



ROOTS OF PEACE



**MINISTRY of AGRICULTURE,
IRRIGATION and LIVESTOCK**

**Asia Development Bank (ADB) Roots of Peace (ROP) Rural Business Support Program (RBSP)
Ministry of Agriculture, Irrigation and Livestock (MAIL)**

Nangarhar Province Wool and Carpet Production Assessment

by Qais Akbar Omar, RBSP Wool & Carpet Specialist

July 4, 2009

Major Findings:

In assessing carpet and wool production in Nangarhar province, several findings emerged:

- Carpet weavers in Nangarhar province are highly skilled in the many aspects of carpet making. Training in carpet weaving best practices is not needed.
- Nangarhar province's carpet producers need to have a wool market in Jalalabad, so that they buy sufficient amounts of good quality local wool and not have to travel all the way to Ghazni to buy their wool.
- Some poor carpet weaving families need to have a steel loom of their own, because the companies who contract them as weavers are cutting off 100 - 150 Afs per meter from their wages.
- Some poor families, women and handicapped men who are spinning wool, need to have spinning wheels. It will increase their income.
- The existing cut and wash facilities in Nangarhar should be helped, to make them environmentally safe, healthy, and sustainable.
- The Arab Afghan cut and wash facility in Nangarhar can be a base of operations for other activities needed to support carpet production in Nangarhar. One of these could be a pilot project for wool-dyeing, designing, and a cut and wash pilot project.
- Two other development organizations in Nangarhar province have been helping the carpet industry. One of them is called Afghanistan Small and Medium Enterprise Program (ASMED) and the other is the Afghanistan Investment Support Agency (AISA).
- Several major constraints are limiting the development of carpet weaving in Nangarhar.

1. Geography and a short Background of Nangarhar

Nangarhar province is located on the eastern side of Afghanistan. It connects Afghanistan with Pakistan in the east and south. The province is semi-mountainous, while around two-fifths of Nangarhar is flat land.

Nangarhar province is divided into 21 Districts: Jalalabad, Behsood, Sorkhrood, Beti Koot, Mehman Darre, Ghoshte, Lael Poor, Dare Noor, Shirzad, Hesarak, Khogiani, Pachiro Akam, Deh Bala, Chaparhar, Roodat, Kame, Kooz Konar, Koot, Acheen, Nazian, Darbaba, Shinvar.

Nangarhar is an industrial and agricultural center with a population of approximately 1,200,000. Most people in this region are involved with agriculture and livestock; a smaller number are manufacturers, traders or running retail shops.

More than half of Nangarhar's inhabitants live in rural districts with the rest in urban areas. Pashtu is spoken by most of the people. The main religion is Islam with a minority of Sikhs and Hindus, mainly in Jalalabad city.

The major ethnic groups living in Nangarhar province are Pashtuns, followed by Pashayee and other ethnic groups such as Tajiks, and Gujjars. Major tribes include the Momand, Shenwari, Khogaini, Kharoti, Nuristani, Niazi, Safi, Pashayee, Jabarkhail, Nasir, Ibrahimkhail, Hoodkhail, and Tajik.

Nangarhar province has a population of *Kuchis*, nomads whose numbers vary in different seasons of the year. Most of the nomads are rich, own lands all over Nangarhar, and own many sheep, cows, goats, and camels. In winter most of the nomads stay in Nangarhar because of its warm climate, which makes Nangarhar the province with the highest number of Kuchi in the winter. In summer the nomads go to areas like Parwan, Ghazni, Bamyan, Kabul, Wardak, Ghor and Nuristan to pasture their herds. The nomads control the wool business in Afghanistan.

The transport infrastructure in Nangarhar province is reasonably developed in urban areas and in the villages.

For telecommunications, Roshan, Areeba and AWCC companies cover many districts of Nangarhar and are widely used; the networks are increasing the coverage to more parts of the province.

2. Carpet Weaving Background in Nangarhar:

Carpets are produced in several villages in Nangarhar province, mainly in Jalalabad, Lalpora, Momand Dara, Khogaini, Behsood, and Roodat districts.

Unlike several provinces in northern Afghanistan, Nangarhar province does not have a long a history of carpet weaving. During the past 15 years, however, carpet weaving has become increasingly important in Nangarhar.

Many Nangarhar inhabitants were forced to flee to Pakistan during the civil war and Taliban era. There, they took any job they could find in Pakistan. Turkmen and Uzbeks, who had also fled Afghanistan, set up carpet factories in Pakistan in order to survive. Many people from Nangarhar province worked in these factories and learned how to make carpets.

Before they fled Afghanistan, they had been farmers and herders. When they returned home after many years, they still had their lands, but not their herds. Needing income, they started making carpets again for the same companies that they had worked for in Pakistan. These companies provided them dyed yarn, looms and other necessary tools.

Most of the carpets produced in Nangarhar province are sent to Pakistan. In Pakistan the carpets are cut and washed, branded and re-exported as Pakistani carpets to buyers overseas. Only about 10% to 20% of Afghan carpets are exported directly from Afghanistan. Although Afghan hand-made carpets are one of the few legal products exported from Afghanistan, but much of their value-added is lost to Pakistan.

3. Basic Lacks:

There are several reasons that a large volume of Afghan hand-made carpets go through Pakistan to overseas markets:

- Lack of sufficient cut and wash facilities in Afghanistan, while there are large, sufficient and efficient cut and wash plants are in Pakistan,
- Lack of long-term relationships with international partners, while Pakistani traders have established long-term relationships with their international trading partners,
- Lack of direct transportation to international markets overseas, while Pakistan has a relatively low cost of shipping from Pakistan to international markets with 10% to 15% subsidizes that the Pakistan government gives to its carpet exporters.
- Lack of credit, while Pakistani middlemen loans Afghan carpet producers without interest rate.

4. Constraints of Nangarhar Province Carpet Industry:

Several issues are limiting the development of the carpet industry in Nangarhar province:

- Lack of a wool market in Nangarhar,
- Lack of a wool washing plant/scouring line in Nangarhar
- Lack of a wool dyeing center in Nangarhar,

- Lack of a carpet designing center in Nangarhar, and
- Lack of sufficient cut and wash facilities in Nangarhar, while it has a perfect climate for cut and wash.

