop competitive Angora goat production depends on their incentives to invest in producing quality Angora goats versus other livestock such as sheep or meat goats. Farmers' capacities and incentives to raise Angoras will be shaped by governmental policies and changes in mohair markets. Governmental policies that affect Angora goat breeders include legislation on rangelands and development of extension services for Angora goat producers, specifically support in breeding and improved access to breeding animals and know-how. Secondly, farmers' decisions will be influenced by changes in mohair prices and markets. Such changes can also be shaped by governmental policies. For example, governmental support of mohair exporters or local processors can influence mohair prices and stimulate farmers' interest in mohair production.

Based on the research conducted by the project, Tajik farmers who have access to rangelands and experience in producing Angora goats are well positioned to profit from producing quality goats and mohair – they have cheap land to graze their goats all year (albeit their land tenure still need to be formalized), access to cheap family labor and relatively easy access to local mohair markets. The Tajik Angora goats are well adapted to the local conditions and mohair production is profitable. If the local mohair market is vibrant, farmers can earn US$ 10 per goat just in mohair sales. For example, in the fall of 2010 a farmer who had 100 quality goats could earn US$ 6.7 per 1 kg of mohair. Given that each goat produces about 1.5 kg of mohair, 100 goats yielded around US$ 1,000 in revenue, which is a substantial income for a Tajik rural family. Even during a stagnant mohair market, 100 goats can bring about US$ 500 from mohair. At the same time the production cost of Angora goats is minimal. The project calculated that one goat costs about US$ 18.50 to produce. The goat gives not only US$ 10 in mohair, but also a kid that is worth at the minimum US$ 15 in the fall, and milk (for 3 months) that is

worth US$ 4 = US$ 29 total. Based on estimates by some producers, the profit from one Angora goat is about US$ 10, which confirms the project calculations.

Farmer with quality Angora goats makes about US$ 10 profit from each goat, Asht region, 2010

Although Angora goat production is profitable, there are several obstacles that need to be resolved to develop favorable and sustainable conditions for private producers. Firstly, **access to rangelands** is available only to some farmers and even in those cases their legal right to rangelands is uncertain. Governmental assistance is necessary to secure farmers' rights to rangelands. Secondly, the government needs to develop a reasonable framework regarding range management and taxation of land and livestock. This is challenging given the interest in collecting rents and lack of accountability of governmental officials.

Even after securing access to rangelands, a farmer may choose to produce local crossbred goats to be used for meat production as opposed to Angora goats that are bred primarily for fiber. Although "meat goats" or "Jaidaras" bring much less or no income from fiber and only about 20% higher income from meat (while Angora goats bring income from fiber for 5-6 years and income from meat when slaughtered), Jaidara goats do not require careful breeding and selection for fiber production. Every crossbred goat regardless of its productivity is considered a "local meat goat" and the production of such goats is easier and cheaper especially in terms of time invested in breeding. A producer of "Jaidara" goats can essentially produce crossbred goats without selection. Production of Angora goats requires selection and preparation of breeding bucks and careful management of the entire flock based on multiple criteria. This is more demanding in terms of time and effort and requires not only a level of care and dedication on the part of the farmer, but also professional assistance in the form of **extension support**.

All countries with developed mohair production provide good extension services and mohair marketing support to producers. South African, American or Australian producers are organized into associations and have access to a sector-wide support system that includes extension, breeding and marketing services. Tajik farmers, with the exception of those who collaborate with the IFAD/ICARDA project, receive no such support. They are isolated, unorganized and uniformed about global markets and effective production practices. They rely on their individual knowledge and

experience but most of them do not receive any assistance from researchers, extension specialists, policy-makers and market experts. Although most farmers do have a good knowledge of basic animal husbandry, they do not have scientific knowledge of breeding principles and often have little experience in selecting breeding animals. This is because Angora goat breeding (just as breeding of all other "Soviet" livestock) was the responsibility of state-funded Livestock Institutes and state breeding farms. Currently the state farms (or their descendants the cooperatives) are in decline and Livestock Institutes continue to operate with very limited funding. The Institute scientists are only learning how to work with private producers and private producers are only beginning to understand that they need professional assistance to improve breeding and livestock productivity.

Given that the Tajik government has little experience in developing institutions and services for private producers, **assistance of research for development organizations** such as ICARDA is essential in building up extension support for the newly emerging private farmers. In the current project ICARDA collaborates with Angora goat breeding scientists and private Angora goat producers to develop a breeding program that can preserve and improve Angora goat production in Tajikistan. Without such support Tajik farmers would not succeed in breeding quality Angora goats and the opportunity to earn revenues from mohair export and processing would be lost, together with the Tajik Angora goat breed.

The IFAD/ICARDA project supports Angora goat scientists Dr. Matazim Kosimov and Farhod Kosimov in their work with private farmers, October 2009

A breeding program that leads to improvements in fiber quality can also help to **expand the market** for Tajik mohair. Currently, farmers have a limited access to mohair markets because Tajikistan is an isolated country poorly linked to global fiber trade. It mostly relies on regional markets (Russia and Uzbekistan) and on linkages with Turkey and China. The attractiveness of Tajik mohair is primarily its low price and high yield as opposed to high quality. Most Tajik mohair is sold to Russia and more recently to Turkey, and either processed into low price, utility knitwear or used to blend with other fibers. There is no good market for fine, kemp-free, mohair which is highly valued on the global market. A breeding program that improves fiber quality combined with efforts to link Tajik producers with a broader group of foreign buyers can lead to increased prices and revenues. The IFAD/ICARDA

project works on improving goats and mohair quality as well as market linkages for producers. The following section outlines project activities in these areas.

2.1.3 Assisting Angora goat producers in mohair production and marketing

2.1.3.1 Extension and breeding support for farmers: formation of breeding nuclei in Asht

The research activities of the Tajik Livestock Institute and ICARDA in the earlier IFAD project included testing the quality of Tajik mohair and using the data to develop an appropriate breeding program. The project analyzed mohair samples in a laboratory in Almaty, Kazakhstan using OFDA 4000 and performed fiber testing through processing mohair into yarn and knitwear. These tests have shown that Tajik mohair is coarser (approximately by 2-3 micron) than American mohair and that Tajik Angora fleeces are much less homogeneous, meaning that they include several different types of fibers. This is partially the result of Soviet-era breeding preferences that focused on strong mohair that was demanded by Soviet textile factories. The tests have also shown that Tajik mohair includes a large percentage of kemp fibers (as much as 10%) that are highly undesirable in processing. Kemp has been almost completely eliminated in American, Australian and South African Angora goats as a result of concerted breeding efforts.

Given that fine, kemp-free mohair is highly valued on the world market (the price per weight unit for fine fiber is usually 3-5 times higher than the price of coarser fiber), the shortcomings of Tajik mohair clearly lead to specific breeding objectives: the need to decrease fiber diameter and kemp content. The project designed a breeding plan in view of these priorities that focuses on creating white and colored breeding nuclei that will produce improved Angora bucks for private farmers.

Dr. Matazim Kosimov and Farhod Kosimov examining fiber of breeding bucks at a cooperative farm, October 2009

At present the project team is working with ten private producers on creating white and colored breeding nuclei. Two flocks of white goats contribute to the white nucleus and the black nucleus has been formed from six flocks of dark Angora goats. Two of the ten farmers, Usarboy Kholmatov and

Khaydarali Khakimov, live in remote sites and therefore black nuclei were formed within their flocks that are not linked to the community nucleus. The goat flocks of the other eight farmers are concentrated in the Markhamat zone of Asht region. The ten farmers have 1,064 goats in total. Out of those, 136 (12.8%) goats with fine mohair were selected for the two nucleus groups (white and dark) in the fall, and breeding with the selected bucks of the corresponding color was organized. Below are the results of visual assessment of the entire flocks of the eight farmers (Table 1).

Table 1. Visual assessment of white and dark mohair goats (assessed on 20% of animals).

Farmer's name	**No of animals**		**Live weight***			**Body Condition***			**Fleece weight****		
			+B	B	-B	+K	K	-K	+III	III	-III
White flocks											
Urunboev Tirkashali	n	115	61	37	17	65	38	12	20	72	23
	%	100	53.0	32.2	14. 8	56.5	33.0	10.4	17.4	62.6	20
Yoldoshev Zokir	n	27	11	11	5	6	16	5	5	18	4
	%	100	40.7	40.7	18.5	22.2	59.3	18.5	18.5	66.7	14.8
Black flocks											
Turaev Makhmud	n	128	25	72	31	25	85	18	26	81	21
	%	100	19.5	56.3	24.2	19.5	66.4	14.1	20.3	63.3	16.4
Turaev Bozorboy	n	42	5	25	12	7	28	7	11	23	8
	%	100	11.9	59.5	28.6	16.7	66.7	16.7	26.2	54.8	19.0
Abdulloev Egamberdi	n	138	35	85	18	29	81	28	20	101	17
	%	100	25.4	61.6	13.0	21.0	58.7	20.3	14.5	73.2	12.3
Meliboev Okhunjon	n	190	46	112	32	54	105	31	51	103	36
	%	100	24.2	58.9	16.8	28.4	55.3	16.3	26.8	54.2	18.9
Abdulloev Goibberdi	n	56	14	29	13	24	27	5	6	38	12
	%	100	25	51.8	23.2	42.9	48.2	8.9	10.7	67.9	21.4
Mirzoakh medov Ikromali	n	58	12	37	9	21	31	6	9	35	14
	%	100	20.7	63.8	15.5	36.2	53.4	10.3	15.5	60.3	24.1

*Liveweight and body condition were measured in October 2009; **fleece weight was recorded in March 2010

A comparative assessment of liveweight and Mohair yield of the goats selected for the nucleus flocks and the remaining part of the flock (control) is shown in table 2.

Table 2. Comparison of does and bucks in the nucleus flock with the base flocks (8 flocks).

Indicators	**White Goats**		**Dark Goats**	
	Nucleus	**Control**	**Nucleus**	**Control**
Does, number	35	10	42	10
Liveweight, kg*	**34.4 ±0.85**	**36.5 ±1.74**	**31.7 ±0.94**	**37.3 ±2.21**
Fleece weight kg**	**1.51 ±0.03**	**1.53 ±0.06**	**1.49 ±0.03**	**1.35 ±0.07**
Bucks, number	**2**	**2**	**2**	**2**
Liveweight, kg*	**39.5**	**43.0**	**42.5**	**46.0**

Fleece weight, kg**	**2.25**	**2.70**	**2.10**	**2.50**

*Liveweight was recorded in October 2009; **fleece weight was recorded in March 2010

According to the eight farmers, their total mohair production was 1,187 kg of mohair, averaging 1.56 kg per goat per farm (Table 3).

Table 3. Total fleece weight produced and average fleece weight per head calculated in the shearing period of April 2010

Name	**Total weight of mohair produced, kg**	**Average mohair production per head, kg**
Urunboev Tirkashali	212	1.85
YoldoshevZokir	51	1.87
Turaev Makhmud	190	1.48
Turaev Bozorboy	62	1.41
Abdulloev Egamberdi	208	1.51
Meliboev Okhunjon	300	1.58
Abdulloev Goibberdi	85	1.35
Mirzoakhmedov Ikromali	79	1.40

The weight development of the kids born in March 2010 in the nucleus and base population is shown in table 4.

Table 4. Liveweight of kids born in March 2010 in the nucleus and control groups

Indicators		**Birth weight**		**6 months liveweight**	
		n	**kg**	**n**	**kg**
White	Nucleus	28	2.43 ±0.27	8	14.66 ±0.69
	Control	10	2.30 ±0.40	8	13.14 ±0.58
Dark	Nucleus	29	2.35 ±0.61	12	13.23 ±0.36
	Control	10	2.34 ±1.20	10	14.02 ±0.43

During shearing in spring 2010, 54 mohair samples were collected from goats in the nucleus groups for laboratory analysis to study mohair quality. During the spring visits before shearing, the project team also discussed the evaluation of goats with farmers and conducted trainings on selecting the best breeding animals. Farmers' attention was drawn to mohair quality and exterior of goats. Farmers were also trained on methods of husbandry practices and basic monitoring of animal performance on the farm.

In the summer-fall period, issues of preparing higher quality feeds for the winter were also discussed with farmers. Farmers stored different types of forages based on affordability: alfalfa hay, hay from the range, sorghum, maize stalks, camel's-thorn, and wheat or rice straw. The project team recommended using higher quality feeds for the feeding of does during the last 1.5 months of the gestation period and the start of lactation period. It was explained that the fetus starts rapid growth during the last two months of gestation, and the does need more nutrients in the beginning of lactation when the spring grass on the rangelands is still scarce. To replenish does' deficit in nutrients and minerals, supplementation by concentrated feeds and mineral briquettes was suggested in the nucleus flocks. In fall, the work with farmers mainly focused on culling of goats and selecting breeding animals with special attention on the selection of breeding bucks. The researchers also discussed the role of grazing on good rangelands during the mating season.

Table 5. Results of the individual assessment of adult goats before mating (October 2010)

Group	Sex	Assessment of the animal				
		Liveweight, kg	Natural fiber length, cm	Fineness (Bradford system)	Mohair production, kg	
n					total	average
Nucleus	Bucks	52.2	21.5	48-46	70.8	2.95
	Does	29.8	18.2	56-48	820.0	1.55
Control	Bucks	44.5	19.0	56-48	65.0	2.10
	does	28.1	17.5	58-48	363.0	1.32
Difference, (exp – control)	Bucks	+7.7	+2.5	X	+5.8	+0.85
	does	+1.7	+0.7	X	+457	+0.23

Infectious and parasitic diseases are one of the major problems in maintaining the health of goats and the project also trained the farmers on preventive veterinary measures that should be conducted periodically. They were also provided with necessary veterinary medicines (neocydol, ivermektin F. USA, ivomek, alben, albendozol. etc.). Using of ivermektin injections helped to reduce mohair loss because it prevents endo- and ectoparasites. Nucleus farmers also applied albendazol suspension to prevent helminthosis.

Discussions were also conducted with key farmers of nucleus groups that participated in the former project (Turgunboy, Sulaymon, and Suyunboy) on further improving the genetics of their Angora goat flocks and preventing inbreeding. As a result, two young colored mohair bucks were procured for flocks of Suyunboy Mamarasulov. These bucks were selected from the nucleus groups of goat flocks owned by Usarboy Kholmatov. Assistance was provided for procurement of one white mohair buck for the farmer Turgunboy Madaliev from a famous farmer in the region. The farmers were provided with recommendations regarding the selection of bucks and does for nuclei flocks, breeding, feeding and rearing. The team facilitated contacts between old the new nucleus farmers.

The team made progress on establishing a super-nucleus flock that will be managed by the Livestock Institute: allocation of summer and winter rangelands on total area of 530 ha was achieved to establish a super-nucleus group at the Sogd Branch of the Tajik Livestock Institute. The issuance of a certificate for this area is currently in progress.

Farhod Kosimov helping farmer Usarboy Kholmatov to tag a breeding goat, Asht region, October 2009

2.1.3.2 Import of American Angora goat semen to Tajikistan

Given that the vast majority of breeding bucks in Tajikistan have coarse fleeces and many of them have a high percentage of kemp fibers, it would take a long time to decrease fiber diameter and eliminate kemp in Tajik goats without importing new genetics to Tajikistan. The project team decided to bring in American genetics to improve the local breeding stock. It purchased eight Angora goats in Texas, USA in the summer of 2010. The goats were purchased at an auction that followed a performance test organized by the Texas A&M University **http://safiles.tamu.edu/genetics/angoratest.htm**. The purchased goats were tested for a variety of attributes including FD, kemp content, fleece weight, body weight, etc., and received high performance scores. The bucks were sent to American Genetics and Biologicals at Bryan, Texas for semen collection. 1,500 doses of semen have been collected from these bucks and will be used in Tajikistan in fall 2011.

Texan Angora bucks purchased by the project for semen collection, July 2010.

Tajik farmers will benefit not only from having access to new genetics but also from learning about American mohair producers, their animals and the fiber the American Angora goats produce. This information will help them to assess their own goats and mohair and become aware of the global community of Angora goat producers who share many interests and concerns.

2.1.3.3 Development of new markets for quality kid and adult mohair

As noted earlier, in order to produce quality Angora goats, Tajik farmers need extension support and price incentives. The IFAD/ICARDA project has been helping producers not only by supporting extension work, but also by finding more lucrative markets for quality fleeces. This assistance is linked to the project activities in local fiber processing and export of luxury yarns and knitted products. The project helps farmers to sell their quality fleeces for higher than local market prices to groups of women processors who are looking for quality mohair for spinning. Women who spin yarn for the project are invited to visit the farmers, discuss their needs in terms of fiber quality and select and buy suitable fleeces. Such direct relationship between producers and processors is beneficial for both parties as they learn about each other's needs and priorities. It allows them to understand mohair production and processing more fully and develop more flexible and mutually beneficial arrangements regarding mohair sorting, sale and purchase. The direct feedback from processors combined with price incentives gives farmers specific information regarding the desirable and undesirable characteristics of their fleeces and guides their decisions in breeding and fiber production. The spinners are learning about fiber quality at different farms which will help them with fiber purchases in the future.

2.2 Component 2: Work on formation and capacity building of women's groups to develop fiber processing and export of value-added fiber and products in all pilot sites

2.2.1 Successes and problems in spinning luxury yarns for export

The project seeks to build a complete value chain around mohair production and its work with producers is paralleled by collaboration with local processors. Processing mohair by hand-spinning and knitting is highly developed in the pilot region, but focused on low quality yarn and products for the Russian market. Women produce coarse yarn that sells for about US$8-10 per kg and simple mittens and socks that sell for US$ 2 per pair. The production of these cheap items is one of the only earning opportunities available to rural women in the region. Just as the Angora goat producers could not develop quality mohair production without extension support from local and international scientists, Tajik spinners and knitters could not improve product quality, prices and market access without external assistance from development specialists who can link them to western consumers.

The project's collaboration with groups of Tajik spinners and American knitters resulted in the development of high quality luxury yarn, "Mohair Magic," that is in demand by American and European yarn stores and knitters. During two years of test-marketing, the project sold approximately 20 kg of yarn for a wholesale price of US$ 140/kg. The yarn received a highly positive feedback from knitters and store-owners and several retailers in the USA and Europe are ready to order larger volumes of the yarn. This clearly shows that the yarn can successfully compete with other luxury yarns at a retail price of US$ 280 for 1 kg or 3750 meters. The positive test-marketing results have been confirmed during the latest successful sale of Mohair Magic yarn at a Fair Trade Holiday Festival in Madison, Wisconsin in December 2010. During the one-day festival, the project sold the majority of the inventory for US$ 702.

Based on the positive responses and demand for Mohair Magic, the yarn could be successfully marketed online, at trade shows, and in yarn stores around the United States and Europe. Under fair trade conditions, the high retail price of this yarn gives Tajik women spinners the opportunity to earn a very good income. However, as explained in the following chapter, yarn production needs to be reorganized to eliminate bottlenecks and allow the spinners to increase production volume. Increasing the volume of yarn to 100 kg in 2011 is one of the key project objectives.

2.2.2 Capacity-building in mohair processing: increasing yarn production in 2011

Although over 60 women have been trained in spinning yarn for the project, many of them were unable to find enough raw material for spinning in 2010. Based on interviews in the fall 2010, all spinners experienced shortages of quality kid mohair. These shortages resulted from a booming mohair market in 2010 that led to early sales of Tajik mohair clip. Farmers sold quality fleeces to traders right after shearing in March and April and the spinners did not have time and money to buy enough raw fiber for processing. As a result they ran out of raw material early in the season and could not produce enough yarn for the project. The second problem the spinners experienced was learning how to dehair fleeces prior to spinning. Due to a high kemp content Tajik mohair needs to be dehaired prior to processing[1]. Learning how to do this correctly, and how to select fleeces that can be easily dehaired, presents an extra challenge for spinners.

[1] The project also tested American kid mohair, and learned that the American fleeces to not need to be dehaired because there are no kemp fibers present in them. The kemp problem will be addressed in the long run through breeding improvements. In the short-run, the Tajik spinners will have to keep dehairing the fleeces to process them into luxury yarn.

After discussing these issues with the spinners, the project team concluded that in order to increase production, the problems of raw material supply and dehairing have to be resolved. It developed the following plan to optimize the production process and increase production from 20 kg in 2009 and 2010 to 100 kg of yarn in 2011. The plan includes the following steps:

1. Purchase of 400 kg of quality kid mohair during the spring 2011 season.
2. Organize centralized dehairing of all fleeces.
3. Distribute dehaired fiber to spinners.
4. Collect 100 kg of yarn from spinners, dye the yarn and prepare it for export.
5. Export yarn and distribute it to yarn shops in the USA and Europe.

Women spinners in Asht discuss yarn and mohair quality, May 2010.

