ICARDA

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

IFAD
Enabling poor rural people to overcome poverty

IFAD Grant 1107 – ICARDA

Woman spinner making handspun mohair yarn, Markhamat village, Asht region, Tajikistan, July 2012.

Sixth Progress Report

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List of Acronyms

AKF	Aga Khan Foundation
ASRI	Animal Science Research Institute, Karaj, Iran
CACSARC-kg	Central Asian Craft Support Association's Resource Center - Kyrgyzstan
CESVI	Italian, "Cooperazione E Sviluppo", cooperation and development
FAO	Food and Agriculture Organization of the United Nations
GIZ	German Society for International Cooperation
ICARDA	International Center for Agricultural Research in the Dry Areas
IFAD	International Fund for Agricultural Development
INTA	Instituto Nacional de Tecnología Agropecuaria (National Agricultural Research Center in Argentina)
KGS	Kyrgyz Som
NGO	Non-Governmental Organization
OFDA	Optical-based Fiber Diameter Analyzer
US	the United States
USA	the United States of America

1 Introduction and grant background

1.1 Grant goal, objectives and target groups

The overall goal of the programme is to improve the livelihoods and income of small livestock producers and rural women through improved production, processing and export of value-added fiber in producing areas of Tajikistan, Kyrgyzstan and Iran.
The objective of the project is to set up a value chain focused on fiber goat production and fiber harvesting, processing and marketing.

The target groups are small producers of cashmere, mohair and wool and women processor groups. The pilot sites at the four project sites in Iran, Kyrgyzstan and Tajikistan have been selected to represent typical fiber producing and processing areas.

The IFAD-ICARDA project works at four sites:

1. Sugd region, northern Tajikistan: on breeding Angora goats and processing mohair into yarn and products;
2. Badakhshan region, eastern Tajikistan on breeding cashgora goats and processing cashgora and cashmere into yarn and products;
3. Naryn region, Kyrgyzstan: on improving wool quality and producing wool felt handicrafts for regional and international markets;
4. Kerman province, Iran: on cashmere goat breeding and spinning cashmere yarns by women's groups.

At each of the sites, the project collaborates with producers of sheep or fiber goats on improving breeding, animal husbandry and fiber quality, and with women's groups on processing these fibers into luxury handicrafts for export. The objective of these activities is to improve the income of the target groups. Improvements in sheep and fiber goat production help farmers earn additional income from selling wool, mohair and cashmere. Production and sale of yarns, knitted products, felts and other handicrafts helps poor women in remote, rural areas to earn income and improve livelihoods.

1.2 Changes in grant implementation context and grant design having occurred during the reporting period

No significant changes in implementation context or grant design occurred during the reporting period.

2 Progress and performance by component

2.1 Project Activities in Sugd region, Northern Tajikistan

2.1.1 <u>Component 1:</u> Characterize production systems and improve fiber production of small ruminants at all target sites

2.1.1.1 Results of artificial insemination with imported Angora goat semen

As explained in previous reports, Tajik Angora goats produce mohair fiber that has a high variation and a relatively large percentage of kemp fiber and medulated fibers. These shortcomings lower the market value of Tajik mohair and translate into problems for women processors who need to clean and dehair fleeces prior to processing them into luxury yarn. This increases the price of fiber processing by $10/kg and lowers productivity and profits of women's groups.

Problems in fiber quality identified by the project provide a clear direction for developing a breeding program for Tajik Angora goat farmers. Targeted breeding is necessary to reverse the ongoing decline in mohair quality and to preserve the Tajik Angora goat and the livelihoods of hundreds of goat farmers and rural women who depend on mohair production and processing.

To kick-start a new breeding program in Tajikistan and speed up improvements in Tajik mohair, the project imported nearly 2,000 doses of frozen semen of American Angora goats that are kemp free a large volume of homogeneous fiber. In the fall 2011, 237 selected does were inseminated with the imported semen in October 2011. The remaining semen is properly stored in liquid nitrogen and will be used in following seasons.

Kidding of does inseminated with the imported semen started on March 21 and lasted until March 30, 2012. Does that kidded after March 31 were inseminated by local bucks during the following cycle. Data on the crossbred kids are provided in Table 1.

Table 1. Results of artificial insemination with imported semen of American Angora bucks

Group	Farmers	No of does prepared for insemination	Does inseminated	Angora cross-bred kids born		incl. from bucks	
				no	%	Buck ID #	# of kids
I	Gafur Fozilov (Eshbay)	83	73	8	10.95	21 9 19	5 2 1
II	Nemat Raimkulov	72	66	4	6.06	19 59	3 1
III	Uktam Ibragimov, Ulugbek Beknazarov, Khaitkul Askarov	95	81	5	6.17	9 20	3 2
	Total	**250**	**220**	**17**	**7.72**	**-**	**17**

The conception rate was with 7.7% very low: only 17 crossbred kids were born to does inseminated with the American Angora bucks' semen. The project team plans to analyze the possible causes of such low insemination rate.

Tagging first Tajik/American Angora kids, Dulana farm, April 2012.

Farmer Gafur was very pleased with the Tajik/American kids born to his does, April 2012.

2.1.1.2 Data on mohair productivity of nucleus females

Data on mohair productivity of nucleus does inseminated with the imported semen was collected and summarized in table 2.

Table 2. Data on the volume of mohair shorn from the inseminated does in 2012

Farmers	Groups	Mean	se	N
Gafur Fozilov	I	1.53	.037	76
Nemat Raimkulov	II	2.25	.091	52
Uktam Ibragimov	III	1.50	.046	34
Ulugbek Beknazarov		1.63	.067	30
Khaitkul Askarov		1.46	.079	13
Total		1.69	.038	219

Data in table 2 show that the highest volume of shorn mohair (2.3 kg) was recorded in goats in group II (Nemat Raimkulov), while the lowest mohair yields per doe were recorded in goats owned by farmer Khaitkul Askarov.

Mohair samples were collected from 81 does before shearing to be analyzed at the fiber laboratory in Almaty, Kazakhshan. Data collected from the lab are included in Annex 1.

2.1.1.3 Support of nucleus goats in winter 2012

Livestock production in Tajikistan was severely affected by an exceptionally cold, long and snowy winter. Many farmers run out of feed by February or even earlier. In some cases, entire regions were left without feed to buy. Tajikistan lost around 30% of its livestock in the course of the winter. Even larger percentage of offspring was also lost to cold and starvation.

Feed and especially forage prices rapidly increased. Prices of grain feed increased by 2 times (from 1.4 up to 2.9 Tajik Somoni), and prices of forage increased 3-5 times (from 0.6 to 2.5 TJS). The project team analyzed feed costs relative to energy value of different types of feed and advised farmers to purchase concentrated feed as opposed to hay. Farmers were provided consultations, recommendations and practical help in carrying for their animals and also provided with some concentrated feed. As a result, the mortality rate of goats at the pilot farms was low and the kidding rate was relatively high.

In agreement with the workplan, farmers of the nucleus groups were provided necessary veterinary drugs (tetracycline, nitox, ivermek, albosin 2.5%, neocydol, syringes etc.). Special attention was paid to CCPP cases. Farmers reported all cases of outbreak to the veterinary services and used antibiotics (tetracycline, nitox) to treat their goats.

2.1.1.4 Selection of males and females for nucleus groups

The team conducted selection and culling of does and bucks in nucleus groups in the spring, taking to account mohair productivity and quality. This work was done with farmers participating in the project (Gafur, Nemat, Uktam, etc.). These activities were also implemented in flocks of farmers who participated in the previous project (Turghunboy, Suyunboy, Anarboy, Tirkashali, Usarboy, Makhmudali, Khaydarali). Nucleus groups were also established in farmers' flocks at the new pilot site in Dulana. The project team regularly provided farmers with recommendations and suggestions regarding improvement in flock structure, preparation and storage of forage/feed and its rational utilization.

2.1.1.5 Master's thesis on Economic Efficiency of Mohair Goat Production in Tajikistan

A master student, Alisher Kosimov, successfully completed and defended his Master thesis called *Angora goat breeding in Tajikistan – an economic analysis*. His work on the thesis was supported through the collaboration between University of Pannonia (Hungary), ICARDA, Institute of Agricultural Economics and Sogd Branch of the Livestock Institute. Parts of the thesis results will be published in international journals.

2.1.2 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

2.1.2.1 Improvements in mohair processing at pilot sites: from individual processing to division of labor

The work with women's groups in the Sogd region focuses on developing efficient and economical production of luxury mohair yarn and knitted and woven products and on setting up export linkages for these products. The project team works closely with women's groups on organizing all processing activities including the purchase of raw mohair. It helps the women to improve processing technologies, organize production, develop competitive products, conduct test-marketing and establish linkages to buyers.

After producing a new type of yarn that can successfully compete on American knitting yarn market, the project has worked on scaling up production. The methodology includes organizing larger processing groups and dividing processing into key activities: fiber purchase, dehairing, scouring, carding and spinning. Dividing fiber processing into key tasks, centralizing fiber purchase and choosing a skilled and responsible manager to oversee all activities has proven to be an excellent strategy for increasing productivity, improving quality and standardization and providing opportunities for more women to participate in the processing. The new model of yarn production was developed in 2011 and was fully operational in spring 2012. The following section describes the model and its most recent upgrades.

Centralized Fiber Purchase: Advertising as a new strategy in 2012; lead women processors trained in centralized mohair purchase.

In 2011 and 2012 the project team purchased selected kid and adult mohair during the shearing season in April and May to ensure that spinners had enough raw material. The team set up purchasing points at all regional mohair markets and travelled to farms to purchase mohair fleeces.

In 2012 the team purchased over 400 kg of mohair and improved the purchasing system by using advertising. It created a banner explaining in Uzbek and Tajik what kind of mohair was needed and the price for such mohair. The project paid approximately $1-2 more for sorted, quality kid mohair than other buyers paid for unsorted kid mohair. This was the first time advertising was used at the mohair market in Tajikistan. It worked extremely well, especially at the main mohair market in the city of Khodzhand - farmers and traders were eager to learn about the type of mohair the project team was looking for and started to bring kid mohair to

the purchasing point. Farmers who learned more about the selection and grading standards used by the project were able to pre-select quality fleeces at home and bring them to the market. This saved the team time and effort and improved the efficiency of mohair purchasing.

Farmers viewing and advertisement for quality kid mohair at the Khodzhand market, April 2012.

The project also involved women processors in mohair purchase and sorting. The group leaders joined the team at the market and helped to select the best fleeces. The lead women are now highly experienced in selecting the best mohair and will be able to organize mohair purchase in the future without the project's assistance. The groups will need pre-financing to buy mohair after the project ends. The project plans to use funds from mohair sales in 2012 to purchase mohair in 2013 and leave the groups with a rotating fund at the end of the project.

Dehairing mohair fleeces: Deharing group organized and integrated in 2011; group leader fully in charge of dehairing in 2012.

As explained earlier, Tajik mohair has kemp and needs to be dehaired prior to being spun into yarn for export. The project team and the women experimented with various dehairing technologies in 2009 – 2010 and finally selected the most efficient dehairing method in 2011. In summer 2011 the project trained women in dehairing, set up dehairing groups in several villages in Asht region and established a price for the dehairing.

In 2011 the project team was responsible for managing the dehairing operation: distributing mohair to the groups, collecting dehaired fiber and dehairing waste and maintaining an accounting system for the dehairing. In 2012 the project trained the group leader, Ms. Tuluikhon Abdulazizova, to work with the dehairing group and was able to place the dehairing component entirely under her control. Ms. Abdulazizova now receives raw fiber

and funds for dehairing from the project, distributes the raw fiber to the dehairing groups, collects dehaired fiber and waste fiber, pays the dehairers and keeps an expense account for the dehairing component. Transfer of all these responsibilities from the project to Ms. Abdulazizova has been a major accomplishment that will promote long-term sustainability of yarn production. Currently 25 women and men dehair fiber for the project and their number is increasing.

Women led by Ms. Abdulazizova work on mohair dehairing, Markhamat village, April 2012.

Scouring mohair: Investment in running water needed in 2012.

The next step in processing is to scour dehaired mohair and dehairing waste. The leader of the processing group, Ms. Abdulazizova, is responsible for organizing the scouring. The main challenge in this process is creating an easy access to water. Ms. Abdulazizova and her family are poor and never had funds to build a water pipe. They have to bring water from a pump that is 400 meters away. The project team calculated that it would cost around $3,500 - $4,000 to buy 3,000 meters of pipe and run water to her house. In order to make scouring easier and more efficient this investment needs to be made. The project plans to invest a portion of profits from 2012 yarn sales to build the water pipe. The additional equipment needed for scouring is a washing machine and a solar water heater. The project will explore the cost and availability of this equipment in 2012.

Fiber scouring needs to be improved, Markhamat village, May 2012.

Carding mohair: Carding machine purchased in 2012.

The scoured fiber needs to be carded on a small carding machine. In 2011 Ms. Abdulazizova took the fiber to another village to a family that has a carding machine and offers carding services. This was a time-consuming task: she had to transport the fiber to the village and clean the carding machine from waste, kemp and vegetable matter before using it to card the clean, dehaired mohair. It took several hours to clean the machine which added to the carding cost. In 2012 the project helped Ms. Abdulazizova to purchase a carding machine for $2,000. Half of the funds were provided by the project and the other half came from profits from sales in 2011. Now Ms. Abdulazizova cards only clean, dehaired mohair on her own machine at her convenience. The machine stays clean and well maintained and the productivity as well as quality of the carding improved. The machine cards 1 kg of fiber/hour. Ms. Abdulazizova is very satisfied with the carding operation.

Mohair carding on a new (used) carding machine, Markhamat village, April 2012.

Spinning mohair yarn: Increased number of spinners and improved organization; spinning fully under control of the group leader in 2012.

After the mohair is carded, Ms. Abdulazizova distributes it to spinners. Spinners are selected based on their skills and quality of their work. The wages for spinning are attractive and many women are interested in joining the group. Currently there are around 35 trained spinners who work with Ms. Abdulazizova and another 30 spinners are being trained to make luxury yarn. Each spinner receives 2-5 kg of fiber from Mr. Abdulazizova and has the option to spin at her workshop or at home. Ms. Abdulazizova collects the finished yarn from spinners, check the quality and pays the spinners per meter of yarn. Prior to 2012 the project was purchasing yarn from spinners. Now Ms. Abdulazizova organizes the spinning herself and adds 10% of the spinning cost as overhead. She keeps inventory and accounting of all operations. The bookkeeping is done by her and by the project representative. She and the project team are developing an efficient accounting system for the yarn production.

Spinning mohair at the home of Ms. Abdulazizova using solar powered spinning machines, Markhamat village, April 2012.

Most spinners work on electric spinning machines produced by a local master. At the home of Ms. Abdulazizova the machines run on a solar panel that was purchased by the project in 2011 from profits from sales. Conditions at Ms. Abdulazizova's workshop can be further improved by building small tables for the spinning machines to make spinning more comfortable. The lighting of the workshop also has to be improved by installing sealing and wall fixtures. The project plans to facilitate these improvements in fall 2012-2013. Spinners led by Ms. Abdulazizova are currently working on producing 50 kg of yarn that will be shipped to the United States via Turkish airlines in September 2012. The shipping of 50 kg of yarn will cost around $10/kg and will be arranged by a Tajik NGO based in Dushanbe.

Group leader selected and trained in organizing yarn production and accounting**.**

The yarn processing operation is complex and could not work without an experienced and reliable group leader. Ms. Abdulazizova is an excellent leader capable of organizing yarn production after the project ends. She is an expert in all processes related to yarn production (fiber sorting, dehairing, scouring, carding and spinning), is respected by the other women for being highly skilled, reliable and honest. She is willing to learn all necessary tasks to succeed in developing yarn production into a successful small business.

The group leader Ms. Abdulazizova works with Farhod Kosimov to keep records on mohair processing, April 2012.

Ms. Abdulazizova and the other women receive clear instructions from buyers who collaborate with the project regarding specific standards for yarn and products to be marketed. The women are learning how to closely follow these instructions and Ms. Abdulazizova is responsible for monitoring their work and ensuring that the yarn is produced according to standard.

Ms. Abdulazizova is divorced and a single wage earner from poor family that includes her children and aging parents. Although she spun yarn most of her life, she would not have been able to develop a spinning business without the organizational, financial and marketing assistance from the project. Having such business will allow her to support her family and provide income opportunities for many other women in her village and beyond.

Knitting new products for export: Collaboration with AltraQualita; production of 1,500 socks from dehairing waste in 2012-2013; second knitting group organized in Shaidana village.

Some of the luxury yarn is used to knit samples of sweaters, dresses, hats and socks for export. The main knitting group is located in the Oshoba village and led by Mrs. Dilorom Khaitova who trains other knitters and has an excellent potential to develop a successful knitting business. The project collaborates with Mrs. Khaitova on developing a number of product samples based on luxury designs imported by the project. In the spring 2012 the project brought new samples of fashionable Italian knitted products to Tajikistan that will be reproduced in the Magic Mohair yarn. These products will be test-marketed in winter 2012 and the most successful hats, scarves and sweaters will be selected for production. Mrs. Khaitova currently trains 25 knitters from three villages to make high quality knitted products for export.

Mrs. Khaitova is in charge of producing samples of hats and scarves for AltraQualita, an Italian fair trade company, June 2012.

In April 2012 knitters from Mrs. Khaitova's group participated in a training seminar in Dushanbe organized by the Italian NGO Cesvi and the Italian fair trade importer AltraQualita. A designer and a marketing representative of AltraQualita visited Tajikistan and together with CESVI organized a workshop for several artisan groups. The objective of the workshop was to work with the designer, Edoardo Perri, on designing products for the Italian market that could be purchased by AltraQualita.

At the workshop Edoardo worked with the knitters on making new models of hats and scarves. Later AltraQualita ordered a number of knitted samples that were produced by Mrs. Khaitova and her group and sent to Italy by CESVI in July 2012. In late August 2012 CESVI and AltraQualita plan to organize an exhibit of products made by the groups in Dushanbe, Tajikistan. AltraQualita plans to organize a sale exhibit of the products in Italy in November

2012. The project plans to work with the groups and AltraQualita to ensure that the knitters make products according to standard.