Nangarhar province's carpet industry has a great opportunity to develop, if environmentally safe and sustainable cut and wash plants become available, a wool market become available, a wool washing plant get built, and direct marketing to buyers overseas is established.

5. Eastern Region Carpet Association:

RBSP does not have carpet associations of its own in Nangarhar, as it does in Balkh and Bamyan. There is one large carpet association in Nangarhar called Eastern Region Carpet Association (ERCA). RBSP in Nangarhar works with the ERCA, whose members come from four major provinces, Nangrahar, Laghman, Kunar and Nuristan.

A list of ERCA members is attached in ANNEX 2.

6. Developing a Wool Market in Nangarhar:

In recent years as people have been returning to Nangarhar, they have slowly been rebuilding their flocks of sheep, especially the nomads. Most of the families in rural areas own at least ten sheep; some own as many as one-hundred sheep.

Before they migrated to Pakistan, the families used to sell their wool to government factories that made military uniforms, blankets, and basic winter clothes. Now they want to use their own sheep's wool for making carpets, but do not have the necessary skills for cleaning/washing or dyeing the wool. Therefore, most of the wool gets exported to Pakistan for washing.

There is a great interest of establishing a wool market in Nangarhar as well as a wool scouring facility, and spinning, dyeing, and storage facilities. But because of lack of capital and credit, they could not have done anything about it yet.

Eastern Region Carpet Association's representatives asked if RBSP could find a way to create a wool market in Jalalabad city with help of ERCA's investors.

Haji Shafiq-Alluh, one of ERCA's members is willing to invest three jeribs (one and a half acres) of his land for a scouring line in Nangarhar. He is also willing to invest \$50,000 in constructing this facility. He asked RBSP if it is in a position by providing equity capital to help him buy the washing machinery. When he was told that RBSP's equity limit is 20%, he showed concern and asked if it is possible to for RBSP to make the equity to 50%.

Recommendation:

RBSP should help ERCA's investors to setup a wool market and a scouring line in Jalalabad city. This would give the weavers access to locally-grown good wool. RBSP should help Haji Shafiq-Alluh with a scouring line in Nangarhar, and if possible raise the equity to 50%. With equity limited to 20%, it is hard to get investors interested working with RBSP.

7. Wool Spinning:

Nangarhar's major carpet producers distribute wool to poor families, especially women and handicapped men, to spin their wool. Mostly these women and handicaps have no other way of income, except making carpets. They spin as much wool as 200 grams a day. They get paid 40 to 50 Rupees per kg.

Recommendation:

RBSP should help women and handicaps, especially those poor families, widow women who have no other way of income, by distributing to them wooden spinning wheels or electric-powered spinning machines, so they can spin as much as 2 and half kg a day, to increase their daily income four fold.

Other families who can afford it, should use RBSP's equity capital to buy wooden spinning wheels or spinning machines. The equity should be increased to 50%.

8. Sharifa, the Dynamic Woman of Nangarhar, the Biggest Spinner in Eastern Region:

Sharifa is a dynamic woman in Nangarhar, very well-known and popular among carpet weaving companies. Every carpet producer in Nangarhar, as well as in the northern provinces of Afghanistan and in Pakistan knows her, because she spins their wool into yarn.

Several carpet producers in Nangarhar stated, "Without Sharifa, we would be crippled."

Sharifa is originally from Kandahar. She grew up in a carpet-weaving family while moving around Afghanistan and Pakistan all her life, like a nomad. Her mother was a carpet weaver from Mazar-e-Sharif, the heart of carpet makers in Afghanistan. She taught Sharifa and her other four daughters how to make carpets from the very early age. Now Sharifa has been in carpet and wool business for 40 years, since she was seven years old. She is the only one among her four sisters who never wanted to be away from carpets and wool. She is 47 years old now.

Sharifa is focusing on the wool business now. She said, "The foundation of a carpet is its wool. The reason I'm putting my life into wool business is because a lot of bad quality wool is being imported into Afghanistan, which brings the quality and name of Afghan carpet down. I will fight against this for as long as I can, to put an end to this by distributing good quality Afghan wool to carpet producers."

Sharifa started her wool business in Pakistan while she was living in a camp. She said, “When we migrated to Pakistan, Afghanistan was suffering from the civil war. The industry for Afghan carpet was growing rapidly and getting big in Pakistan. I started my wool business in the camps while I was living there with thousands of Afghans from all over Afghanistan. I used to buy wool from wool merchants who brought wool from Ghazni province of Afghanistan to Pakistan for washing. I distributed the wool to women in camps to spin it for me. First, I had to teach women how to spin wool with a stick or stone. I gave each woman 30 to 35 Rupees per kg. They were very happy with it. There were women in the camps who used to work in banks in Kabul or women who were lawyers, teachers and nurses. And yet they were happy to work for me, because they couldn’t find jobs in Pakistan.

“Then I sold the handspun wool to carpet producers. My business grew very fast, and I was able to buy spinning machines and give them to my spinners to spin wool faster. This is how my business started. I shifted from carpet weaving to wool business.”

When the camps were destroyed in Pakistan, Sharifa moved back to Afghanistan. She now lives in Nangarhar. Sharifa regularly travels to the Ghazni wool markets where she buys tons of wool, or goes out to the nomads in Helmand and Paktika provinces and buys their wool before it gets sold to the Ghazni wool markets.

She brings the wool to Nangarhar and hires women to wash it for her in the river. Then she distributes the wool to women and handicapped men all over Nangarhar province to spin it for her. These women and handicapped men have no other income. She pays her spinners 40 to 50 Rupees per kg.

She also has distributed spinning machines to most of her spinners, about 800 of them to 800 families.

Sharifa sells the spun yarn to carpet producing companies in Nangarhar, Pakistan, Kabul and northern Afghanistan.

She asked if RBSP is in a position to give her a few spinning wheels, so she can distribute them to other poor families who do not have spinning machines and women who have no other way of earning an income.

She said that if she is given some spinning wheels by RBSP, she will get an office from the Ministry of Labor and Social Affairs in Nangarhar that has been promised to her; she would gather all the handicaps in the Ministry of Labor and Social Affairs to work for her, spinning wool. It can be a good demo project.

