Afghanistan Water, Agriculture and Technology Transfer Program (AWATT)

Fiscal Year One (FY08) Annual Report

(March 3, 2008 – March 3, 2009)

Including Fourth Quarter of FY08

March 2009

Executive Summary

The USAID Afghanistan Water, Agriculture, and Technology Transfer (AWATT) program being implemented by New Mexico State University (NMSU) provides technical assistance to improve and strengthen Afghan capacity to manage and utilize the country's scarce water and natural resources. NMSU's works to deliver AWATT program through subcontracts with its University partners; Colorado State University (CSU), University of Illinois at Urbana Champaign (UIUC), and Southern Illinois University at Carbondale (SIUC).

AWATT's first year in Afghanistan has been one of intensive learning for the AWATT team. However, we have made substantial inroads in building a platform to launch programs targeting water use and natural resource conservation that will result in reaching our ultimate objectives of improving farm incomes, creating new rural jobs, and improving food security. These programs are detailed in the *AWATT Year Two Plan of Work*.

AWATT accomplishments during the first year of operation included;

- Establishing bases of operation is Kabul, Nangarhar, and Balkh
- Placing a field team of water and natural resource experts in Kabul
- Adding a gender specialist to develop programs for Afghan women
- Building an in-country advisory team to guide AWATT efforts
- Establishing relationships and extending expert assistance to MAIL and MEW
- Forming relationships with Kabul, Nangarhar, Balkh, and Qandahar University Deans and Faculty
- Training of 49 extension staff in Participatory Rural Assessment methods
- Training of 60 persons in soil fertility management and soil crop management
- Conducted a multiple day water management workshop attended by Ministry officials and University faculty
- Provided soil testing equipment to Kabul University and for two soil testing laboratories in Nangarhar and Balkh
- Obtained water measurement devices to be located in conveyance systems in four Provinces where training of Mirabs and Water User Association members will be conducted during FY09
- Building a detailed library of documents and reports on Afghanistan's water and agriculture
- Building a detailed library of water and natural resource policy and law
- Constructed a preliminary model to assess the economic feasibility of water allocation

- Assembled data to build cost and return estimates within the Balkhab basin as inputs for the water allocation model
- Scouting locations and arranging for demonstrations of irrigation technologies, agronomic best practices, and high-value crops for FY09 in Balkh, Kabul, Baglan, Kunduz, Herat, and Nangarhar Provinces
- Working in cooperation with other USAID Partners to develop Teaching Laboratories in Soil, Water, and Plant Protection at Balkh and Nangarhar Universities
- Developing curriculum for capacity building in;
    - agribusiness and economic decision tools,
    - research methods,
    - plant protection,
    - rangeland restoration,
    - natural resource management,
    - integrated water resource management,

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A. Introduction

The USAID Afghanistan Water, Agriculture, and Technology Transfer (AWATT) program being implemented by New Mexico State University (NMSU) provides technical assistance to improve and strengthen Afghan capacity to manage and utilize the country's scarce water and natural resources. The AWATT Project is funded through a *Cooperative Agreement* with USAID-Afghanistan's Office of Alternative Development and Agriculture (ADAG). The *Cooperative Agreement* between NMSU and ADAG started on March 3, 2008.

This document combines the fourth quarter FY08 reporting with the annual report for the first year of AWATT program operations (March 3, 2008 – March 2, 2009). In terms of the reporting period, there are two items of note;

1. In order to align with the Federal Fiscal Year, the project CTO requested changes in the reporting period. This request was implemented in December of 2008. Thus, the fourth quarter discussions contained here within include an abbreviated period (January 1, 2008 – March 3, 2009). The previously filed third quarter report for FY08 was extended to a four month time frame (September 1, 2008 – December 31, 2008).
2. Also at the request of the CTO, the Fiscal Year of future AWATT Plans of Work will be adjusted to match the Federal Fiscal Year. Hence, the recently approved *AWATT Year Two Plan of Work* has been prepared for the period October 2008 -- September 2009 (FY09) to align with the Federal reporting calendar.

This report first briefly describes the AWATT project focus. Next, the AWATT accomplishments during the fourth quarter of FY08 are discussed. Then, following the indicated guidelines in the NMSU/ADAG *Cooperative Agreement*, the annual report is presented. The annual report maps directly to the tasks listed in the *AWATT Year 1 Plan of Work (POW)* and compares what we proposed with what was accomplished. Explanations are provided for those objectives in the POW that were not attained. This report concludes with lessons learned during this first year and briefly describes the forward path of AWATT for its work in the upcoming fiscal year.

1. Project Focus

As indicated in the March 3, 2008 *Cooperative Agreement* between NMSU and USAID, the main objective of AWATT is to increase the opportunity for Afghans to:

- Access information and knowledge on appropriate technology,
- Provide the tools and mechanisms for policy and institutional changes that would enhance the management of supply and demand of water resources, and

- Develop legislative frameworks for tenure and rights over private and common land in the rural areas.

