Afghanistan Quick Impact Project – Shomali Plains
(AQIP)

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CHEMONICS

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Introduction:

In response to an Annual Program Statement (APS) issued by USAID, Chemonics submitted a proposal for the Afghanistan Quick Impact Project (AQIP) which supports USAID's overall strategy to assist in refugee repatriation and infrastructure rehabilitation that will enable Afghan farmers to improve their families' food security. USAID approved Chemonics' proposal in July 2002 and subsequently issued a letter authorizing Chemonics to incur project costs. In August 2002, a Cooperative Agreement was formally signed. Per the terms of the Agreement the Project Completion Date is July 22, 2003.

In collaboration with four Afghan implementing partners, the Agency for Rehabilitation and Energy Conservation (AREA), Helping Afghan Farmers Organization (HAFO), Partners in Revitalization and Building (PRB), and the Reconstruction Authority for Afghanistan (RAFA), the Project will benefit approximately 110,000 families in selected areas of the Shomali Plain, Kabul, Parwan, Kapisa and Wardak provinces. The project area has a long tradition of being renowned for its sophisticated and intensive agriculture production, but irrigation canals and irrigation systems, access and tertiary roads have suffered severely during more than 20 years of war and consequently they fell into disrepair as people fled the long conflict. The destruction of the infrastructure has resulted in low productivity, which has been further aggravated by more than five years of drought.

The Project is improving food security by strengthening household purchasing power generated by employing large numbers of local laborers on infrastructure renovation activities. The renovation of community irrigation systems and farm to market roads is stimulating agricultural production and strengthening the farmers' marketing capability. Laborers are earning cash to purchase food, farming inputs, and household necessities, while improving the irrigation systems and access roads vital to improving agricultural productivity.

Income generating activities for women are offering opportunities for families to augment their income through the weaving and commercialization of patu (body blankets) as well as poultry production. A new innovation for Afghanistan's agriculture, which is increasing the opportunities for economic participation by women, is drip irrigation. Family gardens are being equipped with drip irrigation systems to enable women to earn additional income through the sale of higher value crops and improve the nutritional status of their families through the cultivation of vitamin A-rich crops. Finally, leadership training is assisting new entry professional women to obtain the self confidence required to maximize their potential.

1. Key Activities: Results Achieved vs. Planned

1.1 Progress Reports and Financial Controls

Monthly Progress Reports

To ensure that the NGO partners adequately account for the receipt and use of USG resources, Chemonics requires that progress and expenditure reports are submitted monthly. The Monthly Progress Report narrative generally does not exceed two pages and focuses on planned targets and achievements directed towards meeting performance indicators. The narrative is accompanied with an indicator performance table, which shows cumulative

progress in achieving results. The receipt of monthly reports enables Chemonics to detect implementation concerns and issues prior to them becoming serious problems.

Financial and Expenditure Reports

In order to assure that the implementing partners receive their funding expeditiously, Chemonics requires that Financial and Liquidation Reports for USG and Counterpart resources be submitted monthly. The financial report table includes the approved budget, total advances, expenditures during the reporting period, cumulative expenditures, and the next 30 day advance request. Additionally, Chemonics requires a budget line item financial transaction summary for the reporting period, with copies of the corresponding receipts. Both the progress and financial reports are due the 15th of the following month.

Chemonics/AQIP staff thoroughly review the expenditures and corresponding receipts. In the event that adequate supporting documentation is not provided or an expenditure appears ineligible such costs are disallowed until the NGO partner obtains proper documentation. During the January-March 2003 quarter, receipts for approximately $12,000 were questioned. While most of the vouchers merely lacked adequate information and were subsequently resubmitted, a few of the purchases did not meet AQIP criteria and were disallowed.

In order to minimize disallowances, in February Chemonics conducted a training session on the preparation of expense and liquidation reports. Guidelines for expenses and receipts were prepared and distributed to each of the NGO partners. The guidelines stressed that all receipts for goods and services should contain as a minimum the following information:

- Date of purchase
- What was purchased (specifications for independent verification)
- Quantity purchased (e.g. two water pumps, 400m3 of sand)
- The name of the vendor/seller
- The address and contact information of the vendor/seller
- Amount paid and in which currency
- The signature and/or stamp of the vendor
- All receipts must reflect the true cost of goods and services

1.2 Increase in PRB's Level of Effort

In response to requests received from the Governor of Kapisa Province and the Ministry of Irrigation, USAID has authorized the use of unprogrammed AQIP resources to increase the level of effort for PRB to construct a series of dikes and gabion retaining walls to protect the Khurram and Khoja Irrigation Tunnels and Canals. These two irrigation tunnels, which receive water from the Panjsher River, share a common intake and provide water to irrigate over 14,000 hectares of agriculture land in the Kapisa Province. The tunnels and irrigation canals were constructed downstream of the water intake and strategically positioned so run off from seasonal floods from a mountainous wash would flow over the tunnels. Unfortunately, the course of the wash has changed dramatically, and, rather than flood waters passing over the tunnels, they now flow below the tunnels and erode and block large segments of the irrigation canals. Subsequent to receipt of USAID's concurrence, PRB's Sub-award was amended and funding added for the construction of a series of gabion retaining walls and dikes to channel flood waters from the intermittent mountainous wash to pass over the irrigations tunnels rather than flowing into the irrigation canals. The Ministry

of Irrigation approved the designs and authorized PRB to proceed with the construction. This amendment to PRB's Sub-award is included as **Annex IV.**

1.3 Participatory Rural Assessment Database

An agriculture production and commercialization database was generated from a series of village/shura Participatory Rural Assessment (PRA) meetings. Data was collected through meeting with key community leaders, farmers and traders in seven districts of Kabul and Parwan Provinces during January-February 2003. A minimum of ten community representatives participated in each secession to obtain a consensus and minimize errors in production costs, crop yields and crop sales information. The data are community-based, and do not describe individual household characteristics. After tabulating the raw data from the PRA interviews, Chemonics/AQIP Team reviewed the results for inconsistencies and returned to the relevant villages when necessary to clarify particular data. Community leaders quickly grasped the importance of the exercise because it provides them with a quick economic picture of their community (number of crops, production, average prices, production value, sale value, etc). This information can be used to estimate agriculture competitiveness, gaps and opportunities and the impact of agriculture on the local economy. The database and conclusions of the survey were presented to USAID in mid-March 2003.

Fig. 1: *AQIP Agronomist coordinates Participatory Rural Assessment*

1.4 Inter-Agency Coordination

CHEMONICS/CARITAS

Chemonics/AQIP and CARITAS/CORDAID staff is exploring the possibility of collaborating to introduce drip irrigation for family gardens in Afghanistan. The joint implementation of this innovative activity draws on the philosophy that donor coordination will strengthen sustainability and will assure that adequate follow-up and technical assistance is provided to the participating farmers after the conclusion of AQIP. Chemonics/AQIP worked closely with AREA, HAFO, PRB and RAFA to develop a proposal for CARITAS to fund the extension services, which will strengthen the capacity of the NGO partners to effectively introduce drip irrigation for family gardens. The four NGOs will collaborate and work as a team in order to maximize the benefits and potential which drip irrigation offers.

Chemonics with USAID funding has purchased the drip irrigation supplies, including drip tape, PVC tubing, water filters, drip inserts, water towers and water tanks. Additionally Chemonics is providing the technical assistance (four person-months of an expatriate drip irrigation specialist) for the installation and training of the participating farmers and NGO extension agents. To maximize the benefits of the Chemonics activity and ensure the sustainability of the project, the participating NGOs are seeking minimal funding from

CARITAS to support extension services at the grass roots level. Hopefully, CARITAS will complement the AQIP capital drip irrigation investment by funding essential agriculture extension agents. These agents will ensure that farmers understand how to use and maintain these systems. Additionally, the extension agents will provide traditional extension services to the entire community, including assistance in marketing and crop selection.

Fig. 2: *Soil sampling to identify fertilizer requirements*

CHEMONICS/IFDC
The International Fertilizer Development Company (IFDC) is also collaborating with the activity by conducting soil analysis for the commercial gardens and is facilitating the provision of fertilizer for the commercial as well as family gardens.

CHEMONICS/UNOPS
Chemonics has formed a partnership with the UNOPS to jointly sponsor classroom and "hands on" practical road improvement and road construction training. UNOPS will provide the supervisory engineers to ensure that unified standards are maintained by the participating NGOs during the construction phase. This partnership arrangement is further discussed in Section 1.6 Infrastructure Rehabilitation.