In spring 2012 the project team organized a second knitting group in Shaidana village. Knitters in Shaidana were given models of Italian sweaters and started to make prototypes of these sweaters from Tajik yarn in May 2012. The group is well organized and succeeded in reproducing the models. The Shaidana knitters will start producing sweaters, hats, scarves, socks and other products in 2012-2013.

The project also started to work with knitters who use a simple, Russian-made knitting machine to make lace shawls and scarves. The AltraQualita company ordered a scarf sample made on this knitting machine during the workshop. The machine can be used to produce certain types of knitted products faster than the hand knitters. Production of scarves and other products can be organized based on the availability of these types of machines.

Weaving: New mohair blankets produced in 2012. Production of carpet samples planned in Dushanbe and Penzhekent

In 2011 the project started training women to weave on a large loom imported from Canada. The loom is located in Taboshar, and the lead weaver is Mrs. Shaira Kosimova. Mrs. Kosimova and other women from Taboshar and Dulana village were trained by an experienced weaver from Kyrgyzstan, Ms. Gulmira Akhmatova, in August 2011. In spring 2012 the team worked with Mrs. Kosimova to produce samples of woven blankets from multi-colored skeins using Japanese “Saori” design. Mrs. Kosimova produced high quality blankets that could be exported or sold at high-end gift shops or boutiques in Dushanbe including a new gift shop at the Hyatt hotel.

The weaving group in Taboshar is starting to produce 100% kid mohair blankets for export and domestic markets, June 2012.

The production of mohair blankets has a good potential for expansion. However, the project would have to purchase or organize a local production of weaving looms. Many women in the region are interested in weaving but the production/purchase of looms needs financing which is currently beyond the capacity of the project.

The project is starting to work with carpet weavers in Tajikistan to produce samples of mohair carpets. Two carpet-weaving groups, one in Dushanbe and one in Penzekent, were asked to produce samples of carpets for the project in summer 2012. Production of carpets depends on collaboration with groups that have experience in carpet weaving and access to looms given that the project does not have sufficient resources to train women who do not have background in carpet-making and equip them with looms. The project plans to have samples of mohair carpets made by the Tajik groups in October 2012 and show them to buyers.

2.1.2.2 Training workshop on yarn production for Tajik and Iranian spinners

In May – June 2012 Ms. Abdulazizova hosted a training workshop for spinners from Badakhshan, Tajikistan and from the Kerman province of Iran. Two women from each region participated in the weeklong workshop. The trainees observed how the project team together with Ms. Abdulazizova organized the yarn processing and learned how do dehair, scour, card and spin fiber on electric spinning machines. They also learned about the accounting and payment procedures.

Women from Badakhshan and Iran came to Asht for a training in fiber processing, June 2012.

The women from Badakhshan brought 10 kg of cashgora fiber with them to process and the

women from Iran brought dehaired and undehaired cashmere. The Badakhshan women scoured and carded the 10 kg of cashgora fiber and practiced spinning. They brought the carded cashgora fiber back to Badakhshan to spin into yarn. The Iranian women were mostly practicing spinning dehaired cashmere. The non-dehaired fiber could not be processed using the local equipment. The project team concluded that Iranian cashmere could not be processed without professional dehairing. However, the dehaired fiber is very expensive at $110/kg and very difficult to add value to.

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

2.1.3.1 Highlights and challenges in mohair marketing in the fall 2011.

Since the start of the project, samples of yarn and products for $5,188 have sold and $4,774 was reinvested into processing activities and women's groups (Table 3).

Table 3. Product Sales and Reinvestment

Period	Markets/Buyers	Amount Received from Sales	Amount reinvested into the project	Used for	Remainder
2008	Sow's Ear yarn store, "Spirals" store, Madison WI	$921.22			$921.22
2009 – June 2010	Fair Trade Show, Madison, WI, USA "Sow's Ear" yarn store, Madison WI, USA	$1,020.58 (yarn and scarf samples)			$1,941,80
January 2009			$1,000 (wired to Matazim Kosimov)	Yarn sample purchase	$941,80
August 2010	Yarn store, Vienna, Austria	$392.36 (yarn samples)			$1334,16
November 2010			$500 (to Farhod Kosimov)	Yarn sample & fiber purchase	$834,16
December 2010	Fair Trade Show, Madison, WI, USA	$702 (yarn and scarf samples)			$1536.16
March 2011	"Spirals" store, Madison WI, USA	$153 (scarf samples)			$1689.16
April 2011			$500 (Liba Brent, Farhod Kosimov)	Mohair fiber purchase	$1189.16
May 2011			$500 (Farhod Kosimov)	Samples of yarn & knitted products	$689.16
June 2011	"Sow's Ear" yarn store, Madison WI, USA	$102.60 (yarn and scarf samples)			$791.76
July 2011	"Clothroads" yarn retailer, Colorado, USA	$452.12 (yarn samples)			$1243.88
August 2011	"Sow's Ear" yarn store, Madison WI, USA	$107 (yarn samples)			$1350.88

Period	Markets/Buyers	Amount Received from Sales	Amount reinvested into the project	Used for	Remainder
September 2011			$10.41 (Tuluikhon Abdulazizova)	Yarn samples purchased from Ms. Abdulazizova	$1340.47
September 2011			$300 (Tuluikhon Abdulazizova)	Mohair dehairing	$1040.47
October 2011			$80.83 (Tuluikhon Abdulazizova)	Yarn for carpets	$959.64
October 2011			$62.50 (Dilorom Khaitova)	Knitted samples purchased	$897.14
October 2011			$250 (Nazir)	2 spinning machines purchased	$647.14
November 2011			$520 (Dushanbe market)	Solar panel purchased	$127.14
December 2011	Fair Trade Show, Madison, WI, USA	$761			$888.14
December 2011			$50 (fee for participating at the Fair Trade Show, Madison WI	Fee paid to CALA, Madison, WI	$838.14
April 2012	Yarn to Sara Penhune from US Embassy	$124			$962.14
April 2012	Yarn to Joe Gross from US Embassy	$114			$1,076.14
May 2012			$1,000 to Matazim and Farhod Kosimov	purchase ½ of carding machine for spinner's group	$76.14
June 2012	Yarn to Sara and Joe from US Embassy	$338			$414.14
Total Sales					**5,187.88**
Total Reinvestment					**4,774.00**

Yarn and sample sales have been increasing (Table 4) and are expected to increase dramatically in 2012-2013 as a result of scaling up yarn production in 2011-2012.

Table 4. Yarn sample sales in 2008-2012

Year	2008	2009	2010	2011	2012 (6 months)	Total
Earnings from sample sales	921.22	1020.58	1094.36	1575.72	576.00	5187.88

The project has buyers for the yarn that is currently being produced including companies such as Clothroads, Peace Fleece and small yarn shops in the United States and Europe.

The yarn was reviewed by one of the most prominent on-line knitting magazine the "Knitter's Review" in 2012:
http://www.knittersreview.com/article_yarn.asp?article=/review/product/120419_a.asp.
The review, which is read by most professional knitters and owners of knitting yarn stores, has generated excellent publicity. The Clothroads company that collaborates with the project on yarn marketing, received a number of orders for the yarn and several additional companies showed interest in distributing the yarn.

As noted in the previous report, the project is currently processing the first large volume of 50 kg of yarn that will be exported to the United States in September 2012. The project team will work with buyers in the United States to distribute the yarn in winter 2012-2013. This first large export shipment will fully test the processing, exporting and distribution chain. It is expected to generate around $7,000 in revenue. The revenue will cover approximately $4,000 in processing and shipping expenses and is expected to generate $3,000 in profits.

Shipping for the yarn has been arranged in collaboration with an NGO based in Dushanbe. The NGO will arrange shipping of 50 of more kg of yarn and products to the United States with Turkish airlines for $10/kg.

The project also plans to produce yarn that will be knitted into hats and scarves and marketed in Italy through AltraQualita. These products will be test-marketed in the United States as well through Clothroads and other distributors.

2.1.4 <u>Component 4:</u> 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 produce yarn and knitted products for export. The groups' earnings have increased especially in 2012 after the new yarn processing system was implemented. The women's earnings are expected to climb further in the fall and winter 2012 and 2013 as more women join the groups and more fiber is processed into yarn. The earnings will be reported in 2012-2013 after the first large batch of yarn is produced and sold.

The women's groups benefited from profits from sales of yarn and product samples in 2010 and 2011. Ms. Abdulazizova who leads the spinning group, received a solar panel from the project, purchased from profits from yarn sales in 2011. In 2012 she received a carding machine purchased partially from profits from sample sales. The project plans to use profits from sales in 2012-2013 to build a water pipe for Ms. Abdulazizova's scouring operation.

Ms. Abdulazizova is divorced and the sole breadwinner who supports her children and elderly parents. Although her family has been one of the poorest in the village, she is now one of the few people in her village who have solar electricity in winter. Her work as a leader of fiber processing group has allowed her to earn not only income but also recognition and status in the community. She is the only woman in her village who is setting up small business in fiber processing and who already employs and trains more than 50 women.

In October 2011 Ms. Abdulazizova made her first trip to the capital city of Dushanbe to participate in the project meeting, train women from the Badakhshan site in spinning and demonstrate her yarn. In May-June 2012 she hosted a training workshop for spinners from

Badakhshan, Tajikistan and from the Kerman province of Iran. In June 2012 she was hired by the NGO CESVI to conduct training on fiber preparation for a group of women in Ganchi district. She already started building a new spinning workshop on a small plot of land owned by her family and has excellent prospects to become a successful business owner, trainer and a role model for other women in the region.

Other women who work on mohair processing are also increasing their incomes, expertise and status. The spinning group leader, Mrs. Khaitova is recognized for being the most highly skilled knitter in her village and for her leadership in organizing and training other women. The husband of Mrs. Khaitova is very supportive of his wife's aspirations and accomplishments and can become a role model for other men in the village. Mrs. Khaitova will organize production of hats and scarves for the company AltaQualita and train her group to make luxury sweaters for the American market in 2012 – 2013. She will also charge 10% overhead for all products sold and use these funds to increase her business.

The weaving group led by Mrs. Shaira Kosimova is also starting to earn income by making luxury blankets. The blankets made by this group can be sold to luxury stores in Dushanbe which are looking for high-quality, locally made products. The blankets can be also easily exported to Europe and the United States. The blanket-weaving business will provide a steady source of income for one group of approximately 6 weavers. Many more similar weaving groups can be established based on investment in the production or purchase of looms.

2.1.5 <u>Component 5:</u> Linkages (business, scientific and cultural) between the pilot communities and the global communities of producers, processors and consumers of fiber and fiber products.

- The project inseminated Tajik Angora goats with frozen semen imported from Texas and received the first crossbred offspring in 2012.
- The project strengthened linkages between producers and processors during fiber purchase in spring 2012.
- The project linked processing groups with new buyers including AltraQualita from Italy and organized sample production for those buyers.
- Linkages between the processing groups from three pilot sites were strengthened during training of fiber processing in Asht region, northern Tajikistan that included women from Iran and Badakhshan, Tajikistan.
- The project strengthened linkages between mohair yarn producers and markets through a review of Tajik yarn by Knitter's Review.
- The project published a story in Wild Fibers Magazine about the import of frozen semen from Texas to Tajikistan which created promotion for the project and Tajik mohair producers.
- The project established a contact with Peace Fleece, an American yarn producing company that is interested in purchasing Tajik mohair for processing and in helping to market Tajik yarn.
- Ties were also strengthened with the Italian NGO CESVI and German NGO GIZ. CESVI organized a training on designing products for export with the Italian Fair Trade

company AltraQualita. GIZ agreed to assist with marketing Tajik fiber handicrafts in Germany during an exhibit in Berlin in November 2012.

- The project established linkages with women's groups in Dushanbe and Penzhekent involved in carpet production. The groups are interested in collaborating with the project on mohair carpet production.

2.1.6 Lessons Learned

Effects of severe winter on Tajik livestock producers
The severe winter of 2011 had a strong negative impact on livestock production in Tajikistan. Most producers were unprepared for the winter weather and run out of winterfeed. The authorities were unprepared to respond to the feed shortages and exorbitant prices and did not effectively assist producers during the crisis. Farmers participating in the project were also affected, but the project was able to assist them with feed and also with information which type of feed to purchase. It is important to work with farmers to prepare for possible future shifts in weather and climate and develop strategies how to protect livestock from their effects.

Artificial insemination with imported frozen semen – successes and problems
The conception rate using imported frozen semen was very low. The project needs to analyze the 2011 insemination process, identify the most probable causes of the low insemination rate, and improve the insemination procedures in 2012 accordingly.

Centralized organization of fiber processing is key for scaling up production.
The project leaned that in order to scale up production, all production activities have to be divided into specialized tasks performed by trained groups of women, and incorporated under the management of capable leader who can take responsibility for all necessary operations.

Investment in equipment is necessary to develop certain types of processing.
It is important to invest in equipment such as weaving looms. Without the availability of this equipment weaving cannot be scaled up.

Advertising the project through articles and yarn and product reviews is key for soliciting orders and creating linkages with new buyers.
Publicity for the project and the products is key in generating interest in potential buyers. The project will focus on promoting the groups and the products in 2012-2013 through the project website, a sequel article in the Wild Fibers magazine and networking with key businesses and people in the fiber industry in the US and Europe.

2.2 Project Activities in Badakhshan, Tajikistan

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

Households in the Badakhshan pilot region depend mainly on goat production for meat. Some of the goats also produce cashmere fiber that is harvested and sold for low prices to China. An average household raises only 10-15 goats due to constraints in winterfeed, housing for livestock and rangelands. There are no livestock-producing farms in the area. Although the households cannot easily increase the numbers of goats, they can increase the productivity of their small flocks if breeding and animal husbandry is improved. The project objective in Badakhshan is to set up a community breeding system in 9 villages in the Ishkashim region and breed goats that are better meat and fiber producers and that produce fiber which can be locally processed into value-added products.

2.2.1.1 Breeding objectives in Badakhshan in 2012

The breeding objectives in 2012 included

- Selection of female goats for nucleus groups for selective breeding with imported Altai bucks and quality local bucks in the fall 2012;
- Assessment and description of goats in the nucleus group;
- Assessment and description of the offspring obtained in 2011 and 2012 from using Altai bucks in the nucleus groups;
- Provision of veterinary services to households.

2.2.1.2 Preliminary results of breeding local females with Altai bucks in 2010 and 2011

In 2010 the project imported 8 Altai breeding bucks from Siberian Russia to improve the productivity and fiber quality of local goats. Although the bucks arrived late in the fall of 2010, some of them produced the first offspring in spring 2011. In the fall 2011 the team organized breeding nuclei in four villages (Andarob, Dasht, Khaskhorog and Garmchasma) using the Altai bucks, quality local bucks and 482 females (Table 5).

Table 5. Distribution of Altai and local bucks in the mating season in 2011and resulting offspring in May 2012

Village	Does, heads	Attached bucks	Expected progeny	Altai progeny identified in May 2012 (male + female)
Khaskhorog	83 ear-tagged + 87=170	9295, 5069-5085, 5057-2295 + local	150	34+24=58
Andarob + Dasht	52+80=132	060-089 5315-2525	100	19+15=34
Garmchashma	80 ear-tagged +100=180	5215+ local	160	19+11=30
Kukhilal		5315-2525	no nucleus	
Snib		5215	no nucleus	
TOTAL	**482**		**410**	**122**

In spring 2012 the team monitored the Altai offspring from the mating season in 2010 and 2011. The results show that 122 kids were born in 2012 and 71 yearlings from Altai bucks born in 2011 were present in the flocks. The data collected will be analyzed.

Shepherd Tilobek from Khashkhorog village with Altai crosses born in 2011, May 2012.

The Altai/local crosses have the following characteristics:

- fiber color: white, grey and black;
- live weight at birth: 2.3-2.9 kg and at the age of one year: 14.9-19 kg;
- cashmere yields vary between 324 g and 367 g (i.e. cashmere production in the first generation progeny exceeds its mothers by 2.6 and 3.0 times). This indicates considerable improvements in fiber yields resulting from crossing the locals with the Altai bucks.

Altai cross kid born in Dasht village in spring 2012, May 2012.

2.2.1.3 Preparation for nucleus breeding in 2012 – selection of breeding does

In the fall of 2012 the project plans to organize community breeding with imported Altai bucks during the mating season in September-November. The project team began selecting and tagging the best fiber-producing females in all pilot villages and encouraging the castration of all low quality males in spring 2012. The team collaborated with 107 women in four villages (29 women in Khaskhorog, 35 in Andarob, 11 in Garmchashma and 32 women in Dasht) on selecting does for breeding. 368 does were selected from the women's flocks for the nucleus groups.

Selecting and tagging goats for nucleus groups, Khaskhorog village, May 2012.

The selected nucleus does have the following average characteristics:

- Average live weight is between 22.3 kg and 31.0 kg;
- Average cashmere yield ranges from 90 to 140 grams; (It needs to be noted that in 2012 fiber productivity was well below average due to malnutrition of the goats resulting from very cold and long winter, and the women did not comb the goats fully.)
- Over 90.0% of the goats produced fiber of quality category one, 6-8% produced quality category two, and the remainder produced third quality fiber.

The project team agreed with the women to castrate inferior local bucks. About 300 kids born in 2011 and 2012 were castrated within one year. In early June the goat flocks were moved to the summer pastures. To ensure successful breeding, 20 bucks were separated from the main flock to be grazed as a separate flock on Rostov site in Garmchashma village (Table 6). Shepherd Zavkibek Okimbek Olimbekov from Snib village was hired for 4 months.