2.2.2.1 Step #1: Centralize the purchase of quality kid mohair

The project team plans to organize a centralized purchase of the best kid mohair produced in the pilot region in February, March and April of 2011. The purchasing will be conducted with the assistance of leading spinner, Tuiguloi Saidova. Ms. Saidova will travel to selected farms in the Asht region (including all farms that collaborate with the project) and select and purchase quality kid fleeces suitable for processing. She will discuss mohair quality with the farmers and explain the processing technology and standards used to produce quality yarn for export. The team of scientists led by Dr. Matazim Kosimov will provide support to Ms. Saidova and arrange her visits to the farms. The direct mohair purchase will allow the project to obtain a supply of quality raw material for processing in 2011 and establish direct ties between farmers and women processors. The purchasing system will be further developed and improved based on the experience from the 2011 spring season.

The project estimates that quality kid mohair will be purchased for 24-35 somoni or US$ 6-8/kg. In total about US$ 4,400 will be invested into mohair purchase, including transport and labor. The cost of fiber will be US$ 3,200.

2.2.2.2 Step #2: Organize centralized mohair dehairing

The second step involves dehairing all mohair fleeces to eliminate kemp and other undesirable fibers. The dehairing is done manually, by combing kemp and short medullated fiber out of the fleeces. This leaves only the finest, longest and softest fibers that can be processed into fine yarns. The team tested the dehairing process in the fall 2010 in Alma village. It organized a team of women who dehaired 6 kg of colored kid mohair and 7.375 kg of white kid mohair. The team and the women agreed they would be paid 50 somoni (US$ 11.36) for 1 kg of clean fiber.

The dehairing test showed that it took about 4 days of part time work to produce 1 kg of dehaired fiber ready for spinning. This means that at 50 somoni (US$ 11.36) per kg, a woman can earn about 70-80 cents/hour. Although this wage is not high, the work is very easy and can be performed by unskilled women. The women who participated in the dehairing experiment confirmed that 50 somoni for 1 kg of dehaired fiber was an attractive wage for them, especially given that they could do the work at home when they had free time. The project team learned that the dehairing time is highly dependent on the quality of the fleece. This means that the women will be able to earn higher wages once they work with quality fleeces that were selected based on specific criteria including suitability for dehairing.

The results of the dehairing experiment were the following:

7.375 kg of white mohair: 2.466 kg (35%) was not suitable for dehairing due to the structure of the fleeces. The remaining 4.909 kg yielded 2.239 kg (46%) of dehaired fiber and 2.670 kg (54%) of waste fiber.

6 kg of colored mohair: 2.684 kg (44%) was not suitable for dehairing. The remaining 3.316 kg was dehaired and produced 2.051 kg (62%) of clean fiber and 1.265 kg (38%) of waste fiber.

These preliminary tests have shown that 1 kg of fiber yields approximately 300-350 g of dehaired fiber that can be spun into 250 g of clean yarn (using a conservative estimate). If the project purchases 400 kg of raw mohair it should be able to produce approximately 100 kg of yarn.

The project will spend approximately US$6-8 for 1kg of raw fiber based on the strength of the market in the spring 2011. Given that the project needs to buy approx. 4 kg of raw mohair to produce 1 kg of yarn, the cost of raw material for 1 kg of yarn will be approximately US$ 24-32. The cost of the dehairing will be approximately US$ 12, making the cost of dehaired fiber US$ 36-44/kg. However, 3 kg of discarded fiber left after dehairing will be resold or processed into cheap yarn. Assuming that the waste fiber can be sold for US$ 2/kg, the overall cost of dehaired fiber will decrease by US$ 6. Based on these estimates, the price of 1 kg of dehaired, clean fiber is expected to be between US$ 30-38, depending on the strength of the market and mohair prices in 2011.

As explained in the previous report, the yield of raw fiber would be much higher if the Tajik Angoras had a lower percentage of kemp and if the fleeces did not require dehairing. To fully understand the differences in mohair quality, the project tested kid mohair from American Angoras that has 0% kemp. About 10 kg of Texan Angora fleeces were brought to Tajikistan and given to the Tajik spinners to spin and compare with their own fiber. The spinners liked the American mohair very much because it did not require dehairing – nearly 100% of the fleece could be spun into soft yarn after washing. As noted in the previous report, American kid mohair is about 4 times as expensive as Tajik kid mohair – 1kg of American kid mohair costs US$20 while 1 kg of Tajik kid mohair costs around US$ 3-5. However, given that the American mohair fleece can be processed into yarn without dehairing, it would be more economical to use it for luxury yarn production than the cheap Tajik mohair that needs to be dehaired. Only the shipping cost makes it too expensive to use. This underlines the importance of introducing improved Angora goat genetics in Tajikistan and working on improving fiber quality.

Spinner in Asht examining American kid mohair fleeces, October 2010

2.2.2.3 Step #3: Distribute dehaired fiber to spinners

The project plans to distribute the dehaired fiber to 25 spinners (approximately 4 kg of dehaired fiber per spinner) that are registered with the project (i.e. they completed training and have the necessary qualifications to produce yarn according to the project standard). The spinners will be paid 100 somoni (or US$ 23) for 1 kg of yarn (approximately 3,375 meters). This means that the total cost of 1 kg of spun yarn will be US$ 53-63 (US$30-40 for dehaired fiber and US$23 for spinning). The spinners can make 1 kg of yarn in 3-4 days of part-time work. This means that they will earn approximately US$ 1.50/hour. This is nearly twice as much as the wage of women who do the dehairing. These wages were agreed upon with the spinners and the dehairers and take to account that spinning requires much more skill than dehairing.

2.2.2.4 Step #4: Organize yarn dying and packaging

The yarn still needs to be dyed, which will cost approximately US$ 4/kg of yarn. The project plans to work with quality chemical and natural dyes imported from Turkey and the USA. A special group of women will be trained in dying yarn and will be responsible for dying and preparing yarn according to customers' needs and labeling the individual skeins.

The training on yarn dying began in fall 2010 with the support of a FAO grant to CACSA. CACSA invited two Kyrgyz trainers to Asht who taught the women how to dye yarn with natural and chemical dyes. The training is described in the grant report by Svetlana Balalaeva from CACSA.

Workshop in natural dying, Alma village, October 2010

2.2.2.5 Step #5: Organize shipping of yarn to buyers

The project plans to organize shipping of yarn through DHL. It plans to ship US$ 100 kg of yarn to the USA at a DHL rate of US$ 10/kg (for shipments of 100 kg and above). From there the yarn will be distributed to approximately 20 stores in the USA and Europe. The project team will also explore the alternative of shipping 50 kg of yarn to the USA and 50 kg to Europe. It will research a variety of options to find the most economical shipping in 2011.

The FOB price of 1 kg of yarn prior to shipping will include:

1. Dehaired fiber US$ 30-38, depending on mohair prices in 2011.
2. Spinning: US$ 23.
3. Dying and packaging: US$ 4.

The total price of yarn before shipping is expected to be anywhere between US$ 57-65. If domestic and international shipping adds US$ 12, the price of yarn at arrival should be US$ 69-77. The wholesale price of the yarn is US$ 140, and the buyer pays shipping within the US. This means that the sales are expected to be profitable. All revenues from sales will continue to be allocated to the project yarn fund. Prior to the project completion, the project team has to find American and European distributors who will agree to distribute the yarn to stores and sell it on-line. The project expects that the US$ 71- 63 per kg margin should be attractive enough for a distributor to agree to distribute the yarn. The project plans to search for a distributor in 2011. Currently, the principal investigator is in discussions with a Colorado-based company “ClothRoads LLC” that is starting to import handspun Peruvian Alpaca yarns and is very interested in marketing Mohair Magic. Samples were sent to the

company and the company representative, Marilyn Murphy, expressed interest in purchasing 25 kg of the 2011 yarn production.

2.2.3 Developing production of knitted clothing

The project has worked on developing the knitting component and started to make luxury knitted products – shawls, hats and sweaters – from the Magic Mohair yarn. It delivered knitting books, patterns and knitting needles as well as samples of hats and sweaters to the pilot site and collaborated with the women on identifying the most capable knitters. These knitters are starting to make prototypes of knitted products based on the catalogs, patterns and product samples. The most successful prototypes to-date were models of scarves and hats. The principal investigator conducted research on these types of products on the US market in winter 2010 and identified a number of hats, shawls and gloves hand-knitted by women's groups in Nepal. The Tajik kid mohair shawls and hats are of higher quality and can strongly compete with these products. The project plans to produce and test-market Tajik shawls and hats in luxury stores in the USA in the winter of 2011.

2.2.4 Developing new products from adult mohair: carpets and blankets

In order to produce luxury yarn for clothing, it is necessary to use only kid mohair (fine mohair from 6 months old or yearling goats). The project is also developing new methods how to add value to coarser adult mohair by making knotted and woven carpets and blankets.

The project established contacts with professional carpet-makers in Herat/Afghanistan and sent 10 kg of white mohair yarn to Herat to be dyed and made into a Herat-style carpet. The carpet has been produced in December 2010 and is being shipped to Khodzhand, Tajikistan. Based on the preliminary feedback, the Herat weavers, who worked with mohair for the first time, were very impressed with the quality of the mohair carpet and concluded that it was much softer than the woolen carpets they make. After checking the quality and researching the marketing potentials of this type of carpet, the project can sell raw mohair or yarn to carpet-makers in Herat and try to bring trainers from Herat to Tajikistan to train Tajik women to make Herat-style carpets. Carpet-making is much more highly developed in Herat than in Tajikistan and done mostly by young boys. The Tajik women would not be able to compete with the Herat producers in terms of price, but can still try to make quality carpets that can be marketed as fair-trade and free of child labor.

The project also conducted training in carpet making through the FAO grant administered by CACSA. CACSA invited a carpet weaver from Kabul, Afghanistan who worked with Tajik women in Khodzhand to make mohair carpets of a different style than Herati carpets. Some Tajik women know how to make hand-knotted carpets, but currently make only portrait carpets using acrylic yarn from the local carpet factory. The portrait carpets (of Tajik dignitaries or family members) are cheap and popular in Tajikistan but not abroad. Tajik carpet weavers will be able to earn much higher wages making luxury carpets from Tajik mohair as mohair carpets are highly valued and rare on western markets. The availability of relatively cheap mohair gives Tajik carpet-makers a unique opportunity to tap into a market that is dominated by countries with strong carpet-making tradition such as Iran, Afghanistan, Pakistan, Turkey and Nepal. Connections with carpet producers in Herat and Kabul will be used to try to develop a fair-trade, mohair carpet production in Tajikistan during the remaining project years.

Afghan trainer Abdul teaching Tajik women carpet-making techniques, November 2010

One of the first mohair carpet samples made in Tajikistan, May 2010

Finally, the project purchased a Canadian weaving loom for making woven carpets, blankets, throws and shawls through the FAO training grant obtained by CACSA. The loom was delivered to Khodzhand in November 2010 and will be set up and used in 2011. Carpet making and weaving will help diversify mohair processing and open new opportunities for farmers and women. Quality mohair carpets and blankets are expected to bring additional revenue to producers, open new market channels for handcrafted Tajik mohair products in the United States and Europe, and generate some international publicity for Tajik mohair.

2.2.5 Training in spinning, dying and carpet-making

The project worked with CACSA to organize three trainings for women's groups: in dying mohair with natural dyes, in spinning mohair on a silk cord (making a new type of yarn) and in carpet-making. These trainings took place in October to November 2010 and are described in the grant report prepared by Svetlana Balalaeva of CACSA.

Uzbek trainer working with Tajik women in Asht to teach them a new spinning technique, November 2010

2.3 Component 3: Develop sustainable market chains that link fiber producers and processors with buyers

Yarn produced by the project continued to be test-marketed at the Sow's Ear yarn store in Madison WI, USA. From March 2009 to June 2010 the project sold yarn samples and mohair scarves for a wholesale price of US$ 1,941.8 at the Sow's Ear yarn store and at a Fair Trade show in December 2009. In September 2010, the project sold yarn for US$ 392.36 to Austria. In December 2010 the project sold yarn at the Fair Trade Holiday show in Madison Wisconsin for US$ 702.

Photos of the project stand at the Fair Trade show can be viewed at: http://www.flickr.com/photos/59353586@N08/5428395880/in/set-72157626004369838/ (photos 800-IMG_0950 and 0951). This means that total sales up to date are US$ 3,036.16. US$ 1,500 has been

reinvested into the project to support the purchase of new yarn and US$ 1,536.16 remains in the project yarn fund.

Expansion of yarn marketing will be contingent upon increasing yarn production. Currently the production capacity is small and the project cannot supply large orders of yarns to buyers. The new production strategies outlined in the previous section are expected to lead to the increase of yarn production to 100 kg in the spring of 2011.

The project plans to supply yarn to stores in Madison and Austria that already have an experience in marketing the yarn. It plans to develop new marketing outlets with the help of a new project website that is being built to support marketing of yarn and other products. The project also plans to closely collaborate with the Cloth Roads company, a distributor of hand-spun yarns based in Colorado, USA, that is interested in purchasing one quarter of 2011 yarn production. It also plans to develop new ties with retailers in Madison and market mohair hats, shawls and gloves in winter 2011. In addition it will explore a new market for mohair blankets and carpets after high quality samples are produced in 2011.

Naturally dyed mohair yarn (with cochineal dye) was sold to Austria, September 2010

2.4 Component 4: Research on changes in income of fiber producers and women processors and their effects on livelihoods and gender roles

The project is recording incomes of spinners and knitters who are starting to sell yarn and products on the export market and plans to measure the effects of changes in incomes and women's status during the second, third and fourth project year.

The project also plans to conduct research on changing gender roles of project participants, both men and women. This includes spinners and knitters who are starting to develop small businesses centered on selling yarn and knitted products for export. One of the questions that will be explored is the effect of the woman's family status on her capacity to get involved in the project and on her capacity to earn and retain income from yarn production. Based on current records, the women who can get involved relatively easily are single women without small children. This includes unmarried women without children or divorced women with grownup children. The effect of small children is easily explained –

based on cultural expectations in Tajikistan, a woman's main obligation is to care for her children. Small children require lots of care and women who care for them have much less time to work, even if the work is flexible and at home. Given that Tajik rural women do not have access to amenities such as tap water, washing machines, cooking stoves, refrigerators and even face lack of electricity during winter months, child care requires a considerable amount of time and effort. In some cases the extended family is willing to allow the woman to work and helps her with child care and house chores, especially if she can earn income to support the other family members. However, not all families are willing to do this, or to give women enough initial support to develop the skills they need to earn a living or start a business.

The effect of husbands on women's participation in spinning and knitting is more complex. Some husbands are pleased that their wives can earn income, while others want to be the sole family providers and may even resent their wife's earning potential. In some cases, women whose husbands are good earners and providers have less interest in earning income from spinning or knitting (however, these family situations are not that common in rural Tajikistan). In addition to childrearing and care for their husbands, women are also expected to care for their in-laws and help their parents and other relatives. Women are generally not given much leeway to compromise on these obligations even when they try to work and earn income. The busiest are usually newlywed, young women who live with in-laws. These women are responsible for most household chores and have very little authority to decide whether they want to work on other projects such as spinning and knitting.

Another important question is the women's capacity to control their earnings. Although this is a sensitive topic that needs to be explored cautiously, it is clear that some women are expected or pressured to turn over their earnings to their husbands or in-laws. In most cases young, married women who generally have a low status in the husband's household cannot decide on their own what to do with their earnings while older women have more authority to make such decisions.

Although the effects of family situation on the women's capacity to work and earn income have to be explored further, the current observations suggest that women who have fewer family obligations (children, husband, in-laws) have more flexibility and perhaps also more personal interest in earning income through making yarn and products. It also seems that these women have a much greater control over their earnings. It is most likely not a coincidence that the two women most actively involved in the project are both single and without small children. One of them, Ms. Abdulazizova, is middle aged, divorced woman with grown-up children who lives with her parents. She tends to her ailing mother but still has time to earn income and a complete discretion over her earnings. As a single woman, she has a strong incentive to be the family provider and spinning and knitting is her main source of income.

The other active participant is Tuiguloi Saidova who has shown a great initiative to become a lead spinner and help organize other activities such as dehairing, knitting and mohair purchase. Her family status has made it easy for her to focus on these activities – she is 40 years old, unmarried, childless and orphaned. This means that she has many fewer family and household obligations than most other women and a very high incentive to earn her own income as she has no one to support her. She is also fully in control over her earnings and can fully focus on increasing her skills. The earnings from selling Mohair Magic yarn and organizing dehairing and training (US$ 756.67) have clearly improved her livelihood – she was able to remodel her house and buy small household appliances. Her close collaboration with the project and her leadership in teaching other women to spin and dehair fiber has also earned her a high profile and status in the community.

The earning opportunities of Tajik women are not only constrained by their immediate family obligations, but also by the broader cultural construct of gender roles in rural Tajikistan. While trying to pursue new possibilities presented by the project, Ms. Saidova is confronting cultural obstacles, including her own beliefs about what is appropriate and possible for a woman to do, that can hinder economic and social advancement of rural women such herself. For example, the project has selected Ms. Saidova to coordinate the purchase of raw mohair from farmers in the spring 2011. This will require that she travels to other villages and works with farmers to select mohair, negotiates price and purchases fiber. Although the project staff will help her with these tasks, she will be expected to do

more than most Tajik women ever do – meet up with male "strangers" and play a role of mohair trader that is almost exclusively done by men. To do that, she will have to be accompanied by a male family relative and overcome shyness and inhibition that is considered appropriate for women especially when they interact with males who are not their relatives. This will also require some flexibility on the part of the farmers who are not accustomed to women coming to their farms to purchase mohair. Such purchases are always conducted by male traders, although women do purchase mohair from farmers at the market. The project team plans to monitor and mediate these modifications of traditional gender roles that are necessary to empower women and men to explore new opportunities in the fiber business and in their relations to one another.

Tuiguloi Saidova participates actively in the project and is a role model for other women, Alma village, October 2010.

2.5 Component 5: Linkages between the pilot communities and the global communities of producers, processors and consumers of fiber and fiber products

Multiple cross-national linkages (in science, commerce, know-how and culture) are being developed and supported by the project. The project has begun developing multiple new linkages between

Angora goat farmers, scientists, women spinners and knitters, American Angora goat producers, American and European yarn buyers and knitters and the general public.

1. **It linked Tajik Angora farmers and scientists to Angora breeders in Texas, USA**. Texan farmers learned about the project and Angora goat production in Tajikistan. Tajik farmers will receive semen from Texan Angora goats and were able to examine American Angora fleeces, see photos of American goats and discuss Angora goat production in the USA.
2. **It creates new linkages between Tajik farmers and women spinners** by encouraging mohair purchases directly from farmers. This is essential for strengthening direct feedback on mohair quality to encourage improvements in breeding. These linkages also strengthen the raw material supply network for women processors.
3. **It linked Tajik women processors to American farmers** by bringing in American Angora goat fleeces for processing. Tajik spinners had the opportunity to work with American mohair and American Angora goat farmers were shown samples of yarn the Tajik knitters produced from American and Tajik mohair.
4. **It promotes linkages between Tajik and international goat breeding scientists and Tajik farmers.** These ties strengthen extension support and help improve productivity and quality of Tajik Angora goats.
5. **It linked Tajik spinners with the knitting community in the United States and Europe (Austria and Germany).** Initially, American knitters worked with Tajik spinners to test yarn samples and develop the product standard for Mohair Magic. Then Mohair Magic yarn was test-marketed and sold to knitting store and knitters in Madison, Wisconsin and in Vienna, Austria. Samples were also sent to Germany where buyers are also ready to purchase the yarn.
6. **The project linked Tajik mohair producers and carpet-makers with carpet-makers in Afghanistan.** These linkages will lead to the production of luxury carpets from Tajik mohair in Tajikistan and Afghanistan.
7. **It linked Tajik spinners with Kyrgyz fiber and yarn dyers** who taught them how to use chemical and natural dyes.
8. **It linked Tajik spinners with an Uzbek spinner** who was able to show them a new spinning technique – spinning yarn on a silk cord.

The project plans to strengthened all these linkages and create new contacts through a new website that will be developed in March 2011. The project also began developing ties to persons and communities that support handicrafts and fair trade such as the Hand/Eye magazine http://www.handeyemagazine.com/ that published an article about the Tajik spinners in the June 2010 issue. A knitting magazine "Yarn Market New" published a version of this article in an October 2010 issue.

3 Project Activities in Badakhshan, Tajikistan

3.1 Component 1: Characterize production systems and improve fiber production of small ruminants in all target sites

3.1.1 Evaluation of goat production in the pilot region

The eight project villages are located in Askar Zamirov community with a total of 2,572 people in the Ishkashim district of Badakhshan. The population of the project villages include 261 people (32 families) in Khaskhorog, 437 (56) in Andarob, 296 (37) in Dasht, 265 (37) in Snib, 155 (19) in Dekhlokh, 620 (86) in Garmchashma, 289 (37) in Syst, and 245 (30) in Kukhilal.

The population is mainly involved in agriculture. Livestock production is a major source of income (mainly sheep and goats, a few cattle). Number and genotype of goats is shown in Table 6. Major goat groups include:

- crosses of indigenous goats with cashgora type of goats
- crosses with mohair breed
- indigenous goats with and without cashmere fiber.