1.5 No Cost Extension

After thoroughly reviewing project progress and analyzing the time remaining to complete all activities, Chemonics determined that a few of AQIP activities will require a no cost extension to achieve the objectives of the project. Likewise, a couple of activities could be strengthened and have a better chance of achieving sustainability with the provision of a few extra months. In early March Chemonics/AQIP submitted a No Cost Extension request to USAID/Afghanistan to extend the AQIP Project Completion date from July 22, 2003 to November 22, 2003. The USAID Mission concurred with this request and Chemonics Home Office is in the process of negotiating the extension amendment with USAID/Washington.

1.6 Infrastructure Rehabilitation

Road Reconstruction
In November 2002, Chemonics and the UNOPS formed a partnership to provide road construction training to the AQIP NGO partners prior to initiating road work. The training was divided into classroom secessions which focused on standards and designs and four weeks of "hands on" road rehabilitation on site training. The purpose of the training is to ensure that completed roads would sustain heavy rains, winter and vehicle traffic for three years with minimal maintenance. Training sessions were conducted in November 2002 and February 2003. Chemonics sponsored 12 participants for the training, 11 from the four NGO partners and one from the Central Asia Development Group (CADG).

The training placed emphasis on replacing "labor-intensive" with "labor-based". While labor based construction still utilizes a significant amount of manual labor, it combines light equipment such as walk-behind compactors, water tanks pulled either by a tractor or truck to moisten the road surface prior to compaction, and a truck to haul select gravel and other material for the road surface. Combining labor with light equipment significantly improves construction quality and enables the NGOs to, i) crown and compact the road surface to assure adequate water run off, ii) improve drainage ditches to carry water run off, and prevent road and road embankment erosion, and iii) construct reinforced cross drainages for water to cross the road rather than flowing down the road.

Fig. 3: Reviewing UNOPS-AQIP Road site with USAID

Considerable effort was spent in identifying a road which met all the conditions desired for road training, such as mountainous, steep grades, flat terrain, and heavy clay soils. After visiting several sites the UNOPS, Chemonics and the Ministry of Public Works jointly selected the Surobi-Tagab-Gulbarhar-Jubl-e-Saraj road for rehabilitation, and road repair training. The portion of the road between Surobi and Tagab was chosen for Chemonics NGO partners, HAFO and AREA and the section north of Tagab would be repaired by other NGOs selected by the UNOPS. The total estimated cost of rehabilitating this road is approximately US $1 million, of which AQIP planned to provide more than US $ 350,000.

After several months of coordinating with the UNOPS and preparing for the rehabilitation of the Surobi-Jubl-e-Saraj road, Chemonics had to back out of this activity. Our NGO partners were well into the mobilization phase and had made preliminary arrangements with community leaders for the provision of unskilled labor when the Minister of Public Works informed UNOPS that any work on this road must conform to primary road standards. Apparently, the Minister wants to follow-up with paving the road. Neither the UNOPS nor AQIP have the resources to comply with improving a road to meet primary road standards. This decision was disappointing since we (Chemonics and the UNOPS) had previously obtained signed letters of authorization from the Director of Rural Roads within the Ministry of Public Works, the Vice Minister from the Ministry of Reconstruction and Rural Development, and the Governors of Kapisa, Parwan, and Kabul. The cancellation of this activity forced us to select an alternate road, which is further discussed in the section for Next Quarter Activities, Section 5.1

Water Diversion Dams & Irrigation Canals

Of the five water diversions dams approved for construction under AQIP, two were completed during the reporting period. HAFO completed the 50 meter Khanano water diversion dam on the Tagab River in early March and Chemonics accepted it shortly thereafter. The seven kilometer Khanano irrigation canal was cleaned the previous quarter which enables the new water diversion dam to provide a reliable source of water to irrigate an additional 1,000 hectares of agriculture land, benefiting approximately an equal number of

families. During the cleaning of the Khanano Canal and the construction of the water diversion dam HAFO employed skilled and unskilled labors for 11,521 person days receiving US $25,000 in salaries.

Fig. 4: *Final Inspection of HAFO water diversion dam*

PRB completed the 30 meter Khwaja Hassan Canal water diversion dam in Istalif during the last week of March. PRB initially planned to discontinue work during the winter months, but agreed to experiment with a series of practical interventions to enable it to work during freezing weather. To continue stone masonry work PRB heated the water and added calcium chloride to the water prior to mixing it with the cement. Additionally, PRB constructed a green house type structure over the stone masonry work to raise the temperature. These interventions enabled PRB to continue working in freezing weather resulting in the completion of the dam prior to the spring planting. This dam will now provide water to irrigate approximately 1,000 hectares of agricultural land, benefiting an equal number of families and providing water for household use for over 400 families. During the construction phase of the dam 6,191 person days (skilled and unskilled) were utilized, receiving US $24,454 in wages.

Fig. 5: *PRB water diversion dam ready for final inspection*

RAFA is responsible for the construction of the three remaining water diversion dams on the Ghorband River. Two of the dams, the Mahigeer and the Matak dams are under construction, and work on the Charikar (Akhtachi) dam will start in July when the river level drops. The three dams, when finished, will provide water to a combined total of 74 kilometers of irrigation canals to irrigate over 18,000 hectares of agricultural land, of which 6,000 hectares are completely dependent on these three dams.

The Mahigeer and Matak dams are both in excess of 100 meters in length and the excavation for these dams has been extremely difficult due to, the size of the river, periodic floods, constant water seepage that hampers excavation, and huge boulders that require blasting. RAFA has been under considerable pressure to complete the critical portions of the dams to

ensure that they would withstand the spring floods. In mid-January RAFA started working seven days a week in order to complete the excavation for the dam's foundation, which is approximately four meters deep. While at times RAFA's work has been hindered by freezing temperatures, one advantage to continuing the work during winter is that the river is at its lowest level during the winter months. RAFA took advantage of the low water level and accelerated construction by working simultaneously on both sides of the river and mixing a cold weather additive with the cement mixture so it would cure even in freezing weather. These efforts paid off, and RAFA has completed the excavation and the stone masonry work for the main wall of the Mahigeer dam and secured it into the retaining wall on both sides of the river. This dam is more than 95% complete, and RAFA is still projecting to complete it prior to serious flooding in mid-April. In anticipation of the water to be supplied by the Mahigeer water diversion dam, the community has cleaned the 30 kilometer main irrigation canal during this reporting period. RAFA has installed a temporary water intake in order to provide irrigation water for the 33 kilometer canal.

An equal amount of work was accomplished on the Matak dam. The excavation for the dam's foundation (five meters deep) was very time consuming and was performed under extremely difficult working situations. By the end of this quarter, RAFA completed the dam's foundation and the stone masonry wall up to the level on the river bed and has secured it to the retaining walls on each side of the river. While RAFA will continue to extend the retaining walls during spring, it will postpone work on the dam wall until the flood waters reside. While floods should not damage the foundation and fortified sub-terrain masonry wall, a partially completed wall higher than the river bed probably would be washed out during the floods. When the water level drops, probably in late June, RAFA will again divert the river channel, clean the debris off the foundation and resume construction of this dam. Since the initiation of the construction of the Mehigeer and Matak water diversions dams, RAFA employed 11,585 person days (skilled and unskilled), receiving US $40,376 in wages.

Karez Rehabilitation

PRB initiated karez rehabilitation in Istalif in mid-October, and by the end of December 2002 it had cleaned five karezes with a combined distance of 2.0 kilometers. (**Note:** The October-December 2002 Quarterly Report mistakenly reported the number of kilometers as 2.5 rather than 2.0.) PRB had planned to shift its karez cleaning activity in Shakar Dara, but the Istalif community leaders requested that it continue with this priority activity in Istalif. Since other NGOs were already cleaning karezes in Shakar Dara, PRB agreed to Istalif's request. In January Chemonics approved PRB's request to continue cleaning karezes in Istalif, and PRB, in coordination with the community shuras, selected the five additional karazes with an estimated 2.5 kilometers length. During the quarter an additional 800 meters of karezes were cleaned under PRB's guidance. The total number of workers PRB has employed since October 2002 for karez cleaning adds up to 3,013 person days, with a salary total of US $10,453.

1.7 Well Excavation

Improved Access to Safe Drinking Water

AREA has made good progress on well excavation. Of the 40 multi-family wells proposed in its sub-grant agreement, 35 sites have been selected in coordination with the Ministry of Rural Development and the local shuras in Khushi, Kulanger and Waghajam in the Logar Province. Activity status is as follows:

- The excavation of 25 deep wells averaging 35 to 40 meters in depth have been completed and are ready for the installation of the hand pumps and concrete seals.
- Five additional wells are in their final stages of excavation and are more than 85% excavated.
- Agreements have been reached with 10 additional communities to excavate wells, and the communities are waiting for AREA to deliver the tools for excavation.
- AREA has purchased the hand pumps and complementary construction material supplies, and plans to initiate the installation in April 2003.