Table 6. List of local bucks sent to summer rangelands with the project bucks in June 2012

#	Farmer	No of heads	Village
1	Shirinbekova J.	1	Andarob
2	Tozagulkhonova Z.	1	Andarob
3	Rustamova A.	2	Andarob
4	Abduloeva J.	1	Andarob
5	Poyandaeva R.	1	Andarob
6	Gulzorova Sh.	1	Andarob
7	Mansurova L.	1	Andarob
8	Rakhmatulloeva Z.	2	Andarob

#	Farmer	No of heads	Village
9	Kyrgyzov M.	1	Khaskhorog
10	Yodgorov Yu.	2	Khaskhorog
11	Zanjirbekov T.	1	Snib
12	Olimbekov E.	4	Snib
13	Zanjirbekov K.	2	Khaskhorog
	Total	**20**	

2.2.1.4 Support for nucleus and non-nucleus village flocks in 2012

The teams provided the farmers with vaccines for preventive treatment of livestock flocks (for the nucleus groups – 2,800 dozes against sheep and goat smallpox, 1,600 dozes of vaccine against pleuropneumonia), and 800 dozes of antihelminthic (Alben). These veterinary drugs were used for vaccinating goats against pleuropneumonia, vaccination of sheep and goats against smallpox, and their dehelminthization. The team plans to repeat vaccination against these diseases in the fall.

Arrangements were made for the wintering of animals in nucleus group. During the winter period, 12 bucks (including Altay breed and local) were distributed to the following villages: in Khaskhorog -3, in Andarob -3, in Dasht -2, in Kukhilal -1, in Snib -1, in Garmchashma -2. About 1300 kg of barley and 4680 kg of hay were procured for winterfeeding of the bucks. Kidding campaign started in February. Very harsh weather, high precipitation and long winter negatively affected the reproduction of goats and other livestock in Badakhshan and other parts of Tajikistan. Many does aborted and many kids were stillborn. Based on interviews with the women, households in the pilot villages lost over around 75% of this year's kids.

Even experienced shepherds such as Tilobek lost a large number of offspring as a result of the harsh winter, Khaskhorog village, May 2012.

2.2.2 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

2.2.2.1 Fiber collection at pilot sites

In April – May 2012 the project organized fiber purchase in pilot villages. The fiber harvesting process in 2012 was severely affected by the longest and coldest winter in the last 50 years – many women could not comb goats in April because the animals were very weak and the women worried that the extra stress of combing would be harmful. Considering the cold weather and malnourishment of the goats, some women combed the goats in May and many did not comb them at all. The condition of the animals and the timing of the combing lowered the quality of the combed fiber considerably – the 2012 fiber had a substantially higher percentage of guard hair than fiber harvested in 2011. The volume of combed fiber was also much smaller in 2012 then in 2011 – only 37.8 kg compared to 52 kg in 2011.

In spite of these challenges, the fiber sorting and purchasing system worked very well. Most women are now well trained in fiber harvesting and package fiber from individual goats separately. They bring their fiber to a collection point on a specified date and the project team sorts and grades it. In 2012 the project separated the combed fiber into 2 categories and purchased #1 fiber for 100 somoni/kg ($20.50) and #2 fiber for 70 somoni/kg ($14.50).

The woman with the best goats in Andarob village earned a good income from her fiber, May 2012.

The most important criteria during fiber evaluation was the presence of guard hair which determines whether the fiber needs to be dehaired or not. The other criteria were contamination with vegetable matter and dandruff, fineness, length and color. Fiber contaminated with vegetable matter and dandruff also has to go through the dehairing

process. Characteristics such as length and fineness were of lesser importance – longer and coarser fiber and finer and shorter fiber will be blended together during processing to create an optimal material for hand spinning. Only a small percentage of fiber harvested was potentially too strong to be blended (approximately 26 micron and over). Color of the fiber was noted buy played a lesser role during the evaluation. White color will be preferred once the project establishes a dyeing component, but colored cashgora yarn can also be dyed or used to knit naturally colored clothing. The fiber sorting, grading and pricing system will be adjusted based on the experience with fiber processing in 2012 – 2013 and on subsequent market feedback.

Women from Khaskhorog village brought their fiber to sell, May 2012.

In 2011 the project faced strong competition from Kyrgyz traders who work for Chinese buyers. In 2012 the traders came later than usual and were purchasing only sheared fleeces that contained fine cashmere for 15 somoni or $3-4/kg. Based on interviews with the traders, a number of them went “bankrupt” in 2011 by purchasing large quantities of unsorted, sheared fiber for very high prices. A large share of the 2011 fiber was rejected by Chinese buyers and the Kyrgyz traders lost money. This experience, together with a lower demand for cashmere in 2012, made them much more cautious during fiber purchasing in 2012. The local processing groups will be able to purchase local cashgora and cashmere fiber for more stable and higher prices than the Kyrgyz traders once local processing and export of value-added products is fully established.

The husband of Mrs. Dzholnamo helps to grade fiber, Khaskhorog village, May 2012.

The fiber purchasing system in the pilot region is now well established and the project team plans to transfer the system under the control of local processing groups. In spring 2012 it trained the leaders of Andarob spinning group in sorting and evaluating the fiber. The group leaders, Mrs. Dzholnamo and her husband Khuzh, assisted the project team with fiber purchase in several villages and learned how to class and sort cashgora and cashmere based on cleanness, fineness, length and color. The Andarob processing group is prepared to take over the responsibility for fiber purchasing in 2013. The project team plans to supply the group with electronic scales, instructions and funds and the group will collect, class and purchase fiber in all pilot villages.

Being the lead processing group, the family of Mrs. Dzholnamo has the most experience with washing, carding and spinning the fiber into luxury yarn. The experience in fiber processing, together with additional training in sorting, grading and pricing fiber, gives Mrs. Dzholnamo and other spinners from the Andarob group the skills and capacity to manage the purchasing system. Women from pilot villages will have the incentive to sell their fiber to the Andarob group because it is conveniently located - Andarob is the regional center, easily accessible from all pilot villages. The group will offer competitive price for combed fiber and will process the fiber locally, providing income opportunities for spinners and knitters from all pilot villages. Mrs. Dzholnamo can also serve as a trainer and help set up fiber purchasing points in other villages.

2.2.2.2 Fiber collection in Roshkala

In the fall 2011, the project visited the Roshkala valley and discovered flocks of quality Altai goats and crosses at the local farms. These farms are the descendants of a former state farm that produced Altai fiber goats, combed cashgora fiber and sent it to Russia for processing. The farms in Roshkala are much more remote than the pilot villages in Ishkashim, have better access to quality summer and winter rangelands, produce larger numbers of animals and practice targeted breeding. As a result the Altai cashgora goats are better preserved and the flocks are more homogeneous in the Roshkala valley than in Ishkashim.

The Roshkala farmers knew about the project and in spring 2011 they combed some of their goats and saved the fiber to show to the project team. The fiber was of high quality especially in terms of cleanness – much of it had less guard hair that fiber collected in Ishkashim. The volume of fiber per goat collected in Roshkala was also approximately double that of the Ishkashim goats – another sign that the Roshkala goats are genetically closer to the Altai goats that produce 600 - 800 grams of cashgora. The fiber of the Roshkala goats was on average several micron coarser but also longer than the Ishkashim fiber. This implies that as the Altai goats crossbreed with local cashmere-type goats, as it happened in Ishkashim but less so in Roshkala, the fiber of these crosses gets finer, shorter and the yield per goat decreases.

The project decided to continue collaboration with the Roshkala farms and asked them to comb the goats in 2012. The 2012 Roshkala fiber was of lower quality for the same reasons as in Ishkashim – the women combed the goats late because of their weak condition and because the weather was cold. Still, some women in Roshkala brought relatively clean fiber for sale. The project plans to work with these women to train others in fiber harvesting and organize fiber purchase in 2013.

Collecting fiber in Roshkala valley, May 2012.

Provided that fiber harvesting in Roshkala is well organized in 2013, it is possible that some of the fiber can be processed without dehairing. This yarn will include some percentage of guard hair and may not be knitted into scarves and hats. However, it could be knitted into sweaters and traditional Jurabe socks. The project will experiment with making yarn and Jurabe from undehaired Roshkala fiber in the fall 2012.

The project team plans to travel to Roshkala in the fall 2012 and organize fiber collection for spring 2013. It will also look for white Altai breeding bucks that could be used in Ishkashim. Ishkashim producers will be able to trade bucks with Roshkala farmers in the future.

2.2.2.3 Fiber dehairing.

In 2010, 1011 and 2012 the project collected fiber from Ishkashim pilot villages and in 2011 and 2012 it collected fiber from Roshkala. The team is starting to test both types of fiber by spinning yarn samples. The test results show that the Ishkashim fiber cannot be processed into yarn and products for export without dehairing as products from undehaired fiber would be too prickly and could not compete on the international market. The Roshkala fiber has less guard hair and could be possibly processed into yarn for Jurabe socks without dehairing. However, the fiber has to be carded on a quality carding machine prior to spinning and the Badakhshan groups do not have a carding machine at the moment. The project will test-spin the undehaired, carded Roshkala fiber in the fall 2012.

"Testing" the Roshkala fiber, May 2012.

The project team waited for a dehairing plan in Faizabad, Afghanistan to start operating to dehair the Ishkashim fiber collected in 2010 – 2012. In April 2012 the project contacted the owner of the plant, Mr. Abdul Basir Hotak, and learned that the processing equipment has not

yet arrived to Afghanistan and would be installed only in August 2012. The project team decided not to wait and ship the Ishkashim cashgora fiber to a dehairing plant in Herat, Afghanistan that uses the same equipment as the Faizabad plant. The Herat plant, called "Herati Cashmere" is the largest cashmere processing plant in Afghanistan and had a dehairing line stalled in 2011.

The project team sorted 100 kg of the Ishkashim cashgora by color into white, grey and dark grey and collaborated with the Aga Khan Foundation to arrange shipping the fiber from Khorog, Tajikistan to Kabul. Mr. Hotak agreed to deliver the fiber from Kabul to Herat, scour, disinfect and dehair it, and help organize return shipping. The fiber was dehaired in July and shipped back to Khorog. The dehairing quality is good, the dehairing yield is 60% and the dehairing cost is very reasonable - $5 for 1 kg of dehaired material. The project plans to avoid the shipping costs to and from Herat by dehairing the fiber in Faizabad in 2013. The spinners and knitters will test the dehaired fiber by spinning it into yarn and making samples of products in fall 2012.

2.2.2.4 Training of trainers in organizing spinning groups.

In order to promote the development of spinning groups in the pilot region, the project organized a training of trainers for lead Badakhshan spinners in the Asht region. Two spinners travelled to the training in Asht at the end of May 2012 and brought with them 10kg of Roshkala fiber for experimental processing. The leader of the processing group in Asht, Ms. Tuluikhon Abdulazizova, taught the Badakhshan women how to scour the fiber and how to card it on her carding machine. The women spent six days in Asht. They scoured and carded their fiber, practiced spinning on electric spinning machines and learned about bookkeeping, management structure and payment system used by Ms. Abdulazizova's fiber processing group. The training gave the Badakhshan women the opportunity to prepare their own fiber for spinning, acquire new technical skills and learn in detail about the management and organization of fiber processing in Asht. The trainees also learned about the type of equipment needed for processing, specifically the type of carding machine their group needs to obtain. The women will apply this knowledge and skills during their work on organizing fiber-processing groups in their community in Badakhshan and train other women.

Mrs. Dzholnamo and Mrs. Shahlo with carded Roshkala fiber during the training in Asht.

2.2.2.5 Experimental processing using three different types of fiber.

The Badakhshan spinners will be able to work with dehaired Ishkashim fiber, undehaired or dehaired Roshkala fiber and also with dehaired Afghan cashmere that could be purchased from Herat or from Faizabad once the new factory is in operation. The project team is evaluating the comparative usefulness of these fibers for processing.

The project will explore and compare the processing costs and qualities of dehaired cashmere and dehaired and undehaired cashgora to learn which fiber can bring most revenue to women's groups in Badakhshan. The preliminary conclusion is that dehaired Afghan cashmere will be most difficult to add value to because of its high price. While in 2010 the project purchased dehaired cashmere for $68/kg, in 2012 dehaired Afghan cashmere sold for $85/kg. After adding transportation and spinning cost, the yarn and products might be too expensive to sell. The project calculated that one cashmere hat, handknitted from handspun cashmere, would cost approximately $16 to produce.

Experimental carding of undehaired fiber on a Russian-made carding machine, May 2012.

Based on these preliminary results, the project team estimates that it will be more economical to work with undehaired or dehaired cashgora fiber. Dehaired cashgora fiber can be an excellent material for luxury hats and scarves for export. Undehaired Roshkala fiber could be possibly used for Jurabe socks for export and for a higher-end local market given that the production cost of such socks is expected to be around $20.

In terms of processing qualities, the local cashgora fiber, dehaired or undehaired, is easier to spin than cashmere because the fibers are longer. The cashgora yarn and products will be somewhat coarser than cashmere products but will be less likely to pill and will have more luster, strength and longevity. The relative processing costs and qualities of these three fibers and products made of them will be fully analyzed in 2012 – 2013.

2.2.2.6 Organizing spinning and knitting groups in spring and fall 2011

The project started collecting samples of yarn made from women in all villages to select the best spinners and formed the first spinning group in the Andarob village in 2011. The group is led by Mrs. Dzholnamo who is an excellent spinner, and her husband Khuzh, who is the village leader and very supportive of the spinning and knitting business.

The group is gradually developing all aspects of yarn production. Mrs. Dzholnamo and her husband participated in cashgora purchasing in 2012 and learned how to sort, class and price fiber. They will be able to organize fiber purchase in 2013 with little help from the project. Ms. Dzholnamo and Ms. Shahlo from Andarob participated in the training of trainers on fiber processing in the Asht region and learned how to scour and card cashgora fiber. Scouring cashgora in Andarob will be relatively easy given that the group has a good access to running

water. In order to card the fiber, the group will need to purchase a carding machine. Ms. Dzholnamo and her husband are currently searching for a suitable, used carding machine and hope to procure one in 2012 or 2013 with the help of the project. In summer 2012 the group will start spinning Roshkala fiber the women carded in Asht during the training. Later in July 2012 the group will receive dehaired Ishkashim cashgora from Afghanistan and start working with the most experienced spinners on processing it.

The Andarob group now has 24 spinning machines that were produced in Asht and delivered to Badakhshan in April 2012. The project team and the Andarob group decided to keep the spinning machines at the house of Mrs. Dzholnamo. Women who want to learn how to spin can come to her house and she trains them. Trained spinners who produce high quality samples will receive cashgora fiber for spinning. They can either spin at Mrs. Dzholnamo's house or take the spinning machine home with them. The machine remains the property of the project and the spinners can keep it as long as they are interested in spinning yarn for the project. If they want to purchase their own spinning machine the project can help them order it from Asht.

Mrs. Dzholnamo testing one of the imported spinning machines, May 2012.

Dozens of women from all pilot villages are interested in spinning yarn and scores of women are coming to Mrs. Dzholnamo's house for training. Mrs. Dzholnamo and her husband are very proactive in organizing the spinning groups and dedicated to developing a successful community business. Although the Badakhshan group started to spin later than the Asht group, it is expected to achieve fast progress. It will be easier to organize yarn production in Badakhshan because the dehairing and scouring of the Ishkashim fiber will take place in Afghanistan. Provided that the Roshkala fiber can be processed without dehairing, the women will need to scour, card and spin the Roshkala fiber and only spin the Ishkashim fiber. This will make the process faster and easier to organize than processing mohair in Asht which

requires manual dehairing.

However, the raw material used by the Badakhshan women will be more expensive than the mohair. This means that the cashgora processing will require a high level of training, skills and quality monitoring to ensure that this expensive material is processed into yarn and products that can sell for high prices. The Badakhshan women do not have as developed skills in spinning as the women in Asht and will need practice to succeed in making high quality yarn. They also need strong linkages with buyers and designers who can provide them with feedback and quality standards and design products for this type of fiber. The processing has to be managed, organized and monitored very carefully to prevent any errors that would result in a waste of raw fiber or the yarn. Such errors would be very costly for the group and could lead to the breakdown of the processing/marketing chain.

One reason why the Badakhshan groups are likely to make a fast progress is cultural - the Pamiri culture is less traditional then the Uzbek culture in northern Tajikistan regarding gender relations and men are more willing to work with their wives on organizing fiber processing. Mrs. Dzholnamo and Mr. Khuzh are a great example of such effective collaboration – they work together on fiber purchase, on organizing spinning and knitting groups and on improving equipment for processing. Mr. Khuzh is eager to learn about spinning and fiber and yarn quality and Mrs. Dzholnamo is free to travel to trainings to learn new skills.

2.2.2.7 Organizing knitting groups.

The project also started organizing knitting groups in three villages. The knitters were asked to make samples of Jurabe socks and gloves and lead knitters were selected based on the results. The lead knitter in the Andarob village, Mrs. Shahlo, produced a beautiful sample of Jurabe socks from Afghan cashmere yarn spun and dyed by the Andarob spinning group.

Once the spinners start producing quality yarn from the local fibers, the knitting groups will use it to produce traditional Jurabe socks, gloves, legwarmers, hand warmers, sweaters and other items that can be sold to tourists locally or exported to the United States and Europe. The project plans to concentrate on working with the knitters as soon as the new cashgora yarn is produced in the summer and fall of 2012. Given that the knitters will work with expensive yarn, they need precise instructions regarding what to produce to avoid wasting the yarn. The project team will work carefully with the groups and with professional designers to make marketable product samples.

Mrs. Dzholnamo modeling a sweater made from cashgora yarn by Mrs. Dilorom in Asht based on an Eileen Fisher design, June 2012.

2.2.3 <u>Component 3:</u> Develop sustainable market chain that links fiber producers and processors with buyers

The project is starting to produce different types of yarns and products from local fiber and will start test-marketing these products in the late fall and winter 2012 - 2013. The team plans to use some of the market linkages developed to sell mohair yarn and products and create additional market outlets specifically for cashgora yarn and the Pamiri knitwear.

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

The project is recording the earnings of spinners and knitters and plans to start interviewing women about the benefit of earning income after they start processing a larger volume of fiber in 2012 and 2013. It also plans to interview women who produce goats and sell cashgora fiber and about the effects of the project on their livelihood.