Sharifa said that she needs a place to wash the wool she buys from nomads in Helmand, Paktika and Ghazni provinces. She bought a piece of land in Besood district of Nangarhar province, five

kilometers away from the Jalalabad city. But she does not have enough money to build a three-pot wool washing facility. She is also looking for a funding source that will give her a loan without charging interest, so she can expand her business.

Recommendation:

RBSP is in a position to give Sharifa some spinning wheels as a pilot project, so she can distribute them to those poor handicap families and women in the farthest villages of Nangarhar who have no income. If she wants to buy more spinning wheels, she can use RBSP 20% equity capital. But she asked if RBSP 20% equity can be changed to 50%.

If RBSP wants to have a good impact on wool washing in Nangarhar, RBSP should build Sharifa a pilot three-pot/tub wool washing facility as a pilot on the plot of land she bought for wool washing.

9. Wool Dyeing Facility

There are no large-scale facilities in Nangarhar province for dyeing wool, using either natural or chemical dyes. Most wool used in carpets woven in Nangarhar is dyed in Pakistan.

About 40% of the wool that gets dyed in Pakistan is purchased from wool markets in Ghazni, Paktika and Kandahar provinces where it is sold as Ghazni wool. But actually, the most valued wool in the Ghazni wool markets actually comes from Paktika, Kandahar, Balkh and Bamyan provinces.

Most of the Nangarhar carpet weavers are connected to Afghan carpet production companies who are linked to Pakistani contractors who get their orders from buyers overseas. Currently the Nangarhar carpet weavers get ready-dyed wool, designs, and weaving tools from those Afghan companies based in or tied to Pakistani businessmen. When the weavers finish their carpets, they ship them to Pakistan. There, the carpets are cut and washed and branded as Pakistani carpets and sent to buyers overseas.

Recommendations:

RBSP should hire a master dyer to do a natural dyeing pilot project in Jalalabad city, possibly at the Arab Afghan cut and wash facility. Arab Afghan cut and wash facility is the most active washing facility in the area. It operates 12 hours a day by 20 carpet washers. If the pilot project works in Jalalabad, RBSP can continue it with the other ERCA carpet –making groups in Nangarhar province.

10. Design Assistance

Designs come to Nangarhar weavers via Pakistan, tying Afghan carpet traders and weavers to Pakistani merchants. There is a lack of design expertise within Nangarhar province.

Recommendation:

RBSP should hire a master designer to do a pilot project in Jalalabad. RBSP should invite some members of ERCA to this project and teach them how to draw designs. Most of ERCA's members are tired of working for Pakistani merchants. They want to be independent.

With the value of the Pakistani currency going down – the carpet industry in Nangarhar operates on Pakistani currency – the Nangarhar weavers do not want to work for Pakistani merchants anymore. They want to make their own designs, dye their own wools, cut and wash their own carpets and sell to the market independently until they find their markets.

11. Cut and Wash Facilities in Nangarhar:

There are three cut and wash facilities in Nangarhar: Arab Afghan Cut and Wash Facility. ZRM Cut and Wash Facility. Afghan Craft Cut and Wash Facility.

a. Arab Afghan Carpet Cut and Wash Plant in Jalalabad

Arab Afghan is a carpet manufacturing company and cut and wash facility based in Jalalabad for the past two years. It started producing carpets 20 years ago in Pakistan. It has two agencies in Afghanistan, one in Mazar-e-Sharif and another one in Kabul. The owners, two brothers, Haji Asadullah and Haji Shafiq-Alluh are very influential and popular in the Eastern Region.

Arab Afghan's cut and wash facility in Jalalabad has about eight jeribs (four acres) of land. It is along the road, about five kilometers away from Jalalabad, in a town called Samar Kheal.

When the company was operating in Pakistan, it used to produce 300 square meters of carpet a month. Now because of the economic crises, it produces 150 square meters of carpet per month.

While in Pakistan, the company used to sell its carpets to Lahori middlemen/Pakistani businessmen. Now it sells its carpets directly to buyers, overseas.

Arab Afghan Carpet company has participated in four carpet trade shows since moving back to Afghanistan: two carpets shows in India, one carpet show in Dubai, and one carpet show in China. The company to participate in carpet trade shows internationally.

Arab Afghan cut and wash plant in Jalalabad does not only wash its own carpets, but also washes other carpet producers' carpets from companies in Kabul and Mazar-e-Sharif. The two agencies in Kabul and Mazar-e-Sharif collect carpets from other companies and send them to Jalalabad, to the washing plant. The company washes these carpets and delivers them back to the companies in Kabul and Mazar-e-Sharif, door-to-door.

Arab Afghan cut and wash facility has all the expertise needed for washing carpets and wash carpets according to the wish and demands of buyers. But the facility does not have a septic tank or a proper sewer system for its wastewater. The wastewater goes to the dry river next to the facility. When it rains - every now and then - the dry river gets flooded and it washes out all the wastewater that sits there for months.

Recommendation:

Arab Afghan carpet washing facility should be helped by RBSP, using its 20% equity capital or as a pilot project, to make it environmentally safe and sustainable. RBSP should use the research that RBSP Wool and Carpet Specialist did about green washing at Colorado University in 2007. The report is attached in ANNEX 1.

b. **ZRM Carpet Cut and Wash**

ZRM is a carpet manufacturing company in Jalalabad. Its cut and wash is also called ZRM. ZRM does not stand for anything. It is just a name chosen by the owner. The company started its operation in Pakistan 20 years ago. A small branch moved to Jalalabad one and one-half years ago.

ZRM used to produce 1,800 square meters of carpet every month, but now because of the economic crises, it produces 400 square meters of carpet every month. Most of ZRM's weavers are still in Pakistan, though some of them are in Nangarhar.

ZRM has been selling its carpets to Lahori middlemen/Pakistani businessmen for 20 years. But for the past two years, ZRM has started to sell some of its carpets directly to customers in Canada and in England.

The company in Canada is called H Rugs and it is located in Toronto. H Rugs buys 400 square meters of carpets every three months. The company in England is called Rachel; it buys 600 square meters of carpet every six months.