Irrigation Water Supply

Afghanistan has a well-developed irrigation system that has continuously been improved and upgraded generation after generation. Diverting river water is the most common and least expensive (but not necessarily the most efficient) method of obtaining water for furrow irrigation. When completed, the construction of the five AQIP water diversion dams will supply a reliable source of water to irrigate over 20,000 hectares, of which 8,000 hectares are new or reclaimed agriculture land. Nevertheless, there are many areas of Afghanistan, several within the AQIP area of influence, that no longer have access to water from irrigation canals. Many of these farmers must rely on pumping water from wells to cultivate their lands. Villagers have reported that they are forced to take prime agricultural land out of production due to the unavailability of water for irrigation. Several of the areas which do not have access to irrigation canals have or could have access to sub-surface water. The excavation of relatively shallow wells (20 to 30 meters) installed with diesel pumps will enable farmers to recuperate agriculture lands abandoned due to the prolonged drought.

AREA has selected six of the eight sites for the irrigation wells in the Logar and Kabul Provinces. Four of these wells in the Charasiab District have been excavated during the reporting period and the communities are waiting for AREA to install the diesel pumps. The selected sites all have potential for installing drip irrigation systems at a later date.

1.8 Income Generating Activities

Poultry and Egg Production Activity

Recipients which received chickens in the Istalif area last quarter participated in a series of training courses pertaining to poultry production and poultry health and preventative measurers to stop the spread of serious diseases among the chickens. The PRB project veterinarian has checked the chickens and reported that sanitary conditions are good and only an insignificant percentage of the birds died. Some of the chickens have already begun to lay eggs.

PRB expanded the poultry production activity to Kalakan and Shakar Dara. In Kalakan 60 families have been selected and have received basic materials for the construction of their chicken pens. The response from the community has been exceptional and all of the pens were completed ahead of schedule, which enabled PRB to purchase and distribute 600 three month old chickens and the complementary three months of feed during this quarter.

In Shakar Dara 400 families have been selected to participate in the program. PRB distributed the construction materials for the chicken pens, which are in various stages of construction. Upon completion of the chicken pens and receipt of training, PRB will distribute 4,000 chickens and feed to the participants.

Fig. 6: *Recipient displays chickens*

Patu Weaving

As a substitute to the ceramic activity for Istalif, Dehmiskeen and Kalakan were selected to participate in the patu weaving activity. Patu weaving is a traditional craft in Dehmiskeen and has always been a primary source of income for it residents. Unfortunately during the prolonged conflict and exodus of the population most of the looms were destroyed or stolen. A large number of the returnees have the skills for patu weaving and understand the marketing structure, but lack the financial resources to purchase the looms and required yarn. PRB, in coordination with the local shuras, chose 50 families in Dehmiskeen to participate in this activity, and in March 2003 PRB distributed the looms and yarn to the participants. PRB does not anticipate the need to provide much training to these families since it appears that they have experience in weaving patus and have established links with traders.

In Kalakan 40 families have been selected for patu weaving, but since patu weaving is a new activity in this community, PRB now fears that the time required to adequately train the participants tin weaving and marketing patus may deem this activity inappropriate. PRB has advised Chemonics that it may have to substitute patu weaving in Kalakan to either poultry production or embroidery.

Embroidery

PRB has selected 40 families in Istalif to participate in the embroidery activity. Embroidery classes have started and emphasis is being placed on teaching participants what products have acceptance in the market. Embroidery rings, cloth and yarn have been distributed and PRB will continue to distribute additional cloth and yarn during the rest of the three month training course. PRB is still in the promotional phase and selection of up to 40 participants for the embroidery activity in Kalakan.

Oil Press

Prior to the war over 100 family-operated rudimentary oil presses existed in the Istalif area. Most of the oil presses were destroyed during the war, and the returnees lack the resources to purchase replacement presses. Consequently, only three or four presses have been renovated. Family-operated oil presses offer potential for community income generation opportunities beyond the family-operated enterprise, since it's estimated that between eight to ten farmers would be able to cultivate and sell oil seeds for one family operated press. The oil is generally purchased and consumed within the communities while a portion of the oil especially sharsham (safflower) oil is sold to the Kabul market for cosmetic purposes. PRB

is currently in the process of selecting a family disciplined enough to follow through with this activity.

1.9 Cash for Work

The refugees returning from neighboring countries were confronted with the destruction of their houses, destroyed and neglected irrigation systems, loss of fruit trees and source of employment. Cash for work is an appropriate and rapid intervention to employ large numbers of workers, thus providing them with the economic means to adequately care for themselves and their families. An objective of the Afghanistan Quick Impact Project is to inject necessary cash into rural communities by providing temporary employment through labor intensive activities. Since the initiation of AQIP, a combined total of approximately 32,310 skilled and unskilled labor days were financed under the Project with a total value of over US $100,283. The primary activities which employed these workers were the construction of water diversions dams, and the cleaning of karezes and irrigation canals. Cash payments to the beneficiaries provide them with the resources to purchase food, agriculture inputs and other essential assets.

Fig. 7: *AQIP labor intensive activity*

2. Drip Irrigation Progress

AQIP is breaking new ground with the introduction of drip irrigation, as a small farmer intervention in Afghanistan. The utilization of drip irrigation will enable farmers to become more competitive by reducing production costs not only through the pumping of water, but also by reducing the labor required to clean or weed their fields. Since drip irrigation only moistens the soil at the base of the cultivated plants, there is not sufficient moisture in the soil between the plants for weeds to grow. Drip irrigation also decreases the need for fungicides since eliminating excess water on the plants significantly reduces water-borne fungus common with furrow irrigation. The drip irrigation component is a new activity, funded within the AQIP budget, and was authorized by USAID during the previous quarter.

Fig. 8: *Drip Irrigation Installation*

During the reporting period considerable progress was achieved:

- Chemonics/AQIP signed a Memorandum of Understanding with the NGO partners, which describes and separates the responsibilities of Chemonics, the NGO partners and the recipient farmers. The MOU is included as **Annex V.**
- Six commercial garden sites, having a combined total of 16 hectares, were selected by the NGOs and subsequently accepted by Chemonics.
- A total of 56 families were approved to participate in the family garden activity. Each family garden is being equipped with 120 square meters of drip tape, a water tower and a 200 liter water tank. Gardens of this size will enable the participating families to sell a significant portion of the production and consume the surplus.
- The Chemonics drip irrigation technician arrived in-country and has completed the training for the NGO staff. He is now training the community recipients, this will be followed by system installation.
- The drip irrigation materials and supplies purchased by Chemonics arrived in-country and are being distribution to the NGOs according to the installation schedule.
- During the month of March, drip irrigation systems were installed for 28 family gardens (combined 3,360 meters) and two commercial gardens (combined seven hectares).
- In anticipation of the installation of the drip systems most of the 56 families participating in the family garden activity, and the communities selected for commercial gardens (combined total 16 hectares) have prepared their land.
- The Chemonics drip irrigation technician provided one week of technical assistance and training to the Central Asia Development Group (CADG) for its drip irrigation system in Kandahar.
- An agreement was formalized with the International Fertilizer Development Corporation (IFDC) to conduct soil analyses for the commercial garden sites and to provide or facilitate the provision of fertilizer for the commercial and family garden sites. The soil analyses have been completed, and the fertilizer will be provided in April.
- Chemonics/AQIP staff assisted the NGO partners in preparing a joint proposal for CARITAS/CORDAID to finance the salaries of agriculture extension agents working on the drip irrigation activity. The CARITAS proposed activity, if approved, will continue to finance the salaries of the NGO extension agents beyond the AQIP project.

System installation is taking a little longer than expected since it's difficult to find PVC pipes and fittings that conform to international standards. PVC fittings from one manufacturer do not necessarily fit PVC pipes from a competitor. PVC pipes and polyurethane tubing have to be heated and expanded to fit tightly into the fitting. The PVC glue available locally is of poor quality, and rather than drying in 15 to 30 seconds, it takes approximately 30 minutes on a sunny day and close to an hour on a cloudy, humid day. After some experimentations and trial and error, the drip irrigation technician was able to overcome these constraints, and train the NGO extension agents, who are now able to independently install the systems.