2.2.5 Component 5: Linkages (business, scientific and cultural) between the pilot communities and the global communities of producers, processors and consumers of fiber and fiber products.

- The project developed stronger linkages between women who produce goats and harvest and sell cashgora fiber and women and men who also work on fiber processing. The processors will work closely with fiber producers to organize fiber purchase in 2013.
- The project linked the Badakhshan processors with the Asht community by importing spinning machines to Asht to Badakhshan. Women from Badakhshan will be able to order more spinning machines from Asht and the project will facilitate the production of similar machines in Badakhshan.
- Another linkage was created with AKF, Afghan cashmere processors and the Badakhshan fiber producers and processors when the fiber from Badakhshan was successfully dehaired in Herat, Afghanistan in July 2012.
- Women from Badakhshan were linked with women in Iran and Asht during training of trainers in fiber processing in Asht in May 2012.
- Stronger linkages are being established between the spinning groups in Badakhshan and the knitters who are starting to knit product samples with locally made yarn.
- The project also developed a linkage with goat and fiber producers in the Roshkala region.
- Linkages with the AKF foundation, CESVI and GIZ were also developed.

2.2.6 Lessons Learned

The villagers are unprepared for shocks such as severe winter weather:
The project learned that the households at the pilot are very vulnerable to shocks such as the extreme fall, winter and spring weather. The villagers lost much of their feed as a result of heavy rains in the fall, and were unprepared to face one of the harshest winters in recent history. Many people run out of feed and the losses of livestock and offspring were severe. This also affected the project breeding program as many kids of the Altai bucks were also lost. This experience emphasizes the importance of working with the households on improving winterfeed preparation and storage.

The communities trust the project team and actively collaborate on the project activities:
After three years on working in the Badakhshan communities, the project team has earned trust of the majority of villagers who actively collaborate all project activities – women and men participate in creating breeding nuclei, vaccinating animals, harvesting and collecting

fiber, setting up fiber processing groups and travelling to trainings. This is because the project is focused on development activities that generate tangible benefits for the villagers – healthier, more productive animals, higher incomes from selling goat fiber, new fiber processing technologies and skills, and the opportunity to earn income by producing marketable products for sale. The other factors that promote such collaboration are the local geography and culture. The Ishkashim communities are very closely knit, and women and men are used to surviving in the harsh environment with few resources by working together.

2.3 Project Activities in Naryn, Kyrgyzstan

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

2.3.1.1 Flock monitoring and evaluation to increase the homogeneity of the flocks

The work with the sheep farmer groups in Min-Bulak and Lakhol sites was continued through regular inspection of sheep flocks, identification of flock structure and monitoring of animal performance.

In winter 2011-2012 an outbreak of sheep-pox occurred in Min-Bulak. The disease killed a considerable number of animals, and as a result the number of sheep was reduced by 62 animals or 22% compared to the records in December 2011. Out of 90 live lambs born in 2012, monitored by the project team, 64 lambs or 71% are semi-fine wool with cross-bred characteristics of wool (Table 7).

Table 7. Sheep flocks kept by target farmers in Min-Bulak (15 April 2012)

Farmer's name	Total no. of sheep	Total no. of ewes	No. of TS* ewes	Total no. of young females	No. TS* young fem.	Total no. lambs born in 2012	No. of TS lambs
Musaev A.	17	7	2	3	1	7	4
Ismadiyarov O.	10	5	5	-	-	5	5
Musaev S.	30	13	9	4	2	10	10
Musaev E.	53	23	15	8	7	21	12
Asankulov A.	77	40	31	4	2	32	22
Sharshenbaev Zh.	35	8	6	17	10	9	8
Musaev B.	15	9	1	1	-	6	3
Total	**237**	**108**	**69**	**37**	**22**	**90**	**64**

*TS=Tien Shan breed

In Lakhol village the total number of sheep kept by farmers increased by 127 or 36%; compared to December 2011; 175 lambs were born in 2012 (Table 8). Productivity formed in average 80 live lambs per 100 ewes. Out of 175 live lambs born in 2012 inspected by the project team, 122 lambs or 69.7% are semifine wool with cross-bred characteristics of wool. During monitoring the entire flock including the offspring born this year was ear tagged.

Superior male lambs are retained to be potential used as sires for the herds. One male lamb born in 2011 and four male lambs born in 2012 were retained in the flock of farmer Usupbaeva, while two males born in 2012 remained in farmer Musaeva's flock.

Table 8. Sheep flocks kept by farmers in Lakhol on 15 May 2012

Farmer's name	Total no. of sheep	Total no. of ewes	No. of TS* ewes	Total no. of young females	No. TS young fem.	Total no. of lambs in 2012	No. of TS lambs
Usupbaeva G.	139	63	63	18	18	49	49
Akunov N.	47	19	10	6	5	18	9
Kasmaliev R.	105	37	21	19	16	37	20
Asanaliev M.	77	47	30	13	8	16	5
Sydykov Y.	117	53	41	7	4	55	39
Total	**485**	**219**	**165**	**63**	**51**	**175**	**122**

*TS=Tien Shan breed

Farmers of both sites are regularly trained on basic sheep breeding practices. In spite of the wool price decline at the local market this year – the fine wool price dropped to 60 KGS and of cross-bred wool to 45-50 KGS – all farmers are willing to develop semi-fine wool sheep production, as the Tien Shan sheep are dual purpose and thus provide income from meat and wool. The farmers requested the project to procure two more rams for each site. The team is now working on procurement of four Tien Shan rams that will be used for mating in 2012. Further support to the project farmers was provided in the form of treatment (Alzon) against helminthic diseases.

2.3.1.2 Improving productivity, wool yield and quality of sheep flocks at the project sites

In Min-Bulak the reproduction rate was 83 live lambs per 100 ewes (Table 9). Average wool yield per sheep was 1.93 kg across all wool types and 2.2 kg for the Tien Shan type sheep. The shorn wool of this type can be characterized as crossbred semi-fine wool, with a fiber length of 8-9 cm, and a fineness corresponding to quality category 56, 58 and 60.

Table 9. Reproductive rate (number of live lambs born per 100 ewes) and wool yields (kg) in Min-Bulak

Farmer's name	Total no. of sheep	No. of TS ewes	No of LC ewes	Fertility per 100 ewes	Total wool yield, kg	Crossbred semi-fine wool yield, kg
Musaev A.	17	2	5	100	39	7
Ismadiyarov O.	10	5	-	100	26	10
Musaev S.	30	9	4	77	49	28
Musaev E.	53	15	8	91	104	61
Asankulov A.	77	31	9	80	150	66
Sharshenbaev Zh.	35	6	2	113	67	30
Musaev B.	15	1	8	67	23	2
Total	**237**	**69**	**39**	**83**	**458**	**204**

*TS=Tien Shan breed; LC=local coarse wool breed

In Lakhol the average reproductive rate was similar to Min-Bulak but with a wider range (Table 10). The average wool yield was 2.67 kg per sheep, while the semi-fine wool yield equaled 3.15 kg per head. Wool samples collected from rams, ewes, and yearling females owned by farmer

Usupbaeva in Lakhol site were analyzed with OFDA 2000. According to the laboratory analysis the fiber length, fineness and homogeneity along the fleece of the wool meets the standard requirements and corresponds to the standards for semi-fine wool required by the artisan groups.

Table 10. Reproductive rate (number of live lambs born per 100 ewes) and wool yields (kg) in Lakhol

Farmer's name	Total no. of sheep	No. of TS ewes	No. of LC ewes	Fertility per 100 ewes	Total wool yield, kg	Semi-fine wool yield, kg
Usupbaeva G.	139	63	-	78	270	270
Akunov N.	47	10	9	95	78	45
Kasmaliev R.	105	21	16	100	140	90
Asanaliev M.	77	30	17	53	159	118
Sydykov Y.	117	41	12	104	180	157
Total	**485**	**165**	**54**	**80**	**827**	**680**

*TS=Tien Shan breed; LC=local coarse wool breed

On the farm "Sabaaji", 8 rams, 12 yearling males, 378 ewes and 128 young females were individually evaluated and classified. In the flock, 82% of the fine wool sheep correspond to the desirable type, 63% of ewes and young females have wool of the 64th quality, while 94% of rams of the 60th quality. The farm "Sabaaji" is clearly a potential suppliers of fine Merino wool for the artisan groups.

2.3.1.3 Provision of groups with raw materials, equipment and maintenance of machines

Following Liba Brent's recommendations 300 kg of semi-fine wool were procured from farmers in Lakhol for the five artisan women groups. A further 6.6 kg fine Merino wool was procured from Sabaaji. A carding cloth (33 m) was procured for the carding machine and support for the renting of the room was provided to women in Lakhol and Min-Bulak sites.

2.3.2 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

2.3.2.1 Increasing the competitiveness of products produced by the pilot groups

The Naryn artisans were trained by professional designers to improve their skills and quality and competitiveness of their products. During the reported period, artisans of the pilot groups participated in trainings supervised by the well-known designers organized by the project. In May-April 2012 they had a fellowship on silk-felt scarves production supervised by designer Kamala Abdykadyrova, organized for them in Bishkek.

Based on the results of monitoring of the pilot groups' work and the analysis of the project participants' portfolios, CACSA invited the most capable five artisans from each group to the fellowship, altogether 25 artisans (Table 11).

Schedule of the fellowship for artisans from Naryn in 2012:

Theme of the fellowship:	Production of silk-felt scarves, wool.
Trainer:	Kamala Abdykadyrova
Venue:	CACSARC-kg Office
Time:	9.00 – 19.00 each day
Purpose of the fellowship:	to learn various designs of scarves and improve technological skills.

Table 11. Participants from the felting groups in the fellowship training in March/April 2012

#	Village	Dates	No of participants	Group leader
1	Min-Bulak	12-13 March	5	Burulush Djamanbaeva
2	Kulanak	14-15 March	5	Zamira Abdrasulova
3	Acha-Kaindy	29-30 March	5	Toyun Amanova
4	At-Bashy	2-3 April	5	Shaigul Omuralieva
5	Lakhol	4-5 April	5	Gulmira Usupbaeva

Starting practical class of Min-Bulak artisans – assessment of wool, selection of raw materials

During the fellowship, the artisans have mastered production of silk-felt scarves of various designs and improved their knowledge of color-combinations and scarves production techniques. All participants were tested by the trainer, who prepared individual professional evaluation of each participant.

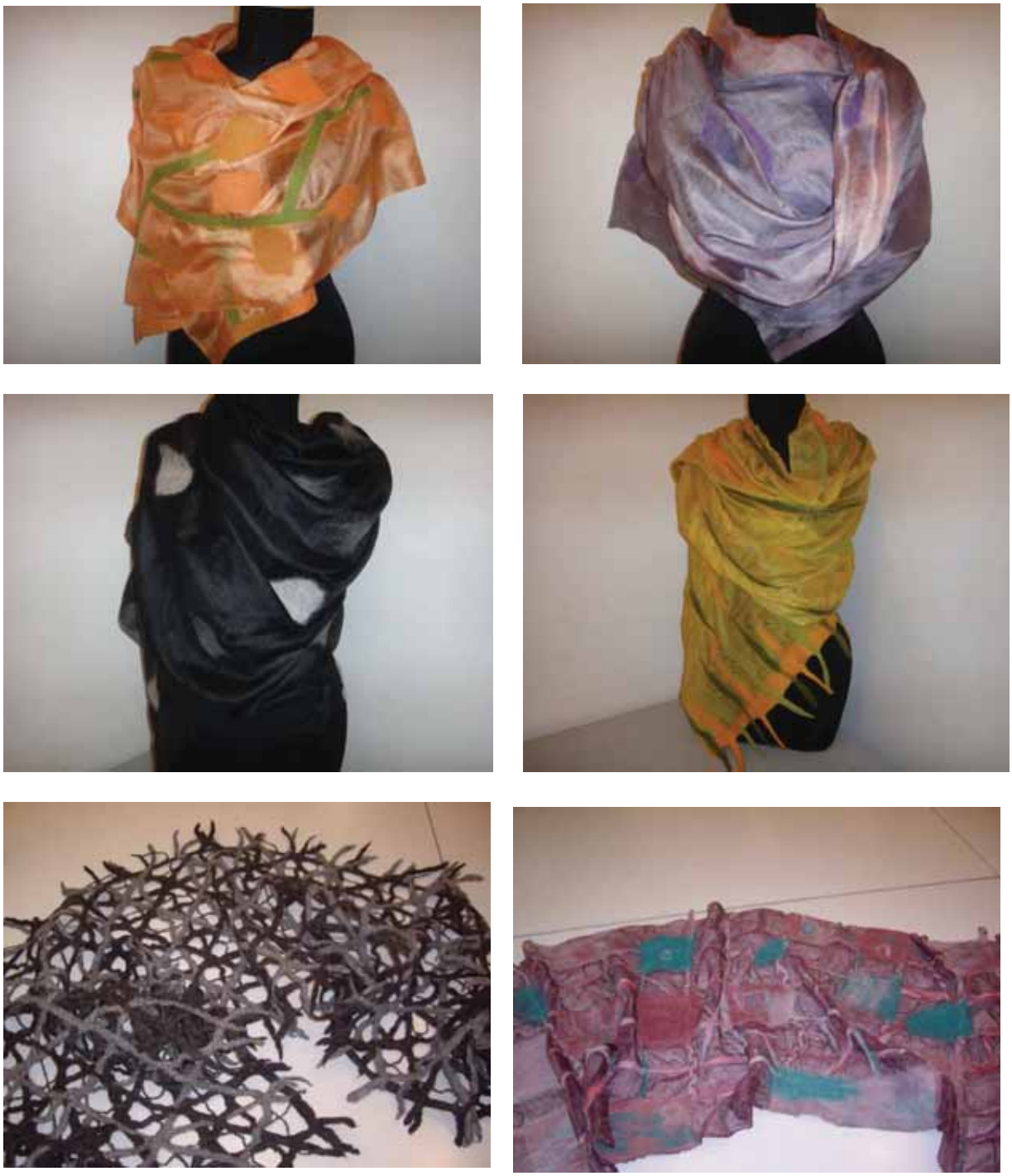
Artisans, D. Toktonazarova and S. Sadanbaev, from At-Bashy village making pre-felt for scarves.

Artisans from Lakhol village making scarves.

Artisans from Kulanak village with the trainer K.Abdukadurova.

Artisans from Acha-Kaindy village with scarves produced during the fellowship.

Scarves produced during the fellowship (31 scarves) received positive feedback from customers at the local and regional markets, as well as by exporters of handicraft products to the European countries and the USA.



Photos of scarves produced by the Naryn artisans during the fellowship

Photos of scarves produced by the Naryn artisans during the fellowship (cont.)

Designer Kamala Abdykadyrova has been involved in the project activities since April 2012. Her responsibilities include elaboration of design samples for handicraft products, preparation of learning materials and visual aids, consultations with artisans and quality control of handicraft products produced by project participants.

Kamala has prepared a visual aid on scarves and chair-mats with recommendations on designs, color combinations and wool quality. The visual aid was copied and distributed to the groups. The results show the effective use of the samples and aids, given that the weakest point of the project participants is choice of design and color combination for their products.

In addition, at the beginning of the year the project procured color wheels and color mixing guides in the USA and distributed them to the artisans. This will help the artisans to identify matching color combinations and achieve the needed colors and shades during dyeing. Designer Kamala gave detailed instructions to the artisans how to use the color wheels for producing different types of handicraft products.

The artisans also continued improving models of felt slippers, produced in a mixed technique that includes stitched felt parts followed by felting on a shoetree. During the reported period, different size shoetrees from size 36 to 42 were purchased for each group. The shoetrees for slippers were ordered in China according to the photos of a sample. Unfortunately the shoetrees were not identical to the sample, and a sample had to be sent to China to produce a new set of shoetrees identical to the sample.

The artisans are producing slippers from felt made on their own felting machines. The new slippers have a similar quality and shape as the pair of Danish slippers given to the groups to reproduce.

2010

2011 **2012**

Evolution of felt slippers from 2010 to 2012.

For comparison: the pair of Danish slippers given to the groups to reproduce.

During the reporting period, a new model of felt stitched slippers has been developed. The groups can produce this type of slippers in winter, when it is impossible to use the wet felting technique. The new products will be test marketed during the International Festival "Oimo" in July 2012.

A new model of felt stitched slippers produced in 2012.

Some changes have been introduced in the design of felt chair mats. The artisans designed one-sided alakiyiz chair mat with a pattern only on one side. This allows reducing the thickness, weight and production cost of the chair mats and making their transportation more economical. Using the new technique, the weight of one chair-mat can be reduced from 225-250 g to 135-150 g. This makes it possible to consider the chair mats for export.

One-sided alakiyiz felt chair mat.

CACSA trained a group of artisans from Kulanak village that was included in the project in 2012. The artisans from Kulanak were trained in different felting techniques and producer chair mats and stitched and wet-felted slippers. The training was conducted in May in Bishkek with Kulanak artisans who were most interested in making these types of products and willing to train other members of their group. The artisans from Kulanak village demonstrated their good professional skills and ability to learn new things during the training.

Kenjekan Toktodunova, Trainer on chair mats, and artisans from Kulanak village

Artisans from Kulanak village learn felt slippers production techniques.

2.3.2.2 Monitoring of the pilot groups' activities.

In May 2012 Dr Liba Brent visited Kyrgyzstan. The program of her visit included discussions of project activities at the CACSARC-kg Office, evaluation of products produced in spring 2012, and on-site monitoring of the pilot groups work.

Dr. Liba Brent, Svetlana Balalaeva and Kamala Abdykadyrova traveled to Naryn oblast from May 18 to 21 to conduct on-site monitoring of the pilot groups' work. The team visited five pilot groups in the villages: Min-Bulak, Lakhol, Kulanak village of Naryn district, At-Bashy and Acha-Kaindy villages in At-Bashy district.

Though the artisans started their work only in April due to the severe winter, all groups produced a large collection of products: chair mats, slippers and scarves.