Table 6. Total number and genotypes of goat flocks kept in the project villages

#	Village name	Total number of goats	Number of cross-bred goats	Number of cross-bred does
1	Khaskhorog	257	118	69
2	Andarob	366	195	140
3	Snib	243	125	68
4	Garmchashma	228	93	58
5	Dekhlokh	198	111	60
6	Dasht	310	151	88
7	Kukhilaal	464	176	109
8	Syst	210	43	23
9	Vogz	193	110	64
	Total	**2,469**	**1,122**	**679**

In the fall 2010, the project continued to evaluate goats and the fiber that was collected in the Badakhshan pilot region in the spring. Table 7 shows the number of households and women who participated in combing their goats in spring 2010.

Table 7. Data on participants and goats in pilot villages

Village Name	No of households	No of women participants	Approximate no of goats	No of goats combed
Garmchasma	86	36	774	96
Vozd		11		24
Andarob	56	39	504	138
Dascht	37	17	333	41
Sinib	37	15	333	42
Devloch	19	2	209	0
Kuilal	30	10	270	47
Sist	37	18	333	30
Khashkorug	32	18	288	49
Total	**334**	**119**	**3044**	**467**

Many of these women and other community members were interviewed about livestock management and production in the villages. Highlights from these interviews are presented below.

3.1.1.1 Shortage of land and feed constrains livestock production, women are responsible for livestock.

An average village household owns approximately 10 goats and 5 sheep. The households cannot maintain more than 15-20 small ruminants and 1-3 cows because they do not have enough space to house more or the capacity to prepare the amount of winter feed required. These constraints are related to the severe shortage of agricultural land in the research area. Most village households are led by women as most men of working age migrate to Russia for extended periods, in many cases years. Women are responsible for taking care of the family livestock.

3.1.1.2 Sheep and goats are grazed on summer and winter rangelands and stall-fed in winter.

The households graze the animals around the villages from March to May and from October to December. All families take turns grazing the village flocks. From May until the end of September the livestock goes with a shepherd to summer mountain rangelands and the families pay the shepherd 2-3 somoni (around 50 cents) per head per month. From December to March the livestock is stalled in a small pen next to the family home and fed hay and in some cases low quality concentrated feed. Only some families can afford to buy concentrated feed for their livestock. Each family prepares hay in the summer to feed its livestock during winter months. The condition of the village flock is excellent after the animals return from the summer rangelands at the end of September. Although the team has not visited the summer rangelands yet, the condition of the livestock suggests that the rangelands are very good.

Woman grazing a village flock, October 2010

3.1.1.3 Sheep and goats are kept primarily for meat during celebrations and as a form of emergency savings.

Goats and sheep are used primarily for meat production and also as a quick source of cash income. For the majority of households, meat is too expensive to be part of the daily diet. It is consumed mostly on special occasions (weddings, funerals, holidays). During these events, the household slaughters one or two goats or sheep. In most cases these are 4-6 year old castrates. The project calculations suggest that it costs more (especially with regard to winter feed) to raise a 4-6 year old castrate than to buy an equal amount of meat at the market. Nevertheless, households prefer raising and slaughtering their own animals, specifically old castrates that are considered quality meat. No one calculates how much it costs to raise them and whether it is economical or not. Given that households have very little income, mostly from remittance sent by relatives working in Russia, livestock represents a source of savings and an emergency financial buffer. If a family needs money, for example for medical expenses, they often sell a sheep, a goat or a cow, or slaughter it and sell the meat.

Older castrates represent a large percentage of household flocks, November 2010

3.1.1.4 Sheared goat fiber currently provides a small source of income in the spring.

There is no market for sheep wool, only some spinners use the higher quality, white wool to make yarn for socks. Goat fiber (from certain types of goats whose fleeces include cashmere) can be sold for about US$ 2/kg to Kyrgyz traders who come to Tajikistan to buy cashmere-type fleeces in the spring. Selling fiber from 10 goats for US$ 2/kg provides a small source of cash for the family during the spring months when there are few other products to sell. The traders collect fiber in the villages over the course of two or three months (from March to May), take it to Osh, Kyrgyzstan and there they resell it to Chinese traders who take the fiber to China and dehair it to obtain cashmere.

3.1.1.5 The productivity of household flocks is low due to the lack of a breeding system and poor animal husbandry practices.

There is no breeding system for the village animals and most households invest the very minimum in maintaining their livestock. Regarding reproduction, there is a clear shortage of quality breeding males. Households prefer to castrate their goats when they are 6 months to 1.5 year old – meat from uncastrated sheep and goats is not used. This would be a good practice, if combined with a careful selection of breeding males and support of those who invest in keeping them for the community.

However, males left for breeding (often uncastrated young males) are not selected based on any performance criteria – when asked why her unimpressive male kid was not castrated, the owner told us that the goat managed to escape the veterinarian.

The reason for not producing good breeding males has to do with a collective action problem – i.e. what is optimal for each household is suboptimal for the community. From the perspective of any individual household, it does not make sense to invest in producing quality breeding males because 1) each household has only a few females and keeping breeding males is costly (they require feeding and cannot be slaughtered for meat); 2) all animals graze together in a communal flock during the breeding season and there is no control over the breeding. In other words, there is no guarantee that if a household invested in keeping a good breeding male their females would not be mated by an inferior male kept by another community member. This dilemma can be resolved only by a communal decision to invest into a community-level breeding system.

Regarding other aspects of animal husbandry, most households hesitate to spend US$ 1 per animal on vaccination for their sheep and goats. As a result, the spread of epidemic diseases can be fast and devastating. The lack of a breeding system and poor animal husbandry practices clearly affect the productivity of the village flocks – based on visual assessment, most animals are not good meat or fiber producers and some show clear signs of inbreeding. In spite of the minimal care, the condition of the livestock is excellent after it returns from the summer rangelands, as noted earlier. This suggests that the availability and condition of summer rangelands is key to livestock production in the pilot area. Still, the absence of vaccination took a toll last year - as much as 20% of goats from several villages died from an infectious disease (pleuropneumonia) that spread when the livestock were at summer rangelands. US$ 1 per animal for vaccination could have prevented the spread of the disease.

A yearling kid that escaped castration, Kuilal village, May 2010

3.1.1.6 Extension services to help villages and households improve livestock production do not exist.

The productivity of village livestock is low partially due to the lack of governmental support and extension services. It is the government's role to address collective action problems and design institutions and services that would serve all community members. Although government officials come to the villages to record the number of livestock and are concerned to show increases in livestock numbers, which is considered a sign of improved economic welfare, they do not provide any practical support to the villagers in terms of increasing livestock productivity and survival rate. Without extension services that would help create a community breeding system, improve range management and winter feed production, and organize vaccination for village livestock, the productivity of goats, sheep and other livestock is likely to decline further, costing the households more than the animal products are worth.

3.1.1.7 The social context for improving conditions in livestock production is favorable.

In spite of the suboptimal conditions in livestock production, the social conditions for improving the system by setting up a community-level breeding and extension seem more favorable than in many other regions in Tajikistan and Central Asia. The Pamiri communities have strong bonds and are relatively well organized, the villagers are generally well educated and understand the importance of improving breeding and husbandry, the local authorities seem eager to work on these issues and there are multiple development agencies present that can also support such improvements technically, organizationally and financially. A focused collaboration among governmental officials, development agencies, village leaders, local and international livestock scientists and, most importantly, village households, can lead to considerable improvements in breeding, animal husbandry and livestock productivity. Establishing such collaboration is a key agenda of the IFAD/ICARDA project.

3.1.2 Planned improvements in goat breeding and animal husbandry

The project objective is to improve goat breeding and husbandry in the pilot region, focusing on quality, dual-purpose goats that produce meat and luxury, cashmere-type fiber (cashgora). Cashgora fiber can be harvested and locally processed into value-added, luxury knitwear for export. The project works on developing a cashgora value chain which is expected to lead to improved livelihoods of women who produce goats and harvest goat fiber, and have skills in spinning yarn and knitting unique products such as the Jurabe socks.

The work on developing the value chain began in the fall of 2009 with research on goats and fiber produced in the region (see previous progress reports). Out of the 35% of fiber goats, approximately 20% are Angora crosses, 10% are Altai crosses and 5% are local cashmere-type crosses. The Altai crosses produce a large amount (up to 500 g) of light to dark brown cashgora-type fiber that is 17 – 21 micron in diameter and 3 – 5 cm in length. The Angora crosses produce 500 – 700 g of fiber that is about 1- 4 micron stronger than the Altai fiber, and 4 – 8 cm in length. The cashmere-type crosses produce fiber that is about 3 cm in length and 16 - 18 micron FD. These are visual estimates based on examining 67 kg of fiber collected in the spring of 2010. Samples of all types of fiber were sent to a fiber lab in Almaty, Kazakhstan for a precise analysis.

A fine example of Altai cashgora goat, Andarob village, November 2010

Overall, the fiber produced by goats in the pilot region is 2-7 micron stronger and 1-5 cm longer than cashmere. The 17- 21 micron FD makes the fiber much less valuable for industrial processing than fine cashmere with FD of 12-16 micron. However, the fiber is perfect for handspinning because of its staple length. It can be spun into high-quality, soft, luxury yarn and sold for a higher price than the Tajik mohair yarn, which currently sells for a retail price of US$ 280/kg. Its excellent handspinning properties make this "coarse cashmere" or cashgora fiber a perfect raw material that can be processed by the Pamiri women into yarn and knitted products for export.

3.1.3 Reasons for expecting higher benefits for women from producing cashgora instead of fine cashmere

Raw cashmere fiber has a much higher market value than cashgora fiber. Why is the project proposing to produce cashgora goats as opposed to trying to select for fine cashmere? There are several reasons why it will be more economically beneficial for the Pamiri women in the pilot region to produce specifically cashgora goats and fiber.

3.1.3.1 Limited number of goats per household

Cashmere producers need a large number of animals to make money from cashmere as one cashmere goat produces 150-200 g of down on average. Households in the pilot region cannot keep more than 10-15 goats (for reasons explained earlier). Even if a household had 15 cashmere goats and if there was a market for combed cashmere paying US$ 25/kg (currently there is only a market for sheared goat fleeces that pays US$ 2-3.50/kg), the household could earn only about US$ 75 from its small flock (US$ 5 per goat). Even if the cashmere market was excellent and paid US$ 40/kg, a Pamiri family with 15 goats could earn US$ 120 maximum from their flock given that it takes 5 goats to produce 1 kg of cashmere. If the family produces 15 casghora goats, they can comb at least 500 g of cashgora fiber from each goat, harvesting 7.5 kg of fiber. This fiber can be purchased for US$ 12/kg, for US$ 90 total.

However, while the cashmere fiber will be taken out of the region to be industrially processed in China, the cashgora fiber will stay in the community and be processed locally into high-value yarn and products. After being dehaired in Faizabad, Afghanistan, the 7.5 kg of fiber will give at the minimum 5.5 kg of spinable, dehaired fiber which can be spun into 5 kg of yarn (at the very minimum) and sold for US$ 140/kg wholesale and US$ 280/kg retail price (again at the very minimum). If the spinners receive 22% of the retail price (which is what spinners of mohair yarn can receive under fair trade conditions), the 7.5 kg of cashgora fiber will bring additional US$ 308 in income from spinning (5 x 280 x 0.22). In short, the income from selling yarn spun from the fiber of 15 cashgora goats can bring US$ 398. The yarn can also be locally processed into Jurabe socks and other items, leading to additional income for women knitters.

Woman with her goat flock in their pen, Andarob village, October 2010

3.1.3.2 Families currently raise cashgora goats, not cashmere goats

The other reason for continuing to produce cashgora goats is the existing structure of goat flocks in the pilot region. Because of the introduction of Altai cashgora goats and Angora goats in the 1980s, the existing fiber goats are mainly Altai and Angora crosses (i.e. cashgora type goats). It is very difficult to find a good cashmere goat in the village flocks. The cashgora crosses have a very good reputation among the villagers – they are well adapted to the region and especially the Altai crosses are excellent meat producers. Given that the families have only a small number of animals and cannot make much money by selling raw fiber, it is very important that the goats are dual-purpose goats. The Altai cashgora goats are exactly that. They are relatively large animals – the liveweight of males is 65-70 kg and of females 41-44 kg, they grow fast under the local conditions, and produce a large amount of both meat and fiber – up to 900 g for males and 600 g fiber for females. Most importantly, their fiber can be easily spun by Pamiri women, opening new opportunities for improving livelihoods.

3.1.3.3 Cashmere fiber is difficult to handspin, cashgora fiber is easily spun into luxury yarn.

In contrast to cashgora, cashmere is difficult to handspin. The reason is primarily the short length of the fibers – usually around 1-3 cm. There is an inverse correlation between fiber length and strength in wool, mohair and cashmere – the finer the fiber, the shorter the staple length. Especially fine cashmere

produced by indigenous goats is often too short to be handspun and products made from short cashmere pill easily. As a result, cashmere is used in industrial processing and rarely spun by hand. Cashgora can be easily spun because it is on average at least twice as long as cashmere 4-6 cm. Handspun cashgora yarn is still very soft (softer than kid mohair or Merino wool) and can be marketed for high prices in the USA and Europe, or used for knitting luxury products such as the well-known Pamiri Jurabe socks. Production of cashgora fiber thus allows for value-added processing that can turn a relatively cheap raw material into an expensive export product.

3.1.4 Import of Altai breeding bucks to Badakhshan

The reasons outlined above led the project team to decide on importing breeding bucks from the Altai region of Russia to Badakhshan. The team considered importing cashmere goats from Herat, Afghanistan or Altai cashgora goats from Russia. The Herat cashmere goats were easier to import (on land) but had two disadvantages – they produce short cashmere (about 2 cm long) that would be much more difficult to process into yarn than cashgora. Secondly, they are raised in a different climate and might have faced difficulties adapting to the conditions in the Pamirs. The Russian Altai goats were more difficult to transport to Tajikistan but produce similar fiber to the Altai and Angora crosses in the pilot region. Their fiber can be easily spun and they have a history of adapting well to the conditions in the pilot area. The project decided to bring in white Altai goats produced near Novosibirsk as opposed to brown Altai goats that were imported in the 1980s. White goats were chosen to develop a production of white cashgora fiber that can be spun, dyed and knitted into colorful products such as the Jurabe socks.

According to the information obtained from their origin Altai goats have a strong constitution, harmonic body structure, show good adaptation to harsh conditions of year-round rangeland grazing in mountain areas. They usually have a uniform color, size and body structure. For medium size animals, bucks have a liveweight of 63-70 kg (up to 92 kg), does of 38-40 kg (up to 65 kg), yearling bucks 32-39 kg, yearling does 27-35 kg. Height at withers of 1.5-year old goats on average is 57 cm, of adult goats 62 cm.

Fiber cover of the Altai mountain goats consists of 65-75% cashgora with a length of 8-9 cm, fineness of 17-19 micron and 25-35% of kemp fiber with diameter of 75-90 micron. In addition to cashgora fiber, there is a significant amount of transitional hair fiber. The cashgora fiber is soft and strong. Bucks produce 750-1000 g (up to 2000 g), does 550-650 g (up to 1500 g). Cashgora production of male and female yearling kids is 250-350 g (V.G. Alkov, 1999).

The project team worked very hard to arrange the goat import. Dr. Matazim Kosimov traveled to Altai to select the goats. After arranging the necessary documentation by the Dushanbe team, 8 selected goats, 1.5-2.5 years old, were transported by truck from the Altai farm to Novosibirsk, and flown from Novosibirsk to Dushanbe, Tajikistan. After two weeks in quarantine at the Tajik Livestock Institute in Dushanbe, the goats were shipped from Dushanbe to Khorog and to the villages at the end of October 2010.

3.1.5 Distribution of Altai goats to households and breeding plans for 2011

The goats were distributed to the most experienced shepherd in each pilot village. The shepherds were selected based on discussions with other villagers and their recommendations. The villagers all knew who were the most knowledgeable goat producers in their community and pointed them out to the project team. The recommended families had worked as shepherds during the Soviet period and had experience in goat breeding. The families understand that the bucks will be used for nuclei breeding with selected females.

The bucks have been distributed to experienced livestock producers in eight villages as follows:

1. Khaskhorog village, buck #5278-02566 (handed to Tillo Fozilov),
2. Andarob village, buck #5260-5089 (handed to Shogun Anoyatbekov),
3. Snib village, buck #5080-5434(handed to Odina Nozymbekov),
4. Garmchashma village, buck #5057-02295 (handed to Shanbe Shanbiev),

5. Devlokh village, buck #5069-5085 (handed to Savlatsho Muborakkadamov),
6. Dasht village, buck # 060-089 (handed to Panokh Samiev),
7. Syst village, buck #5259-5029 (handed to Iqbol Kushkorov),
8. Kukhilal village, buck # 5315-02525 (handed to Khairmamad Djumakhonov).

The project team and the families discussed the conditions for keeping the Altai bucks on behalf of the village. The project agreed to pay for winter feed for the procured bucks. 1.2 tons of barley and 1.5 tons of alfalfa hay was bought and delivered to farmers for winter feeding.
The project team also conducted five training workshops with livestock producers on goat production and management (from 27/10 to 04.11/2010, by F. Ikromov, G. Safaraliev and K. Davlatkadamov). The trainings covered topics such as goat nutrition and other aspects of goat husbandry. The strategies of best use of the imported Altai bucks for breeding improvements were also discussed.
The project team worked on developing a breeding plan for the 2011 breeding season, given that 90% of females were already inseminated when the bucks arrived at the end of the 2010 season. The preliminary plan is to divide the bucks into two groups and select 40 females per buck from the village flocks. The females will be selected based on the fiber they produce – their fiber will be assessed after fiber collection in spring 2011. Other characteristics such as liveweight and overall condition will also be considered. The females will be tagged and sent to summer rangelands with the Altai bucks. Good summer rangelands will be specially selected and allocated to the two breeding nuclei by the local government. The breeding groups will graze together throughout the breeding season and return to the villages only after all the females have been mated. This will ensure that the nuclei females are bred by the Altai bucks only. In the coming years, best bucks from the nuclei flocks will be selected for breeding. Data on the nuclei kids will be collected.

Altai buck in Dash village, November 2010.

The breeding plan also covers the work with other village flocks – the project will make sure that all male goats in the village flocks are examined in the spring of 2011 and all undesirable males are castrated at that time. Selected local males will be left to breed with other village flocks (the villages will trade bucks) and other quality males might be imported from other regions. This will ensure that the non-nuclei females also produce good offspring.

The team plans to work with the villagers and the local authorities on developing a sustainable breeding system that continuously produces breeding males for the villages. Discussions will be held with all villagers and their representatives on how to organize such as system.

Khonun Davlatquadamov delivering one of the Altai bucks to his new home in Garmchasma, November 2010

3.1.6 Work on improving animal husbandry

The team also plans to work on improving animal husbandry – arranging vaccination of the village flocks against most common diseases and evaluating and castrating all male goats. The team plans to organize trainings for households in livestock production and work on designing the most effective methods of improving animal health, feeding, range management and overall productivity of household flocks.

3.2 Component 2: Work on formation and capacity building of women's groups to develop fiber processing and export of value-added fiber and products in all pilot sites

3.2.1 Overview of collaboration with women in 2010

At the Badakhshan pilot site, women participate in all project activities – they take care of the livestock and will participate in caring for the breeding animals and setting up the community breeding system. They also harvest fiber and will participate in spinning yarn and knitting products. In

the spring of 2010, women participated very actively in combing their goats. The project purchased 350 cashmere combs from Afghanistan and distributed them to women in the villages so they could comb their goats and obtain higher quality fiber (see second progress report).

After examining the fiber, the project team concluded that the fiber was cashgora, not cashmere. Secondly, the project concluded that the fiber had to be dehaired to be processed into luxury yarn and knitwear (all cashmere is also dehaired prior to processing). The fiber could be dehaired manually, but this process would be too time consuming and the quality is not perfect. The project team learned that an AKF project is setting up a cashmere dehairing facility in Faizabad Afghanistan, near the Tajik border, to dehair cashmere produced in northern Afghanistan. The dehairing plant should be in operation in the spring of 2011 – based on the latest news, the building is nearly completed and the Chinese dehairing equipment will be shipped to Faizabad at the end of February. The team discussed collaboration with the AKF project and plans to dehair the cashgora fiber at this new plant.

Woman selling her fiber, Dasht village, April 2010

3.2.2 Testing combed fiber and organizing spinning groups in fall 2010

The fiber harvested in 2010 offered information about the numbers and types of fiber goats in each of the villages. The findings are described in detail in the second progress report. Based on the types of fiber collected, some villages have a higher percentage of Angora crosses while other villages have more Altai crosses. The project team recorded the names of women who combed their goats and the type, amount and category of fiber they sold. This type of information will also be recorded in 2011 and used to select candidate cashgora females for the breeding nuclei.