Fig. 9: *Demonstrating installation adjustments*

3. Environmental Monitoring

AQIP continues to promote activities that contribute to the development of productive and sustainable systems in conformance with USAID environmental guidelines. The construction of the water diversion dams assist in insuring that flood control and construction standards are followed to prevent soil erosion with special emphasis placed on stabilizing stream banks. HAFO has combined the cleaning of irrigation canals with planting of trees for wind breaks and fuel wood. Water conservation practices are being encouraged through environmentally friendly drip irrigation. Road construction designs and standards have been developed to insure that modifications to the environment will be minimal. Finally, Chemonics developed environmental guidelines, based on USAID's Environmental Regulation 216, and provided training to the NGO partners to measure the probable environmental impacts of project interventions. The environmental training focused on how to minimize any negative affects and environmental guidelines were provided to the NGOs explaining how to categorize probable affects on the environment as Non Significant (NS) to having a Significant (S) impact. When the impacts are determined to be S, the NGOs are incorporating design modifications to reduce the environmental impact to at least a Moderate (M), in the event that it's not practical to further reduce the environmental impact to a NS.

4. Gender Awareness

Afghan women traditionally have limited opportunities for work outside the household. Since food-for work or cash-for-work programs may not be practical options for women during the immediate reconstruction period, AQIP is focusing on work that can be undertaken inside the house or within the family compound, is culturally acceptable, and offers meaningful opportunities. AQIP is improving the food security of women through the provision of reliable access to water for family gardens, targeting women for income generating activities and attending women's leadership seminars.

Income Generating Activities

AQIP is promoting poultry and egg production, which offers opportunities for women to increase family income. During the previous quarter over 400 women received chickens. During this quarter 60 additional women received chickens and another 400 will receive chickens upon completion of poultry training.

AQIP is promoting patu weaving as a family enterprise, and women's participation as weavers is essential for the success of this activity. Fifty

Fig. 10: *Registration for income generating training*

families received looms and yarn this quarter, and an additional 40 families (the majority women) are receiving training as a prerequisite to receiving patu looms.

AQIP is facilitating the training of 40 women in embroidery. The training started in March and will continue for three months. Since most of the women are familiar with embroidery techniques, the primary focus of the training is to understand the market demand and to produce products that have acceptance in the market.

The introduction of drip irrigation systems for family gardens is creating greater opportunities for women by allowing families to cultivate family gardens with sufficient production to sell produce in the local market. Since the planting and cultivation of family gardens is traditionally a women's activity, the women will be instrumental in determining the use of income generated through the sale of produce from the family garden.

Women's Leadership Seminars

Most training opportunities for women are targeted for senior women leaders and rural social awareness training. However, very little training exists for junior professionals working for NGOs and other organizations though they have the potential to become the next generation of Afghan leaders. Chemonics/AQIP is addressing this gap by sponsoring Women's Leadership Seminars for junior women professionals to better understand their growth potential through contact with senior Afghan and expatriate professionals. The seminars are:

- Creating a close-knit support group of junior professional women in Afghanistan working with the NGO community.
- Introducing the junior professionals to strong female role models.
- Developing a model for professional training and networking for junior professional women that is self-sustaining and replicable on a larger scale.

The seminars are being held monthly and have a duration of one to two hours. Each session features at least one female speaker who is in a leadership position. The topics discussed include:

- Professional growth opportunities
- Discussions on common obstacles faced by women in the workplace
- Pressures faced by working women from society and family
- The role of women in rebuilding Afghanistan.

The initial seminar was held on March 27, 2003 and participants came from IRC, AREA, HAFO, PRB, and RAFA. The guest speaker was Ms. Murwarid Ziaye, the Manager of Afghan Aid. Ms. Ziaye manages the Afghan Aid program in Afghanistan and supervises a staff of 15 employees. Additionally, she is responsible for coordinating the transfer of Afghan Aid's staff in Peshawar to Kabul.
The seminar was well received and all the entities that received

Fig. 11: *Discussion on women leadership role*

invitations sent participants. It was gratifying to read the minutes of the seminar, which included comments such as, "We must continue to improve through the acquisition of knowledge and experience to be fully capable of being significant contributors to society." "Two years ago we (women) weren't supposed to have an opinion, and now we are meeting to ask ourselves questions such as how can we contribute to the development of Afghanistan".

A tentative list of speakers include:

- The Minister of Public Health
- The Minister of Women's Affairs
- Executive Director, Afghan Women's Network
- Lena Abirafel, Director of Women for Women

5. Planned Activities (April-June 2003)

5.1 Infrastructure Rehabilitation

Road Rehabilitation

After being advised that the Minister of Public Works insisted the Surobi-Jabul-e-Saraj road be reconstructed according to primary road standards, Chemonics/AQIP was left with no other choice than to back out of this activity. During March, the Chemonics/AQIP engineer and engineers from HAFO and AREA visited a number of potential road sites in the Provinces of Kabul, Logar, Laghman, Kapisa and Wardak. It appears that most of the secondary or tertiary roads within Kabul Province have already been rehabilitated or are being repaired under other programs. After inspecting more than ten sites and taking into account the economic potential combined with the need to rehabilitate the road, Chemonics and the NGO partners selected a tertiary road in the Wardak Province. The road proposed for repair starts at Shush Gaw, 20 kilometers North of Ghazni, then heads West to Jagatu (16 kms), then splits with one section heading Southwest to Rashidan (23 kms), and the other section heads Northwest from Jagatu to Ghakh Village (16 kms). Chemonics proposed and USAID concurred with AQIP rehabilitating the above mentioned road.

Fig. 12: *Provincial Governor explains Afghanistan development needs to USAID AA Mr. Fred Schieck*

HAFO and AREA have received written authorization to improve this road from the Governor of Wardak, and the Ministries of Public Works and Reconstruction and Rural Development.

HAFO maintains an office and residence in Jagatu, and both HAFO and AREA will establish their field offices there. Arrangements for mobilization have been finalized and in early April

the necessary road equipment will be on site. While a preliminary survey was conducted in March that identified potential barrow pits, sources of water and need for culverts and water washes, a more detailed survey will be completed and reconstruction plans developed accordingly. HAFO plans to initiate work on the section of the road between Shush Gaw and Jagatu, and AREA will start with the section from Jagatu to Rashidan.

Even though UNOPS is still interested in doing a joint road project with Chemonics/AQIP, we don't have the luxury to wait for the resolution of a series of concerns that may delay the initiation of this road project. Therefore, HAFO and AREA will immediately proceed with the reconstruction activity, and, in the event that UNOPS is able to finalize an on-site training activity on this road, AQIP will participate. With or without a UNOPS partnership arrangement, AQIP will repair the road to secondary standards, this will insure that the road will last a minimum of three years with minimal maintenance. HAFO and AREA realize that emphasis will be placed on quality construction that includes, i) crowning and compaction of the road surface to assure water run off, ii) drainage ditches will be cleaned or dug to prevent road embankment erosion and carry a water flow based on a 15 year storm standards, and iii) reinforced cross drainages will be installed to enable water to cross the road, rather than running down the road. The work will begin in early April and should be completed by July 2003.

Water Diversion Dams and Irrigation Canals

Two water diversion dams were completed during the January-March quarter. Of the two, the Tagab Dam constructed by HAFO has been inspected and accepted by the Chemonics/AQIP engineer. PRB notified Chemonics on March 29 that the Khwaja Hassan Canal water diversion dam has been completed. Since the Chemonics/AQIP engineer had previous commitments to work with HAFO and AREA on the preliminary survey for the Jagatu road, he was not able to inspect the Khwaja Hassin Dam. The acceptance of this dam is a priority, and Chemonics engineer will conduct the inspection in early April to verify that the completed dam meets the standards and norms of the construction design.

Our staff has been placing so much emphasis on insuring that the NGOs continued construction activity during the winter months that we neglected to schedule inaugurations to coincide with the completion of these two water diversion dams. Inaugurations are an important means of promoting USG support for Afghanistan, and we will proceed to schedule inauguration events which are convenient for USAID's schedule. While both the Tagab and the Khwaja Hassin water diversion dams are good examples of quality workmanship, the Khwaja Hassin dam was the site of the AQIP "Kick Off" ceremony and therefore may offer a good opportunity for USG officials to return to this site to see the results of the Project. Chemonics/AQIP will coordinate the inaugurations of both dams with USAID.

Fig. 13: *Site of Khuram and Khwaja wash protection*

The three remaining water diversion dams, two of which are under construction by RAFA on the Ghorband River, are the most difficult of the AQIP dams. Work during the January-March quarter on the Mahigeer and Matak Dams proceeded on schedule despite freezing temperatures and constant water seepage requiring RAFA to pump out the water from the foundation 24 hours a day. While Afghanistan welcomed the rains of March, they seriously hindered construction on the Ghorband River. In early March and again in mid-March, the river rose several meters in a period of a few hours, causing ruptures in the temporary dam. Rocks, gravel, sand and silt filled in segments of the excavation. As soon as the water level drops, RAFA will repair the temporary dam and continue with its work. Even with these setbacks, construction is basically on schedule. The Mehigeer dam is approximately 95% complete. The main wall of the dam is complete, but work remains on one of the retaining walls and the water intake canal. As planned, RAFA completed the foundation and stone masonry wall of the Matak dam up to the level of the river bed. While RAFA was able to continue work during the winter and only temporarily suspended work when hit by flash floods, RAFA will be forced to suspend work in mid-April prior to the spring floods. The floods should not damage the foundation and reinforced sub-terrain masonry wall, while a partially completed wall higher than the river bed would probably be washed out during the floods. When the level of the river drops, probably in late July or early August, RAFA will again divert the river channel, clean the debris off the foundation and resume construction of this dam. Since the Ghorband River will be at its highest level during the April-June quarter, with the exception of completing the retaining wall for the Mehigeer dam, RAFA plans to postpone work during this quarter.