New slippers in Kulanak village.

Min-Bulak artisans show their products made in 2012.

At-Bashy artisans show newly designed scarves to Dr. Liba Brent.

When visiting the groups in the villages, all products were carefully examined and evaluated based on numerous quality requirements including the quality of felting, design and color. The artisans received detailed comments on their products and consultations from designer Kamala Abdykadyrova. They also received visual aids for producing chair mats and scarves. Ms. Abdykadyrova explained to them how to use the visual aids in their work and answered their questions.

Kamala Abdykadyrova is advising artisans of the Lakhol village group.

Each group was provided with raw materials and tools for their further work: silk and tops for scarves production, shoetrees, cutout templates for slippers, etc. The raw materials were partially bought using the project funds, partially using the income from products sold in the USA.

In spring 2012 a new carding cloth was purchased for the wool carding machines in Min-Bulak and Lakhol villages. The old carding cloth was replaced on the both machines and the machines were tuned up. Now the artisans in Min-Bulak and Lakhol villages can easily card wool for felting.

Results of the monitoring:

1. The monitoring showed that all the pilot groups achieved progress in making quality products – they widened their portfolio of products and improved design and quality.
2. Each group includes several highly successful artisans who achieved the best results in design, dyeing and production techniques.
3. To learn how to fulfill orders from customers, the groups were given the task to copy specific scarf samples. However, the groups do not have professional designers and it is unlikely that they will be able to design scarves for export on their own. They will have to produce a line of scarves designed by professional designers for them.

4. Overall, the groups show an increased motivation and interest in the production of felt products as a way to earn income. Artisans in all groups are actively preparing for the Crafts Fair that takes place during the "Oimo" International Festival in July 2012 in Bishkek and Cholpon-Ata. All groups are producing handicrafts that will be sold during the Crafts Fair.
5. The production of felt slippers is most suitable for the Naryn artisan groups because it is not demanding in terms of raw material or design. The slipper production should be fully developed by the end of the project.

It should be noted that the project team tried to follow all the recommendations made by Dr. Liba Brent after the monitoring conducted in November 201, in particular:

- Taking into consideration that a sufficient number of trainings was conducted in all pilot groups, focus on organizing fellowships in Bishkek for the most advanced and motivated group members who are interested in developing handicraft business;
- Identify the most talented and responsible artisans among the project participants, who can successfully implement customers' orders;
- Request obligatory product samples from artisans before placing an order;
- Use raw materials economically; provide artisans with raw materials only when product quality is guaranteed;
- Use only fine Merino wool for scarves (not more than 21-22 micron), or factory tops;
- Develop models of felt slippers based on the imported Danish prototype; flippers have a good export potential and can be easily produced by the Naryn groups given their skills and technologies.

2.3.3 <u>Component 3:</u> Develop sustainable market chains that link fiber producers and processors with buyers.

2.3.3.1 Test-marketing of felt products at the local markets

During the reported period, the pilot groups continued actively to promote their products at the local markets: the Min-Bulak and Kulanak groups found buyers for scarves and slippers in Naryn, the At-Bashy artisans organized local fairs and the Acha-Kaindy group leader successfully sold the group's products at the fair in Bishkek. The Lakhol group has the most difficulties selling their products on the local market because of the remoteness of the village, bad roads and harsh climate. The project tries to assist the group by buying quality products and helping to sell them at artisan fairs in Bishkek and on regional markets.

Scarves, chair-mats and slippers produced by the Naryn artisans were successfully sold during the 2012 spring season to tourists and guests visiting the CACSARC-kg Office, at artisan fairs in Bishkek and during trips of CACSARC-kg staff members to Dubai, Tashkent and Dushanbe.

T. Amanova (Acha-Kaindy) at the fair in Bishkek, May 2012.

Analysis of product sales shows that the new export-oriented products produced by the Naryn artisans under the guidance of the project are in demand on local and regional markets and can successfully compete with products made by designers and artisans of Bishkek.

2.3.3.2 Test-marketing in the US

Test-marketing of felt products in the USA is being conducted by Dr. Liba Brent. In winter 2011-2012 the project sold felt products of Naryn artisans in the amount of $830, mainly scarves. Most products were sold at a Fair Trade Festival in Madison, Wisconsin in December 2011and some products were sold at a boutique called “Spirals” in Madison, Wisconsin in winter 2011-2012. Products that did not sell in 2011-2012 were left for test-marketing in winter 2012-2013. The small-scale test-marketing in Madison, Wisconsin is very important because it provides consumer feedback that helps the project team identify products that have the best marketing potential.

The test-marketing results suggest that some products, such as the felt and silk scarves, are more profitable to make because of the difference between the production cost and the sales price and because the scarves are light which lowers the transportation cost. On the other hand, products such as chair mats or pillows cannot be sold for high enough prices to make them viable export products. Chair mats, for example, are expensive to produce because of the high cost of raw material and labor and also high weight and bulkiness which makes them expensive to export to the US. These types of products are better suited for the regional market and the groups successfully sell them at crafts fairs in Kyrgyzstan.

Selecting scarves for test marketing in the USA
(Dr. Liba Brent, designers O. Potapenko and K. Abdykadyrova)

Based on test-marketing results in 2010-2011, the project focused on selling felt and silk scarves in 2011-2012. Scarves that did not sell at the Fair Trade Festival will be test marketed in winter 2012-2013. Although the demand for felt and silk scarves at the Fair Trade Festival was good and the scarves received many compliments, the overall market for luxury clothing and accessories in Madison, Wisconsin is limited. There are few stores that sell luxury, hand-made products, but some of those stores carry products made by local or US artisans only. For example, a manager of the Overture Center Gift Shop in Madison – a store that would be perfectly suited for marketing Kyrgyz luxury handicrafts – refused to sell them because they were not made in the USA. The production of felt-and-silk scarves for export is also dependent on a continuous support of the groups by a professional designer who can design these scarves for them. The Naryn groups cannot design scarves that could compete on western luxury markets on their own.

In order to expand the market for luxury felt accessories, it will be necessary to market these products in larger cities in northern United States. To solicit orders from retailers in these cities, it will be important to display the products at trade shows or crafts fairs that are visited by wholesale buyers. To do this, additional funds need to be allocated for test-marketing products, or the project team has to find buyers who would be willing to take the products to the trade shows. The project also plans to send samples of felt and silk scarves to potential retailers in these cities and to advertise them on the project website www.adventureyarns.com. In 2012-2013 the project also plans to produce and test-market the new version of felt slippers that are in the process of being developed.

2.3.3.3 Expanding markets

The project team works in different directions to expand markets for the products of Naryn artisans. Local markets: solicitation of orders from local consumers, organization of sales during the events conducted by CACSARC-kg and agreements on selling the products with boutique shops in Bishkek. In order to expand markets to the regional and international level, negotiations are held with potential importers of handicraft products from the USA and Belgium. Product sales are also organized through international commercial web sites.

The project team helps the artisans prepare for the International Annual Festival "Oimo" in Kyrgyzstan and also plans to support them in participating in crafts fairs in Kazakhstan and Russia. Results of the work aimed at expanding markets for the artisans' products will be submitted in final report in 2013.

2.3.4 Component 5: Linkages (business, scientific and cultural) between the pilot communities and the global communities of producers, processors and consumers of fiber and fiber products.

The project developed multiple new linkages between artisans of the pilot groups in the Naryn region, designers in Kyrgyzstan, local and international buyers of handicraft products.

- It linked Naryn artisans with Kyrgyz designers who provided consultations and conducted trainings on the development of quality new products.
- It linked the Naryn artisans with local wool producers and connected the producers and processors to local, regional and American markets by helping them to develop new products from local wool.
- The CACSARK-kg website (www.cacsarc.kg) posted information about the project including photos of the products of Naryn artisans that can be produced to order.
- Methodical aids on different handicraft techniques and design have been prepared and distributed to artisan groups.
- The number of women participants was increased by including the artisan group from Kulanak village, Naryn rayon in the project.

2.3.5 Lessons Learned

Contagious diseases needs to be better controlled.
The outbreak of sheep pox reduced the herd size of the project farmers by more than 20%.The project has to look into options of how to link the framers more effectively to veterinary services.

The higher wool prices in the last two years have triggered more interest in improving wool quality.
All pilot farmers are willing to develop semi-fine wool sheep production, as they realized the advantages of keeping dual-purpose sheep which provide income from meat and wool. The process for increasing the proportion of the semi-fine sheep is quite slow and thus a higher number of Tien Shan rams is required.

Products made for international markets can also be sold on local markets.
The project learned that quality new products designed for international markets could be successfully sold on local markets. For example, chair mats designed for international markets found an excellent market in Kyrgyzstan and also on regional markets. At the same time the project learned that such products would be difficult to export because of their weight and high production cost relative to the sale price.

Design-demanding products cannot be produced by Naryn artisans without designer support.
The project learned that it is important to select products for the groups that are only moderately demanding in terms of design and color. Products such as felt and silk scarves that are demanding in terms of design cannot be produced without the assistance of a skilled designer who will provide the groups with design and color combinations. If the groups are left to design these complex products without professional assistance and close monitoring, they cannot reach or maintain the desired standard.

2.4 Project Activities in Kerman, Iran

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

2.4.1.1 Improving breeding and animal husbandry practices focusing on fiber quality

The breeding program that had been established in March 2010 with eight nucleus flocks was continued. As previously reported, separate mating of the 40 best female goats with 2 superior bucks took place in each nucleus flock in 2011. The kids born from the nucleus were ear tagged in December 2011 and January 2012, their pedigrees and their weights were recorded. While four herds had stayed in Baft (the spring grazing area), the four others had migrated to the winter grazing area in Hormozgan province. These farmers were provided with ear tags and a punch to tag the kids.

A Raeini cashmere goat herd kept in the fence, May, 2012.

To ensure that superior bucks will be used for the nucleus flocks, fleece samples were collected from the two nucleus bucks and from 8 other adult bucks available in each flock; a total of 80 samples from adult males were taken. Another 80 samples were taken from 10 young bucks in each of the 8 herds. The samples were analyzed in Almaty Fiber Laboratory. Fleece weights of these males shorn in April-May 2012 were also recorded. The results on fiber diameter, cashmere percentage and other fiber characteristics were used to build an index to select the best adult and young bucks in each flock. The National Project Team plus Dr. Joaquin Mueller and Dr. Barbara Rischkowsky then visited each flock on 14 May 2012. Jointly with the owner and other family members of each nucleus herds, the pre-selected bucks were examined and the best young and adult bucks were selected based on cashmere quality, body size, conformation and the owner's preference (Table 12).

The two superior males will be used in the nucleus herd and the next best males in the base herd. Inferior males will be castrated. About 5 to 6 superior does from the base herd will be selected to replace does in the nucleus group.
A simplified breeding plan (Figure 1) was developed for the project site to make it easier for nomad farmers to follow the selection process once the project phase out.

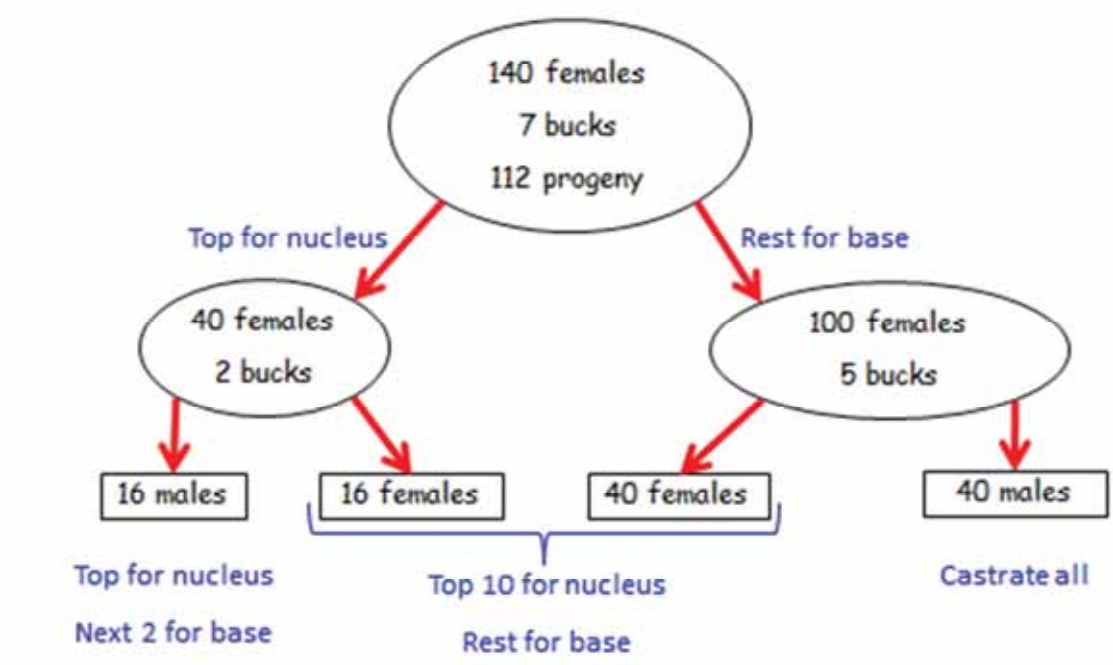


Figure 1. Simplified breeding program for an example flock of 140 females, 7 bucks and 112 kids

Table 12. Ear tag numbers of does and bucks used in the nucleus flocks in 2010 and selected bucks in 2011 and 2012.

Name of Farmer	Does and Bucks ear tag No.				
	Does in the nucleus flocks Ear tag No		Bucks used in 2010 Ear tag No	Pre-selected bucks for 2011 mating Ear tag no.*	Selected bucks for 2012 mating
Mehrab Ghassemi		1665-1669	1693	1337	Nucleus: 1338, 1336, 0070
	Green	1671-1680		1335	Baseline: 1335
		1682-1686		1336	
		1643-1650		1394	
	Red	1652-1659	1692	1393	
		1661-1664		1399	
Mahmud Ghassemi				1304	Nucleus: 1308, 0049, 0047
	Green	1241-1260	1777	1308	
				1306	Baseline: 0031
				1312	
	Red	1221-1240	1778	1317	
				1314	
Mohammad Mousapour (Namdar)				1324	Nucleus: 0010, 03621, 03565
	Green	1621-1640	1642	1327	
				1328	Baseline: 003620
				1332	
	Red	1601-1620	1641	1248	
				1331	
Ebadullah Mousapour				1360	Nucleus: 0084, 3596, 3682
	Green	1711-1730	1597	1367	
				1363	Baseline: 1360, 3632
		1688-1700-		1104	
	Red	1710	1689	1358	
				1357	
Dad Mohammad Mousapour				1349	Nucleus: 1079, 0087, 3742
	Green	1751-1770	1772	1350	
				1352	Baseline: 0090
				1341	
	Red	1731-1750	1771	1082	
				1349	
Alireza Mousapour (Rostam)				1373	Nucleus: 823, 2012 (7)
	Green	1781-1800	1775	1370	Baseline: 1369, 3668, 3667
				1377	
				823	
	Red	1781-1800	1774	1363	
				1370	
Sohrab Mousapour				1382	Nucleus: 0389, 0180, 03783
	Green	985-995	997	1383	
				1389	Baseline: 03790, 1382
				1268	
	Red	951-980	996	1265	
				1267	
Alireza Mohammad Gholi Mousapour				329	Nucleus: 175, 3551
	Green	1281-1300	1780	324	Baseline: 176, 3406
				326	
				1006	
	Red	1261-1280	1779	1019	
				332	

* The buck numbers shaded in grey were selected for the mating season 2011

2.4.1.2 Knowledge sharing and demonstration on breeding programs during the farmers' day on 13 May 2012

The purpose of the breeding program and the selection process (compare Figure 1 above) was explained to about 40 nomad cashmere producers that participated in the farmers' day (see 2.4.4 below).

The shortcomings of Raeini goat cashmere leads to specific breeding objectives: the need to decrease fiber diameter while maintaining the good staple length and curvature.

During the presentations the purpose of the breeding program and the most important points in implementation were explained to the nomad producers. The explanations included:

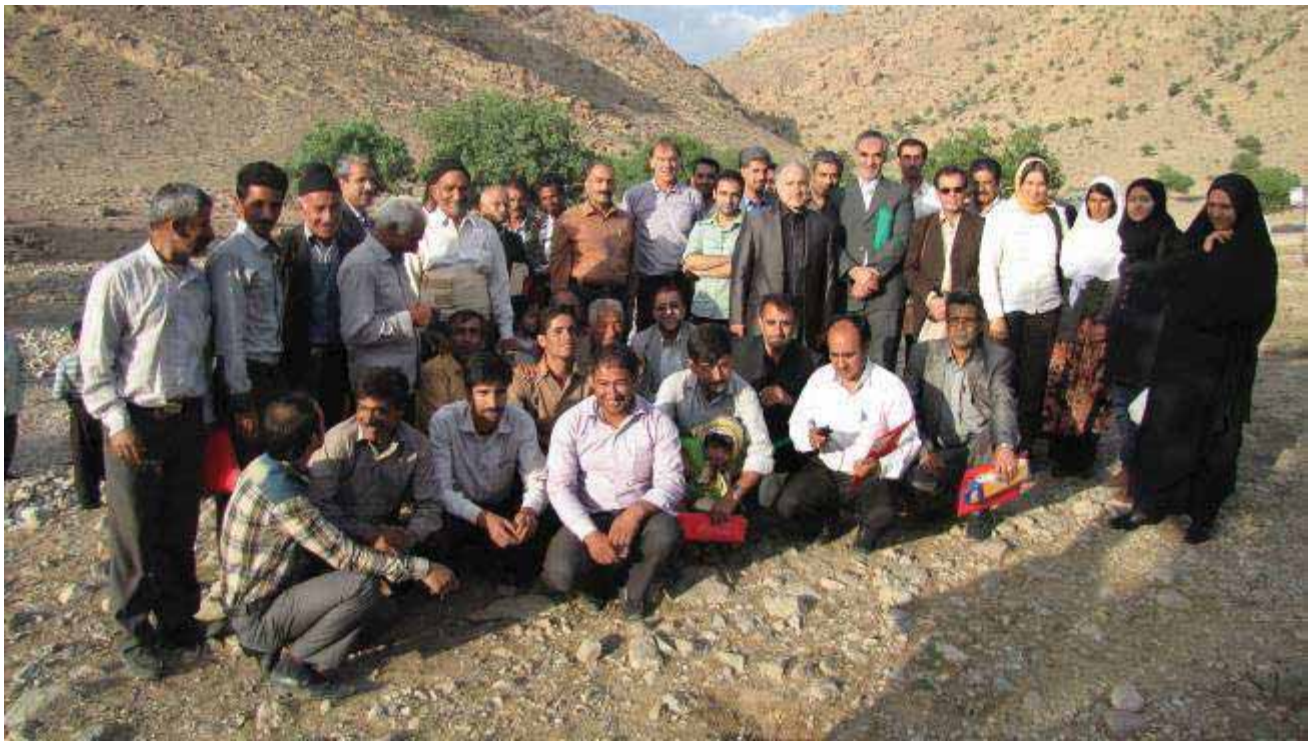
1. Increase the income of farmers by increased production.
2. Producing more and better cashmere.
3. More and better cashmere depends on environment and genetic merit of animals.
4. Improvement of environment means better nutrition, health, etc.
5. Improvement of genetic merit means progeny with higher fleece weights, higher cashmere yields and lower fiber diameter than the parent generation.
6. Selecting and mating the best males with the best females and discarding low producing animals.
7. Best animals are mated separately in a "nucleus" flock so that progeny born in the nucleus concentrate best genes.
8. Best males born in the nucleus are candidates for replacing inferior and old males in the nucleus and next best go to the "base" flock.
9. Selection of "best" males is based on objective fleece weight and visual fiber diameter assessment.
10. Males not born in the nucleus should be castrated to ensure that the progeny is produced from superior bucks.