ZRM's cut and wash facility is about one jerib. It does not wash other carpet producers' carpets.

ZRM cut and wash facility is not environmentally safe. It is located in a neighborhood called Jai-e-Aft surrounded by people's house. Each house in the neighborhood is home to five to 10 people. The wastewater goes out in the street ditches and eventually it seeps into neighborhood wells and contaminates people's well water.

Recommendation:

Arab Afghan carpet washing facility should be helped by RBSP, using its 20% equity capital or as a pilot project, to make it environmentally safe and sustainable. RBSP should use the research

that RBSP Wool and Carpet Specialist did about green washing at Colorado University in 2007. The report is attached in ANNEX 1.

c. Afghan Craft Carpet Cut and Wash Facility

Afghan Craft arpet cut and wash plant started its operation two months ago with the financial support of Afghanistan Small and Medium Enterprises Development (ASMED), a USAID project.

Afghan Craft's cut and wash plant is about five jeribs large (two and one- half acres). According to Zai-al-Rahman, the owner of Afghan Craft, the plant has a staff of 30 people. But during a visit by the RBSP Wool and Carpet Specialist, it had a crew of only 5 people including the guards, the door keeper and three carpet washers.

Mostly cut and wash in Pakistan and Afghanistan is being done by hand. There is no machinery so far that can do the same job. But Afghan Craft bought a machine with the financial support of ASMED. The machinery is built for machine-made carpets. It moves a fast-spinning brush over the carpets. Sometimes, however, it pulls the hand-tied knots loose, and sometimes it puts holes in the carpets. The machinery has the capacity of washing 100 square meters of machine-made carpets per hour.

Other carpet producers in Nangarhar, especially the members of ERCA are concerned that this machinery will not only cause damage to their carpets, but also not get the same result as a hand wash.

The machinery includes a drying machine. It dries a six-meter carpet in 30 minutes.

The owner of Afghan Craft, Zai-al-Rahman, is not a carpet producer, so he gets his carpets from carpet producers in Kabul and Jalalabad to wash for them and deliver them back. But the facility is not going to work for handmade carpets.

A map of Afghan Craft cut and wash facility is in ANNEX 3.

Recommendation:

RBSP should not help Afghan Craft cut and wash plant. Although the drying machine might have some value for carpet-washing facilities in other parts of Afghanistan that have problems drying carpets in the winter, the washing machine is not useful, except, possibly for cleaning the machine-made rugs used in places like wedding halls. Also, the owner of Afghan Craft cut and wash facility does not have the technical skills and expertise required for cut and washing processes. If he had, he would have never imported that machinery that meant for machine made carpet.

Afghanistan Investment Support Agency (AISA)

Afghanistan Investment Support Agency (AISA) developed many industrial parks in Kabul, Mazar and Kandahar. These projects are funded by USAID. There are two other industrial Parks in Kamari of Kabul and Hisar-e-Shahi industrial park, a 200 hectare park located 22 Km south east of Jalalabad city. These industrial Parks are funded by the World Bank.

Hisar-e-Shahi industrial park in Jalalabad is partly for carpet cut and washing industry. The work is underway. RBSP Carpet and Wool Specialist was told by AISA office in Nangarhar that they will distribute the land to investor in couple of months.

12. Marketing

Most of the places in Nangarhar where the RBSP Carpet & Wool Specialist went, carpet producers/weavers asked if RBSP is in a position to create a carpet market for Afghan carpets overseas, in Europe, the U.S. or the UAE, so that ERCA carpet producers can sell their carpets directly, instead of dealing with Pakistani middlemen.

Few Afghan carpet traders/exporters who are either based in Pakistan or in the U.S or Europe are linked to international markets directly. Most are tied to Pakistani merchants in Pakistan.

The handmade carpet industry is highly competitive. Cutting-edge marketing skills, linkages, and technologies are needed to enable Afghan carpet producers/exporters to successfully compete with the world markets. Those Pakistani merchants have build strong business relationships with their buyers overseas over many years. It will take a while for Afghan carpet producers/exporters to develop direct the same kind of linkages to international markets.

Recommendations:

Marketing carpets produced in Nangarhar is part of the larger problem facing Afghan carpet producers who want to sell to international markets directly. If RBSP is going to be involved in an Afghan carpet marketing facility, then possibly a special emphasis there can be placed on the carpets being produced in the ERCA in Nangarhar, as well as those in Balkh and Bamyan provinces.

13. Credit

Most of the ERCA members in Nangarhar province complained of having no cash flow. They do not want to be dependent on the Afghan contractors in Pakistan forever. Most of them want to make their own carpets and sell them independently. They need credit to purchase their own looms, wool, dyes, and other inputs. They lack access to credit. But they are very reluctant to pay interest rates, because they it is *haram*, forbidden, according Islam. They are, however, willing to share a small percentage of their profit with the source they loan.

Recommendations:

RBSP does not have the resources to supply credit. But, where possible, it should work with other international organizations and funding sources to encourage the creation of short-term credit facility for the carpet industry, and to do so in ways that comply with traditional Islamic practices.

14. Developing Export Transport

This is part of a larger problem facing Afghan carpet production and cannot be addressed by RBSP for now. This problem needs a longer term project to put focus in this problem only for at least five years to solve the problem.

ANNEXES

ANNEX 1

Carpet Cut and Wash:

The cutting and washing process that follows the weaving, eliminates dirt that gets into the carpet while it is being woven, and cuts the pile to height wanted by the contractor, which in turn has been decided by the customer. The finishing process also brings sheen and luster to the carpet. There are many types of washing methods that produce carpets of different degrees and luster, but three washing methods are more standard.

1. **Simple Wash:** It gives a natural look to the carpet. No chemical is used.
2. **Tea Wash:** It gives a shiny look to the carpet and makes all the colors in the carpet look pale. A little amount of chemicals, hydrogen peroxide with permanganate, and concentrated green and black tea are being used in tea wash methods.
3. **Antique Wash:** Four highly concentrated chemicals, sodium hypochlorite, caustic soda, sodium hydrosulfate, and hydrogen peroxide mixed with water are being used in antique wash methods. The many types of antique wash vary with each carpet trader's customer's demands. Some use huge amounts of these chemicals, some use less. Antique wash gives an old look to the carpet, but it damages the wool.