Fig. 14: *Mahigeer water diversion dam, construction advance*

Protection of the Khuram and Khwaja Irrigation Tunnels

In February 2003, Chemonics requested and USAID authorized the increase in the level of effort for PRB's Subaward (within the current AQIP budget) to construct a series of gabion retaining walls and a dike to protect the Khuram and Khwaja irrigation tunnels. PRB completed the construction designs, which were approved in late February by the Ministry of Irrigation. PRB has opened a field office in Gulbahar, completed mobilization, and has employed two separate work crews. One is making gabion baskets and the other is sorting and stacking rocks which will be used to fill the gabion baskets. The actual construction of the gabion walls and protection dike will start in early April and will continue through July. Since the majority of the work is not actually in the river, there should only be minimal down-time during the flood season. Filling gabion baskets with stones is extremely labor intensive and PRB is expecting to employ close to 70 unskilled day labors to either fill the 390 meters of gabion baskets or sort stones. The following work will be initiated and will be more than 75% completed during the quarter:

- Construction of 390 meters of a gabion wall (120 meters on the right bank of the wash, 200 meters on the left bank, and 70 meters to protect the Khurram canal).

- Construction of a five to eight meter concrete dike to protect the Khurram Tunnel.
- Construction of a 20 meter stone masonry wall for the Koja spillway.
- Installation of three water control gates to regulate the water flow.

5.2 Well Excavation

Improved Access to Safe Drinking Water

While AREA made significant progress during the January-March quarter in mobilizing communities to excavate 25 deep wells, (35 to 40 meters) it did not take advantage of proven techniques to mix concrete during the winter months. If AREA would have adopted some of the procedures to continue construction during the winter months, it would be well-advanced in the installation of the concrete seals and hand pumps on the excavated wells. Of the four NGO partners AREA was the only one that we failed to convince to continue pouring concrete during the winter. Despite repeated attempts, AREA remained firm in its position, that the construction and installation of concrete seals is quick and there will be plenty of time to complete this task during the more favorable weather, in the April-June quarter. These projections are consistent with AREA's implementation time line submitted with its March monthly report, which shows that all 40 wells will be completed and installed with cement seals and hand pumps prior to the end of June. Given AREA's past experience pertaining to its sense of urgency, Chemonics/AQIP doubts that AREA will complete well construction during the April-June quarter. Ten of the wells are in various stages of excavation and the excavation hasn't started for five of the wells. AREA may have failed to consider that there will probably be a shortage of labor during the spring planting season which could result in a significant slow down of four to six weeks. Therefore, Chemonics/AQIP is projecting that 25 wells will be completed and installed with concrete seals and hand pumps, but that the completion of the remaining 15 wells will fall into the July-September quarter.

Irrigation Water Supply

AREA has selected six of the eight sites for the installation of diesel pumps for irrigation purposes. Four of the sites are in the Logar Province, and four are in the Charasiab District within the Kabul Province. The excavation has started on the four wells in Charasiab. While AREA is expecting to complete all eight wells, install them with diesel pumps and turn them over to the communities during the April-June quarter, Chemonics/AQIP anticipates that this projection is overly optimistic. Chemonics/AQIP believes that the completion of four of the wells will probably slide into the July-September quarter for the aforementioned reasons. Nevertheless, Chemonics will encourage AREA to expedite its construction efforts in order to complete as much work as practical during the April-June quarter.

5.3 Income Generating Activities

In February Chemonics amended PRB's subaward, modifying its income generating activities to avoid duplication of efforts and shift several of the activities to communities in greater need of these services. PRB is aware of the need to work closely with recipient families, and during the April-June quarter it will continue to provide follow-up guidance to insure that quality standards are met and will assist in facilitating with the commercialization of products. PRB will continue to monitor the progress of the poultry production activity, and the efforts of the women that received patu looms and complementary materials. The participants selected for poultry assistance, embroidery, and a family oil press will continue

to receive training prior to the delivery of goods or materials. During the April-June quarter, the families selected for the poultry activity will complete the construction of the chicken pens and subsequently PRB will deliver the chickens to an additional 400 families in June 2003. PRB will continue training participants in patu weaving, embroidery and marketing of their products. Finally, the oil press will be installed during the quarter.

6. Planned Drip Irrigation Activities

Continuation of System Installation

During the April-June quarter priority will be given to complete the installation of the pending systems. Installation for one of the commercial vegetable gardens is pending as well as the three commercial fruit tree gardens. Likewise, the drip irrigation systems for the HAFO and AREA family gardens have not yet been completed. Installation priority is being given to commercial vegetable gardens and family gardens, since they are critically time sensitive for planting with spring weather. The installation of the drip system for fruit trees is not so time critical, since the AQIP Project area has had favorable spring rains. The commercial vegetable garden and the family garden units will be completely installed by mid-April, and the commercial fruit tree gardens will be installed with drip irrigation systems prior to the end of April.

Fig. 15: *Installation of main water line for drip irrigation commercial garden*

Monitoring and Technical Advisory Services

The Drip Irrigation Technician will provide monitoring and technical assistance for farmers and the NGO extension agents, to ensure adequate use and maintenance of the systems. Farmers accustomed to irrigating with furrow and flooding irrigation tend to overuse the drip systems, thinking that their crops are not receiving enough water. Intensive follow-up will be conducted once the planting cycle starts to make sure that farmers are following instructions and properly maintaining the units (cleaning the filter weekly, bi-weekly flushing to remove sediments in the drip tape). Farmers will be shown how to estimate soil moisture to avoid excessive use of water.

Fig. 16: *A recently planted family garden*

Technical advice will also include teaching the NGO extension agents and farmers how to maintain simple production cost control sheets for each crop to see at a glance the potential profits during the commercialization phase. Cost-cutting procedures will also be taught to the farmers such as how to apply fertilizer through the drip tape to obtain a better assimilation at a lower cost.

7. Continuation of Gender Awareness Activity

Women will continue to be direct beneficiaries and partners in AQIP. PRB will continue to specifically target women to participate in the income generating activities. As necessary, PRB will engage in a dialog with local shuras to increase women's participation in activities, for culturally acceptable activities. The four NGO partners will include women in drip irrigation training and provide guidance to women in selecting high value crops and with the commercialization of produce. The family gardens are designed with drip systems which can easily be maintained by women.

Fig. 17: *Future Afghan Leaders*

The Leadership Training Seminars appear to be a great success and, by participant demand, they will continue during the April-June quarter. In the immediate future, the guest speakers will be Afghan women who can serve as role models and provide junior professional women with exposure to Afghan women leaders. In the near future, probably in June 2003, we plan to expand the guest speakers to include prestigious expatriate women.

8. Price Information Boards

The information obtained during the Participatory Rural Assessment (PRA) has been distributed to the AQIP NGO partners and is being shared with the community leaders in the villages where the data was collected. The information will better inform the community leaders and farmers which crops are competitive by demonstrating between actual and break-even yields and show how the amount by which current yields would have to increase to cover cash and labor costs. Additionally, the provision of the PRA data is one of the steps in the process of establishing community maintained price information boards. Per discussions with local shuras, Chemonics will start installing price boards in the local bazaars in either late June or early July, which is close enough to the harvest for farmers to start thinking about selling their products.

9. Project Completion Date

USAID/Kabul concurred with Chemonics request for a no cost extension. Subsequent to this concurrence, the Chemonics Home Office submitted a formal request to USAID Washington for a four month extension. Subject to amending the AQIP Agreement as proposed, Chemonics will amend the Sub-awards with the NGO partners, extending their implementation periods accordingly. In accordance with the proposed project extension, Chemonics will close out all NGO implementation activity by the end of October 2003. Chemonics will then use the remaining three weeks, through November 22, 2003 to coordinate with USAID for the disposal of all non-expendable property, to prepare and submit the final AQIP report to USAID, and to transfer AQIP records to Chemonics' Home Office.