In the practical demonstrations that followed the presentations in the tent, it was then explained to herd owners on how to select superior females and males based on visual assessment of fiber quality, such as fineness, curliness and density of cashmere fiber, and body size, conformation and condition.

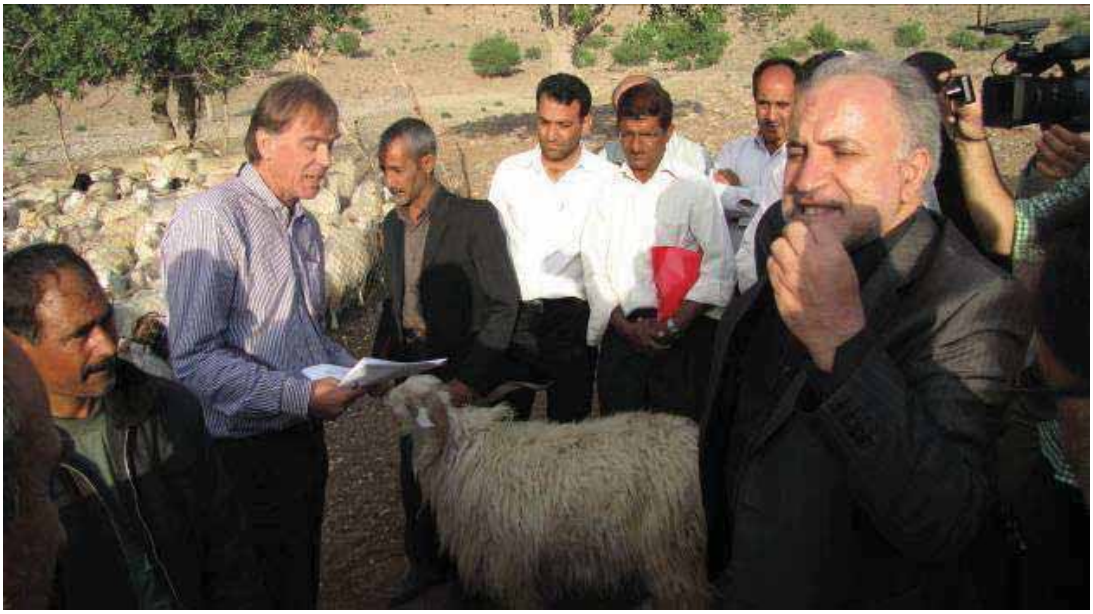
Using animals from the flocks of Alireza Mousapour and Masoumeh Mousapour, demonstrations included:

- Superior nucleus and their F1 progeny ;
- Selection parameters that should be considered, i.e. body conformation and condition of the animal, cashmere characteristics and color;
- Cashmere trait that were considered for selecting the superior does and bucks;
- Raeini cashmere bucks with high and low breeding values;
- Different cashmere qualities.

The participation of the farmers in the meeting gave them the opportunity to discuss the breeding program and to assess and compare their flocks with the demonstration flock. The participants raised questions on utilization of the improved bucks at the site and the breeding objectives directed to more cashmere and meat production.



Organizers and nomad farmers participating in the demonstration of selecting superior bucks, May 13, 2012.



Explanations on selection of superior bucks during the farmers' day, May 13, 2012.

Explanations on selection of superior bucks during the farmers' day, May 13, 2012 (cont.).

2.4.1.3 Introducing better cashmere harvesting methods

In early spring the cashmere goat breeds of Iran start a sequential, bilaterally symmetric pattern of shedding commencing on the neck, chest and shoulders spreading to the back and rump. As the goat owners shear their goats in mid-spring fiber about two months after the onset of the shedding season, a considerable portion of shed fibers is not collected and wasted. The reason of the herders for shearing late is that they fear that a late cold spell could kill shorn animals. Combed cashmere is cleaner, has a higher yield (cashmere to hair ratio) and longer fiber length. Since the value of raw cashmere is determined by yield and fiber diameter; the examination of the extent at which different types of comb can influence yield and fiber diameter is required to obtain maximum cashmere yield.

As reported earlier, an experiment to examine the two types of combs made available by the project was undertaken in April 2011. Combing was carried out in three sessions at 2 week intervals starting at the onset of the shedding season end of March. Forty non-pregnant

female goats of 1, 2, 3 and 4 years of age (10 goats per age) were selected randomly in one herd and divided into two groups of 20 goats each. The combed cashmere samples were analyzed at the Fiber Laboratory in Bariloche, Argentina. The results from the lab analysis were received in November 2011 and analyzed beginning 2012.
The short comb was more efficient by removing a higher amount of down. The short comb with shorter length and lower diameter of metal rods penetrates deeper in the fleece and collects more shed fibers than the long comb with longer metal rods with curved round tips of higher diameter. Consequently, combing took longer with the small comb 3.7 versus 2.8 minutes for each session.
One year old goats are very difficult to comb, since the cashmere is still very fine and soft and short combs which have shorter length and lower diameter of metal rods are better to use for these types of goats. This plus the fact that the younger goats have lower incidence of shedding and the cashmere has not loosened and started to separate itself from the skin makes it more difficult to comb than the older goats, where cashmere shedding is more prevalent. In one year old goats there is also a high risk to cut the cashmere fibers in the process of combing. This reduces the fiber length and hence the value of the cashmere. On the other hand if older goats, that shed early and have higher incidence of shedding, are not combed at the proper time, a considerable portion of cashmere is lost.
Optimal harvesting time varies widely per individual goats depending on age, and general health status. Shedding period not only varies between different ages of animals but also from animal to animal and even between different parts on the same animal and between follicles of different size. It is important to start combing when the individual goat is in the process of shedding. If combing starts too early, the cashmere would not comb out, and if combing starts too late, cashmere losses would occur because of natural shedding. The results show that fiber diameter standard deviation of cashmere combed in the first session is lower than that from second and third sessions.
The observations from this study help to determine the suitable time for combing, namely when the fiber at the mid-side and shoulder comes out relatively easily and is fairly free of guard hair but before it starts coming out in chunks. Knowing as much as possible about shedding pattern of goats and their genetic dominance will help shape the herd in a direction that is suitable to a particular schedule.

2.4.2 <u>Component 2:</u> 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.

2.4.2.1 Formation of a cooperative for women artisans

A cooperative for producing cashmere yarn and knitwear was formed and organized at the project pilot site under the leadership of Mrs. Najmeh Karegar and Mrs. Mahtab Mousapour. This organization started its activity at the end of 2011 with 6 nomad women but its members have increased to 11 in 2012.
The aims of this organization include:

1. Sell the raw cashmere directly to the processing factory in Mashad or Semnan.
2. Production of yarn using either simple electric spinning machines which will be imported from Tajikistan or traditional spindles.
3. Develop cashmere yarns and other products that target the market for cashmere yarn or finished products in the international market. If an adequate product quality can be

reached, the products can be offered at the project's marketing website (www.adenturesyarn).

4. Train cooperative members for producing good quality yarn.

Trainings for Nomad women in spinning cashmere yarn using electric spinning wheels imported from Tajikistan and for yarn dyeing is planned in Iran in July 2012. In both training programs the 11 women members of the cooperative will participate.
Practices for dyeing wool yarns using various natural and artificial dyes are well developed in the suburbs of Kerman city and in the vicinity of Baft city. Thus, the training can draw on local knowledge.
If producing high quality yarns for the international markets can be economically attractive for nomad women, then the project will import more electric spinning machines from Northern Tajikistan.

2.4.2.2 Yarn production training in Tajikistan

Mrs. Najmeh Karegar and Mrs. Mahtab Mousapour were trained in Asht, Tajikistan in May 2012.

Details on training

Theme: Making yarn
Date: 29 May-5 June 2012
Duration: 8 days
Trainer: Liba Brent and Ms. Abdulazizova,
Place: Markhamat village located about 200 kilometers from Khojand city in Sogd province.
Participants: Mrs. Naj Karegar, Agriculture and Natural Resources Research Center of Kerman Province and Mrs. Mahtab Mousapour, leader of women cooperative

The theoretical part included

- How to organize a yarn making cooperative for women
- How to make good quality cashmere yarn
- How to make handmade shawl, sock and gloves from cashmere fiber.

In the practical part the Iranian women worked side by side with the Tajik women on all aspects off yarn production.

Hand dehairing of Mohair: dehairing should be done from a clean part of fleece in order to make a good clean yarn.

Mrs. Mahtab Mousapour (right) practicing fiber dehairing with Tajik women, May 30, 2012.

Dehaired fiber is washed in clean warm water and liquid detergents for two hours. Washing is repeated with the same clean solution but for only 10 minutes. Last step is to wash the fiber with only tape water. Washed fiber is air dried for one day.

Tajik women is washing and rinsing mohair 30, May 2012.

Air dried cashmere is first opened by hand and subsequently a carding machine is used to further card the fiber.

Mrs. Mahtab Mousapour (middle) and Tajik women are opening mohair fiber, June 2, 2012.

Mrs. Mahtab Mousapour carding mohair fiber, June 2, 2012.

Electric spinning wheels are used in Markhamat to make yarn from carded Mohair. Five spinning machines are used in the cooperative to make single and double-ply yarn.

Mrs. Mahtab Mousapour (middle) is being trained on the electric spinning.

Knitwear mainly hats, sock, gloves and blouses are made from cashmere by another group of women and sold in European and American markets.

Dr. Liba Brent is testing the quality of machine made yarns, June 3, 2012 (left); knitwear made from Mohair by Tajik women, June 4, 2012

2.4.3 <u>Component 3.</u> Develop sustainable market chains that link fiber producers and processors with buyers

Barbara Rischkowsky, Joaquin Mueller and Hamid Reza Ansari-Renani visited the Sefit Pajan cashmere processing factory in Semnan province factory on 16 May 2012. The Sefit Pajan mills scours and dehairs about 15% of the locally produced cashmere and 10% of

Afghanistan clip. At Sefit Pajan raw cashmere is processed in several stages: hand sorting, scouring, machine dehairing, and then packed for export to European countries.
After visiting the different processing lines of factory, a meeting took place with Mr. Jahani the shareholder and the head of the executive board of the factory. It was decided to collect raw cashmere from the eight project nucleus herds and sent it to the factory for laboratory analysis and testing with the aim to evaluate the cashmere quality from the nucleus herds in direct comparison with the cashmere that the factory receives through its usual channels (middlemen). The results will indicate if the factory would be willing to pay a higher price for the cashmere from the project herds.

Cashmere kept in bags and stored in Sefit Pajan processing factory, Semnan province, May 16, 2012.

Dehairing, scouring and bailing machines and bales of processed cashmere for export at Sefit Pajan processing factory, Semnan province, May 16, 2012.

2.4.4 Component 5: Linkages (business, scientific and cultural) between the pilot communities and the global communities of producers, processors and consumers of fiber and fiber products

2.4.4.1 Farmers' Day linking, governmental organizations, research and nomad communities

A Farmers' Day was held in the grazing areas near Baft city on 13 May 2012 with the aim of sharing the goals and achievements of the IFAD-ICARDA project during the last three years.

Banner of the Farmers' Day

Details of Farmers' Day program

Date:	13 May 2012
Place:	Zarab area, Baft city, Kerman province
Site:	Alireza Mousapar and Masoumeh Mousapour farm
Participants:	120 government officials, scientists and nomad farmers
Duration:	4 hours

The Farmers' Day was attended by 120 participants including a number of government and agricultural research representatives, such as Provincial and Local Government, National, Provincial and Local nomadic Organizations, Provincial and Local Livestock Departments, Provincial and Local Agricultural Organizations, National and Provincial Animal Sciences Research Institutes, ICARDA and INTA Scientists and Nomad farmers.

Farmer's Day took place at Alireza Mousapour's tent in Nomadic region of Baft, May 13, 2012.

Group of participants including governmental officials and farmers, May 13, 2012.

The Farmers' Day was hosted by the Animal Sciences Research Institute (ASRI) and ICARDA. It took place in Alireza Mouapour's tent, one of the eight nomads keeping nucleus herds.

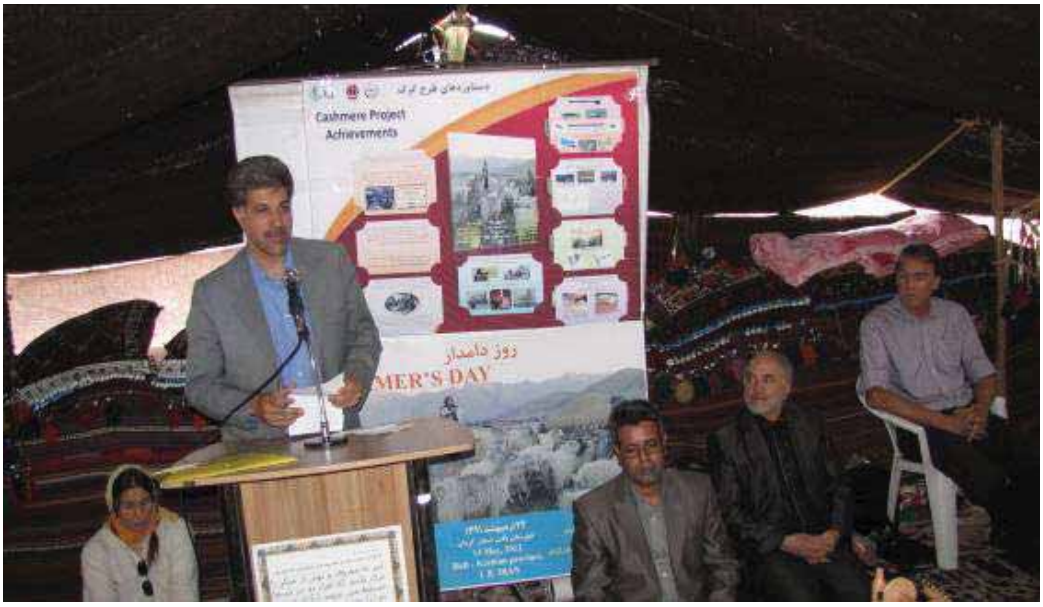
Welcoming speeches

In the first welcome statement, Dr. Seyed Reza Hosseini, Baft city Deputy Governor greeted the participants of Farmers' Day and emphasized the need to put the cashmere processing factory of "Kerman Kork" in Baft back in operation. He pointed out the good progress the cashmere project achieved in the first three years, but said that integration of the different project components remains challenging. He thanked the International experts and all scientists from Iran working very hard for this project and the farmers and beneficiaries who participated in the Farmers' Day for coming and sharing their ideas and experience.

Dr. Seyed Reza Hosseini, Deputy Governor of Baft city, giving a welcome speech, May 13, 2012.

In the following welcome address, Dr. Hormoz Mansouri (Head of Animal Sciences Research Institute) and Dr. Alireza Shakeri (Head of Kerman Province Nomad Organization) advised that the cashmere project is led in Iran by the Iranian National Animal Science Research Institute with the aim of achieving sustainable improvement in the cashmere production, processing, yarn making and marketing. They emphasized that these components are interrelated and require an integrated research approach.

Dr. Hormoz Mansouri, Head of ASRI, giving a welcome speech, May 13, 2012.



Dr. Alireza Shakeri, Head of Nomad Organization of Kerman Province, giving a welcome address, May 13, 2012.