The project plans to add value to fiber through handspinning and the best way to asses its quality is by processing it into yarn. The project set up the initial processing experiment in the fall of 2010. First category fiber (the finest and cleanest fiber collected) from all villages was combined and sorted by color into three categories: white, brown and light-brown. Fiber in each color category was then divided into 1 kg bags and distributed to the best spinners in several villages. Together with the yarn, each spinner was given very specific written instructions on how to clean the fiber from kemp and spin and prepare the yarn. 15 spinners received 1 kg of fiber and the yarn will be collected in the spring of

2011. The spinners will be paid 4 somoni for 100 meters of yarn for first quality yarn and the best yarn/spinner will receive an award. Although the fiber was not dehaired and will include some percentage of kemp, it will be soft enough to start knitting Jurabe socks for export.

3.2.3 Improving fiber harvesting in 2011

The combing experiment in 2010 was important for the team and the women. The team learned what kind of fiber is produced in the villages and the women now understand the differences in fiber quality and respective prices. They learned that 1st category fiber is much more expensive than lower quality fiber and were instructed to harvest only first category fiber in 2011. The project identified women who collected the cleanest, finest fiber and plans to conduct training with these women on fiber harvesting at the start of the combing season in February 2011.

The project also plans to distribute additional combs that are expected to work very well. In 2010 two types of Afghan combs were distributed and most women preferred one type over the other. In 2011 the project ordered locally made combs that were developed by Sarah Ong, manager of Mercy Corps project that plans to harvest and spin yak down in Murgab. These combs are expected to work well for the cashgora goats and will be manufactured locally which is logistically much easier and cheaper than importing them.

The women will be better informed and equipped for the 2011 fiber collection and the project expects that the 2011 fiber will be of higher quality than in 2010. The fiber collection and sorting system set up in 2010 will be improved in 2011. Because this event draws many women and other community members, it will be combined with a brief training on proper fiber harvesting, animal husbandry tips and information about making yarn and knitted products for those interested. Women who collect the best fiber and have quality female goats will be identified and asked to contribute their animals to the breeding nuclei. Women who bring the largest amount of the highest quality fiber will be recognized and receive a special price.

The women know the goats in their flocks very well which will facilitate record-keeping and selection of breeding animals, Andarob village, October 2010

3.2.4 Planning yarn spinning and knitting in 2011

The project plans to dehair the fiber collected in 2011 at the new dehairing facility in Faizabad, Afghanistan. After dehairing, the fiber will be distributed to the best spinners and processed into yarn. The dehaired cashgora yarn is expected to be an excellent product – strong, soft and suitable for knitting a variety of products such as the Jurabe socks, hats, gloves and other items. The Pamiri Jurabe are known among American designers and are expected to have a high export potential. Currently these socks are made either from Chinese acrylic yarn that the women purchase at the market in Khorog, or from coarse, locally produced wool. Neither type of product would do well on western export markets – American and European consumers of handicraft products are not interested in knits made from cheap acrylic yarn supplied by China in a wide variety of styles and colors. The art of handknitted Jurabe can be fully appreciated only when the socks are made from a natural fiber. However, the local wool that is used to make some of the Jurabe is too coarse for western consumers who are accustomed to wearing very soft knits. In order to make Jurabe socks that can successfully compete on western markets, the women need to work with soft, durable, natural white yarn that can be easily dyed. The cashgora yarn the project plans to produce is perfectly suited for this purpose.

The many varieties of unique Jurabe patterns represents a cultural capital of the Pamiri knitters and can be patented and used to make not only socks but hats, sweaters and other items. The project team plans to work on developing fashionable knitwear using these patterns. It also plans to record the patterns and publish a book to advertise them. The patterns and yarn can also be used to produce knitting kits for socks, gloves and hats. Such knitting kits are expected to be very popular with western knitters.

Spinner from Andarob village, November 2010

3.2.5 Training in dying yarn

To produce beautiful Jurabe socks and other products, the artisans need to learn how to dye the yarn. Currently the women do not have access to quality dyes. Those women who dye yarn to make Jurabe buy cheap Chinese dyes that are not steadfast. The project collaborated with CACSA to organize a fiber and yarn dying workshop for the artisans in September 2010. The trainer was Kenze Toktosunova from Kyrgyzstan, an experienced dyer. The workshop is covered in the grant report by Svetlana Balalaeva. The project team will continue to work with the women on dying yarn in 2011 and plans to supply them with quality dyes from the United States or Turkey.

Women at yarn dying workshop with Kenze Togtosunova, September 2010

3.3 Component 3: Develop sustainable market chains that link fiber producers and processors with buyers

In Badakhshan, the women themselves produce the goats which means that the fiber producers will themselves process the fiber. Some of the women in the pilot villages are very good spinners and knitters and look forward to making yarn and products for export from their own fiber. Depending on the dehairing process, the women will start processing their dehaired fiber in the summer and fall of 2011 and their first samples of yarn and products can be test-marketed in the United States in winter 2011.

3.4 Component 4: Research on changes of income of fiber producers and women processors and their effects on livelihoods and gender roles.

The earnings of women who sold fiber to the project in 2010 were recorded. The project plans to keep records of all income the women earn from selling fiber, yarn and knitted products. After the processing and export components of the cashgora value chain have been established and spinners and knitters start earning income from exporting their production, the project plans to interview the women to collect information about changes in their earnings, livelihoods and gender roles.

3.5 Component 5: Linkages between the pilot communities and the global communities of producers, processors and consumers of fiber and fiber products

The project is developing new linkages between the Pamiri communities and fiber producers, processors and buyers, starting with local linkages that can support cashgora goat breeding, fiber collection and processing. The planned website will create an exposure for the Pamiri women through photographs, video and information about the project. Similar to Northern Tajikistan, the project plans to link the Pamiri women to markets for yarn and products in the United States and Europe from winter 2011 onwards.

4 Project Activities in Kyrgyzstan.

4.1 Component 1: Characterize production systems and improve fiber production of small ruminants in all target sites.

4.1.1 Survey of sheep producers in the pilot area

In Kyrgyzstan, the project team started working with Merino and Tian-Shan sheep producers to improve wool quality and establish sources of raw material for felting groups. Some sheep farmers have started to supply wool to felting groups. The team is currently determining which breeding strategies are required to improve the wool quality with regard to the demands of the felting groups and how to strenghten collaboration between the producers and processors.

Farmers in Jeti-Oguz, Ak-Suy and Tyup districts of the Issyk-kul province as well as in Kochkor, At-Bashi, and Naryn districts of the Naryn province were selected that are expected to supply fine merino wool from Kyrgyz mountain merino and semi-fine wool from Tian-Shan crossbred sheep. In the visited farms the sheep were classified by breed (visually), age and sex groups, and marked by plastic ear-tags.

In Orgochor village, in the Jeti-Oguz district of the Issyk-kul province, still purebred Kyrgyz mountain merino sheep are produced as they are being supported by the governmental breeding station "Orgochor". Thus, there is a high potential for supply of finest Merino wool for the felting groups in this village. Seven farmers were visited and their flocks evaluated:

1. Farmer Doku Esenov: 80 sheep, 60 ewes, 80% in the elite class, wool quality standard of 64 and 57, fiber length of 8-9.5 cm.
2. Farmer Jarkynbaev Kenjebay: 168 sheep, 100 ewes and 60 young ewes, 69% in the elite class, wool quality standard: 60 and 64, fiber length of 8-9.5 cm.
3. Farmer Joldosh Kagazbaev: 30 ewes, 44% in the elite class, the rest in the first class, wool quality standard: 60 and 64, fiber length of 8-9 cm.
4. Farmer Davlet Mambetov: 108 sheep, 86 ewes, 60% in the elite class, 20 young ewes, and 2 rams, wool quality standard: 60 and 64.
5. Farmer Murat Jumakunov (largest framer): 500 sheep, 296 ewes, 200 young ewes and 4 rams, 68% in the elite class, 24% in the first class, wool quality standard: 60 and 64, fiber length of 8-10 cm.
6. Farmer Sapar Asanaliev: 100 sheep, 63 ewes, 37 young ewes and 4 rams, 54% in the elite class, wool quality standard: 60 and 64, fiber length of 8-10cm.
7. Farmer Zhaenbek Osmonov: 30 sheep, 10 young ewes, wool quality standard: 60, fiber length of 8-9.5 cm.

Another large farm in the Jeti-Oguz district well known for its high quality Merino flock is located in Koy-Sary village at 270 km from Bishkek:

8. Farmer Kubangaly Matkeev : 345 sheep, 75% in the elite class, the rest in the first class; wool quality standard: mainly 64, fiber length of 8-10 cm.

Besides fiber fineness the breeding work with these farmers will be directed to improving uniformity of wool, i.e. fiber homogeneity by diameter and staple length on different parts of the body (side, back, haunch), thereforehe most homogeneous animals will be selected.

In addition a Merino farm, "Sabaaji", in Shamsi village in Kochkor district in Naryn province was visited. The farm of Ularbek Abdurasulov is located at 50 km from the Kochkor district center. The farm is relatively large, the farmer owns more than 500 fine wool merino sheep and has a sufficient area of irrigated and rainfed cropland for cereal production. The farm has sheep pens, access to spring/summer and fall/winter rangelands, a good forage base and feeds concentrates. As strategically this farm is well located to provide the felting group with fine wool, an overall evaluation of the sheep flock was conducted in June 2010 including breeding rams, young rams, ewes and young ewes. During this assessment, density and length of wool on the side, back, haunch and belly, fiber thickness on the side, curviness and uniformity of wool, amount and color of grease, body covering and strength of the skeleton (constitution), exterior, live weight, amount of the unwashed wool, class of the animal

were recorded (Table 8). The results of classification show that the sheep in "Sabaaji" farm have similar characteristics as Australian merinos measured by homogeneity, weight, wool quality, length and curviness of staple, and grease color. The wool mainly corresponds to a quality standard of 60.

Table 8. Classification of animals by sex and age groups on the farm "Sabaaji"

Indicators	Rams	Young rams	Ewes	Young ewes
Quantity, heads	9	7	384	124
Uniformity of Flock, % C	100	97.0	80.0	92.2
Weight of wool, MM, M+	66.6	65.8	72.3	53.4
Length of staple, cm	9.4	10.2	9.1	10.0
Color grease, %				
white, %	55.5	56.5	63.0	67.6
light brown, %	44.0	43.5	37.0	32.4
cream, %	0.5	-	0.1	-
Magnitude, %				
marked 5	52	89	62	68
marked 4	48	11	38	32
Class, %				
elite	100	82	80	68
1st class	-	12	8	12

In July 2010 six small scale farms were visited in Min-Bulak village in Naryn district in the mountains of the Central Tian-Shan at 2,757 m above sea level, 310 km from Bishkek. Five of the farmers keep sheep of different genotypes (crosses of fine-wool and coarse-wool, semi-fine wool, semi-coarse wool and coarse wool fat-tailed) with an unclear production orientation (wool or meat). However, with the support of the project the farmers decided to shift their production to Tian-Shan semi-fine wool breed.

1. Farmer Amantur Musaev: 30 sheep, 22 fat-tailed sheep.
2. Farmer Omurtur Ismadiyarov: 36 sheep, all Tian-Shan semi-fine wool crosses, wool is 12-16 cm long, wool quality standard: 50 and 48.
3. Farmer Saktur Musaev: 26 sheep, 18 Kyrgyz fat-tailed of various colors.
4. Farmer Tabyldy Asekov: 28 sheep, 22 fat-tailed sheep, the rest black sheep with thin tail.
5. Farmer Asylbek Asankulov: 50 Tian-Shan semi-fine wool crosses with non-uniform wool, wool quality standard: 50, 48, and 46; also owns indigenous black Kyrgyz sheep.
6. Farmer Esentur Musaev: 32 fine wool sheep, 22 in the first class, the rest in the second class, wool quality standard: 60, fiber length of 7.5-8 cm.

It is proposed to provide these farmers with good quality Tian-Shan rams (in total 7) and some with additional ewes to improve the genetics of their flock:

1. Amantur Musaev: 1 ram
2. Omurtur Ismadiyarov: 1 ram
3. Saktur Musaev: 2 rams, 10 ewes
4. Joldoshbek Samakov: 1 ram
5. Asylbek Asankulov: 1 ram, 5 ewes
6. Esentur Musaev: 1 ram

In Ak-Jar village in the At-Bashi district, also located in the mountains of Central Tian-Shan, at 400 km from Bishkek, two Merino farms were visited and the flocks evaluated:

1. Farmer Monolbay Manapbaev: 1,000 sheep, 500 fine wool and 500 fat-tailed sheep; fine wool sheep are kept for wool and meat production; the flock is not selected according to the wool class characteristics although Australian Merino rams were used in the flock and therefore the wool is of very diverse quality: wool quality standard: 58, 60, and 64. The farmer is 48 year old and his family consists of 7 people; his sheep pen is located Kara-Terek tract at 30 km from Ak-Jar village.

2. Farmer Aala Manapbaev: 400 fine wool sheep and more than 100 fat-tailed sheep, 300 ewes and 120 young ewes; the flock is typical Kyrgyz fine wool breed, wool quality standard: 60 and 64. but non-uniform, light-cream and cream grease color. The farmer is 39 years old and has 6 family members; his farm is located in the Kurch-Kol tract at 25 km from the Ak-Jar village.

To improve the wool quality in these two flocks, 8 high quality Kyrgyz mountain merino rams will be procured from Orgochor and 5 will be distributed to Monolbay Manapbaev and 3 to Aala Manapbaev.

With regard to supply of high quality Merino wool, this preliminary farm survey shows that wool with a quality standard of 64-70 can be procured at the state breeding farm "Orgochor" and from farmers in Orgochor village in Jeti-Oguz district. Merino wool of a quality standard of 60 can be purchased from "Sabaaji" farm in Kochkor district and from farmers Monolbay Manapbaev and Aala Manapbaev in At-Bashi district.

4.2 Component 2: Work on formation and capacity building of women's groups to develop fiber processing and export of value-added fiber and products in all pilot sites

The general schedule of trainings conducted by CACSARC-kg for the pilot groups of the Naryn region in 2010 is shown in Table 9.

Table 9. Trainings conducted for the felting groups in Naryn Province in 2011

Venue	Theme	Donor, date
Acha-Kaindy village	Wool processing, seamless felting	AUB, 31/05-02/06
	Seamless and stitched pillows in ala-kiyiz technique	AUB, 24-26/08
	Marketing and export	AUB, 10-11/11
At-Bashi village	Wool processing, seamless felting	IFAD, 03-05/06
	Decorative felt pillows in ala-kiyiz technique	IFAD, 26-29/08
	Marketing and export	IFAD, 05-06/11
Min-Bulak village	Wool processing, seamless felting	AUB, 06-08/06
	Seamless and stitched pillows in ala-kiyiz technique	AUB, 27-29/08
	Marketing and export	AUB, 12-13/11
Lakhol village	Wool processing, Seamless felting	IFAD, 09-11/06
	Double-sided ala-kiyiz chair mats	IFAD, 14-16/09
	Marketing and export	IFAD, 11-12/11
Bishkek city	Training for trainers	ADB, 21-13/09
	Institutional development and strategic planning	IFAD, 26-27/11

4.2.1 Training on felting techniques

Based on the results of market analysis in the USA by Dr Liba Brent, the following felt products were identified to be exported to the USA: pillows, chair-mats and slippers. Training programs for the pilot groups were prepared taking this into consideration. Trainings on wool processing and hollow-shape (seamless) slippers were conducted for the pilot groups in the first half of 2010. It should be noted that in the production of slippers the artisans have mastered the felting techniques, but shape, design and color-scheme need to be seriously improved in order to reach quality standard for export products.

4.2.1.1 Trainings in seamless and stitched pillows in ala-kiyiz felting technique for the "Cheber Koldor" and "Uz-Nur-Ayim" artisan groups

These trainings were conducted using the funds extended by the «AUB-Charity» Fund, on 24-29 August, 2010. Trainer: Gulmira Kutueva, Designer. 30 women participants.
The main task of the trainer was to encourage the artisans to produce quality products that meet market requirements. During the training the trainer explained the importance of quality, design and color of products to be promoted on international markets, in particular seamless and stitched pillows in ala-kiyiz technique. The participants were informed about the quality criteria and export requirements vis-à-vis these types of products. Samples of quality pillows, photos and pictures were used as visual aids.

Training in Acha-Kaindy village

The women from pilot groups previously produced primarily traditional handicraft products, in particular felt *shyrdaks*, and did not know the *ala-kiyiz* technique. The whole process of creating interior products in ala-kiyiz technique was quite new for them: from preparing drafts and sketches to making the products. The training participants liked very much the hollow-shape (seamless) felting technique with ala-kiyiz design. Unlike the shyrdak technique, the ala-kiyiz technique does not require the use of needles, threads or scissors and one sketch can be used to produce different products.

Along with practical training, the trainer provided consultations on the design of new samples of products with various color combinations, and on the quality of raw materials.

Samples of pillows made at the training in Acha-Kaindy village

Previously the women used only unwashed wool, but during the training they understood that felting clean wool requires much less effort and it can be easily done at home conditions. The training participants produced seamless and stitched pillows of different size in the ala-kiyiz technique. The participants learned that all aspects of the product and the production process are important – not only the design of products, but also their quality and eco-friendliness, as there is an increasing demand for handicrafts made from natural raw materials and of natural colors.

Starting the training in Min-Bulak village

The pillows made by the artisans in Acha-Kaindy and Min-Bulak villages will continue to be improved during future trainings and practice. However, considering that the artisans used to work in a shyrdak technique only and now were required to change their method of working with the raw material and adopt new design and color schemes, the first results have been very encouraging. Some of the pillows were indeed very beautiful and suitable for export. Another important component of the training was teaching the artisans how to present their products, stressing their merits and advantages, and also how to critically evaluate their own work.

Creation of a pillow design (training in Min-Bulak village)

All the participants were engaged in the learning process through work in teams, presentation of the group work, and participation in discussions.

Samples of seamless pillows from Min-Bulak village.

4.2.1.2 Training in decorative felt pillows in ala-kiyiz technique for the "Ak-Bairak" group

The training was conducted in the At-Bashy village at the workshop of "Ak-Bairak" group on 26-29 August 2010. Trainer: Anara Chakayeva.

Laying out wool for a pillow.

The trainer introduced contemporary design to the artisans and explained why it was necessary to expand beyond traditional Kyrgyz ornaments when making felt pillows for western markets. The participants learned basic skills of making felt pillows in ala-kiyiz felting technique and pillows on cotton and silk base. During the first day of the training the trainer showed the artisans the technique of making a pillow and at the end all the participants analyzed this first sample product, noting all positive and negative aspects. On the second day the participants made decorative felt pillows by themselves, with the assistance from the trainer, while taking to account the knowledge obtained on the first day of the training.

Samples of pillows produced at the training.

The fourth day of the training was dedicated to the production technique of warm felt scarves. Warm felt scarves are produced in ala-kiyiz and “nuno-felt” techniques; the latter technique produces warm,

soft and light scarves according to western standards. This technique was a real discovery for the participants.

Burul Bakirova is making a scarf

4.2.1.3 Training in ala-kiyiz chair-mats for artisan group in Lakhol village

The training in Lakhol village was conducted on 14 - 16 September. Trainer: Kenjekan Toktosunova. Number of participants: 6 women. Ms. Toktosunova taught the women how to make double-sided ala-kiyiz chair mats. She was awarded the UNESCO Seal of Excellence for Handicraft Products in Central Asia for set of double-sided ala-kiyiz chair-mats with elements of Kyrgyz traditional ornaments. During the training in Lakhol village, she used contemporary design and a 2011 color-scheme to make the chair mats. Both merino and cross-breed wool was used for the mats. The chair-mats produced at the training were of good quality with a nice design.

Gulmira Usupbaeva and Kenjegul Alyskanova.

Kenjegul Alyskanova with new products

Samples of chair-mats produced at the training in Lakhol village

4.2.1.4 General conclusions and recommendations for the pilot groups based on the results of the trainings:

- All artisans showed a great interest in learning new felting techniques and expressed their desire to have more trainings;
- Most of the participants have low artistic capabilities and weak knowledge of modern design in felt products due to the absence of methodical and artistic information;
- If provided with favorable conditions (wool processing equipment) and increased knowledge of felting and design techniques, the artisans can produce quality products for international markets;

- It is necessary to continue systematic training of artisans in techniques and design of products in the light of the project's goal to enhance export of felt products produced by artisans of the Naryn oblast;
- To prepare for trainings not only photos of products, but also samples of high-quality products are important;
- It is important to asses individual abilities of each participant during the training and to analyze the quality of products at the end of trainings;
- It is important to explain continuously to the pilot groups the concept of the project: only high-quality products can be exported and only those artisans who strive to meet international standards for their products can count on the support of the project;
- It is necessary to provide the groups with photos and samples of products, printed information and consultations on design.

4.2.2 Training on marketing

4.2.2.1 Training on marketing and export of handicraft products for «Cheber Koldor» and «Uz-Nur-Ayim» artisan groups.

The training was conducted in Acha-Kaindy village, At-Bashy rayon and in Min-Bulak village, Naryn rayon on 11-14 November 2010 with funds provided by «AUB-Charity» Public Fund. Trainer: Zura Rasalieva, Marketologist, Director of «CACSA-Trade». Number of participants: 30 women.