Annex I: Chemonics/AQIP Progress Database as of March 31, 2003

Implementing Partner	Project Name	Location			Type of Activity	Skilled Labor Days	Unskilled Labor Days	Beneficiaries		Canal Rehab (Km)	Hectares of Irrigated Land	Karezes Cleaned		Road Repair (Km)	Water Diversion Dam Completed (%)
		Province	District	Village				Persons	Families			#	(Km)		
PRB	Income Generation and Irrigation in Istalif	Kabul	Istalif, Shakardara	Khawja Hassan,	Irrigation and Income Generation	720	5,388	8,970	1,390	7	1,000	5.8	2.5		100
RAFA	Construction of Matak Diversion Dam	Parwan	Charikar	Charikar, Mahigeer, Bagram, Matak, Jabul-Saraj	Irrigation	4,632		1,040	160	33	2,000				45
	Construction of Mahigir diversion dam					6,949		41,015	6,310		2,200				95
	Construction of Charikar (Akhtachi) water diversion dam					0		0	0	0	1,800				0
HAFO	Construction of Khanano diversion dam and rehabilitation of Tagab Road	Kapisa	Nijrab, Tagab	Various villiges in Nijrab Tagab	Irrigation and Road Rehabilitation	1,474	10,047	7,150	1,100	7	1,000			Mobilization completed	100
AREA	Rehabilitation of Road and Construction of wells	Kapisa and Logar	Khushi, Khulangar, Nijrab, Tagab	Various villiges in Nijrab Tagab and Logar	Irrigation/road rehabilitation; drinking water		2,000	650	100					Mobilization completed	
Total						**2,194**	**29,016**	**58,825**	**9,060**	**37**	**8,000**	**5.8**	**2.5**	**0**	

Annex IV: PRB Amendment

SUBAGREEMENT MODIFICATION No. 3
EFFECTIVE DATE: 12 February, 2003
BETWEEN
CHEMONICS INTERNATIONAL INC. AND
PAMIR RECONSTRUCTION BUREAU
FOR
AGHANISTAN QUICK IMPACT PROGRAM
IN THE SHOMALI PLAIN
USAID PRIME AGREEMENT NO. EEE-A-00-02-00039-00
SUBAGREEMENT NO. SUB-EEE-A-00-02-00039-01

The purpose of this modification is to (a) increase the Subrecipient's total Subagreement funding; (b) increase the Subrecipient's cost-sharing amount; and (c) modify the Program Description. Therefore, the Subagreement is modified as follows:

1. The "Subagreement Funding" amount shown in the first paragraph on the first page of the Subagreement is changed from $199,981.72 to $299,981.00.

2. The total estimated Chemonics amount shown under A. General, item 1 of the signature page of the Subagreement is changed from $199,981.72 to $299,981.00.

3. The cost-sharing amount shown under A. General, item 3 of the signature page of the Subagreement is changed from $27,300 to $30,100.

4. **Delete in its entirety the following clause from Attachment 1, Section C.2:**

   "The Subrecipient hereby agrees that all funding disbursed under this Subagreement shall be used exclusively for the activities described in the Program Description. If at any time it should be determined that achievement of Subagreement Objectives described in the Program Description are no longer reasonably feasible, for any reason, the Subrecipient must notify Chemonics in writing to this effect in a timely manner."

   Insert:

   "The Subrecipient hereby agrees that all funding disbursed under this Subagreement shall be used exclusively for the activities described in the Program Description and the Program Expansion Description. If at any time it should be determined that achievement of Subagreement Objectives described in the Program Description and the Program Expansion Description are no longer reasonably feasible, for any reason, the Subrecipient must notify Chemonics in writing to this effect in a timely manner."

5. **Delete in its entirety the following clause from Attachment 1, Section D.1:**

"The following is the Subagreement Budget.

Cost Category	Budget Allocation $ U.S.
1. Salaries and expert fees	$ 49,503.00
2. Equipment	$ 21,680.00
3. Supplies	$113,779.00
4. Travel	$ 3,700.00
5. Other direct costs	$ 11,319.72
6. Total	$199,981.72"

Insert:

"The following is the Subagreement Budget.

Cost Category	Budget Allocation $ U.S.
1. Salaries and expert fees	$ 82,407.00
2. Equipment	$ 22,960.00
3. Supplies & Blasting	$163,109.00
4. Travel	$ 10,300.00
5. Other direct costs	$ 20,485.00
6. Total	$299,981.00"

6. The cost sharing amount shown in Attachment 1, Section G is changed from $27,300 to $30,100.

All other terms and provisions of the original Subagreement, effective 30 September, 2002, remain in force.

IN WITNESS WHEREOF,

The authorized officers of the respective parties do hereby set their hand.

CHEMONICS INTERNATIONAL INC.	PAMIR RECONSTRUCTION BUREAU
_____	_____
By: ***Raymond Baum***	By:
Title: Chief of Party	Title:
Date:	Date:

Award Number SUB-EEE-A-00-02-00039-01

Attachment 1 – Program Expansion Description

Section 1: Program Expansion Objectives

Due to demand shifts and urgent needs in the beneficiary communities, the Prime Recipient has agreed to modify PRB's subaward program. The major activities to be completed under this modification are:

1. Protection of the Khurram and Khoja irrigation tunnels.
2. Provision of drip irrigation for family gardens.

Section 2: Description of Program Activities

1. Protection of Khurram and Khoja Irrigation Canals and Tunnels

The Governor of Kapisa Province and the Ministry of Irrigation have requested assistance from PRB to construct a series of retaining walls and dikes to protect the Khurram and Khoja irrigation tunnels and canals, fed from the Panjsher river. The tunnels and canals have a common intake and are parallel for some distance. These irrigation canals provide water to irrigate over 12,000 hectares of agricultural land in Kapisa province

The tunnels and irrigation canals are constructed just downstream from the water intake. In order to protect the canals from seasonal floods from a mountainous intermittent wash, dikes were constructed to channel the flood water over the tunnels. Unfortunately the course of the wash has changed dramatically and, rather than passing over the tunnels, the flood waters now flow downstream of the tunnels and erode large segments of the irrigation canals several times a year.
These periodic floods bring large amount of debris such as trees, rocks, sand and trash and deposit it into the path of the tunnels and consequently blocks them. The flow of water for irrigation virtually stops until the community reconstructs the canal embankments.

Under this amendment PRB proposes to protect the canals from the seasonal floods by diverting the flow of water to its original course and over the tunnels. The work required to adequately protect the canals is the construction of two gabion flood protection walls on both banks of the wash. The works include:

- Construction of 390 meters of Gabon walls (120 meters on the right bank, 200 meters on the left bank, and 70 meters to protect the Khurram irrigation canal).
- Construction of a concrete dike (Approximately 5 to 8 meters long) to divert the flood waters away from the gabion walls.
- Blasting and removing large rocks and stones located within the channel of the wash so that the water flow will return to its original course.
- Construction of a 20 meter stone masonry wall for the Khoja spillway.
- Installation of three water control gates to regulate the water flow.

The work can start immediately since all of it will be done along the intermittent stream, which only has water during the spring floods. Based on PRB's construction estimates, the construction of most of the 390 meters of Gabon's structure could be completed by late May 2003. The construction designs for the protection of the Khurram and Khoja irrigation tunnels and canals have been approved by the Ministry of Irrigation.

2. Drip Irrigation

While Afghanistan has a well developed and sophisticated network of irrigation canals, many farmers still have to rely on wells to obtain water for irrigation. With the prolonged drought the water table has dropped drastically, and more economical solutions for water utilization are needed. In order to minimize the quantity of water required for family gardens, AQIP will promote the use of drip irrigation as a water saving device. PRB will select from 13 to 17 families to receive rudimentary drip irrigation systems for family gardens.

Each of the gardens will be equipped with six to eight 15 meter drip tapes. Gardens of this size will enable the participating families to sell a significant portion of their production and consume the surplus. This is a shift from the normal kitchen garden concept where families primarily produce for household consumption and only sell if there is a surplus. The responsibilities associated with promoting drip irrigation are divided between Chemonics and PRB as follows.

A. PRB Responsibilities are to:

- Work with the Shura to select needy families which are disciplined to plant family gardens and maintain the drip irrigation systems.
- Participate in Chemonics sponsored training, pertaining to the installation, use and maintenance of drip irrigation systems.
- Designate PRB field staff to work with the Chemonics Drip irrigation Specialist, for the installation of the initial PRB systems.
- After receiving training from the Drip Irrigation Specialist, assist recipient families to install their drip systems.
- Use funds from the PRB's income generating budget to purchase and install the 100-to 200 liter family water tanks.
- Provide guidance to recipient families pertaining to which type of vegetables usually bring higher prices in the market, and have high nutritional value such ad vitamin A.
- Provide guidance for families to select vegetables, which require similar spacing, which conforms to one size of drip tape.
- On a limited basis, assist families to plant very high value crops such as strawberries which used to be cultivated in Kabul and surrounding areas before the war.