Scientific presentations

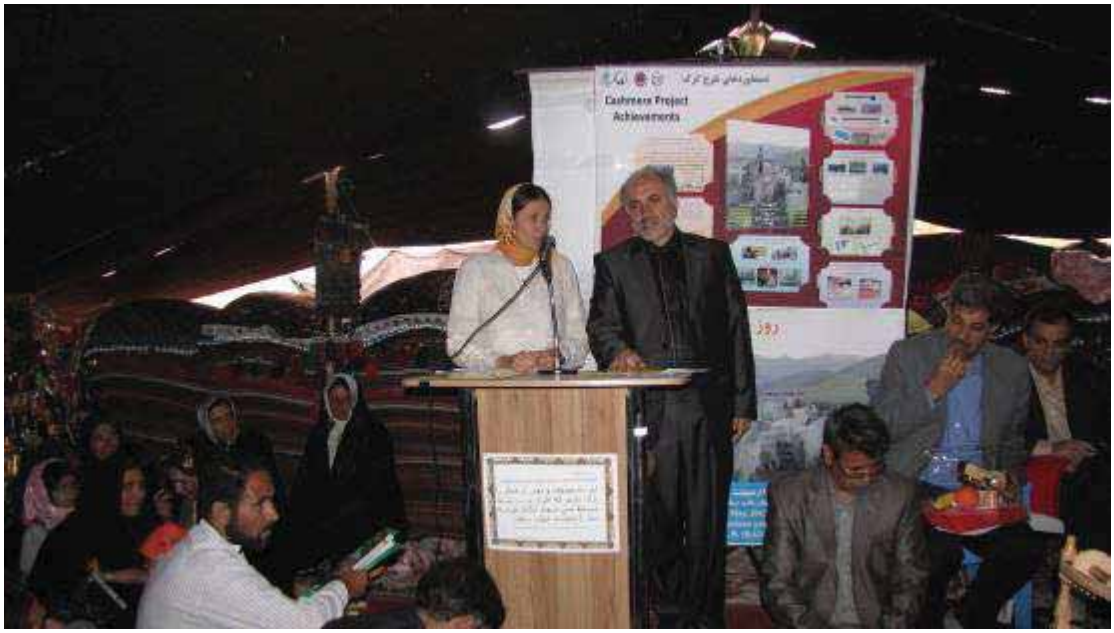
In the following presentation, Dr. Hamid Reza Ansari-Renani, the Coordinator of the Cashmere Project in Iran and the host of the Farmers' Day discussed the situation of cashmere production in Iran and the interaction of cashmere producers with cashmere buyers and processors. He explained that Iran is the third producer of cashmere of the world after China and Mongolia and stressed the role of cashmere production in the nomadic region of Baft. Dr. Hamidreza Ansari-Renani shared the results of the research activities with the nomad farmers related to the production systems survey, cashmere quality, the breeding program and the marketing study.

An eight page-handout was distributed to the participants summarizing the scientific findings. The handout described:

- Achievements and constraints of cashmere project
- Importance of cashmere processing and production of good quality yarn
- Marketing and processing difficulties of farmers
- Community based breeding programs suitable under nomadic conditions
- Capacity building
- Role of women in the management and production of yarn
- Role of government organizations in enhancing and supporting the production of cashmere by adopting proper policies
- Comparison of cashmere prices in the international and national markets
- Dehairing and processing of cashmere using small scale equipment.

Dr. Hamidreza Ansari-Renani, Project Coordinator in Iran and organizer of the Farmers' Day, addressing the participants, May 13, 2012.

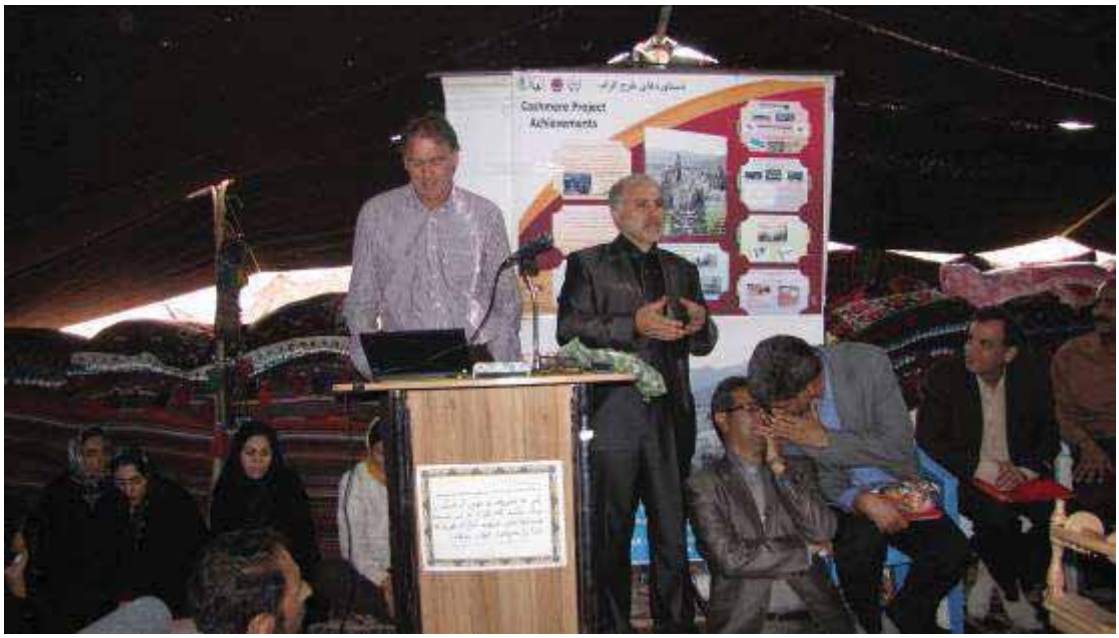
In the following presentation, Dr. Barbara Rischkowsky, Project Manager, thanked all participants for attending the workshop. Then she briefly mentioned the project sites and target groups. She indicated that farmers need to improve the cashmere diameter of Raeini goat in order to remain competitive in the international market. She further emphasized the role of nomad women in producing high quality cashmere yarn.



Dr. Barbara Rischkowsky addressing the participants, May 13, 2012.

In the following presentation, Dr. Joaquin Mueller, Principal Investigator on Animal Breeding, talked about the establishment of a cashmere goat breeding system in Baft. He described the options for genetic improvement schemes and provided background information for the Baft breeding program. Then Dr. Mueller discussed the suggested cashmere breeding system and introduced the nucleus management system. He also

highlighted next steps for development of the breeding program.



Dr. Joaquin Mueller addressing the participants, May 13, 2012.

At the end of the presentations of Farmer's day program, spinning wheels and carding combs imported from New Zealand and Tajikistan were handed over to the women cooperative.

2.4.4.2 International and national scientific linkages through papers and conferences

Scientific publications

1. H.R. Ansari-Renani, J.P. Mueller, B. Rischkowsky, S.M. Seyed Momen, O. Alipour, M. Ehsani, S. Moradi (2012). *Cashmere quality of Raeini goats kept by nomads in Iran*, Small Ruminant Research, 104: 10-16, published.
2. *Nomadic pastoralism in southern Iran*, submitted to Rangeland Journal.
3. *Comparison of two combing methods using long and short combs on cashmere characteristics*, submitted to Small Ruminant Research.
4. *Marketing of Iranian cashmere,* in preparation.

Contributions to national conferences

1. Ansari-Renani, H.R., Rischkowsky, B., Mueller, J.P., Moumen, S.M.S., Moradi, S. 2012. Nomadic Pastoralism in Southern Iran (Oral Presentation). Tropentag 2012: Resilience of agricultural systems against crises, September 19-21, 2012, Goettingen-Kassel/Witzenhausen.
2. Ansari-Renani, H.R., Mueller, J.P., Rischkowsky, B., Momen, S.M.S., Alipour,O., Ehsani, M., Moradi, S. 2012. Cashmere Quality of Raeini goats kept by nomads in Iran. The Second International Seminar on Animal Industry, 5-6 July 2012, Jakarta, Indonesia, pp. 27,

Contributions to national conferences at Isfahan and Kerman Universities (oral presentations published in proceedings):

1. *Comparison of two methods of cashmere combing using long and short combs*, presented to 5th Iranian Congress on Animal Science, Isfahan University.
2. *Sheep and goat management by nomads in Southern Iran*, presented to 5th Iranian Congress on Animal Science, Isfahan University.
3. *Livestock species kept by nomadic communities of Southern Iran*, presented to 17th National and 5th International Iranian Biology Conference, Kerman University.

Support for PhD. and MSc. Theses

Topics for one PhD and one MSc. thesis were proposed for Mrs. Najmeh Karegar and Ms. Fatima Amirinia. The PhD was proposed to focus on *Breeding objectives and selection criteria for nomad small ruminant flocks in Kerman Province* and the MSc on *Production parameters of nomad small ruminant flocks in Kerman Province*. Joaquin Mueller proposed outlines for the theses and provided core literature references in May 2012.

2.4.5 Lessons learnt

Traditionally, farmers do not pay attention to cashmere fineness when culling or selecting goats.

The farmers learned to consider various factors that affect the productivity of their herd and how to evaluate their goats based on cashmere quality traits. However, they will only continue the breeding program when better cashmere quality will be paid for.

At present there is no incentive for combing.

The herders have no incentive to laboriously comb the valuable cashmere from their goats, since buyers usually accept the fleeces and at present there is no market for combed cashmere. Sorting and grading of fleeces could have a substantial effect on improving the cashmere quality provided the correct methods are used and the buyers pay a price differential. The Semnan cashmere factory will test combed cashmere for the project to decide the value and appropriate price.

Non-dehaired cashmere fiber cannot be processed with the local equipment in Northern Tajikistan.

The training in Northern Tajikistan clearly revealed that Iranian cashmere could not be processed without professional dehairing. However, dehaired fiber from the factory is very expensive at $110/kg and thus, very difficult to add value to.

Farmers' Day created linkages between scientific, governmental and nomad communities.

The Farmers' Day created awareness for the project activities and the opportunity for a dialogue between nomad farmers, research organizations and the government. It is expected that this may lead to an interest in taking over the project activities after the project phases out. The meeting provided a good opportunity for some demonstrations and discussions on the breeding program with nomads not participating in the breeding program. .

3 Progress towards grant purpose and goal

3.1 Northern Tajikistan

3.1.1 Progress in improving breeding using imported genetics

The project imported nearly 2,000 doses of frozen Angora goat semen from the USA to Tajikistan, inseminated local goats and received first offspring in spring 2012. Farmers who received the offspring are very excited about the possibility of working with the crosses to improve the quality and productivity of their flocks.

3.1.2 Scaling up fiber processing

In the spring 2012 the project team purchased mohair clip and implemented a new model of fiber processing that incorporates all key processing operations. Each operation was improved in 2012 and the new model, discussed below, is now fully functional.

3.1.2.1 Centralizing & scaling-up mohair purchase, using advertising and training women leaders to class, sort and purchase mohair.

The purchasing system set up in 2011 was further developed in 2012. The team used advertising and expanded the group of farmers and traders who sell mohair to the project. Sorting, grading and pricing system for kid and adult mohair was developed and applied. Lead women processors were trained in mohair sorting and purchasing and will be able to run the purchasing system on their own, without the help of the project.

3.1.2.2 Yarn production model was developed; women's group leader was trained to manage all components of yarn production.

The project team decentralized yarn production into dehairing, scouring, carding and spinning and the activities are now well organized. The dehairing group is trained, the payment for dehairing is established and the project team transferred the operation under the control of the group leader. Carding is also well organized. The project was able to purchase a carding machine for the group and the operation runs smoothly. Scouring was organized by the group leader but a water pipe needs to be built to improve the process. Yarn spinning is also under the control of the group leader. The price for 1 meter of yarn is attractive and new spinners continue to join the group. The leader works closely with the spinners to monitor quality and trains new spinners – she receives and evaluates their samples and once they pass the quality control test she includes them in the group and gives them dehaired mohair to spin. The group leader is responsible for the quality of the final product. She adds 10% surcharge to the cost of spinning and dehairing for organizing these activities.

The accounting system for specific operations has been developed and the group leader keeps financial and other business records together with the project representatives. The figures can be used to assess the profitability of yarn production and evaluate prospects for upscaling the processing.

3.1.3 Progress in knitting and weaving – work with AltraQualita and new samples of mohair blankets produced

The project made progress in knitting and weaving. The lead knitter, Mrs. Khaitova, is organizing a knitting group and trains 30 women who are interested in knitting products for export. In June 2012 the group produced samples of hats and scarves for the Italian fair trade company AltraQualita and is well positioned to receive orders for these products in the fall 2012. Another knitting group was set up in Shaidana village in the spring 2012. This group includes talented knitters and has a good potential to succeed in making export products.

Leaders of the spinning and knitting groups collaborate well – the spinners are producing specific types of yarns based on the knitters' orders, for example a thicker yarn for hats and scarves for AltraQualita.

The project made progress in working with mohair weavers. Weaving group led by Mrs. Shaira Kosimova produced new models of luxury mohair blankets. These blankets can be exported or sold in gift shops in Dushanbe. The project began collaborating with two Tajik artisan groups in other regions on making mohair carpets.

3.1.4 Progress in new collaborative and business partnerships

In 2012 the project established a new business partnership with AltraQualita, working on developing knitted products for export to Italy. The project also established a contact with Peace Fleece, an American yarn-making company that is interested in buying Tajik mohair and products. Mohair magic yarn received a new exposure through an online magazine Knitter's Review. This generated more interest from distributors and yarn shops in selling Tajik mohair yarn in the United States.

The project team made progress in arranging yarn shipment for a reasonable rate by working with a Dushanbe-based NGO. The NGO can help ship 50 kg of yarn and products to the USA with Turkish airlines for around $10/kg.

3.2 Badakhshan, Tajikistan

3.2.1 Offspring from imported bucks in 2012 in spite of harsh winter conditions in 2011/2012

The project received a number of offspring from the Alai bucks in 2011 and 2012 (73 and 122 respectively) and the hybrid animals are showing signs of improved fiber production. The organization of breeding nuclei went well and the number of offspring would have been even higher had there not been for the severe winter in 2011 during which scores of animal all over Tajikistan starved to death, many does aborted and many kids died from malnutrition and cold. The harsh winter conditions especially affected the Badakhshan region that has limited sources of animal feed, is isolated and difficult to reach during winter months.

3.2.2 The project expanded fiber purchasing to Roshkala valley

The project expanded to working in Roshkala region which provides a good source of breeding animals and fiber for processing. The collaboration between the Ishkashim and

Roshkala regions on fiber harvesting, processing and breeding will benefit goat producers in both regions.

3.2.3 The project organized dehairing of Ishkahsim fiber in Herat, Afghanistan

With the kindly assistance of AKF and Afghan cashmere processors, the project organized cashgora dehairing in Herat, Afghanistan in July 2012. This will allow the processing groups in Badakhshan to make progress on spinning yarn and knitting products from dehaired local fiber.

3.2.4 The project established a strong processing group in Andarob village

The processing group in the Andarob village is very active in organizing yarn spinning and expected to make good progress in producing quality yarn. Many women from other villages are receiving training in yarn spinning using electric spinning machines imported from Asht from the group leader Mrs. Dzholnamo. The leaders of the Andarob group were trained in key operations including fiber grading, sorting and purchasing and two women from the group were trained as trainers in Asht by the leader of the mohair processing group.

3.3 Naryn, Kyrgyzstan

3.3.1 Improving management and homogeneity of smallholder sheep flocks

The project improved the homogeneity of flocks by gradually replacing fat-tailed coarse wool sheep by Tien Shan offspring. The semi-fine wool produced by the target flocks in Lakhol has already reached a quality which allows the artisan groups to use it for felt products.

3.3.2 Increasing capacity of women's groups to produce competitive products

The project increased the capacity of all felting groups to produce quality, well-designed products for domestic and international markets. This has been achieved through numerous trainings in felting technologies and design and procurement of felting equipment such as carding and felting machines. Mastering new felting technologies and design allowed the artisans to expand product assortment and improve quality. Felting equipment helped the groups increase productivity and decrease the amount of hard and time-consuming manual labor. Increased production capacity and assortment of quality products directly contributed to increased product sales and earnings documented in the report.

3.3.3 Improving group management by identifying and promoting leading craftswomen

The project helped improve internal organization and management of felting groups by promoting artisans who displayed the highest level of personal motivation and craftsmanship. The project sponsored competition between the groups and artisans within the groups and rewarded the winners with monetary prizes and additional training. The team also encouraged the promotion of the best felters into leading positions within the groups. The most talented felters were given more authority to monitor product quality and train and mentor other felters. This initiative helped improve product quality and volume of sales for the groups.

3.3.4 Expanding assortment of products by introducing new design for local and international markets

The groups are located in some of the most remote areas of Kyrgyzstan. Their isolation from urban centers and markets makes it difficult for the artisans to design products for urban, middle or upper income customers, domestic or foreign. The project helped the groups develop new products such as chair mats and felt slippers that found a strong market demand. Sales of products designed with the help of the project have been increasing each year. In addition the groups started to pay more attention to the importance of design and became more active in design innovation.

3.3.5 Expanding market access for felt products

The project has helped the groups to expand market access. CACSA promoted their products on local and international markets and the groups participated in local and regional arts and crafts fairs where they sold their products. The groups are becoming more skilled and sophisticated in marketing their products and actively prepare for the craft fairs. They not only earn income from product sales but also receive direct feedback from customers and can compare their products with felt handicrafts made by other groups. The marketing experience helps them to adjust product assortment, quality and prices.

3.4 Kerman, Iran

3.4.1 Breeding program

The breeding program in the eight pilot farms is well on track and the Iranian researchers have developed a good routine in data recording and sampling despite the difficulties posed by spatial and seasonal mobility of the flocks. A simplified selection scheme is being developed and has been initiated to make it easier for the researchers and nomads to continue the breeding program without international support.

3.4.2 Progress in linking cashmere producers to cashmere processors

The project is testing the feasibility of a direct link of the nomads to cashmere factories. Such a link could provide the incentive to produce higher quality cashmere at a large scale. The factory management clearly indicated that they would be willing to pay a higher price better for a guaranteed quality that increases their product price. The factory management is facing difficulties to get high quality raw cashmere from middlemen because the high price per weight leads to various methods of manipulating the fiber weight which decrease the quality.

3.4.3 Progress in evaluating yarn processing methods for Iran

The project was able to evaluate non dehaired cashmere from Iran during the training in Tajikistan. This helped to clarify the options for yarn production in Iran as it is now clear that the cashmere requires professional dehairing which makes it expensives. . The project team concluded that Iranian cashmere could not be processed without professional dehairing. However, the dehaired fiber from the factory is very expensive at $110/kg and thus, very difficult to add value to.