Analysis of samples of local products during the training in Acha-Kaindy

The trainer Zura Rasalieva carried out the following work in every group:
- Presented general information on marketing of handicraft products;
- Explained the requirements for export products;
- Presented information on the stages of preparing products for export;
- Analyzed the quality and assortment of products produced by local artisans;
- Held discussions with artisans about their products;
- Discussed the sales of local handicraft products using samples of products;
- Made presentation of the CACSA-Trade Catalogue of handicraft products;
- Presented information on pricing of handicraft products;
- Conducted practical training on pricing of products: determining a net cost, income, and price.

The trainer used visual aids such as samples of products produced by leading designers of Kyrgyzstan; specialized magazines with samples of souvenir products and various accessories; she used a desktop

computer for presentations. The trainees have a weak and non-systematic understanding of the meaning of "marketing" and the trainer explained the essence of marketing and the necessity to use marketing instruments in crafts business using concrete examples. The trainer characterized the handicraft markets based on the extensive experience of CACSA-Trade, which exports Kyrgyz handicraft products to many different countries.

Zura Rasalieva attended many famous international craft fairs: crafts fair in New-York NYGF, Santa-Fe (USA), Maison et Objet in Paris and craft fairs in Germany. These experiences allowed her to see and analyze the existing demand for felt handicrafts. She understands that in order to have successful sales, it is necessary produce products of proper quality, design, color combinations and export prices. She shared these insights with the felting groups during the training.

The second day of the training focused on the issues of pricing. The artisans do not have a good understanding of setting prices and have difficulties distinguishing production cost from price. They also have a weak notion of what a profit is and how to calculate it, and do not know how to price their products in view of the real expenditures for raw materials and time.

Practical training on pricing, Acha-Kaindy village

At the practical training on pricing, the participants calculated the production cost and wholesale and retail prices for their products.

Markets for the artisans' products are: local bazaars, fairs in Naryn and Bishkek and tourists. They prefer to make products on order, but orders and sales are not regular. The initial assortment of products the groups made was limited to shyrdaks and chair-mats produced in shyrdak technique. In order to expand their skills and product assortment for export, the artisans were trained in new techniques and new products such as seamless felt slippers, decorative felt cushions and chair-mats in ala-kiyiz technique. Trainer Zura Rasalieva analyzed the new products produced by the trainees and suggested recommendations on improving their quality.

Practical training on pricing, Min-Bulak village.

Based on the results of the training on marketing and export of handicraft products in Naryn oblast, Zura Rasalieva had the following recommendations:

- Educate group leaders (through seminars, travels, exchange of experience);
- Regularly upgrade the knowledge and skills of artisans (trainings, exchange of experience);
- Provide access to information on design and marketing through the internet, catalogues and magazines; dissemination of information among the groups;
- Participate actively in craft fairs on the regional level;
- Pay special attention to quality fulfillment of orders; to make products according to ordered samples;
- Accumulate a collection of high-quality samples.

4.2.2.2 Training and consultations on marketing and export for artisans of "Ak-Bairak" group.

The training was conducted at the At-Bashy village on 5-9November 2010. Trainer: Shauhat Ravhatullin. Number of participants: 15 women. When preparing the training program, it was taken into consideration that the members of "Ak-Bairak" group had training on marketing and pricing in 2009 under the project supported by "AUB-Charity" Fund. Therefore, this training focused on the second part of the program – export requirements for handicraft products and fulfillment of export orders. The trainer is well experienced in making products for export (felt slippers, chair-mats and other products). He analyzed the new products made by the Ak-Bairak group: felt slippers, cushions and chair-mats, and brought to the training samples of slippers of different shape and design.

In the process of making seamless felt slippers, At-Bashy village

Preparations for making felt slippers

Taking into consideration the comments from Dr. Liba Brent, the training participants guided by Shauhat Ravhatulin mastered practical fulfillment of export order for slippers and cushions.

Samples of slippers produced at the training in At-Bashy village, November 2010

4.2.2.3 Consultations on marketing and design of export products for artisans in At-Bashy site.

Thanks to the support provided by "AUB-Charity" Fund, the IFAD/ICARDA project and systematic work of «CACSARC-kg» Public Foundation, artisans in At-Bashy village created samples of products that can compete on export markets: decorative cushion and warm scarves made from felt. Dr. Liba Brent placed an order for pilot samples of 10 scarves and 3 cushion sets for test-marketing. If the samples are successfully sold, the artisans will have a chance to receive regular orders. To ensure that the scarves are made according to quality standard, the artisans received additional consulting from Ms. A. Chakaeva on 7-8 November 2010. The consulting was financed by "AUB-Charity" Fund. The consultant explained to the artisans the requirements for fulfilling export orders. She stressed that special attention must be paid to product quality and that the scarves must be made strictly according to a specified size, colors and design.

Warm felt scarf made for export (At-Bashy village)

Samples of scarves produced by artisans, At- Bashy village, November 2010

4.2.2.4 Training on marketing and export for artisans of Lakhol village

The training was conducted on 11-12 November 2010. Number of participants: 10 women. Trainer: Kenjekan Toktosunova. Unlike the other groups, artisans from the Lakhol village have much less experience in producing felt handicrafts for sale. Taking into account their lack of exposure to marketing, it was decided to first conduct a training on the production of handicrafts for export and help the artisans master all technical procedures concerning the production of export products.

The process of creating chair-mats

Artisans of Lakhol village trained by Kenze Toktosunova mastered the production of double-sided ala-kiyiz chair-mats of good quality, some of which were purchased by Dr. Liba Brent in October 2010 in Tashkent for test-marketing in the US. They also received an additional order for samples from Dr. Liba Brent.

Artisans of Lakhol village are implementing the order for chair-mats

During the training, the participants produced three sets of chair-mats 39 x 39 cm: one set of 6 chair-mats and two sets of 4 chair-mats; two sets were made from merino wool, and one set from crossbred wool.

Set of 6 chair-mats made from merino wool

During the training K. Toktosunova discussed with the participants all comments and recommendations by Dr. Liba Brent, concerning wool quality, design, size, and colors of the pilot products.

4.2.2.5 General conclusions and recommendations concerning the work of artisans on implementing the order.

- Artisans do not attach proper importance to observing the right size and shape of products in a set;
- Artisans do not properly present their products: thorough ironing, steaming, arrangement of seams, packing etc;
- Artisans must know exactly what kind of wool must be used for what kind of products: for example, for scarves and cushions it is necessary to use only well-processed merino-wool; for chair-mats merino wool is also preferable, but it is possible to use well-processed cross-bred wool;
- Artisans have to master the processes of wool dyeing in order to produce steadfast dyed wool products;
- Artisans must learn how to prepare exact descriptions of export products: composition of raw materials, methods of cleaning and maintenance of the product, place of origin and short information about the producers.

4.2.3 Trainings on the institutional development of the groups.

4.2.3.1 Training of trainers at local level

The training took place in Bishkek on 21-23 September 2010, within the framework of the Festival "Oimo-2010" with financial support of ADB. Leaders and activists of the four pilot groups participated in the training. The first day of the training focused on the analysis of the US handicraft market and its requirements for handicraft products. Trainer Judith Espinar, Creative Director of one of the most prestigious international fairs in Santa Fe, USA made a presentation about the Fair's experience and answered questions of the training participants. She focused on different promotion instruments of handicraft products. The next two days of the training focused on the theory and practice of trainers' work and on methodologies of training artisans.

Trainer L. Kashitsina, teacher of the American University in Central Asia, explaining the basics of trainer's work.

Interactive training conducted by L. Kashitsina

Practical lessons on trainers' work were conducted at the CACSARC-kg Resource Centre on the third day of the training. Svetlana Balalaeva informed the participants about the main preparation stages of training: formulate goals and objectives of the training; elaborate program of the training; prepare handouts for trainees; prepare list of needed raw materials and inventories; prepare visual aids; define the method of conducting the training (proportion of theory and practice); present the results of the training; receive feedback). Then the training participants – practicing trainers and beginners – worked in small groups on developing practical skills in trainers' work. The groups worked in several directions of handicraft techniques: silk-felt scarves, braided tassels, felt decorations and adornments, ala-kiyiz felting technique of interior products. As a result of the training, the artisan-beginners who had no experience in trainers' work acquired new knowledge and skills; and already practicing trainers upgraded and improved their professional skills.

4.2.3.2 Training on institutional development and strategic planning for the leaders and activists of the pilot groups

The training was held in Bishkek, at the Office of CACSARC-kg, on 26-27 November 2010. Participants of the training were the group leaders of the four pilot groups and one activist from each group:

1. T.Amanova, leader, Acha-Kaindy site;
2. B.Urisbekova, activist, Acha-Kaindy site;
3. Sh.Omuralieva, leader, At-Bashy site;
4. J.Busurmankulova, activist, At-Bashy site;
5. B.Jamanbaeva, leader, Min-Bulak site;
6. A.Kononbaeva, activist, Min-Bulak site;
7. G.Usupbaeva, leader, Lakhol site;
8. M.Usubalieva, activist, Lakhol site.

On the first day of the training, Dr. Asanbek Ajibekov, National Coordinator of the project "Improving Livelihoods of Smallholders and Rural Women through Value-Added Processing and Export of Cashmere, Wool and Mohair" in Kyrgyzstan, informed the participants about the project, its goals and objectives, expected results and stressed the requirements for quality of felt products made for export; he promised project support first of all to those artisans of the groups, whose products will meet the quality requirements of the project.

Dr. Ajibekov is talking with the training participants

After the information by Dr. Ajibekov the participants were informed by Project manager Svetlana Balalaeva about the Report of CACSARC-kg on the project for 2009-2010, and discussed in detail all aspects of the work that has been carried out. The second half of the first day focused on quality of products and export requirements to design and quality (Zura Rasalieva, Director of CACSA-Trade) and organization of handicrafts production in rural areas (Dinara Chochunbaeva, Director of CACSARC-kg).

Zura Rasalieva explains design and quality shortcomings using a product made by the participants.

Zura Rasalieva had conducted trainings on marketing and export for the groups in Acha-Kaindy and Min-Bulak villages in 2010, and in At-Bashy village in 2009. She knows very well the products produced by the pilot groups and focused on discussing typical mistakes and shortcomings including outdated design and color combinations while using examples of concrete products made by the participants. On the other hand, she demonstrated examples of quality products which are in demand on international markets. CACSA-Trade is well-experienced in exporting felt products of Kyrgyz

artisans to European countries, Australia and the USA and Zura Rasalieva answered numerous questions of the participants.

Dinara Chochunbaeva shared the experience of CACSARC-kg in crafts development and explained the principles of organizing artisan groups in rural areas. Dinara Chochunbaeva presented the list of regular projects and events in the field of traditional crafts in which artisans of Naryn oblast are welcomed to participate actively.

Table 10. The most important annual events

Name	Place	Data
UNESCO Program "Award of Excellence for Handicraft Products in Central Asia"	Bishkek, CACSARC-kg	October
International Festival "Oimo"	Bishkek-Issyk-Kul	July-August
Shirdak Symposium	Naryn	August
International Festival Silk and Spice	Bukhara, Uzbekistan	June
Craft faire of Central Asia	Almaty	May, December
Craft faire of Central Asia	Bishkek	February, December

The second day of the training focused on a SWOT-analysis of the artisan groups and the issues of planning. The lecturer on this theme was Ms. Jayik Isakov, Senior Lecturer of the Chair for Marketing at the Kyrgyz Agricultural University.

The participants listened to the theoretical part on basics of marketing and SWOT-analysis; then they made a practical brief analysis of the weak and strong points of their organizations, identifying opportunities and threats for the development of their organizations.

Mr. Jayik Isakov during the SWOT analysis

The results of the brief SWOT-analysis of the groups of the Naryn oblast are presented in Tables 11 to 14. Finally the project plan for 2011 was presented to the participants by S. Balalaeva. After discussing the pan, the group leaders identified their priority short-term and long-term tasks for 2011.

Table 11. «Ak-Bairak » Group, At-Bashy village, At-Bashy rayon

Strong points	***Weak points***
- Their own premises; - Availability of wool-carding and felting machines; - Juridical status of the Organizations; - Trained group; - Professionals in the groups; - New products of good quality: cushions, scarves; - Just and collective managements of the group.	- Absence of regular channels of sale; - Absence of advertising; - Lack of knowledge in design; - Difficulties with availability of raw materials: silk, dyes; - Absence of special tables for felting.
Opportunities	***Threats***
- Support from the local authorities, international and public organizations; - Participation in craft fairs on different level; - On-going improvement of skills; - Participation in charity actions	- Unstable political situation in the country; - Competition on the part of shyrdak producers in the region; - Women are not interested in the development of craftsmanship as their main business because there are no regular channels for selling products.

Table 12. «Cheber Koldor» group, Acha-Kaindy village, At-Bashy rayon

Strong points	***Weak points***
- Availability of felting machine; - Access to quality merino wool; - Possibility to learn from and exchange experience with the well-known skillful felter Janyl Alibekova; - Sales through Janyl Alibekova, who always has customers; - Trained women who know the felting technique; - Availability of place for building of a production workshop.	- Absence of production premises; - Absence of special equipment for felting (felting tables etc.); - Absence of quality dyes; - Absence of regular market encouraging the development of handicraft business.
Opportunities	***Threats***
- Fund-raising for building of a production workshop; - Advertising products through CACSA-Trade; - Participation in regional and international fairs; - Development of new design and new products involving designers	- Unstable political situation in the country; - Absence of funds for purchasing quality raw materials.

Table 13. «Uz-Nur-Ayim» group, Min-Bulak village, Naryn rayon

Strong points	***Weak points***
- Availability of felting machine; - Membership in the commodity-servicing Cooperative «Kyrgyz Uz»; - The Cooperative has its own shop in Naryn; - Support from inter-national organizations in training and equipment; - Support from the local authorities – providing the premises for rent.	- Rented premises which are not suitable for the production process (no water, second floor etc.); - Absence of wool-carding machine (the Chinese mini-machine owned by the group leader operates poorly); - Absence of advertising of products; - Weak knowledge of artisans in design.

Opportunities	*Threats*
- Participation in fairs; - Participation in the annual Felt Festival in Naryn; - Support from the «Kyrgyz Uz3» Cooperative in sales and orders for the products; - Improvement of new products for export.	- Unstable political situation in the country; - Strong competition in the field of felt products production in the area.

Table 14. «Lakhol Ayimdary» group, Lakhol village, Naryn rayon

Strong pints	*Weak points*
- Availability of equipment: wool-carding an felting machines; - Own raw materials: crossbred wool; - Solidarity of the group, strong motivation to work; - The group has skillful artisans; - Appearance of local demand for slippers and chair-mats.	- Absence of premises and tables for new products production; - Low living standard of the local population; - Remoteness, isolation from communication channels; - Weak knowledge in design; - Absence of packing; - Seasonal occupation of women in agricultural work, which is the major source of income in villages.
Opportunities	***Threats***
- Focus on implementation of export orders, because of absence of local market; - Improve quality and assortment of new products designed for export; - Participate in training programs and craft fairs organized by CACSARC-kg.	- Unstable political situation in the country; - Low social and economic situation in the region; - Location, remoteness from the center.

Group photo on training on institutional development for the leaders and activists of the pilot groups in CACSARC office

4.2.4 Provision of the pilot groups with equipment and raw materials

In the second half of 2010, CACSARC-kg continued to work on providing the pilot groups with equipment and raw materials. A wool-carding machine of Russian production with a processing

capacity of 100 kg of wool per day was purchased and installed for the artisan group in Lahol village, in October 2010. The wool-carding machine is well suited for primary wool processing.

In November 2010 a second wool-carding machine was purchased: Russian production, "Asia-Runo" brand, wool-processing capacity 40 kg per day, ensures high quality carding. This wool-carding machine was installed in At-Bashy village. This brand of carding machine works well with scoured wool; a double carding of pre-washed and pre-carded wool gives the best quality merino wool for production of scarves and cushions.

Two felting groups in Lakhol and At-Bashy village received felting machines in November 2010. These two felting machines were made to order of the project by master from Kizil-Tuu village, Issyk-Kul oblast Sapar Ismailov. Thus, some of the most urgent needs of artisans in equipment have been partially satisfied.

In the first half of 2010, merino (At-Bashy rayon) and crossbred wool (Naryn rayon) was purchased for the pilot groups. At the time of trainings the groups were not yet equipped with wool-carding machines and could not process the wool well enough to make export products. The project assisted them by purchasing well-cleaned and dyed merino wool for each training session from the project funds. In 2011 the artisans will process the wool on their own equipment and use it to make export products.

4.2.5 Survey of Felting Groups in Kyrgyzstan

Characteristics of surveyed felting groups: The questionnaire was elaborated and translated into Kyrgyz language. It was planned to interview not less than 50 groups of wool processors in Kyrgyzstan. By 31December 2010, 58 groups had participated in 7 oblasts of Kyrgyzstan and in Bishkek city (Table 15).

Table 15. List of the surveyed groups in Kyrgyzstan

Region of the survey	Number of respondents
Bishkek city	19
Batken oblast	4
Jalalabad oblast	3
Issyk-Kul oblast	5
Naryn oblast	13
Osh oblast	6
Talas oblast	3
Chui oblast	5
Total	**58**

From the 58 groups surveyed, 2 groups are engaged only in wool processing, the remaining 55 groups produce felt products. The "Runo-Asia" Ltd. has a special position – it is a huge enterprise of textile industry in Kyrgyzstan, established in 2009, which has German and Russian industrial equipment for wool processing and felting. The capacity of the enterprise allows it to process 1 ton wool per day, but the capacity is not fully used because of the shortage of merino wool.

Sources of wool*:* 50% surveyed groups buy wool directly at the farms, 54% buy wool from intermediaries, 56% have wool in their own households and buy wool from neighbors, 21% buy wool from a wool processing plant in Tokmok (60 km near Bishkek) - the groups in Bishkek and Chui oblast.

Wool processing: 38% of the survey participants buy cleaned wool; 62% clean wool themselves and use the service of initial wool processing (carding).

Wool quality: The results of the survey show that the most demanded type of wool for the production of a wide range of felt products in Bishkek and Chui oblast is Merino wool. 90% of surveyed artisans think that the quantity of merino wool is decreasing and its quality is deteriorating. Respondents note

that wool is not homogeneous, is dirty and needs multiple cleaning. Wool is not properly classified according to sort and it is difficult to find pure merino. All the respondents have the same opinion that it is difficult to buy wool of good quality. But against this background, the Issyk-Kul region has interesting results: 4 out of 5 respondents think that the merino quality of sheep in local farms is improving. Almost 100% of respondents note that prices of merino wool increase annually by 10-20%.

Equipment: 43% have wool-carding and (or) felting machines.

Since the largest number of groups wase interviewed in Bishkek city and Naryn oblast, Tables 16 and 17 present the results of the survey in these two regions.

Table 16. Total amount and type of wool used by interviewed groups in Bishkek and Naryn region

Region	**No of interviewed groups**	**Total amount of wool used per year, tons**	**Including in %:**				
			Merino	**Semi-fine**	**Cross-bred**	**Semi-coarse**	**Other**
Bishkek	19	13.5	85.2	2.2	4.4	6.5	1.7
Naryn region	13	68.3	13.1	50.0	0.7	31.6	4.6

Table 17. Total amount and type of wool used by interviewed groups in Bishkek and Naryn region

Region	Number of employees	Among them women	Approx. income per year, in 1000 $	Approx. cost of raw material, in 1000$	Value-added cost per kg of wool, $	Average annual income per person, $
Bishkek	252	95.2%	372.0	21.7	25.9	1476.0
Naryn region	522	96.6%	200.3	78.5	1.8	383.7

Based on the data given in the tables, it is possible draw the following conclusions (without including the information on "Runo'Asia" Ltd.):

- In Bishkek city, 85% of wool used for processing is Merino. In Naryn oblast 13% of the used wool is merino, the rest is semi-fine, coarse, and semi-coarse wool;
- The analysis of expenditures for raw materials and derived incomes allows to conclude that the use of Merino wool in production of fashionable products increases the added value almost by 15 times compared to the processing of semi-coarse and other types of wool (mostly for shyrdaks);
- The added value per 1 worker in Bishkek is approximately 4 times higher than in Naryn oblast;
- All respondents stressed their desire to buy quality raw materials: wool and quality dyes for wool.

4.3 Component 3: Develop sustainable market chains that link fiber producers and processors with buyers.

4.3.1 Test-marketing felt products on the regional market.

Marketing support for pilot groups was provided through participation of their representatives in the Fifth International Festival "Oimo" (from funds of the project supported by "AUB-Charity" and funds extended by the Asian Development Bank for the crafts sector development in Kyrgyzstan).
The fairs are one of the most important marketing instruments. The central event of the Festival was Central Asian Crafts Fair. More than 100 craftspeople from Kyrgyzstan, Uzbekistan, Tajikistan and Russia participated in the Fair.