B. Chemonics Responsibilities are to:

- Purchase and ship the drip irrigation supplies and materials to Afghanistan.
- Provide on-the-job type training to PRB staff and community recipients pertaining to the installation, use and maintenance of drip irrigation systems.
- Assure the PRB staff is fully prepared to install drip irrigation systems for, subsequent AQIP beneficiaries without the need of constant oversight.
- Review and monitor the quality of drip tape installation performed by the PRB field staff.
- As required correct deficiencies and provide additional guidance to assure proper installation and use of drip irrigation systems.

Section 3: Description of Expected Results

1. Performance indicators
   - The protection of the Khurram and Khoja Irrigation canals and aqueducts will assure that a regular flow of water is available for approximately 12,000 hectares of prime agricultural land.
   - The irrigation canals will not be blocked during spring floods.
   - The portion of the canal downstream of the aqueducts will not be washed away by seasonal floods.
   - 7528 person–days job opportunities will be provided for workers.
   - More than 8,000 farm families will have are liable source of water for irrigation.
   - Rural families will learn the benefits of water saving irrigation systems.
   - PRB will be in a position to replicate drip irrigation schemes.

2. Benchmark Results
   - Enough water will be flowing in Khurram and Khoja canals to adequately irrigate over 12,000 hectares.
   - Wages from 7528 person–days will be paid to skilled and unskilled labor
   - Rural families will learn the profitability of using labor saving drip irrigation systems.
   - At least 50% of the families receiving drip irrigations will produce higher value crops on a commercial scale.
   - The 50% which produce vegetables for a kitchen garden will improve their nutritional status through the cultivation of crops high in vitamins, especially vitamin A.

Section 4: Implementation Plan and Schedule

The following schedule incorporates PRB's entire subaward program:

Summary Chemonics/Shamali Implementation Plan for: PRB

Activity	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11
	Cycle 1					Cycle 2			
Mobilization of Shura									
Identification of benef.									
Chicken house constr.									
Training									
Distribution of chicken									
Distribution of feed									
Monitoring of chicken									
Distribution of Patu weaving looms & tools including monitoring									
Diversion construction work in Istalif									
Karez rehabilitation									
Flood Protection									
Oil Press									
Drip Irrigation									
Monthly Report 1									
Monthly Report 2									
Monthly Report 3									
Monthly Report 4									
Monthly Report 5									
Monthly Report 6									
Monthly Report 7									
Monthly Report 8									
Grant Completion Rept									

Annex V: Drip Irrigation Memorandum of Understanding

Drip Irrigation
Memorandum of Understanding
Between Chemonics International and AQIP Implementing Partners

I. Name of Activity:

Drip Irrigation Initiative

II. Purpose of Memorandum of Understanding (MOU).

The purpose of this MOU is to provide guidance to the AQIP implementing partners during the installation and oversight of drip irrigation systems partially funded with AQIP resources. The AQIP implementing partners will complement the drip irrigation activity with resources from ongoing projects including AQIP, other donor related activities, and the Implementing Partners managed resources.

III. Brief Description of Activity:

The Afghanistan Quick Impact Project (AQIP) funded by USAID is initiating an innovative drip irrigation activity in Kabul and Wardak Provinces. The installation of water saving drip irrigation systems will enable farmers to cultivate land under drought conditions and become more competitive by reducing production costs.

IV. Implementing Partners:

1. Agency for Rehabilitation and Energy Conservation in Afghanistan (AREA)
2. Helping Afghan Farmers Organizations (HAFO)
3. Partners in Revitalization and Building (PRB)
4. Reconstruction Authority for Afghanistan (RAFA)

V. Activity Duration: This activity is a component of the Afghanistan Quick Impact Project, and therefore its duration is subject to the AQIP time frame authorized by USAID.

VI. Geographic Location and Beneficiaries

Since this initiative is relatively small in scope, it's understood that the drip irrigation activity should complement an existing activity rather than be a stand alone project. The activity will target at least 50 families to install drip irrigation systems for family gardens. Additionally at least four multi family commercial gardens which are dependent on pumping water from wells will be installed with drip irrigation systems.

1. Commercial Gardens

AREA will supervise the implementation of the commercial gardens in the villages of Qala-e-Adam Khan, Elyas Khil, and Urya Khil.

2. Family Gardens

i) AREA will work with 14 families in Charasiab and Paghman, the recipient families are selected from the AREA's cooperative offices in these areas.
ii) HAFO will work with 14 families from a universe of 100 families for farmers in Wardak.
iii) PRB has selected 14 families to receive drip irrigation from a universe of 80 families which are participating in its dairy project in Chardehei.
iv) RAFA has selected 14 families in Qala-e-Fatu to participate in the drip irrigation activity.

VII. Project Inputs

1. Chemonics Contribution

Chemonics will support the Drip Irrigation Initiative by providing technical assistance, the procurement and distribution of drip irrigation supplies, the installation of water tanks and towers, and the procurement of certified seed. These costs are in addition to the approved funding in the implementing Partners sub-grant agreements. The combined estimated costs for these goods and services is. $ 58,000

2. NGO and Recipient Contribution.

See Section IX Drip Irrigation Guidelines for an explanation of the NGO Implementing Partners and community recipients responsibilities and contributions.

VIII. Project Concept

In an effort to introduce water saving irrigation interventions, Chemonics International plans to install drip irrigation systems on commercial as well as family gardens. The Project will work in conjunction with the USAID funded Afghanistan Quick Impact Program (AQIPS) in the Shamali Plan and adjacent provinces. The drip irrigation activity will be an add on to the AQIPS sub-grants being implemented by four local NGOs, Helping Afghan Farmers Organizations (HAFO), Partners in Revitalization and Building (PRB), the Reconstruction Agency for Afghanistan (RAFA) and the Agency for Rehabilitation and Energy Conservation in Afghanistan (AREA). Under the AQIPS Agreement the above mentioned NGO partners are constructing water diversions dams, water intake systems, cleaning karezes and irrigation canals, excavating wells for drinking water and irrigation, rehabilitating rural roads and implementing a series of income generating activities.

During the course of implementation it became apparent that many farmers no longer have access to irrigation water due to the prolonged drought. Large segments of the country that used to be served by irrigation canals no longer receive an adequate supply of water to assure a crop, or for farmers to maintain their families. More and more farmers are being forced to use diesel pumps to obtain ground water as their source of irrigation. Adding the cost of pumping water to production is costly and not affordable by every farmer. With the water table continuing to drop the cost of fuel for pumping water increases. The increased production costs results in the farmers becoming less competitive in a market structured economy.

Water saving technologies such as drip irrigation offer potential to reverse this trend. For example it takes over 22,000 litters of water to cover a hectare of land with one inch of water, while a hectare of mature tomatoes fed with drip irrigation only requires 950 litters of water. Drip irrigation is a proven technique, and in many countries it has become a small scale farmer intervention. In order to demonstrate the effectiveness of drip irrigation Chemonics will increase the level of effort of the above mentioned NGOs to install drip irrigations systems for approximately 55 family gardens and five or six commercial gardens. Chemonics will provide the drip irrigation supplies, drip tape, polyurethane tubing, drip inserts, pressure hoses, water filters etc. Additionally, Chemonics will finance the costs of a drip irrigation specialist to train the NGO staff and project recipients in the installation, use and maintenance of the system. The aforementioned NGOs will work within their existing projects to promote and install drip irrigation systems for family gardens. Each NGO will select at least 14 families to receive these systems. This will be a large enough sample to use the gardens with drip irrigation as demonstration plots to show the potential for broader agriculture purposes.

In order to maximize the benefits of the drip irrigation activity, and ensure sustainability of the project, three of the participating NGOs, HAFO, PRB and RAFA are seeking minimal funding to support extension services at the grass roots level. The extension agents will ensure that farmers fully understand how to used and maintain the systems, and serve to generate interest from other farmers to install drip irrigation systems. Additionally, the extension agents will provide assistance in crop selection and guidance in marketing of garden produce.

IX. Drip Irrigation Guidelines

1. Background

While Afghanistan has a well developed and sophisticated network of irrigation canals, many farmers still have to rely on wells to obtain water for irrigation. With the prolonged drought the water table has dropped drastically, and more economical solutions for water utilization are needed. Additionally, some of the long-term problems associated with feral irrigation are the excessive use of water, the build up of salts in soils, and potential conflicts with neighbors for hording water. World wide farmers are turning to more environmentally friendly drip irrigation for the cultivation of higher value crops. In many countries drip irrigation has already become a small farmer intervention. Drip irrigation can easily be promoted in Afghanistan where farmers or communities have readily access to a reliable source of water, such as wells. AQIP will improve the productivity and considerably reduce the cost of pumping water through the installation of drip irrigation tape, at a minimum of four separate sites. Each site will have approximately four hectares of crops, either high value vegetables or a mix of vegetables and fruit trees or grapes. In addition, to the 16 hectares of commercial gardens AQIP will work through the NGOs to promote and install drip irrigation systems for individual family gardens. Up to 50 households will be selected to participate in the family garden activity.