4 Shortcomings and problems encountered in grant implementation and actions taken

4.1 Northern Tajikistan

4.1.1 Extreme winter weather and its effects on livestock production

Livestock production in Tajikistan has been negatively affected by extreme winter weather. Farmers collaborating with the project were affected but the project was able to assist them with feed and information. It is likely that the cold weather might have been one of the reasons why the insemination rate in the breeding nucleuses was much lower than expected. The project needs to work with the farmers to develop strategies how to protect their livestock during harsh winters.

4.1.2 Low insemination rate using imported frozen semen.

Expected insemination rate using frozen semen in goats is about 40%. The insemination rate using imported frozen semen in 2011 was only 7%. The project team plans to analyze the 2011 insemination process and take measures to improve the process during insemination in 2012.

4.1.3 Challenges in expanding and improving processing: need for credit and investment resources for the groups

In order to produce luxury yarn, the spinners need funds to buy raw mohair and pay for dehairing, scouring, carding and shipping. Based on the project estimates, each processing group of 40-50 women requires approximately $12,000 to finance these operations. Other groups also need prefinancing – knitters and weavers need to purchase yarn and equipment to make knitted products, blankets and carpets. The project is currently supporting the groups and some of the funding will be returned after yarn and products are sold in winter 2012 – 2013. However, the groups will need a stable source of funding after the project ends. The team will work with the groups on developing possible financing mechanisms.

Credit, investment or other funding sources are also needed to upscale the project and provide income opportunities for additional women. The project could expand by setting up additional processing groups. However, each new spinning group requires funds to purchase equipment and set up basic infrastructure: spinning wheels, solar panels, carding machine, running water, dyeing and spinning facilities. Funds are also needed to train women in spinning, carding, scouring, dyeing, business management and accounting.

Additional weaving groups also cannot be established without additional funds. The project purchased its single weaving loom for $3,000 through a small training grant from FAO. This loom can support one small group of weavers who are now producing blankets for export. Many other women want to learn blanket weaving which is easier than spinning or knitting. However, additional weaving groups cannot be established without the purchase of additional looms or the establishment of local production of looms. Similar constraints currently exist in carpet making. The project does not have funds to purchase or build carpet looms or to rent a facility where these looms could be housed. This makes it difficult to expand into carpet production.

4.1.4 Strong, direct linkages to buyers and designers

The groups are located in some of the most remote areas of Tajikistan, far from lucrative markets and design centers. They need practice and assistance in fulfilling orders and interacting with foreign buyers. The team will work to strengthen linkages between the groups and companies such as Clothroads, Peace Fleece and AlraQualita by helping to arrange shipments of yarn and products to these companies in 2012 – 2013. Assistance in linking producers and buyers can also be provided by a local NGO that has English-speaking staff and experience in working with artisan groups and international buyers on product development and export. One such NGO in Tajikistan is CESVI and another is GIZ. The project plans to inquire about obtaining support from these organizations.

Close linkages with buyers are important not only for product marketing but also for product design. Tajik knitters and weavers are not designers and know very little about western fashion styles. It would be unrealistic to expect they could design luxury, high-end products for western markets. It is important that the groups work with buyers who know the market and can provide them with clear guidance and instructions in terms of design and quality standards. Companies such as Clothroads, Peace Fleece and AltraQualita have experience working with artisans in developing countries and could collaborate with the groups on product development and marketing.

4.1.5 Cultural challenges: improving women's capacities to move, communicate, borrow money and lead a business

It is important to carve a space for women-led business in the context of gender roles and traditions some of which can create obstacles for business development. Living in a conservative, patriarchal culture makes it difficult for Tajik women to engage in some business activities. Since childhood, women are trained to be submissive and dependent as opposed to being leaders and entrepreneurs. They are responsible for all household chores, childcare and management of demanding and frequent family events (holidays, weddings, funerals). In some cases talented young women are not allowed to travel outside of the village for trainings, cannot go to exhibits or visit the capital city to market their products. These types of restrictions and expectations can be in direct conflict with a woman's aspiration to control her own time and resources and use them to develop a business.

In order to support women in creating rural businesses, the project staff needs to have a solid presence and relationship in the community. Provided that the project staff has a sufficient amount of social capital, it can work creatively with women and men in the community to carve a new space that facilitates entrepreneurial activities of individual women and women's groups. This can be accomplished by identifying issues that hinder a woman's advancement, discussing these issues with her husband, family and community, and collaborating on creative solutions that open new opportunities for the women without creating friction within the family and the community.

4.2 Badakhshan

4.2.1 External shocks including extreme winter weather

Badakhshan is a poor, remote and isolated region with limited natural resources such as agricultural land and rangelands. As a result the rural population relies on substance production for livelihood. The rural households are not prepared to easily withstand environmental shocks such as severe winter weather that can decimate their livestock – one of the only sources of protein and savings. These shocks also impact project activities such as the breeding program, fiber collection, etc. The project will propose solutions for improving winterfeed in terms of volume, quality and also storage.

4.2.2 Organizing full processing chain in 2012-2013

In spite of the progress, the team and the Badakhshan processors will have to work hard to complete the full processing and marketing chain. The spinners still need to purchase a carding machine for fiber, develop a dyeing workshop for yarn and make sure that their spinning skills on the new electric spinning machines are fully developed so they can process their expensive fiber into yarn that meets the market standard.

4.2.3 Issues regarding financing of fiber purchase and processing and strong linkages with buyers

The groups in Badakhshan will face some of the same issues as the groups in northern Tajikistan in regard to making the processing sustainable. They will need sources of financing to purchase and process fiber, strong linkages with buyers and designers to process the fiber into high quality, well-designed products that can compete on luxury markets, and institutional support to successfully export their products.

Similar to northern Tajikistan, the project has to develop the organization and management of the spinning groups. It also needs to search for sources of funding for yarn production and marketing given that the spinners and knitters are poor and have no capital to invest in their business. The project plans to use experiences from northern Tajikistan to organize spinners in Badakhshan. The methods of financing used in Badakhshan would be similar to those in northern Tajikistan: a rotating fund as an initial source of capital and micro-finance options.

4.3 Kyrgyzstan

4.3.1 Improving the small and heterogeneous sheep flocks takes time

The farmers in the target villages used to keep sheep without a clear production goal and thus, the sheep flocks in the villages consist of a mix of breeds. As the flock size is very small, introducing improvements in flock structure and working towards more homogenous flocks for producing meat and semi-fine wool of an acceptable quality is a slow process and higher benefits will only be achieved gradually.

4.3.2 Isolation of the groups limits their capacity to design competitive products

The remoteness and isolation of the felting groups as well as lack of professionally trained designers among the artisans makes it difficult for them to design sophisticated products that can compete on local and especially international markets. To minimize their dependence on external designers, the project helps them to select and make simple products that can be reproduced in large quantities without changes in the design. The project is designing a collection of felt slippers that fit this criterion and can be produced in large quantities for domestic and export markets with minimal design changes. The project also works to strengthen linkages between the groups and professional local designers who can advise the groups after the project ends.

4.3.3 Severe climate in Naryn presents challenges for organizing the felting process

The groups operate in climate zones where winter lasts 7 months and longer and is often severe. The workshops of most groups do not have adequate heating during winter months and the women have to work at home instead. Also, certain operations that require the use of water such as wet felting cannot be done in winter. The groups have to plan felt handicraft production well to ensure that these obstacles do not jeopardize the production process. They also need to focus on products that require dry as opposed to wet felting technique and can be made at home during the winter. The project is helping the groups develop these types of products and to effectively organize the production process throughout the year.

4.3.4 Felt handicrafts occupy a niche market that is highly competitive and fluctuates frequently

The felt artisans produce for a niche market that changes based on whether felt products are in fashion or not. The Kyrgyz felters also have to compete with felting groups from Nepal and India that have been exporting felt handicrafts to the United States and Europe for many years. This creates challenges both in terms of product design and marketing. The project team works on selecting products that can withstand changes in felt fashion and that can successfully compete against other felt handicrafts. Felt slippers designed by the project team are the type of product that can withstand both competition and changes in felt fashion. The project will help the groups find domestic and foreign markets for the slippers.

4.4 Iran

4.4.1 No capacity for fiber quality analysis in Iran

To ensure good breeding progress in fiber quality, a fiber laboratory in Iran would be required. The Kerman Research Institute should invest in such a laboratory to serve the fiber producing farmers in the province. However, the project has proposed a simplified selection scheme for Raeni bucks based on visual inspection only so that the breeding program can be continued without this support.

4.4.2 Difficulties in organizing training of Iranian women groups

As reported earlier, the project encountered major difficulties trying to identify qualified women from the nomad farmers to be trained on yarn production in Tajikistan. It was very challenging process to ensure that all procedures required by the authorities were met. Several previous attempts to send women to Tajikistan for training failed because the travel permission was either denied by the family of the potential trainees or the authorities. The project was able to overcome these problems in May 2012.

4.4.3 Lack of dehairing facilities

A big challenge for developing economically attractive cashmere yarn production is the lack of small and easy to operate dehairing facilities in Baft which is a precondition for producing quality yarn acceptable for export. Dehaired fiber from the factory is difficult to access for the women and very expensive.

5 Other events and relevant issues during the reporting period

All relevant events were described in the report on pilot sites.

6 Summary and recommendations

6.1 Major accomplishments and main constraints during the reporting period

Overall, the project is on target regarding proposed activities in breeding and fiber processing. There were no changes in the number of participants in Tajikistan, Kyrgyzstan and Iran since the last report.

6.1.1 Sogd, Northern Tajikistan

Accomplishments:

1. First crosses of Tajik and American Angora goats were born in March 2012 after the team inseminated nucleus does with frozen semen imported from USA in October 2011.
2. The mohair procurement system has been improved through advertising.
3. Mohair processing has been improved and scaled up through decentralizing production into key activities. The processing activities were place under the control of capable women's group leader.
4. A carding machine was purchased for the groups.
5. The linkages between producers and buyers have been strengthened – producers are currently making products and product samples for AltraQualita, Clothroads and other companies.
6. Women in Taboshar made progress on weaving mohair blankets for local and export markets.
7. Another knitting group was set up in Shaidana village.

Constraints**:**

1. Severe winter weather strongly affected livestock producers in Tajikistan. The country lost around 30% of its livestock due to shortage of feed and low temperatures. Farmers participating in the project were also affected, although less severely.
2. The insemination rate while using frozen semen was very low – a mere 7%. The insemination procedure needs to be improved in 2012.
3. Mohair processing is a complex operation and women require practice and experience to perform all processing tasks according to standard. Failure in maintaining standards could cost the groups orders from buyers.
4. Accounting system is being developed but women's groups need access to financing to become sustainable.
5. The spinners and knitters in Asht do not know English or Russian and do not have computer skills. The project is training a representative who can mediate between them and foreign buyers.
6. In order to upscale processing activities such as weaving, the project would need to invest into purchasing or setting up a local production of looms.

6.1.2 Badakhshan, Tajikistan

Accomplishments:

1. 122 kids from the imported Altai bucks were born in the pilot villages. The kids are showing superior fiber quality.
2. The project was able to arrange cashmere dehairing in Herat, Afghanistan. The quality of the dehaired fiber is good. The dehairing plant in Faizabad, Afghanistan, near the project pilot site, is being built.
3. The mohair procurement system developed at the pilot sites works very well.
4. Spinning machines for the women groups were procured in Asht regions and delivered to Badakhshan.
5. The women and men in the pilot region are actively collaborating with each other and the project on setting up a community-based center for cashgora processing. Women are very interested in learning to spin and knit with the fiber.
6. The project started collaboration with goat and fiber producers in Roshkala region.
7. Women leaders from Badakhshan underwent training in processing and management in Asht. They brought and processed their own fiber in Asht.

Main Constraints**:**

1. The villagers in the pilot region were severely affected by the harsh winter weather and lost nearly 75% of goat offspring, many of which were of the imported Altai bucks.
2. The goats were in a critical condition in the spring as a result to malnutrition and the women could not comb most of them. The volume and quality of fiber combed in 2012 was low.
3. The women in Badakhshan have less experience in spinning than women in Asht and need more practice to produce quality yarn. They work with expensive raw material that cannot be wasted by non-standard processing – continued training as well as effective monitoring is needed.
4. Yarn and knitted products from Badakhshan need to be test-marketed and prices for the products need to be established.

6.1.3 Naryn, Kyrgyzstan

Accomplishments:

1. The pilot sheep farmers are making progress in improving homogeneity, productivity and wool quality of their flocks.
2. Women's groups in Kyrgyzstan are very active in producing felt products for sale and are improving their production skills and increasing product assortment.
3. All new products designed by the team are selling well. Products designed for export markets such as chair mats sell easily on domestic and regional markets.
4. Women are gaining more experience in selling their products at the national and regional crafts fairs such as the "Oimo" festival in Kyrgyzstan. Some of their products are finding markets abroad as well.
5. The groups have a good potential to develop felt slippers that can successfully compete on American and European markets.
6. The project identified the most talented artisans and is supporting them to lead the groups after the project finishes.

Main Constraints:

1. The Naryn artisans do not have designer skills needed to make products that are highly demanding in terms of design and color. To make such products, the Naryn artisans would have to rely on the assistance of professional designers. The project has to work with the artisans to make products that are less demanding such as felt slippers to promote sustainable production.
2. Some of the groups, especially Lakhol, work under very difficult conditions – winter in Lakhol lasts 8-9 months. The project has to help these groups make products that do not require wet felting, such as stitched slippers.
3. The project needs to continue working on finishing developing products specifically for export markets that can be mass-produced and sold in large volumes such as slippers.
4. It will be necessary to further develop export markets for the groups' products, which is challenging without additional funds. Unlike yarn and knitted products that have a wide market, felt is a niche market product and felt products can be best marketed at specialized trade shows. The project needs to work with buyers who can take the groups' products to such trade shows and help market them.

6.1.4 Kerman, Iran

Accomplishments:

1. The breeding bucks for the next mating season were selected jointly with the nomad farmers based on fiber fineness and yield and visual inspection.
2. The mating in the nucleus groups was planned and discussed in May 2012.
3. The results from the combing study are readily available and can be used for training in combing provided a market for combed cashmere can be created.
4. The link developed with the cashmere processing factory in Semnan provides the opportunity for evaluating chances for obtaining higher prices for cashmere from the project herds.
5. The leaders of the women cooperative were trained in Tajikistan and provided with equipment for piloting cashmere processing.
6. The training in Tajikistan also helped to understand the options and limitations for small scale production of cashmere yarn in Iran.

7. The Farmers' Day was effective in creating awareness in the government and nomad organization about how nomad framers can be effectively supported by researchers and extension.

Main Constraints:

1. The lack of laboratory capacity for analyzing fiber fineness in Kerman will limit the breeding progress in cashmere fineness.
2. The current cashmere marketing within Iran provides no incentive for combing goats although higher yields and quality could be achieved.
3. Only dehaired cashmere can be used for luxury yarns and the price at the factory is high which limits the scope for adding value.
4. Testing yarn production has been started very late in Iran due to constraints reported earlier which will make it difficult to get results from test-marketing during the project life.

6.2 Recommendations

Recommendation in addition to those stated in the previous progress report will be derived from the discussion in the Steering Committee Meeting planned for September 2012 and reported in the next progress report.

7 Annex

Annex 1. List of participants from national and international organizations and nomad families

Officials and Scientists:

1. Barbara Rischkowsky	ICARDA, Ethiopia Office, Project Coordinator
2. Joaquin Mueller	Scientist from INTA (Instituto Nacional de Tecnología Agropecuaria), Bariloche, Argentina, Consultant for Breeding Programs
3. Seyed Reza Hosseini	Baft city Deputy Governor
4. Mansour Bahmani	Provincial Governor consultant
5. Mir Amini	Deputy Head of National Nomad Organization
6. Homoz Mansouri	National Animal Sciences Research Institute (ASRI)
7. Sirous Amirinia	Deputy Head of ASRI
8. Hamid Reza Ansari-Renani	ASRI Head of livestock Department and National Coordinator of cashmere project
9. Alireza Shakeri	Head of Provincial Nomad Organization
10. Mohammad Shamsedini	Head of Baft Region Nomad Organization
11. …Esmali	Head of Provincial Livestock Department
12. Azam Tajiddini	Provinical Livestock Department
13. Omid Alipour	Head of Baft Livestock Department
14. Kouhzad Soltani	Provincial Nomad Organization
15. Mohammad Pour Changbar	Baft governor organization
16. Mahmoud Jahani	District Governor
17. Forough Ameri	Head of Livestock Department of Kerman Province Agriculture and Natural Resources Research Center (KPANRRC)
18. Seyed Mojtab Seyed Moumen	Scientist from (KPANRRC)
19. Mohsen Ehsani	Scientist from (KPANRRC)
20. Najmeh Karegar	Scientist from (KPANRRC)
21. Sepehr Moradi	Scientist from Zanjan University

Farmers:

1. Ebrahim Mousapour	21. Abbas Shams
2. Mousa Mousapour	22. Fatohollah Shahi-Moridi
3. Ehsan Mousapour	23. Yousef Khrrami
4. Zohrab Mousapour	24. Kobra Moulapour
5. Dad-Mohammad Mousapour	25. Leila Mousapour
6. Alireza Mousapour	26. Nesa Mousapour
7. Hamid Reza Mousapour	27. Effat Mousapour
8. Sohrab Mousapour	28. Mahtab Mousapour

9. Mehrab Ghassemi
10. Mahmoud Ghassemi
11. Behzad Pour-Ahmadi
12. Masoud Kharazmi
13. Mohammad Alizadeh
14. Eshagh Shahi-Moridi
15. Mohammad Mousapour
16. Ghodratollah Mousapour
17. Reza Moradi
18. Mohammad Ali Shahi-Moridi
19. Ghanjali Moradi
20. Ahmad-Ali Amir-Taheri
29. Parvin Masoupour
30. Masumeh Kamali
31. Ali-Mohammad Mousapour
32. Jiran Mousapour
33. Shirzad Mousapour
34. Mohammad Mousapour
35. Rezvan Mousapour
36. Rostam Mousapour
37. Esmail Mousapour
38. Gohar Amir-Taheri
39. Ali Shahi-Moridi
40. Hajar Mousapour