Burulush Djamanbaeva and Shairkul Imanalieva,
Min-Bulak village, Naryn oblast

Artisans from the pilot groups had a good opportunity to market their products, to see and compare felt products produced in different regions of Kyrgyzstan and in other countries, and to learn about the demand for their products. Along with their traditional products, shyrdaks and chair-mats, the artisans brought new products which they learned to produce during trainings organized by the IFAD/ICARDA project. The participants from the pilot groups sold products in the total amount of more than 1,200 USD at the Fair. About half of this amount was obtained from selling the new products. The artisans of the pilot groups had the opportunity to witness the real interest and responses of customers regarding felt pillows and double-sided, ala-kiyiz chair-mats. Some of the products were not sold because they were made in one copy as oppose to a set.
Before the "Oimo" Festival, the Min-Bulak group participated in the Felt Shyrdak Symposium in Naryn, where the artisans sold not only shyrdaks but the new products as well – slippers and pillows. Later, in November, some products from the Lakhol and At-Bashy groups (chair-mats and cushions) were sold at the Central Asian Crafts Fair held in Almaty, Kazakhstan.

Table 18 below shows the sales of new products by the pilot groups at the Crafts Fair held within the "Oimo" Festival, in Naryn and Almaty. Analysis of the sales shows that if the assortment and quality of products has improved and the new products oriented for export are demanded at the local and regional markets as well. Some of the groups used their money to buy raw materials: silk, felt, accessories and fittings.

Table 18. List of sales of new products in Region (September-November 2010)

Pilot site	**cushions (pieces)**	**slippers (pairs)**	**chair-mats (pieces)**	**scarves**
Acha-Kaindy v.	9	6		
At-Bashy v.	9	5		3
Min-Bulak v.	2	30		
Lahol v.		6	14	
Approximate price per product	US$ 8-10	US$ 7-8	US$ 9-10	US$ 17-21

The craftsfair is very popular among people

4.3.2 Test-marketing felt products in the US.

Test sales in Madison (Wisconsin, USA) show that the new products produced by the Naryn women were well received: above all, slippers, pillows, chair mats in ala-kiyiz technique, silk & felt scarves, both light and warm versions. Retail prices of these products ranged from 30 USD to 85 USD per unit. In November - December 2010, the product samples were sold in the total amount of 767 USD at a Fair Trade festival and also at a luxury retail outlet in Madison, WI. The preliminary results of test-marketing the new products were very encouraging - based on the responses of the customers and the retailer, the products were very well received and especially felt slippers, silk and felt scarves and chair mats will have an excellent potential on the US market in 2011.
The test-marketing also shows what specific improvements are needed. Feedback from customers and the retailer suggests the following:

- it is necessary to make special boot-forms for making felt slippers, taking into account contemporary shoe design;
- it is necessary to train the artisans to produce slippers with a leather sole;
- chair-mats should be in a smaller size (38 x 38 cm);
- pillows should be made in more natural and darker colors: shades of grey, brown etc.;
- special attention needs to be paid to the quality of wool – merino wool must be thoroughly cleaned.

The complete test-marketing results will be provided at the end of the winter 2010 season, with specific recommendation to artisans. New market outlets for the products will be developed via a new website designed to help with product marketing and through new contacts with retailers.

4.4 Component 4: Research on changes of income of fiber producers and women processors and their effects on livelihoods and gender roles.

The earnings of women who sold felt products designed by the project in 2010 were recorded. The project plans to keep recording all income women earn from felt handicrafts and after further development of the felt handicraft value chain the project plans to interview the women to collect information about changes in their earnings, livelihoods and gender roles that can be ascribed to their collaboration with the project.

4.5 Component 5: Linkages between the pilot communities and the global communities of producers, processors and consumers of fiber and fiber products

Multiple cross-national linkages (in science, commerce, know-how and culture) are being developed and supported by the project. The project has begun developing multiple new linkages between artisans of the pilot groups in the Naryn region and artisan communities of Central Asia, designers from Kyrgyzstan, farmers, sheep breeders (scientists), and buyers of handicraft products.

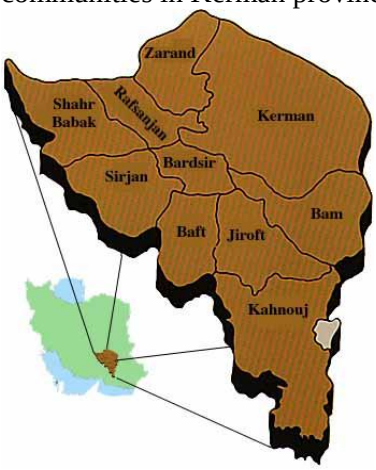
1. **The project linked the Naryn region women artisans with designers from Kyrgyzstan** who provided consultations and conducted trainings on the development of high-quality new products.
2. **It linked women artisans of the Naryn region with artisans from other regions of Kyrgyzstan and other countries of Central Asia** through exchange of experience and developing partnership during their joint participation in the International Festival "Oimo-2010". The International Festival "Oimo", co-organizer of which is CACSARC-kg, is held annually in Bishkek and on the Issyk-Kul shore; it usually lasts for 8 – 10 days. Regretfully, due to the political events in Kyrgyzstan in April and June 2010, the "Oimo-2010" Festival changed its format and was held in September during 3 days and only in Bishkek. Participation in the Fair was useful not only in terms of sales of products and exchange of experience; craftspeople from different regions and countries developed friendship and partnership relations and exchanged raw materials and products. Atmosphere of the Festival was friendly and enjoyable. Representatives of the pilot groups (7 women) participated actively in various events within the Festival program: concerts of folk and modern music, fashion-show of popular fashion designers of Central Asia, master-classes on various traditional crafts, trainings etc.
3. **It created a new linkage between women wool processors of At-Bashy and Naryn areas and local farmers** by encouraging the merino and cross-bred wool supply directly from farmers. This is essential for improving breeding and developing a raw material supply network for women processors.
4. **It linked women processors with constructors and suppliers of wool processing and felting equipment**; thanks to this the women obtained needed equipment and learned how to use it.
5. **It linked women artisans with internationally known scientists and specialists in livestock production** through participation of the groups' representatives in the National Seminar in Tashkent, September 2010 and in a seminar in Bishkek, November 2010, which discussed the project methodology of improving sheep breeding and the wool processing to provide felting groups with quality raw material.
6. **It promotes linkages between the Naryn felting groups and buyers of felt handicrafts on the local, regional and American markets**. The buyers clearly show a demand for new products such as felt slippers, chair mats, scarves and pillows.

5 Project Activities in Iran

5.1 Component 1: Characterize production systems and improve fiber production of small ruminants in all target sites.

5.1.1 Baseline study on production system, husbandry practices and cashmere production conducted in 2009

In order to evaluate the production characteristics and productivity of goats at the start of the project. The target groups are small producers of cashmere, and women's processors' groups in nomad communities in Kerman province, which is a major cashmere producing site in Iran.



Methods:
The project is implemented near Baft city (latitude 29°17'N and longitude 56°36'E), 2270 meters above sea level (Map 1). Baft is the center of the Raeini Cashmere goat production.
In autumn 2009 a total of 30 nomad cashmere producers were chosen at random within ± 20 km of Baft city in Kerman province as baseline herds. Table 1 shows detailed information about these herds. A structured questionnaire was completed for each individual herd for family structure, management, nutrition, cashmere production, processing, marketing, health, breeding, and reproduction. Full details are presented in a technical report.

Map 1. Location of Kerman province

General Family Information

100% of household heads were men; the majority was over 50 years old, but there were also 17% young household heads between 20 to 30 years (Figure 1). The head of the family owns 77% of animals, while sons and the spouse own 20 and 3 percent of animals, respectively and the daughters do not own any.

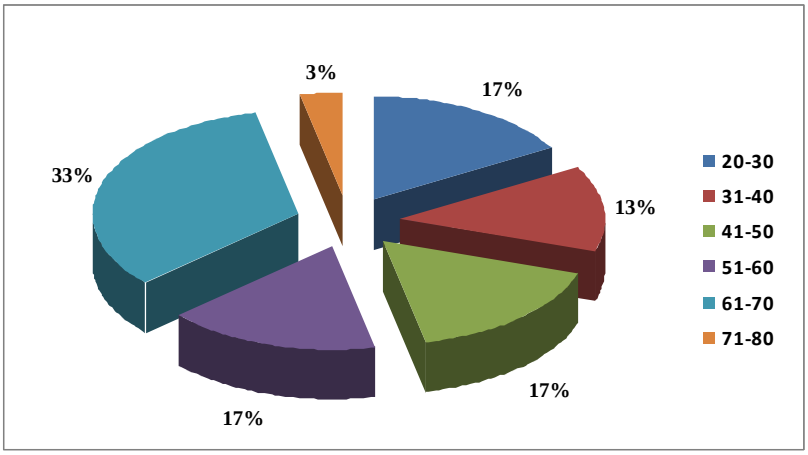
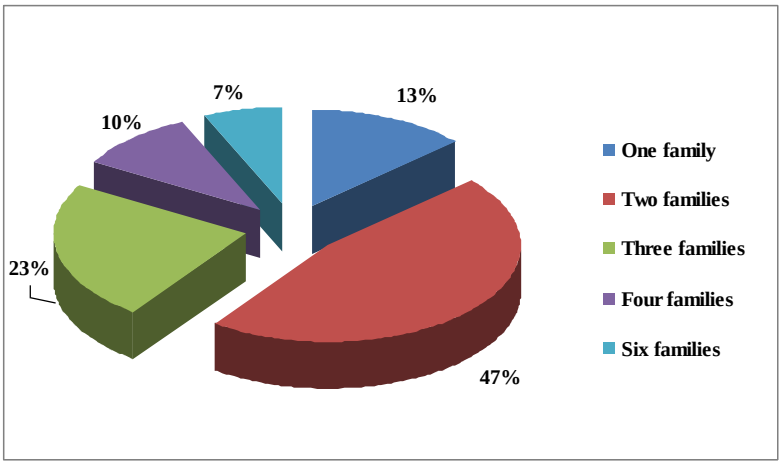


Figure 1. Percentage of household heads by age group

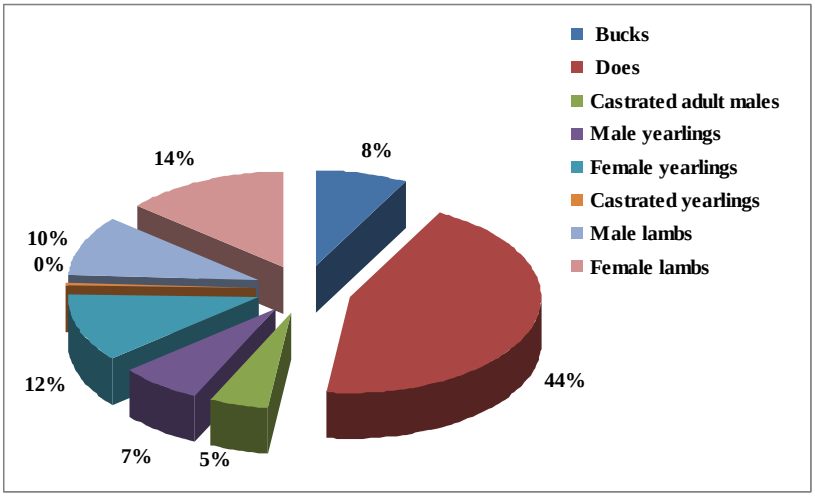


93% of the families stay together with at least one other related family; in our sample the largest number of families supporting each other was six (Figure 2). 90 percent of these clans herd and take care of their animals together. Due to their nomadic lifestyle, 97% of the family heads do not have an additional job.

Figure 2. Percentage of nomad families staying together with other families all year round.

Flock information

Various animal species i.e. horses, mules and sometimes camels are kept together with sheep and goats mainly for transportation purposes. The average herd composition in numbers was 79% goats, 10% sheep, 10% chicken and 1 % donkeys. Nomads are keeping more goats than other livestock species because native goats have a higher survival rate during droughts. Another reason may be that nomads endured increasingly difficult economic conditions in the past decades, so they turned more to goats as they reproduce faster than other livestock species and their meat is readily marketable.



Adult female goats (does) constitute 44% of the goat population while bucks, castrated adult males, male yearling, female yearlings, castrated yearlings, male and female kids constitute 8, 5, 7, 12, 0, 10 and 14% respectively (Figure 3).

Figure 3. Percentage of goats at different age and sex in a herd

Ewes constitute 48% of sheep flock while the percentage for rams, male yearlings, female yearlings, male lambs and female lambs is 5, 3, 17, 7 and 20, respectively. The flock composition may change under harsh climate conditions such as droughts.

Economically nomads are completely dependent on rearing livestock as a source of income and they have an important share in supplying the society with different livestock products. Major products from goats are cashmere, meat and milk.

Work sharing

All family members are involved in raising goats; men are responsible for shepherding, shearing, breeding and feeding the goats and the women are involved in milking and caring for sick animals. 83% of animal sales are done by men while women are involved in only 17% of the sales (Table 2). 63, 32 and 5% of herding is done by hired adult male labourers, men and boys in the family respectively. 34, 27, 32 and 2% of caring, feeding, milking and shearing is done by women respectively. Raw cashmere (cashmere + hair) is sheared in mid spring using double blade knives, stored in plastic bags and sold at the site to local dealers at a price lower than the international markets. Sons and daughters are involved mainly in feeding (21% and 2%) and milking (22% and 7%). Breeding is a responsibility of men (56%) and by hired male labourers (44%) (Table 19).

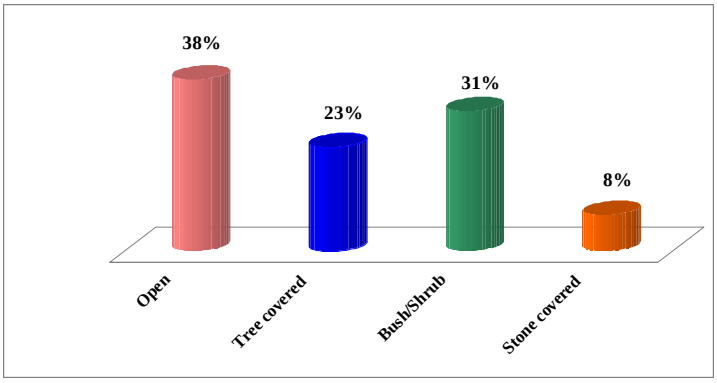
Table 19. Members of family and hired labourers responsible for goat keeping activities

Type of activity	Adults				Children			
	Males (>15 years)		Females (>15 years)		Boys (<15 years)		Girls (<15 years)	
	F*	H**	F	H	F	H	F	H
Purchasing goats	83%	-	17%	-	-	-	-	-
Selling goats	83%	-	17%	-	-	-	-	-
Herding	32%	63%	-	-	5%	-	-	-
Breeding	56%	44%	-	-	-	-	-	-
Caring for sick animals	35%	30%	34%	-	-	-	-	-
Feeding	27%	23%	27%	-	21%	-	2%	-
Milking	4%	27%	32%	-	22%	8%	7%	-
Shearing	53%	45%	2%	-	-	-	-	-

* Family; ** Hired

Husbandry practices

81 percent of households graze their animals in the traditional nomadic way by displacing their flocks over long distances between cities and provinces. This is the most common method countrywide. Nomads migrate to the south in autumn and winter in close vicinity to Persian Gulf areas and return back to central and northern provinces in spring and summer. 19 percent of the flocks stay in the region and graze at different sites in different seasons. None of the families stay in one location and graze their animals in a sedentary way.



38, 31, 23 and 8% of nomads graze their animals in open, tree covered, bush/shrub and stone covered grasslands respectively (Figure 4). No family owns or rents any land, all are using communal grasslands. All families graze kids and adult goats separately. 67% of the nomads graze their goats separately from sheep.

Figure 4. Percentage of families grazing animals on different types of grassland**.**

Rangeland is considered as the main source of feeding with exception of disabled or sick animals that are handfed. Bucks, does, yearlings and kids are supplemented mainly during seasons when feed is scarce in rangelands. About 85% of the nutrition is based on range and 25% on supplementary feeding with forages and crop residues in fall and winter.

36 % of the flocks are watered from wells, and 20% each from rivers and pipes; other water sources are springs, rain and small dams. While only 4 percent of the nomads can water their animals at home, 86% find water only in a distance of at least 1 km, some of them at a distance of more than 10 km (Figure 5). 71, 24 and 5% of the flocks are supplied with water once, twice and three times a day, respectively. Only 3 percent of the nomads have to pay for water.

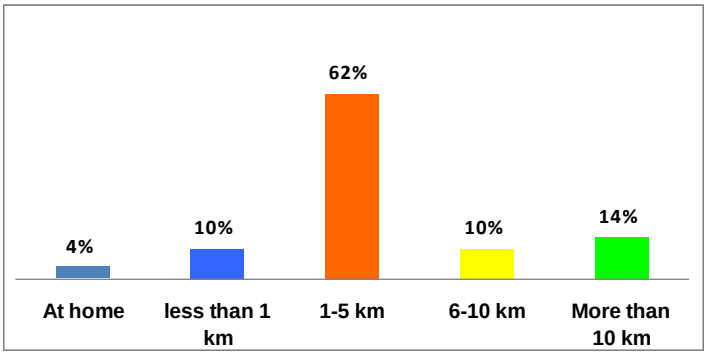


Figure 5. Distance to the nearest source of water

88% of herds have access to government veterinary services of different forms including vaccination, drenching, and medicines. 12 percent of herds use private veterinary services. Most prevalent diseases of adult animals were Enterotoxaemia, Foot and Mouth, Pneumonia and Agalactia. The most prevalent diseases of young animals were Diarrhoea and Pneumonia; occasionally Foot and Mouth disease was mentioned.

The farmers reported that the animals are vaccinated against the most prevalent diseases. All animals are dipped and drenched against external and internal parasites. Predators, diseases, and poisoning accounted for 40, 51 and 7 percent of the deaths of adult animals (Figure 25). The same reasons of deaths were reported for young animals but diseases accounted for 80% predators for 17% and poisoning only for 3% of the deaths.

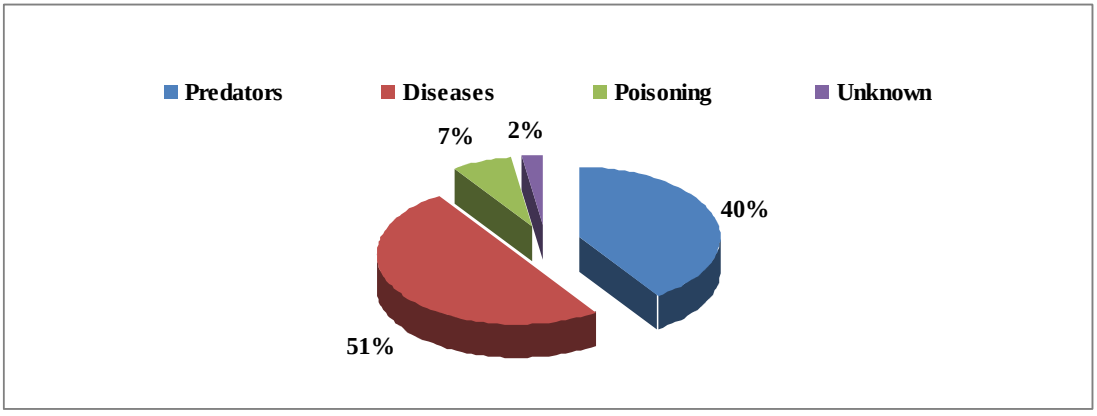
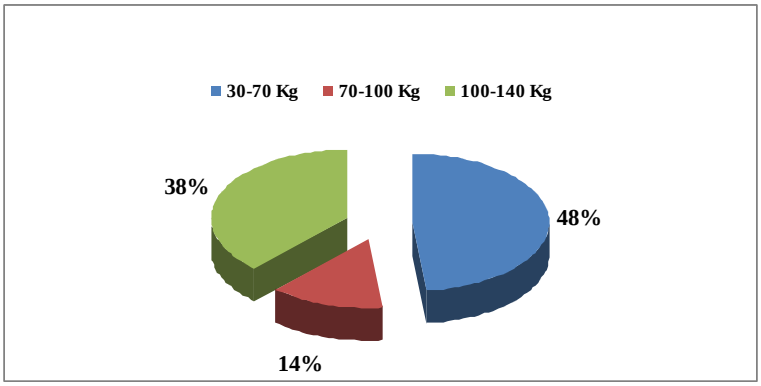


Figure 6. Main factors causing deaths of adult animals

Cashmere production and marketing

Nomads only shear their goats once a year depending on the weather conditions. 82% of nomads shear in April (30%) and May (52%) while 11 and 7% shear in March and June respectively
All goat keepers use double blade scissors known as *Docard* to shear goats. On average it takes about 11 minutes to shear a goat. 11 percent of cashmere producers can shear one animal in less than 8 minutes, while 61 percent need more than 10 minutes.

Average production of cashmere per shearing per animal is 540 grams with a range of 100 to 700 g. 45 percent of goats produce 550-700 g cashmere, 33% 400-550 g, 15% 250-400 g and 7 percent 100-250 grams. This raw fibre is generally referred to as *Kork.*



48 percent of nomad goat keepers produced 30-70 kg cashmere, while 38 and 14% produced 100-140 and 70-100 kg cashmere in 2009 (Figure 7).