A. Commercial Gardens

The utilization of drip irrigation will enable farmers to become more competitive, by reducing production costs not only through the pumping of water, but by minimizing the labor required to clean or weed their fields. Since drip irrigation only moistens the soil at the base of the plant, there is not enough moisture in the soil between plants for weeds to grow.

Drip Irrigation also decreases the need for fungicides since eliminating excess water on the plants significantly reduces water borne fungus common with ferial irrigation.

A variety of commercial agriculture sites will be selected for the installation of drip irrigation, a combined total of 16 hectares. A basic criteria will be that the farmer cultivates with the intent to market most of the harvest, rather than producing primarily for on farm consumption. The commercial gardens will be equipped with drip tape, a field pressure hose fed from the main water line connected to the well or elevated water tank. The water tank or reservoir will have the capacity to irrigate up to one hectare of land daily. The commercial gardens selected, for example could utilize drip irrigation to irrigate fruit trees the first day, then the next day rotate the water line to irrigate vegetables. Other sites may be completely vegetables or entirely fruit trees. Ideally the well or water tank should be located as near to the middle of the fields as practical in order to rotate the water line 360 degrees.

The responsibilities for installing and maintaining the drip irrigation systems is divided among Chemonics, the implementing NGO and the recipient farmers. Following is a breakdown of these activities;

1. Chemonics will;

- Chemonics will purchase and facilitate the distribution of the drip irrigation supplies through selected NGOs.
- Chemonics will provide drip irrigation training for the NGO Implementing Partners staff which will consist of conventional classes, review of drip systems, calculating water requirements and field demonstrations.
- In the event that other donor resources are not obtained for the installation of the water tank and tower, Chemonics will assist in financing the installation of an elevated water tank, adequate to irrigate one hectare of crops per day. Chemonics will reimburse the implementing partners for the installation of the water tank and tower up to a maximum amount agreed to, subject to Chemonics prior approval of the design and corresponding budget. It's responsibility of the farmer to provide all unskilled labor for the installation of this water tank.
- Negotiate an enter into an agreement with the International Fertilizer Development Corporation (IFDC) to conduct soil analysis and provide fertilizer for the commercial garden sites.
- Provide a drip irrigation technician to train the NGOs pertaining to the practices of using drip irrigation.
- The technician will provide guidance to the recipient farmers in selecting appropriate cash crops and how to incorporate drip irrigation into the production cycle.
- The technician will identify the most practical drip irrigation interventions which take into consideration installation costs and subsequent maintenance of the system.
- The Chemonics technician will train and work with the NGOs and the recipients during the installation of the drip irrigation systems.
- Chemonics will provide to each implementing unit a set of basic tools required for the installation of drip irrigations systems.
- Make an effort to provide quality vegetable seed to the participating farmers.
- Chemonics will provide follow-on advice and guidance for assuring that the installed systems are properly functioning and utilized.

2. The Participating NGO will;

- Identify several farmers which qualify for drip irrigation systems, and then coordinate with Chemonics for the final selection
- Transport drip irrigation materials and supplies from Kabul to project sites.
- Designate staff to be trained by Chemonics for the installation and maintenance of drip irrigation systems.
- After receiving training, work with recipient farmers to install drip irrigation systems on their farms.
- Coordinate with the International Fertilizer Development Corporation (IFDC) for it to conduct soil analysis and distribute fertilizer for the commercial drip irrigation gardens.
- Provide follow on services and guidance to the recipients to assure that the installed systems are properly functioning and utilized.
- Make a sincere effort to obtain complementary funding from other donors to assist with the costs of providing continued extension services and finance the costs of the installation of the water tank and tower.
- In the event that other donor resources are not available to fund essential extension services, the NGO will be responsible to provide these services.

3. The Drip Irrigation System Recipient will;

- Have access to a reliable source of water, and the pumping mechanism to fill, the water reservoir on a daily basis.
- The farmers will finance the agriculture inputs, land preparation, seeds, chemicals, and fertilizer not provided by IFDC or Chemonics. All other production costs are the responsibility of the recipient.
- The farmer will provide the labor required to install the water tank and tower, the drip irrigation system including the laying of the drip tape and polyurethane tubing.
- While Chemonics and the NGO will provide guidance and oversight to the recipient farmer, it will be the farmer's responsible to maintain the system.

B. Family Gardens

In order to minimize the quantity of water required for family gardens, AQIP will promote the use of drip irrigation as a water saving device. Approximately 55 families currently participating in NGO kitchen garden or household development activities will be selected to receive rudimentary drip irrigation systems. Each of the gardens will be equipped with six to eight 15 meter drip tapes. Gardens of this size will enable the participating families to sell a significant portion of their production and consume the surplus. This is a shift from the normal kitchen garden concept where families produce primarily for household consumption and only sell if there is a surplus. The responsibilities associated with promoting drip irrigation are divided between Chemonics, the NGOs and the participating families as follows;

1. Chemonics Responsibilities are to;

- Purchase and ship the drip irrigation supplies and materials to Afghanistan.
- In the event that other donor resources are not obtained for the installation of the water tank and tower, Chemonics will assist in financing the installation of a small water tank and tower adequate to irrigate the family garden. Chemonics will reimburse the implementing partner for the installation of the water tank and tower

up to the maximum amount agreed to, subject to Chemonics approval of the water tank and tower design and budget.
- Provide on-the-job type training to the NGO staff and community recipients pertaining to the installation, use and maintenance of drip irrigation systems.
- Chemonics will provide to each NGO partner a set of basic tools required to install the drip irrigation systems.
- Assure that the NGO staff is fully prepared to install drip irrigation systems for, subsequent AQIP beneficiaries without the need of constant oversight.
- Review and monitor the quality of drip tape installation performed by the NGO field staff.
- As required correct deficiencies and provide additional guidance to assure proper installation and use of drip irrigation systems.
- Chemonics will identify the most practical drip interventions which take into consideration installation costs and subsequent maintenance of the system.
- Chemonics will provide guidance to the NGO and farmers in selecting appropriate high value crops, appropriate for drip irrigation.
- Chemonics will make an effort to provide quality seed and fertilizer to the participating families.

2. The NGO's Responsibilities are to;
- Work with the Shuras to select needy families which will be disciplined to plant family gardens and maintain the drip irrigation systems.
- Participate in Chemonics sponsored training, pertaining to the installation, use and maintenance of drip irrigation systems.
- Transport the drip irrigation supplies and materials from Kabul to project sites.
- Designate field staff to work with the Chemonics Drip Irrigation Specialist, for the installation of the initial drip irrigation systems.
- Make a sincere effort to obtain other donor resources for the installation of a 200 litter water tank and tower. The recipient will be responsible to provide the unskilled labor for this work.
- After receiving training from the Drip Irrigation technician, the NGO field staff will be responsible to assist recipient families install their drip systems.
- Provide guidance to recipient families pertaining to which type of vegetables usually bring higher prices in the market, and have high nutritional value such as vitamin A. Assist in obtaining high quality vegetable seeds.
- Provide guidance for families to select vegetables which require similar spacing which conforms to one size of drip tape.
- On a limited basis, assist families to plant very high value crops such as strawberries and flowers, which used to be cultivated in Afghanistan before the war.
- Assist families in identifying lucrative outlets for their production.

3. The Recipient Family;
- Must have access to a reliable source of water, which can be used to fill at least a 200 litter, water tank to adequately irrigate the family garden.
- Provide the unskilled labor to install the water tank and tower, and the installation of the drip irrigation system.
- Plant the vegetables as indicated by the Chemonics technician and the NGO field representative.
- Incorporate organic fertilizers into the garden, as instructed by the NGO field representative.

- Finance all other production costs not specifically identified as a contribution of Chemonics or the implementing partner.

X. Acknowledged

The terms and conditions specified herein in this Memorandum of Understanding are agreed to by Chemonics and the following AQIP Implementing Partners.

Chemonics

Ray Baum
AQIP Chief of Party

Date: _____

AREA

Eng. Khiyal Shah
Regional Director
Date: _____

HAFO

Eng. Jaweed
Director
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PRB

Eng. Noor Hussain
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Date: _____

RAFA

Eng. Abdul Rashid Ghyasi
Director
Date: _____