Effects of Chemicals on Carpets:

- **Sodium hypochlorite:** It softens the carpet, takes out all the dirt and extra dye in wool, and slightly mutes the colors.
- **Caustic soda:** It gives shine and luster to the carpet.
- **Sodium hydrosulfite:** It acts as a color guard, removing any of the chemical dyes that may have bled during the caustic soda treatment, and adds to the shine and luster.
- **Hydrogen peroxide:** it bleaches out all the colors in the carpet and makes all the bright colors look pale and softer.

Cleaning Up the Chemicals from the Carpet Washing Process:

In April 2008, a study of carpet washing in Kabul was done by Glen Sirakavit from the University Of Colorado at Boulder with the help of Qais Akbar Omar, RBSP Wool and Carpet Specialist.

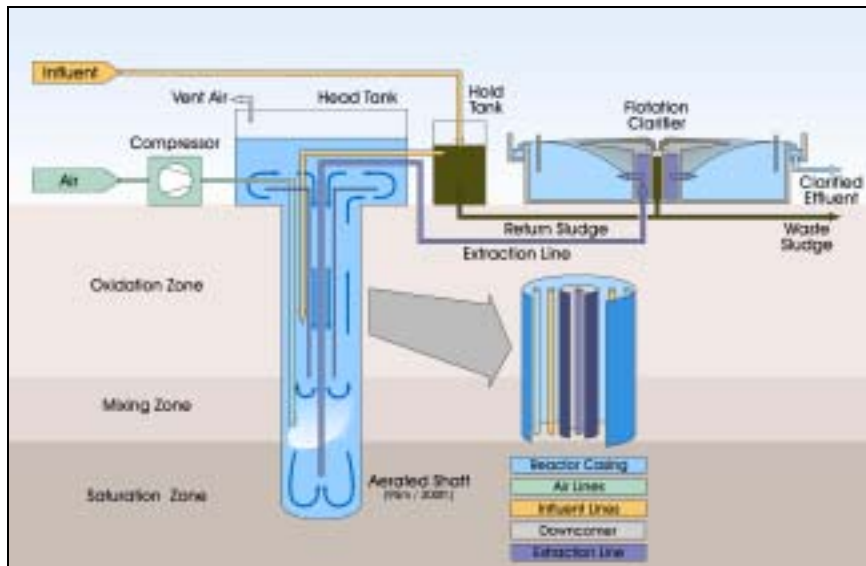
In December 2007, Qais Akbar Omar had approached the University of Colorado to try to find alternatives that could be used to produce carpets that would not damage the environment and harm workers' health. He met Glen who was a student at the time. Glen was interested to come

to Kabul with the help of University of Colorado to write his thesis on the subject of cut and wash.

The following data shows what measures could be taken to reverse the problem.

Alternate Wastewater Treatment Methods:

A possible solution was discussed that proposed a two-step process: the wastewater would go through a deep shaft bioreactor and then to a constructed wetland. Noram Engineering offers Vertreat™, which is an activated sludge in a 300-foot deep submerged vertical tank. The design of the tank provides a high oxygen transfer rate.



The influent wastewater is sent to a holding tank and then down into the vertical reactor. Air is injected under pressure to the bottom of the tank. This air provides oxygen and mixing.

Gas from the tank can be collected in the head tank and treated. The submerged vertical tank provides a very high oxygen transfer efficiency because there is increased solubility from the high pressure at that depth and there is a long bubble retention time. This way of supplying the system with oxygen can reduce energy costs by about 50%.

The goal of the Vertreat™ system is to treat the water to a sufficient level so that it can go into an aerated lagoon. This means removing some of the wool particles and breaking down the chemicals that were used to clean the carpets. The pH will probably be low, so another goal is to raise it back up.

The goal of the aerated lagoon is to stabilize the water and remove anything else that might still be in it so the water can be released back into the environment.

Recommendation:

There are many stories about the dire consequences of these chemicals on people's health. If RBSP wants a good impact on cut and wash in Nangarhar province, it should start working with these three existing cut and wash facilities in Mazar to make them environmentally safe and healthy, and sustainable, using the above research.

The RBSP Wool and Carpet Specialist has a copy of the complete report of Glen Sirakavit.

ANNEX 2

Complete Data Sheet of Eastern Region Carpets Producers Associations/Companies					
S/No	Name of company	Representative	Address		Mobil
			A Nangarhar Province		
A1 Surkhroad District					
A1.01	Abdul hamid	Ustad rozyi khan	Surkhroad,Hendo kalay		799037885
A1.02	Fazal rabi	Fazal rabi	Surkhroad,Malek abdurhman kalay		700614421
A1.03	Humaion	Ustad nasir	Surkhroad,Malek abdurhman kalay		x
A1.04	Zanane afghan	Humaion	Choke-e-mukhaberat hashmi plaza		778830113
A1.05	Ustad Haron	Haron	Surkhroad,Malek abdurhman kalay		x
A1.06	Shafiqullha	Ahsan ullha	Surkhroad,Malek abdurhman kalay		x
A1.07	Malik safi M.	Wahid u rahman	Surkhroad,Qala akhon		700606585
A1.08	Malem dost M.	Rohullha	Shamsha pure		700603341
A1.09	Hijratullha	Hijratullha	Surkhroad,Shamsha pure		x
A1.10	Abdul wakil	Abdul wakil	Surkhroad,Shamsha pure		700625342
A1.11	Abdul hamid	Ustad zinullha	Surkhroad,Hendo kalay		799037885
A2 Chaprahar District					
A2.01	Fazal karim	Fazal karim	Chaperhar,tirlye		772935526
A2.02	Ajmal	Ajmal	Chaperhar,tirlye		700667613
A2.03	Musood	Musood	Chaperhar,mlike noor aslam kalay		700372134
A2.04	Gull ahmad	Gull ahmad	Chaperhar,qlala shikhe		700687539
A2.05	wali craft	Musrfullha	Chaperhar,Azo kalay		700188825
A2.06	M.Zahir	M.Zahir	Chaperhar,mirzaman khan kalay		700667613
A2.07	Laal Gul	laal gul	Chaperhar,tirlye		773164550
A2.08	Hazrat nabe Ltd	Hazrat nabe	Chaperhar,sarakee		799260047
A2.09	Rahimullha	Rahimullha	Chaperhar,ghzoke		700610298
A2.10	Abdul qadir	Abdul qadir	Chaperhar tara kalay		797151493
A2.11	sha husin	sha husin	Chaperhar tara kalay		70064238
A2.12	khan nabe Ltd	khan nabe	nangarhar chaperhar tara kalay		799345684
A2.13	Asadullha	Asadullha	chaperhar		799210570
A2.14	Nawazkhan Co	Nawazkhan	Chaperhar tara kalay		773371450
A2.15	jawad ahmad	jawad ahmad	Chaperhar tara kalay		799210570
A2.16	Rohullha	Rohullha	Chaperhar tara kalay		700659143
A2.17	wahidullha Co	wahidullha	Chaperhar tara kalay		774811505
A2.18	Bakhtyaar	Bakhtyaar	Chaperhar tara kalay		772192581
A2.19	Mubarez Co	Mubarez	Chaperhar tara kalay		773416887
A2.20	dawood	dawood	chaperhar		700372144
A2.21	pakizkhan	pakizkhan	Chaperhar tara kalay		772192581
A2.22	alla mohammad	alla mohammad	Chaperhar tara kalay		700887640
A3 Bahsoud District					
A3.01	Arab carpet	Hamdullha arab	Behsood qlala mulakh		
A3.02	Sahil	Nasim	Samte 3		799051800