Figure 7. Average production of cashmere/farm

60% of nomads sell cashmere immediately after shearing while 40 percent sell at a later date when the price is higher. Sheared cashmere is usually stored in plastic bags and stored in a dry and cool environment. Nomad goat owners usually sell the whole fibre, unsorted, containing both rough outer hair and the inner fine cashmere to local or travelling merchants or traders. 41 percent of farmers get price information from traders while 32, 14 and 13% of nomad goat keepers receive price information from neighbouring farmers, cooperatives/associations and markets respectively. There is a lack of testing and processing capacity, which severely reduces commercial potential at present. The cashmere trading is concentrated mainly in east region. Cashmere is exported mainly to Belgium.

Marketing of live animals

Animals are sold to abattoirs or butchers directly either for cash income or to cull unproductive goats. On average 22% of goats are sold based on liveweight while 20, 20, 19 and 19% of sales are influenced by sex, season, health and age of animals (Figure 8).

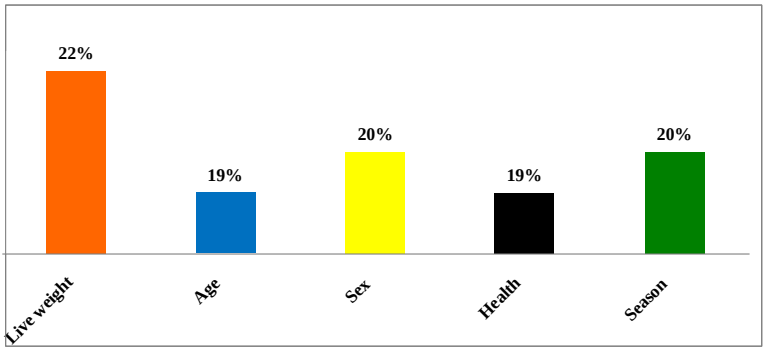


Figure 8. Reasons for selling live animals

54% of farmers receive price information for selling live animals from neighbouring farmers, 33% from markets and 13% from traders. In 58% of cases payment is in cash and in 42% it is in the form of barter. Only 53% of cash payments are done promptly, while 47% are delayed.

Farmers' opinion concerning future of goat keeping

100% of the interviewees were satisfied with the goat breed they keep. 44% of goat keepers stated they would keep the goat flock size stable while 19% were planning to increase goat numbers and 37% were undecided (Figure 9).

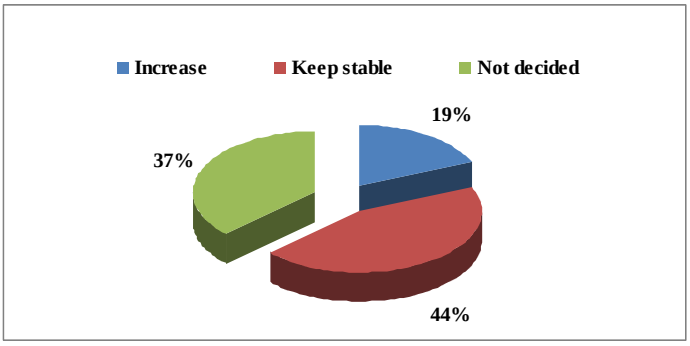


Figure 9. Future plans of farmers for their flocks

5.1.2 Establishing a database on fiber quality at the pilot site

The present quality of cashmere produced by Raeini goats is being assessed to improve cashmere production, to assess the opportunities for marketing and small scale processing, and to develop a strategy for supporting the cashmere industry of Iran. This information will also serve as a baseline of the cashmere quality at the start of the breeding program.

Methods: In April 2010 a total of 709 white goats (350 males and 358 females) of 1, 2 and 3 years of age from the 30 nomad cashmere producers that participated in the baseline study (Annextable 3) were sampled; each sex-age group was represented by 4 animals per flock. In order to facilitate sampling, goats were restrained in a lateral position and about 10 g of fiber from the left midside was clipped close to the skin using regular scissors. At the end of April 2010 double blade scissors were used to shear the goats to measure fleece weight using a digital scale. Another batch of cashmere samples were taken from 66 two year old bucks kept in the Baft Raeini goat breeding station (affiliated to Ministry of Agriculture) using similar methods.
The raw cashmere samples consisting of undercoat and guard hair were sent to the Alrun Fiber Laboratory in Almaty, Kazakhstan for analyses. In the laboratory about a quarter of each sample was weighted with a digital scale and then manually dehaired. Dandruff was also separated and weighted. The dehaired cashmere was weighed in order to calculate the cashmere yield of the sample.
The dehaired cashmere was minicored into snippets which were analyzed with an OFDA 4000 instrument. Cashmere length was obtained by sorting a suitable portion of the dehaired sample by length onto a velvet board and averaging the maximum, minimum and midpoint measures.

Results: The dominant colour of Raeini goat cashmere is white (see the photo).

Raeini cashmere goat herd in Baft

The mean fibre diameter was 19.6 µm, males had slightly higher fibre diameter (19.72) than females (19.59) but the difference was not significant (Table 20). One year old goats had significantly lower fibre diameter (19.09) than two (19.89) and three years old (19.97) goats (Table 20) which has been

observed in other cashmere goat breeds. However, of importance is the small increase in mean fibre diameter with age and the fact that there appears to be no increase in the standard deviation of the mean between the first and subsequent years of age. Considerable variations existed between goats in fibre diameter from 14 to 22 microns. Overall average cashmere length was 54.3 mm; this figure for males and females was 54.8 and 53.7 mm, respectively. There was no significant difference between age groups in cashmere length (Table 20).

The yield figures show a large variation in the percentage cashmere yield from the samples but the overall yield 56.5% (57.8% and 55.2% in males and females respectively) is quite high. Variation in the yield between samples could be due to the fact that some samples contained very long, thick guard hair which might have outweighed the cashmere component. The samples were hard to dehair by hand, indicating the need for commercial and centralized mechanical dehairing in the area.

Overall there is a considerable variation in cashmere characteristics between the 30 baseline flocks (Annextable 4), but also between the goats within each flock indicating the scope for genetic improvement through organized breeding programs and for training farmers to select goats to decrease the fibre diameter.

The characteristics of cashmere samples (119 samples) from two year old bucks of the baseline flocks were compared with two year old bucks (66 samples) from the Baft breeding station. Results indicated that the bucks from the breeding station produced significantly ($P<0.05$) finer cashmere (19.2) than the bucks from the nomad flocks (19.8) and that the former had a significantly higher percentage of cashmere fibre (Table 21). The superiority of the breeding bucks from the station was expected since the station has conducted breeding programmes through selecting superior bucks for better quality cashmere for years. However, the difference was not very large.

Further sampling of the baseline animals has been conducted in December but only in the flocks of the 8 nucleus breeding flocks that had also participated in the baseline study. This repetition is important to assess the year effect on cashmere quality in the baseline population which will help to evaluate breeding progress. In the future cashmere sampling will only be done in the nucleus flocks to select breeding animals and to measure breeding progress.

Table 20. Cashmere characteristics of Raeini cashmere goats within pilot plan scheme

	No	Staple length	Diameter (X)	Diameter (SD)	Diameter (CV)	Cashmere %	Hair %	Dandruff	Curve X	Curve SD	Fleece weight
Mean		54.3±0.26	19.65±0.05	4.46±0.02	22.70±0.11	56.5±0.45	37.7±0.42	1.49±0.01	63.08±0.32	47.81±0.21	506.9±7.08
Sex		NS	NS	**		*	**	NS	NS	NS	*
Male	351	54.8±0.35	19.72±0.08	4.52±0.03[a]	22.91±0.16	57.8±0.64[a]	36.8±0.59[b]	5.55±0.25	63.33±0.44	47.59±0.31	552.5±11.41[a]
Female	358	53.8±0.39	19.59±0.07	4.40±0.03[b]	22.49±0.16	55.2±0.64[b]	38.7±0.60[a]	6.20±0.25	62.83±0.45	48.02±0.30	409.7±10.11[b]
Age		NS	*	*	NS	**	*	**	**	NS	NS
Group 1	233	54.3±0.46	19.09±0.08[b]	4.33±0.03[b]	22.80±0.19	58.1±0.88[a]	35.6±0.78[b]	6.43±0.34[a]	64.28±0.53[a]	48.15±0.40	477.3±14.52
2	238	54.6±0.45	19.89±0.09[a]	4.51±0.04[a]	22.72±0.18	56.1±0.76[ab]	38.2±0.70[a]	5.85±0.34[a]	62.66±0.56[b]	47.74±0.35	485.0±13.64
3	238	53.9±0.45	19.97±0.09[a]	4.53±0.04[a]	22.57±0.21	55.3±0.72[b]	39.4±0.71[a]	5.36±0.24[b]	62.31±0.56[b]	47.53±0.37	481.6±13.99

* and ** significantly different at P<0.01 and P<0.05 respectively.

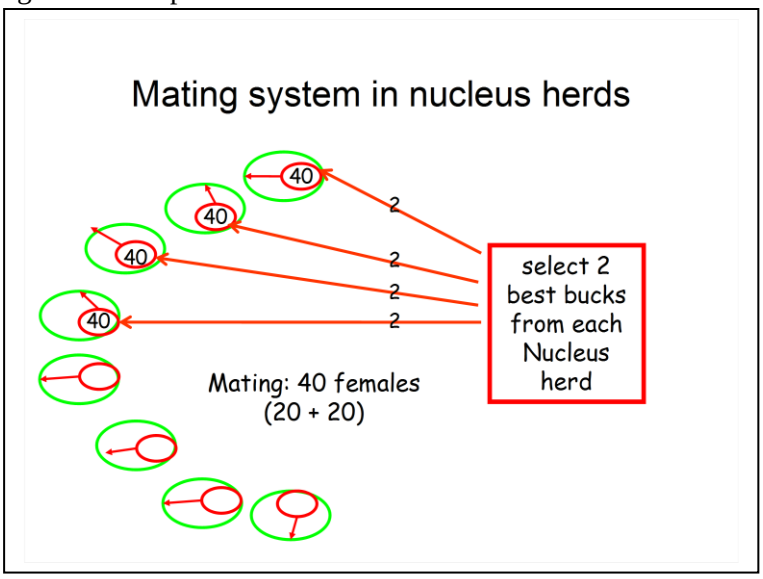
Table 21. Comparison of fibre cashmere characteristics of breeding station with Nucleus herd two year old bucks

	No	Length	Diameter (X)	Diameter (SD)	Diameter (CV)	Cashmere (X)	Hair (X)	Dandruff	Curve (X)	Curve(SD)
Breeding station	66	53.4±0.8	19.2±0.1[b]	4.4±0.07	22.9±0.3	62.1±1.6[a]	29.0±1.6[b]	8.9±0.6[a]	61.1±0.7	46.3±0.6[b]
Nomadic herds	119	54.1±0.8	19.8±0.1[a]	4.5±0.05	22.5±0.3	54.4±1.1[b]	39.9±1.0[a]	6.0±0.5[b]	62.1±0.8	48.0±0.5[a]
		NS	*	NS	NS	*	*	*	NS	**
Mean		53.9±0.5	19.6±0.1	4.4±0.04	22.6±0.2	57.2±1	36.0±1.0	7.0±0.4	61.8±0.6	47.4±0.4

* and ** significantly different at P<0.01 and P<0.05 respectively

5.1.3 Improving breeding and animal husbandry practices focusing on fiber quality

From the thirty baseline nomad farmers, seven suitable and interested farmers agreed to start a selection program within their flocks. One additional nomad farmer was included that disd not participate in the baseline survey. The breeding objective is to obtain higher quality cashmere suitable for small scale processing and for achieving higher prices for raw fiber also considering other economically important traits.
In discussions with the farmers and local scientists a breeding structure and selection scheme was agreed and implemented.



The 40 best females based on visual assessment by the farmer and scientists were separated from the main flock and divided in two groups with 20 does each. These females were mated with the two best bucks in June-July 2010 (Figure 1). The farmers were offered the choice of testing a breeding buck from the Baft breeding station but preferred to use their own bucks.

Figure 1. Mating scheme implemented with 8 nucleus breeders

The birth dates of kids were recorded and the progeny ear-tagged. Body weights were measured at birth and will be measured again at weaning.
To select the best future breeding bucks for the nucleus herds, fleece samples from ten young and ten adult male candidates in each of the 8 flocks (160 samples) were taken in December 2010. Theses samples were sent to Almaty fibre lab for analysis and results were received.
As a next step, the fibre quality of nucleus females that were selected in June 2010 based on visual assessment will be compared with females of the whole flock by sampling 12 randomly selected adult females each from both groups (192 samples).

5.1.4 Introducing better cashmere harvesting methods

The two types of metal combs purchased in spring 2010 (see Second Progress Report) were now distributed among producers to collect cashmere. The baseline and nucleus farmers were trained on how to use the combs.
In a case study planned for May 2011 it will be tested which combs are better suited for cashmere collection. Two flocks will be selected and the two types of combs (small and large) will be tested to decide which one is more efficient and handy to use for combing cashmere.

5.2 Component 2: Work on formation and capacity building of women's groups to develop cashmere processing at pilot site.

An existing group of women processors in Baft that are being supported by an NGO made yarns samples from manually dehaired cashmere using spindles at a pilot level in late spring (compare Progress Report 2) These yarns were evaluated by Liba Brent in September. The yarn samples were

found inadequate in terms of homogeneity but the major problem was that the cashmere was not properly dehaired as this has to be done mechanically.
The problem of mechanical dehairing that was also discussed at the Regional Workshop in 2008, has to be solved before better yarns can be made. As an alternative carpet making with cashmere is tested. A first carpet with a size of 40 x 40 cm has been prepared from cashmere fibre by Ms. Mousapour in Baft city. Traditionally carpets and other local handicrafts are mainly made from wool; cashmere processing is new.

The planned training of two nomad women associated with the local women NGO in Baft had to be cancelled at the last minute as the Iranian Research Administration did not give us their permission to send the women to Tajikistan which was seen as too risky for the women.

As Liba Brent was not able to take care of the project components related to processing and marketing there was little progress in components 2, 3 and 4.
However, we had still hope to obtain a visa as high officials had written a supporting letter and our colleagues in Iran tried again in spring 2011 but did not succeed. Consequently, we shall now discuss alternatives during the visit of the project coordinator in Iran, in particular find out if an Iranian expert can help us with fibre processing so that we can make progress in these project components. Parallel we shall assess opportunities for developing channels for marketing high quality combed cashmere so that the nomad families can improve their income through improved cashmere quality and better harvesting and grading.

5.3 Component 5: Linkages between the pilot communities and the global communities of producers, processors and consumers of fiber and fiber products

A workshop at the Animal Science Research Institute (ASRI) took place for three days in October 2010 with Dr. Joaquin Mueller and about 40 livestock breeding specialists from different provinces. In this workshop the concept of community based breeding programs and the economic evaluation of such programs were discussed.

A paper introducing the IFAD/ICARDA cashmere project was presented at the Animal Fiber Congress at Tabriz University; a publication on the fiber characteristics of Raeini goats is being prepared.

6 Regional Workshop and Steering Committee Meeting (SCM)

The Regional Workshop and Steering Committee Meeting were held from 13-14 October 2010 in Tashkent as the original plan to hold the meeting in Kyrgyzstan had to be given up.

The meetings were attended by the collaborating scientists from the NARS in Iran, Kyrgyzstan, and Tajikistan, the long term project consultants from University of Wisconsin, Madison, and INTA (Instituto Nacional de Tecnología Agropecuaria), Bariloche, and scientists from ICARDA Headquarters in Aleppo, Syria, and its Regional office for CAC in Tashkent (Agenda and list of participants in Annex 1-3). The Meeting was hosted by the Project Facilitation Unit (PFU) in Tashkent. The IFAD representatives could not attend due to late notice commitments in IFAD but Ms. Laura Puletti, the IFAD Task Manager, sent an opening statement to address the participants (see Annex 4).

The objectives of the Regional Workshop included:

- becoming familiar with the production systems at the new sites (site characterization);
- reviewing the progress in project implementation at each site;
- discussing constraints and site specific problems;
- discussing across site themes such as breeding programs and marketing.

With regard to the latter an overview on how the breeding programs were established at different project sites was presented and discussed. Also marketing of fiber products and linking fiber producers through processors to international markets was one of the central issues for discussion at the workshop.

In the Steering Committee Meeting first the achievements and budget utilization in 2009/2010 were reviewed and constraints in project implementation discussed. In the next sessions, the national collaborators presented the national workplans and budget for each site for 2011. And finally the across site budget managed by ICARDA was presented. A draft budget for 2011 was assembled and agreed.
It was agreed to conduct the meetings in the week of 24 to 29 September 2011 in Kyrgyzstan as the first option and in Dushanbe, Tajikistan, as the second option.

Annextable 1. List of women groups in Central Asia

Location	No of Women	Activity
Northern Tajikistan		
Chairukh	5	Dehairing
Oshoba	6	Dehairing
Markhamat	6	Dehairing
Chairukh	10	Spinning
Oshoba	20	Spinning
Markhamat	15	Spinning
Opon	4	Spinning
Alma	5	Spinning
Shvar	3	Spinning
Takeli - old site	4	Spinning
Terakli	3	Spinning
Dulana	4	Weaving
Alma	2	Knitting
Gulshan	4	Knitting
Dulana	1	Knitting
Taboshar	2	Carpets
Khodzhand	2	Carpets
Total	**96**	
Badakhshan*		
Garmchasma	36	Cashmere goat production/combing
Khuilal	10	Cashmere goat production/combing
Snib	15	Cashmere goat production/combing
Sist	18	Cashmere goat production/combing
Khaskhorog	18	Cashmere goat production/combing
Dasht	17	Cashmere goat production/combing
Vozd	11	Cashmere goat production/combing
Andarob	39	Cashmere goat production/combing
Devlokh	2	Cashmere goat production/combing
Total	**166**	
Kyrgyzstan		
Lahol	10	Felting
Min-Bulak	15	Felting
At-Bashi	15	Felting
Acha-Kaindy	15	Felting
Total	**55**	

*The same women are currently involved in goat production and breeding activities of the project

Annextable 2. List of goat and sheep keepers involved in project activities in Northern Tajikistan and Kyrgyzstan

Location	Farmers' name/no of farmers	Flock size	Color
Northern Tajikistan			
Dzhamoat Ismoil, B.Gafurov district	Turgunboi Madaliev	162	white
	Aksarov Rakhmon	101	white
	Matazimov Abunazar	116	white
	Umarov Sulaimon	126	white
	Tilloev Sherali	126	colored
Dzhamoat Osoba, Asht district	Tirkasali Urunboev	145	white
	Turaev Makhmud	131	colored
	Turaev Bozorboi	50	colored
	Abduloev Egamberdi	122	colored
	Meliboev Okhudzhon	185	mixed
	Abduloev Goibberdi	78	colored
	Mirzoakhmedov Ikromali	65	colored
Dulana, Asht district	Kodirali Berkin	320	white
	Esboi, Kamol and Akhmad Abduraim	570	white
	Bektur Anarboi	660	white
	Solikul	350	white
Chairukh, B. Gafurov district	Safar	250	white
Nuclei group farmers (Asht and Gafurov district)			
	Hakimov Haidarali	130	colored
	Kholmatov Usarboi	180	colored
	Mamarasulov Suiumboi	125	colored
	Toshbekov Bektur	86	white
	Saidaliev Dzhumaboi	165	mixed
	Kosimov Anorboi	170	mixed
Total	**25 farmers**	**4413**	
Kyrgyzstan			
Lakhol village	5	380	
Minbulak village	6	206	
At-Bashi village	2	960	
Kochkor	1	1,100	
Total	**14 farmers**	**2646***	

*This includes Merino, Tyan-Shian and coarse wool sheep

Annextable 3. List of goat keepers involved in project activities (in Iran)

Location	Farmers' name/no of farmers	Flock size
Arzooeih	Moradi Esmail	286
Galoogiran	Ghassemi Sohrab	210
Janat Abad	Ashraf zadeh Dad Khoda	303
Janat Abad	Ashraf zadeh Azam	373
Geloo Mahmoudabad*	**Mousapour Mohammad**	**176**
Khobr	Tahmasb pour Salman	211
Khobr	Rezvani pour Eshagh	253
Soltani-Baft	Mousa pour Feizullah	180
Gelook - Baft	Mahmoudi Abbas	381
Geloo Anjeer	Ghassemi Nejad Akbar	320
Se Chah Dehsard	Ali pour Omid	229
Dashtab - Baft	Mousa pour Ahmad	205
Sanouheh Dashtab	Mousapour Hedayatull	345
Dokoohe - Baft	Mousa pour Rostam	160
Dokoohe - Baft	**Mousapour Alireza**	**225**
Zarab	**Mousapour Alireza**	**190**
Sechah Dahsard	Mahmoudi Yadullah	140
Gelook - Baft	Mousapou. M. Hussein	250
Esmailabad - Baft	Didar Gol Moradi	402
Esmail Abad - Baft	Ashrafzadeh Ali	505
Esmailabad - Baft	Ashrafzadeh	305
Geloo Mahmoudabad	Mousapour Zohrab	299
Geloodar Kooshki	**Mousapour Sohrab**	**280**
Godar Zarab	**Ghassemi Mohmoud**	**142**
Zarab	**Ebadullah Mousapour**	**295**
Zarab	**Mousapour Dadmoham**	**225**
Dahaneh Zardan	Mousapour Siahkhan	185
Geloo Mahmoudabad	Barzegar Mehdi	160
Dehsalar	Haj Alizadeh Moharam	140
Dehsalar	Mousapour Mohamma	170
Baft	**Ghassemi, Mehrab**	**200**
Total	**31 farmers**	**7745**

*Nucleus farmers are printed in bold font.

Annextable 4. Cashmere characteristics of goats in different baseline herds

Livestock owners	**No**	Staple length	Diameter (X)	Diameter (SD)	Diameter (CV)	Curve X	Cashmere%	Hair %	Dandruff	Fleece Weight
		NS	*	*	*	*	*	*	*	*
Mohammad Mousapour	24	56.37±1.70	19.26±0.25^{defgh}	4.37±0.06^{cdef}	63.62±1.74^{bcdefgh}	59.80±2.38^{bcde}	39.09±2.54^{abc}	4.15±0.59^{def}	497.91±34.37^{defghi}	22.75±0.39^{cdefghij}
Morad Mousapour	24	56.16±1.03	20.43±0.33^{ab}	4.29±0.15^{cdef}	62.70±2.18^{cdefghi}	49.88±2.24^{e}	43.52±2.14^{a}	6.63±0.64^{bcde}	678.12±41.41^{a}	21.02±0.63^{ijk}
Alireza Mousapour	24	54.16±1.51	18.60±0.34^{gh}	4.58±0.14^{abcde}	67.87±1.91^{abc}	53.82±2.08^{cde}	40.75±2.13^{ab}	5.42±0.65^{cdef}	510.41±22.46^{defgh}	24.69±0.76^{abc}
Hedayatullah Mousapour	24	53.08±1.89	19.92±0.24^{abcde}	4.43±0.14^{bcdef}	61.03±1.46^{defghi}	53.25±2.49^{de}	41.00±2.11^{ab}	6.61±1.27^{bcde}	320.80±39.46^{kl}	22.24±0.77^{efghijk}
Mohammad Barzegar	24	55.04±1.39	19.78±0.34^{abcde}	4.39±0.14^{cdef}	62.20±1.74^{defghi}	57.35±1.60^{bcde}	37.19±1.75^{abcd}	5.45±0.80^{cdef}	340.55±67.33^{jkl}	22.17±0.52^{fghijk}
Rostam Mousapour	24	53.83±1.42	18.96±0.40^{efgh}	4.39±0.15^{cdef}	64.82±1.82^{abcdef}	55.75±4.41^{bcde}	35.31±3.03^{bcd}	9.91±2.11^{a}	419.82±40.92^{fghijk}	23.27±0.79^{abcdefgh}
Mohammad Reza Mousapour	24	55.79±1.16	19.67±0.26^{abcdef}	4.75±0.17^{abc}	61.35±1.65^{defghi}	52.75±1.86^{de}	42.23±1.87^{ab}	4.98±0.49^{cdef}	587.50±40.18^{abcd}	24.23±0.85^{abcde}
Salman Tahmaspour	24	52.78±1.34	19.88±0.32^{abcde}	4.61±0.52^{abcde}	65.69±2.21^{abcdef}	53.43±2.42^{cde}	41.60±2.58^{ab}	5.02±0.73^{cdef}	456.52±35.28^{defghij}	23.10±0.54^{abcdefgh}
Bohrourooz Mousapour	24	53.91±1.29	19.69±0.21^{abcdef}	4.86±0.18^{ab}	58.56±1.58^{hi}	52.11±2.90^{de}	42.13±2.30^{ab}	5.75±1.32^{cde}	460.86±27.21^{defghij}	24.98±0.89^{a}
Sohrab Mousapour	24	54.5±1.54	20.07±0.18^{abcd}	4.34±0.10^{cdef}	57.76±1.16^{i}	59.87±2.01^{bcd}	30.82±2.11^{de}	9.29±1.05^{ab}	533.43±44.63^{cdef}	21.63±0.46^{ghijk}
Ali Ashrafzadeh	24	52.37±1.27	19.25±0.29^{defgh}	4.36±0.09^{cdef}	64.55±1.49^{abcdef}	57.94±1.99^{bcde}	36.99±2.40^{abcd}	5.05±0.80^{cdef}	332.83±59.84^{jkl}	22.76±0.46^{cdefghij}
Mohammad Hossein Mousapour	24	55.78±1.59	19.95±0.27^{abcde}	4.30±0.10^{cdef}	63.35±1.59^{bcdefghi}	72.58±1.83^{a}	24.97±1.89^{e}	2.44±0.43^{f}	555.65±35.03^{abcde}	21.58±0.40^{hijk}
Dad Muhamad MP	24	52.17±0.93	20.48±0.31^{ab}	4.24±0.10^{ef}	58.51±1.59^{hi}	60.55±2.14^{bcd}	35.63±2.18^{bcd}	3.80±0.62^{ef}	547.82±13.19^{bcdef}	20.70±0.40
Alireza Mohamed G. Mousapour	24	57.08±1.48	19.65±0.30^{abcdef}	4.24±0.10^{ef}	61.29±1.53^{defghi}	58.97±2.08^{bcd}	36.27±2.29^{abcd}	4.75±0.77^{cdef}	471.66±24.37^{defghi}	21.60±0.44^{hijk}

Azam Ashrafzadeh	24	54.12±1.55	19.57±0.29$^{abc\ def}$	4.44±0.12^{bcdef}	63.74±1.62^{bcdefh}	56.72±2.20^{bcde}	35.99±1.81^{abcd}	7.28±2.54^{abcd}	512.85±63.15^{defg}	22.73±0.50^{cdefghij}
Ahmad Mousapur Kamel	24	52.91±1.61	20.08±0.31$^{abc\ d}$	4.38±0.11^{cdef}	61.77±1.84^{defghi}	53.69±1.73^{cde}	39.14±1.52^{abc}	7.16±0.74^{abcde}	177.38±37.81^{defghij}	21.80±0.46^{ghijk}
Ebadullah Mousapour	24	54.62±1.24^{a}	20.53±0.29^{a}	4.52±0.09^{abcde}	58.81±1.41^{hi}	53.62±2.31^{cde}	40.49±2.08^{ab}	5.88±0.60^{cde}	663.54±32.72^{ab}	22.04±0.46^{ghijk}
Mousa Mousapour	24	56.12±1.23	20.29±0.27^{abc}	4.91±0.13^{a}	59.03±1.38^{ghi}	58.55±3.08^{bcd}	36.01±2.67^{abcd}	5.15±0.69^{cdef}	644.79±34.51^{abc}	24.17±0.56^{abcdef}
Yadullah Mahmoudi	24	53.10±1.23	19.35±0.32^{cdfeg}	4.38±0.13^{cdef}	64.48±1.71^{abcdefg}	58.05±2.49^{bcde}	37.24±2.12^{abcd}	3.91±0.96^{def}	379.94±54.99^{hijkl}	22.66±0.60^{defghijk}
Akbar Gassemi Nejad Raeini	24	53.43±1.38	19.75±0.23$^{abc\ def}$	4.50±0.12^{abcde}	59.08±1.71^{ghi}	52.26±3.12^{de}	41.97±2.97^{ab}	6.33±0.93^{bcde}	382.72±45.02^{ghijkl}	22.85±0.65^{bcdefghij}
Mohammad Yargholi MP	24	53.20±1.32	18.39±0.30^{h}	4.57±0.13^{abcde}	68.21±1.52^{abc}	53.05±2.24^{de}	40.35±2.19^{ab}	6.58±0.66^{bcde}	306.25±22.78^{kl}	24.33±0.77^{abcd}
Omid Ali Moradpou	24	53.70±1.13	19.53±0.28$^{abc\ dfe}$	4.49±0.14^{abcde}	61.05±1.47^{defghi}	63.05±2.57^{b}	31.71±2.56^{cd}	5.22±0.75^{cdef}	518.75±35.07^{cdef}	22.98±0.62^{bcdefghi}
Esmail Moradi	24	52.83±1.52	19.55±0.28$^{abc\ dfe}$	4.61±0.10^{abcde}	66.07±1.64^{abcde}	52.66±2.64^{de}	40.67±2.32^{ab}	8.06±2.04^{abc}	420.83±26.00^{fghijk}	23.65±0.50^{abcdefg}
Didar Golmoradi	24	54.12±1.47	20.47±0.23^{ab}	4.40±0.11^{cdef}	60.65±1.33^{efghi}	54.72±2.83^{cde}	39.93±2.24^{ab}	5.83±1.52^{cde}	534.37±26.31^{cdef}	21.49±0.41^{hijk}
Abbas Mahmoudi	24	56.58±1.47	19.25±0.32^{defgh}	4.43±0.10^{bcdef}	69.27±2.22^{a}	52.94±1.44^{de}	40.61±1.42^{ab}	6.44±0.60^{bcde}	566.66±39.60^{abcd}	23.10±0.53^{abcdefgh}
Moharram Haj Alizadeh	24	54.20±1.55	18.78±0.24^{fgh}	4.03±0.10^{f}	66.53±1.31^{abcd}	58.55±1.36^{bcd}	35.05±1.37^{bcd}	6.31±0.71^{bcde}	370.83±29.78^{ijkl}	21.60±0.61^{hijk}
Dadkhoda Ashraf Zadeh	24	54.79±1.66	19.49±0.27^{bcdefg}	4.56±0.16^{abcde}	68.41±1.20^{ab}	61.65±1.99^{bc}	32.30±1.88^{cd}	6.03±0.89^{cde}	563.54±23.83^{abcd}	22.77±0.46^{cdefghij}
Mojtaba Ashrafzadeh	24	53.34±1.73	19.51±0.28^{bcdefg}	4.40±0.13^{cdef}	63.24±1.96^{bcdefghi}	55.78±2.00^{bcde}	40.13±2.13^{ab}	4.08±0.56^{def}	280±43.02^{l}	22.45±0.42^{defghijk}
Mousapour Feizullah	24	52.25±1.39	20.48±0.31^{ab}	4.27±0.09^{def}	60.30±1.37^{fghi}	59.01±2.51^{bcd}	35.62±2.43^{bcd}	5.36±0.35^{cdef}	522.05±65.00^{cdef}	20.88±0.44^{jk}
Rezvanizadeh Ishagh	24	55.04±1.48	19.03±0.25^{efgh}	4.71±0.16^{abcd}	68.41±1.41^{ab}	55.92±2.85^{bcde}	37.32±2.94^{abcd}	6.81±0.98^{bcde}	485.45±44.59^{defghi}	24.81±0.76^{ab}

* and ** significantly different at P<0.01 and P<0.05 respectively.

Annex 1. Agenda of the Regional Workshop, Le Grande Plaza Hotel, Tashkent, Uzbekistan, 13 October 2010

Opening session and Review of 2009/2010		**Chairperson:** Acad. Djamin Akymaliev, National Focal Point
09:00-09:10	Welcome	Dr. Ram Sharma on behalf of Dr. Josef Turok, Regional Coordinator PFU
09:10-09:20	Opening Statement	IFAD
09:20-09:35	Objectives and Agenda of the workshop	Dr. Barbara Rischkowsky, Project Coordinator
Achievements in Iran		**Chairperson:** Dr. Barbara Rischkowsky
09:35-09:55	Progress and Challenge in Raini Cashmere Production Project	Dr. Hamidreza Ansari-Renani, National Coordinator, Iran
10:15-10:35	Discussion	
10:35-11:00	***Group photo and Coffee break***	
Achievements in Kyrgyzstan		**Chairperson:** Acad. Djamin Akymaliev
11:00-11:20	Characterization of research site and wool production	Dr. Asanbek Ajibekov
11:20-11:40	Assessment of felters' capacity and needs and trainings conducted	Ms. Svetlana Balalaeva
11:40-12:00	Discussion	
12:00-13:00	***Lunch break***	
Achievements in Khujand/Northern Tajikistan		**Chairperson**: Dr. Fazzlidin Ikramov, National Coordinator
13:00-13:20	Establishing the Mohair breeding program and improving goat husbandry	Dr. Ma'tazim Kosimov, Coordinator, Northern Tajikistan
13:20-13:40	Progress in Mohair processing and marketing	Dr. Liba Brent, Principal Investigator
13:40-14:00	Discussion	
Achievements in Badakhshan/Southern Tajikistan		**Chairperson:** Dr. Joaquin Mueller
14:00-14:10	Characterization of goat production based on national and regional statistical data base	Dr. Gulomkodir Safaraliev, Site coordinator
14:10-14:20	Site characterization and current state of fiber goat production	Mr. Qonun Davlatqadamov, Researcher, Badakhshan site
14:20-14:30	Reasons and procedure of importing Altay bucks from Russia	Dr. Fazzlidin Ikramov
14:30-14:45	Fiber quality and potentials for local processing and export	Dr. Liba Brent
14:45-15:00	Discussion	
15:00-15:30	***Coffee break***	

Across site studies/considerations		**Chairperson:** Dr. Hamidreza Ansari-Renani
15:00-15:15	Different breeding structures established at the research sites	Dr. Joaquin Mueller, Animal Breeding Consultant
15:15-15:30	Discussion	
15:30-15:45	Insight from IFAD's supervision mission on developing market channels	Dr. Liba Brent
15:45-16:00	Discussion	
16:00-16:10	Closing remarks	Dr. Barbara Rischkowsky
18:30	***Workshop dinner***	

Annex 2. Agenda of the Steering Committee Meeting, Le Grande Plaza Hotel, Tashkent, Uzbekistan, 14 October 2010

Opening session and Review of 2009/2010		**Chairperson:** Dr. Hamid Ansari-Renani
09:00-09:15	Opening statement	Ms. Laura Puletti, IFAD Task Manager
09:15-09:20	Presentation of the agenda for approval	Dr. Barbara Rischkowsky
09:20-09:30	Approval of minutes of the inception workshop	Dr. Barbara Rischkowsky
09:30-09:50	Summary of activities in relation to budget utilization in 2009/2010 and constraints in implementation	Dr. Barbara Rischkowsky
09:50-10:20	Discussion	
10:20-11:00	***Group photo and Coffee break***	
Presentation of national workplans and budgets for Kyrgyzstan		**Chairperson:** Acad. Djamin Akimaliev
11:00-11:15	Wool Producers	Dr. Asanbek Ajibekov
11:15-11:30	Women Groups and Marketing	Ms. Svetlana Balalaeva
11:30-11:45	Discussion	
Presentation of national workplans and budgets for Iran		**Chairperson:** Dr. Barbara Rischkowsky
11:45-12:05	Cashmere producers and processors	Dr. Hamidreza Ansari-Renani
12:05-12:20	Discussion	
12:20-13:30	***Lunch break***	
Presentation of national workplans and budgets for Khujand		**Chairperson**: Dr. Joaquin Mueller
13:30-13:45	Mohair producers	Dr. Ma'tazim Kasimov
13:45-14:00	Women Groups and Marketing	Dr. Liba Brent
14:00-14:15	Discussion	
Presentation of national workplans and budgets for Badakhshan		**Chairperson**: Dr. Fazzlidin Ikramov
14:15-14:30	"Cashmere" Producers	Dr. Gulomkodir Safaraliev
14:30-14:45	Women Groups and Marketing	Dr. Liba Brent
14:45-15:00	Discussion	
Across sites activities and budget		**Chairperson**: Dr. Liba Brent
15:00-15:10	Regional activities and budget summary	Dr. Barbara Rischkowsky
15:10-15:20	Discussion	
15:20-15:35	Other management issues (dates and venue of next PSCM, IFAD's supervision mission)	Dr. Barbara Rischkowsky
15:35-15:45	Closing remarks	Dr. Liba Brent
15:45-16:15	***Coffee break***	

Annex 3. List of participants of the Regional Workshop and SCM

	Name/Surname	Position	Organization
	ICARDA and Project Consultants		
1	Mr. Ram Sharma	Cereal/Legume Breeder	ICARDA-CAC
2	Ms. Barbara Rischkowsky	Project Coordinator	ICARDA
3	Mr. Nariman Nishanov	Professional Officer for Central Asia	ICARDA-CAC
4	Ms. Liba Brent	Long-term Consultant	University of Wisconsin
5	Mr. Joaquin Mueller	Consultant	INTA (National Insitute for Agricultural Technology), Department of Animal Production
	Kyrgyzstan		
6	Mr. Djamin Akymaliev	ICARDA Focal Point, Director General	Kyrgyz Research Institute of Crop Husbandry, Kyrgyzstan
7	Mr. Asanbek Ajibekov	PI on Livestock Productivity, Director General	Kyrgyz Research Institute of Livestock and Rangelands
8	Mr. Jayik Isakov	PI on Socio-economics, Assistant Professor of the Marketing Dpt.	Kyrgyz Agrarian University
9	Ms. Svetlana Balalaeva		Central Asian Crafts Support Association (CACSA)
	Iran		
10	Mr. Hamid Reza Ansari-Renani	Head of Research Dpt.Livestock by-products	Animal Science Research Institute
11	Mr. Syedmojtaba Syedmomen	Scientic Board Member	Agriculture and Natural Resources research center
12	Mr. Mohsen Ehsani	Scientic Board Member	Agriculture and Natural Resources research center
	Tajikistan -Sogd Province		
13	Mr. Ma'tazim Kosimov	Deputy NC, PI, Livestock productivity Head of the Sogd branch	Tajik Research Institute of Livestock
14	Mr. Farkhod Kasymov	PhD Student	Tajik Research Institute of Livestock
	Tajikistan -Dushanbe		
15	Mr. Fazzlidin Ikramov	PI, Livestock Productivity, Director	Tajik Research Institute of Livestock
16	Mr.Gulomkodir Safaraliev	PI, Socioeconomics	Tajik RI of Livestock
17	Mr. Qonun Davlatqadamov	Livestock Researcher	Tajik RI of Livestock

Annex 4. Opening Remarks by Laura Puletti, IFAD Task Manager, addressed to the Second Steering Committee, 14 October 2010

Dr Joseph Turok, Dr Barbara Rischkowsky, ladies and gentlemen,

Let me thank each one of you for your commitment and hard work and for having joined this meeting coming from all over the region: Iran, Tajikistan, Kyrgyzstan, Syria and America.

IFAD is very proud of this programme and would like to draw your attention to few issues: identification of markets, improvement of knowledge sharing and increased collaboration with our field staff.

We do believe that, during this first year of implementation, this group, our group, have achieved some good results both on the organisation of the breeding program and the processing of fibre products. We have also started developing a marketing strategy which we consider crucial for the success of the programme and we hope to link producers and processors to new export markets as of next year.

Indeed, some issues are still to be resolved but we have another two years to tackle them and we count on your support to be able to further develop a gender sensitive participatory programme that will respond to our beneficiaries' needs: both women and men.

Our capacity in fine-tuning the breeding programme carried out by the herders' groups and the processing of high quality improved fibers carried out by the women's groups will allow us to set an example of an efficient and sustainable complementary collaboration that will ultimately strongly contribute to improve household food security if, and only if, an adequate market, or more than one, will be identified.

During the past year, IFAD has confirmed its support to this programme by allocating additional resources to support women's trainings through CACSA and the development of a marketing strategy through our consultant Ms Docey Lewis. There are still issues to be resolved and opportunities to be capitalised upon: we still have two years ahead of us to make this happen.

IFAD strongly believes in south-south exchange and cooperation: sharing our experiences and best practices with our partners in the region as well as in Africa and Latin America and learn from them will expedite our efforts and ensure better results. This is why IFAD considers the production of brief and accessible documentation of utmost importance.

In Central Asia, in particular, IFAD would appreciate collaborating with this group to better implement the new IFAD loan programme "The Livestock and Pasture Development Project" which will be presented to the IFAD Executive Board in March 2011. The project will be developed in the Kathlon Oblast region with the aim of increasing the nutritional status and income of 30 000 poor households by enhancing livestock productivity and increase women's ability to process and market livestock products.

Our new Country Presence Officer, Mr Hafiz Muminjanov, that we are pleased to introduce to this group, even if virtually, is available to provide you with more details and willing to help us in building new mechanisms to reinforce our collaboration and cooperation in the region.

Indeed, we invite our partners, especially those working in Tajikistan, to meet with him in Dushanbe.

Finally, we would like to thank ICARDA, and Ms Barbara Rischkowsky in particular, for their hard work and professional support.

We trust that discussions held during these two days will help the group to find additional synergies and opportunities to achieve concrete results and a crucial impact in the life of our beneficiaries and

help them increase rural household incomes by developing their potentials in a sustainable and efficient way. This is our challenge.

In closing, I would like to encourage you to concentrate on these three key words: marketing, collaboration and sharing.

Let me wish you every success during this important event. IFAD will be closely following the works of this group and will have a chance to provide its feedback on the technical and managerial aspects after receiving your assessments and planning to overcome next year's challenges.

Thank you very much.