A3.03	Malem dost mohammad	Rohullha	Shamsha pure	700603341
A3.04	Mughless craft	M,waris mughles	Behsood,jamaly qalay	700773404
A3.05	ghulam dastagir	ghulam dastagir	Behsood	700862015
A3.06	Rahim Gul	Rahim Gul	Behsood ,kamp daman	772932944
A3.07	Awal Gll	Awal Gull	Behsood	700698118
A3.08	joja khaye	Gul Ahmad	Behsood,Farm-e-hada	772933685
A3.09	jojakhaye	Qari sameullha	Behsood,Farm-e-hada	772933685
A4 Hesarak District				
A4.01	almudin	almudin	Hesarak,jokan	x
A4.02	gul Badin	Gul Badin	Hesarak,jokan	x
A4.03	Nadar	Nadar	Hesarak,jokan	x
A4.04	Doranee	Doranee	Hesarak,jokan	x
A4.05	Musafer	Musafer	Hesarak,jokan	x
A4.06	Abal sha	Abal sha	Hesarak,jokan	x
A4.07	Meerza	Meerza	Hesarak,jokan	x
A4.08	Pat khan	Pat khan	Hesarak,jokan	x
A4.09	Lage gul	Lage gul	Hesarak,jokan	x
A4.10	pat khan	pat khan	Hesarak,jokan	x
A4.11	Mohammad Ayob	Mohammad Ayob	Hesarak,jokan	x
A4.12		Aslamudin	Hesarak,jokan	x
A4.13	Ghulam Hazrat	Ghulam Hazrat	Hesarak,jokan	x
A4.14	Rashid	Rashid	Hesarak,jokan	x
A4.15	Char gul	Char gul	Hesarak,jokan	x
A4.16	x	x	Hesarak,jokan	x
A4.17	Mohammad Zaman	Mohammad Zaman	Hesarak,jokan	X
A4.18	Mohammad Zaman	Mohammad Zaman	Hesarak ghaljane,jokan	x
A4.19	Matin khan	Matin khan	Heasarak,jokan	x
A4.20	Mohamad Sha	Mohamad Sha	Heasarak,jokan	x
A4.21	Adam khan	Adam khan	Heasarak,jokan	x
A4.22	Hasan gul	Hasan gul	Heasarak,jokan	x
A4.23	Gula jan	Gula jan	Heasarak,jokan	x
A4.24	Rangin	Rangin	Heasarak,jokan	x
A4.25	Manjor	Manjor	Heasarak,jokan	x
A4.26	Awal gull	Awal gull	Heasarak,jokan	x
A4.27	Mubarak sha	Mubarak sha	Heasarak,jokan	x
A4.28	Marghan	Marghan	Heasarak,jokan	798266122
A4.29	Mohammad Raza	Mohammad Raza	Heasarak,jokan	x
A4.30	Awzobillha	Awzobillha	Heasarak,jokan	x
A4.31	Hazrat	Hazrat	Heasarak,jokan	x
A4.32	Meejan	Meejan	Heasarak,jokan	x
A4.33	Sha mahmood	Sha mahmood	Heasarak,jokan	x
A4.34	Eidajan	Eidajan	Heasarak,jokan	x
A4.35	Attagul	Attagul	Heasarak,jokan	797768147
A4.36	Ghulam	Ghulam	Heasarak,jokan	x
A4.37	Abdullaha	Abdullaha	Heasarak,jokan	x
A4.38	Alam gul	Alam gul	Heasarak,jokan	x
A4.39	Anzar gul	Anzar gul	Heasarak,jokan	x
A4.40	Molajan	Molajan	Heasarak,jokan	x
A4.41	Lal gul	Lal gul	Heasarak,jokan	x
A5 Wazir District (Khogiani)				
A5.01	Shakirulla	Ustad Hazrat gul	Khogianee,khogee zor kalay	797868213

A5.02	joja khayee	abdul Basit	sahib zada wazir kalay	775826409
A5.03	joja khayee	abdul Basit	sahib zada wazir kalay	775826409
A5.04	joja khayee pakistan	Rostam	khogianee,kalay kharmana	776214679
A5.05	Umid	Amir saida jan	khogianee,wazirojokh kalaye	799071355
A5.06	joja khayee	Nasib gul	khogianee,gul mdos kalaye	772985942
A5.07	umid	dil agha	khogianee,gul jora	779831387
A5.08	Malng	Zinullha	khogianee,	777633515
A5.09	Mohammad Asif	Sid Bilal	Abobaker fira khil	797586391
A5.10	Ahmad Zai	Nadeer	khogianee	797350971
A6 Kaga District (Khogiani)				
A6.01	Ahmad Zai	Hayatullha	khogianee nakokhil	700629338
A6.02	Ahmad Zai	samad qasam	khogianee	778436145
A6.03	Shakir	Sheer-ullha	khogianee,kalay lewanian	779811238
A6.04	Shakir	Shogofa	khogianee,Memla	774811273
A6.05	Qari Anwar	Farid	khogianee,Memla,kalay lewanian	799745750
A6.06	Ansari	Hafizullha	Surkhroad,Bazar Moye mubark	779832714
A6.07	M.Asif	Abdullha	khogianee,Memla	772191805
A6.08	Umid	Namatullha	khogianee,manogee kalay qala	797360830
A6.09	Umid	Hayatullha	khogianee,manogee kalay qala	799672280
A6.10	Afghn crafft	Salah mohammad	khogianee,memla,kalay bargay	772191805
A6.11	Afghn crafft	Pardis	khogianee,memla,kalay qatar qala	772191805
A6.12	Shamshad	Hafizullha	khogianee,memla,kalay ghondee	778870297
A7 Shairzad District (Khogiani)				
A7.01	Malang	Rabanee	Shirzad toto kalay barkhad khil	798033355
A7.02	Pakistan	Shirzad	Shirzad toto kalay	798033355
A7.03	Spine Ghar	Shirzad Sahib	Shirzad toto kalay	700603342
A7.04	Haje sami	Zar karim	Shirzad kalay ashpan	799596987
A7.05	Haje Nabe	dawood	Shirzad kalay toto	798183682
A7.06	Shakir	Samad Agha	Shirzad kalay toto	799736327
A7.07	Khurasan	Hafta Gul	Shirzad kalay surkhab	796171931
A7.08	Khurasan	Wale sha khan	Shirzad kalay surkhab	798026568
A7.09	Khurasan	wahid Gull	Shirzad kalay surkhab	700392438
A7.10	Khurasan	Ahad agha	Shirzad kalay toto	700392438
A7.11	Khurasan	ali ahad	Shirzad kalay surkhab	796171931
A7.12	Spine Ghar	M.Husine Shirzad	Shirzad toto kalay	700603343
A7.13	Rasol	Zafer khan	Shirzad kalay surkhab	796171931
A7.14	Shakir	M.ealam	Shirzad kalay ashpan,shikhan	x
A7.15	Shakir	M,alam	Shirzad kalay ashpan,shikhan	x
A7.16	Haji Nabe	M.Nabe	Shirzad kalay ashpan	797295831
A7.17	Haji Nabe	Sarwarkhan	Shirzad kalay ashpan	799596987

A7.18	Rozee	Nasim	Shirzad kalay bambo china	797530384
A7.19	Rozee	Wakil	Shirzad kalay bambo china	797530384
A7.20	Rozee	Argul	Shirzad kalay bambo china	797530384
A7.21	Rozee	Shakil	Shirzad kalay bambo china	797530384
A7.22	Rozee	Nasir	Shirzad,gandomak kalay bambo china	797530384
A7.23	jojakhaye	Ahsan ullha	Shirzad kalay bambo china	798183680
A7.24	Haji Nabe	gul Ror	Shirzad,toto	798183682
A7.25	x	khaista gul	Shirzad,toto	798183682
A7.26	jojakhaye	Nazir	Shirzad,toto kalay mangikhil	x
A7.27	Malang	Zubir	Sirzad,toto kalay Amankhil	797350647
A7.28	jojakhaye	Qari sameullha	Behsood,Farm-e-hada	772933685
A7.29	Khurasan	Asil khan	Shirzad,toto	799750693
A7.30	Sadat	Sadat	Shirzad,kalay sarkot	x
A7.31	Marak	Marak	Shirzad kalay sarkot	x
A7.32	Zainullha	Zainullha	Shirzad kalay toto	x
A7.33	Husain	Husain	Shirzad satr kalay	x
A7.34	Samsor gul	Samsor gul	Shirzad kalay toto	x
A7.35	Samtullha kahn	Samtullha kahn	Shirzad kalay toto	x
A7.36	Malam	Malam	Shirzad kalay toto	x
A7.37	Gul Bahar	Gul Bahar	Shirzad kalay samarkot	x
A7.38	Malok	Malok	Shirzad kalay sarkot	x
A7.39	Kalama khan	Kalama khan	Shirzad kalay toto	x
A7.40	Anar gul	Anar gul	Shirzad kalay sarkot	x
A7.41	Dandal khan	Dandal khan	Shirzad kalay sarkot	x
A7.42	Lala gul	Lala gul	Shirzad kalay toto	x
A7.43	watan	watan	Shirzad sto kalay	x
A7.44	Ridee gul	Ridee gul	Shirzad kalay toto	x
A7.45	Mirhamza	Mirhamza	Shirzad kalay toto	x
A7.46	Suliman	Suliman	Shirzad kalay toto	x
A7.47	Suliman	Suliman	Shirzad kalay toto	x
A7.48	khial jan	khial jan	Shirzad kalay toto	x
A7.49	Amir	Amir	Shirzad,sarkot	x
A7.50	x	Bar mohammad	Shirzad,sarkot	x
A7.51	Khurasan	M,akram	Shirzad,toto	x
A7.52	joja khayee	Ahwala	Shirzad	x
A8 Pachir-O-Agam District (Khogiani)				
A8.01	Ataullha	Malang	Agam ,Sabar kalay	797738350
A8.02	Malang	Lala wali	Agam,Pachir	x
A8.03	Khwaja khaye	Mohammad yousif	Agam,Dago kalay	x
A8.04	Ahmad Zai	Aman ullha	Agame pachir	7077577864

A9	Shinwari Districts			
A9.01	Badkshshn	Shamahmood khan	Shinwary Ghani Khail	700638567
A9.02	Ahmad Zai	Nadeer	Shinwary	778436145
A9.03	Ahmad Zai	Nadeer khan	Ghani Khail	778436145
A10	Batikote Districts			
A10.01	Mofaker Zarawer	Hafizullha	Batikote District Shash Khail	775826512
A10.02	Mofaker Zarawer	Mohammad Afzal	Batikote District Shapeo	775826512
A10.03	Mofaker Zarawer	Zia-Ur-ullah	Batikote District	797008356
A10.04	Mofaker Zarawer	Khan Afzal	Batikote District	77826512
A10.05	Mofaker Zarawer	Gull Afzal	Batikote District	799560453
A10.06	Shinwari	Hayat Khan	Batikote District Mata Khan	700827931
A11	Rodat Districts			
A11.01	Shakir	Juma Gull	Rodat District Kabul Camp	
A11.02	Mokarem khan	Hamid Ullah	Rodat District Kabul Camp	700122079
A11.03	Shakir	Lalo Jan	Rodat District Kabul Camp	700586012
A11.04	Joja Bani	Mohammad Didar	Rodat District Kabul Camp	700027697
A11.05	Shakir	Zabih Ullah	Rodat District Kabul Camp	700586012
A12	Darai Noor Districts			
A12.01	Mohmmad Amin	Sardar Agha	daranoor kalay Sargulak	700639087
A12.02	Amin	Ulas khan	daranoor kalay Sargulak	x
A12.03	Ahmad Zai	Shiryam BaBa	Daranoor	700629338
A12.04	Ahmad Zai	Sheer Baba	Daranoor wasran	700629338
A12.05	Ahmad Zai	walajan	Daranoor bamba kote	707602891
A12.06	Mohmmad Amin	Sardar Agha	daranoor kalay sotan	x
A12.07	Mohammad Asif	Qari Merza	Daranoor Kalay Sotan	799382590
A13	Kama Districts			
A13.01	Mohammadin	Said Abdullah	Kama District	700323171
A13.02	Mohammadin	Siad Jamal Uddin	Kama District	700323171
A13.03	Mohammadin	Zia Ullah	Kama District Shairzad	700323171
A13.04	Mohammadin	Moshtaq Ahmad	Kama District Sahebzadgan	700664316
A13.05	Haji Rashid	Naqib Ullah	Kama District Gadi Kalai	700628022
A13.06	Mohammadin	Jan Bacha	Kama District Sahebzadgan	774187974
A13.07	Haji Rashid	Lal Wali	Kama District Gadi Kalai	700617168
A13.08	Haji Rashid	Gull Akbar	Kama District Gadi Kalai	
A13.09	Joja Karkhana	Qari Mohammad Wali	Kama District	777825451
A13.10	Haji Ghulam	Said Aman Ullah	Kama District	700097370
A13.11	Ghulam Isaq	Khan Agha	Kama District Peerzai	
A14	Center of Jalalabad City			
A14.01	Wali zada	Zabit ahmad zaye	naranje bagh	700629338
A14.02	Khurasan	Mohammad Rasul	Gollay araba	700635756
A14.03	Shakirulla	Shakirullh	Gollay araba	700619713

A14.04	Zanane afghan	Humaion	Choke-e-mukhaberat hashmi plaza	778830113
A14.05	Nooragha	Nooragha	Joye hafet	799446710
A14.06	Afghn crafft	Afghan	Choke e mukhaberat hashmi plaza	799172693
A14.07	Zabit ahmad Zai	Awal Sheer Qamar	Joye hafet	779490407
A14.08	Ahmad Zai	Awal Sheer Qamar	Joye hafet nahia 5	700839718
A14.09	Ahmad Zai	Abdul lahad	khales familye	700629338
A14.10	Husin craft	x	jui Aft	x
A14.11	Nangarhar	Hamid Ullah	Jui Aft	x
A14.12	Umaid	Umaid Khan	Mastofiat Choke	x
A14.13	Nasib	Nasib	Naranj bagh	799071355
B Konar Province				
B1.01	Majeed kot	Ajmal	Koner	700640736
B1.02	Madeed kot	Hamid	koner	x
B1.03	Majeed kot	Shapor khan	koner	x
B1.04	Majeed kot	Pashton jaar	Koner chapa dara	x
B1.05	Majeed kot	Zalmai	koner	x
B1.06	Majeed kot	Shaker jan	koner chapa dara kalay gulsak	x
B1.07	Majeed kot	Ajmal Safee	koner chapa dara kalay gulsak	x
B1.08	Majeed kot	Abdul wahab	koner manogay	x
B1.09	Majeed kot	Atal	koner manogay	x
B1.10	Majeed kot	Abdulhaqe	koner	x
B1.11	Majeed kot	Eamal	koner	x
B1.12	Majeed kot	Abdul hanan	koner chapa dara kalay gulsak	x
B1.13	Majeed kot	Syeed mohammad	koner	x
B1.14	Majeed kot	Safeeullha	koner chapa dara	x
B1.15	Safedurane	Sha zalmie	koner,kandr kalay	700994631
B1.16	Safedurane	Merajeudine	koner,shigel	700994631
B1.17	Safedurane	Sha zalmie	koner,kandr kalay	700994631
B1.18	Merajeudine	Merajeudine	koner,shigel	796046622
C Lughman Province				
C1.01	Ahmad Zai	Shokrullha	lughman	774325031
C1.02	Ahmad Zai	Hazarmir	lughman	774243191
C1.03	Ahmad Zai	Zahid	lughman	700646491
C1.04	x	x	lughman,Alingar shahee	x
C1.05	Sharif Zada	x	lughman Alingar	x
C1.06	Humaion	x	lughman,Alishang	x
C1.07	x	x	lughman,Alingar	x
C1.08	x	x	lughman,Alishang	x
C1.09	lughmanee	x	lughman,Alishang	x
C1.10	x	x	lughman,Alishang	x
C1.11	x	x	lughman,Alingar,shahee	x
C1.12	Sadiq Zai	x	lughman,Alingar	x
C1.13	Amad zai	x	x	x
C1.14	Rouh Ullah	Rouh Ullah	jui Aft	
C1.15	Rouh Ullah	Noor hasen	lughman,sangar,Alingar	

<u>D</u>	Noorstan Province			
A1.01	Carpet Co	Hazrat Gull	Noristan Province Ghaziabad District	700098909
A1.02	Carpets Co	Abdul Qaium	Noristan Province Darai Darain	7996211251