The specific objectives of the AWATT program as listed in Appendix B of the *Cooperative Agreement* include:

1. To develop an institutional framework for effective supply and demand management of the county's limited water resources – from local watershed management to trans-boundary basins.

2. To determine and apply appropriate technologies that would increase the agriculture potential for areas that are subject to seasonal drought and high risks of land degradation, deforestation, and loss of biodiversity.

3. To develop the structure of an agriculture research system that would address;

    a. The research needs of the country,

    b. Effective dissemination of research results, and

    c. Strengthen the linkage of private sector / public sector research and Afghanistan and international research institutes

4. To catalyze policy reforms that would provide the mechanism for security in land tenure and ownership and in efficient use of water supply for agriculture (production and processing)

5. To provide the framework for a system of land security of ownership and tenure for agriculture and stewardship for forest, rangeland, and resources.

NMSU has designed the AWATT project around three strategic components as defined in Appendix B of the *Cooperative Agreement*. The contractual components are:

- Technology Transfer,
- Integrated Water Management, and
- Policy and Institutional Frameworks

New Mexico State University is a land grant university. NMSU has subcontracted with three other universities who bring unique capabilities to the programs being developed by AWATT. The other subcontractors are Colorado State University (CSU), University of Illinois at Urbana Champaign (UIUC), and Southern Illinois University at Carbondale (SIUC).

UIUC and SIUC have worked in Central Asia, and specifically in Afghanistan since 2003, under previous USAID funding under the International for Arid Lands Consortium (IALC). These subcontractors bring an understanding of the region and have been involved in elevating the capacity of Afghan agricultural professionals through involvement in higher education efforts. The faculties of these partner universities have also conducted workshops and trainings targeting the professional staff of Afghan Universities of Agriculture and Ministry of Agriculture, Irrigation, and Livestock (MAIL) staff.

Colorado State University (CSU) has in-depth experience in water management on arid lands. CSU plays an integral part in the AWATT program by bringing detailed knowledge of conveyance systems and on-farm water systems. This knowledge will be transferred to Afghanistan's agricultural professionals through demonstrations, hands-on instruction, and technology transfer efforts.

B. FY2008 Fourth Quarter Accomplishments

In anticipation of the upcoming growing season, AWATT activities increased during the final quarter of the FY08. AWATT Subject Matter Experts visited farms and research station locations in preparation for demonstrations of water technologies, high-value crops, and agronomic best practices. Consequently in the fourth quarter, AWATT accomplished the following.

- Proposed and formalized demonstrations for enhancing the capacity of irrigation systems in Balkh, Kapisa, Kabul, and Nangarhar provinces through agreements with universities, other implementing partners, and NGO's;
- Created a conduit with MAIL experimental research stations and university research personnel (Kabul, Balkh, Nangarhar, and Qandahar Universities);
- Established strong linkages with MAIL and MEW for program development and capacity building – our *Year Two Plan of Work* was developed in close consultation with these Ministries and the concerned Afghan universities.
- Laid the foundations for strengthening and development of issues for watershed management and policy by working to discover the institutional frameworks (e.g., SCWAM, councils, and WUA's) that could act as efficient collaborators and as dissemination mechanisms for AWATT findings and expertise;
- Developed the methodology for unearthing water micro policy through use of a Diagnostic Assessment (DA).The DA is an evolution of the Participatory Rural Appraisal (PRA) designed for use in assessing water resources;
- Provided seeds for tomato, chile and sunflower to NGOs in Balkh;
- Acquired policy documents related to Afghan land and natural resources issues. Reviewed, cataloged, and incorporated these documents in preparation for land and

natural resource policy recommendations currently in process for Years Two and Three;

- Advanced our water modeling research by working cooperatively with Chemonics (ASAP) to acquire previously completed cost and return estimates for crops grown across Afghanistan. These crop budgets are fundamental to our economic water basin modeling efforts.
    - Began to build budgets for the major crops grown in the Balkhab watershed at the three levels of stratification proposed in our *Year 1 Plan of Work* (headwaters, middle region, and lower basin).
    - Acquired land use and cropping pattern data as a model input at the sub-basin level.
    - Collected and cataloged secondary data from FAO on plant water use tied to geography and climate as an estimator of water inputs.

AWATT team members also engaged in direct capacity building efforts and in finalizing agreements for on-the-ground demonstration components. These demonstrations will be used to showcase technologies and water use best practices. Demonstrations additionally will serve as laboratories for hands-on instruction in capacity building events during Year Two.

- Organized and delivered two training workshops, 1) Soil Fertility Management and 2) Soil and Crop System Management, at Kabul University for about 60 participants from the four Agricultural faculties of Kabul, Nangarhar, Balkh and Qandahar Universities, and MAIL (Central and provincial offices).
- Put into motion plans for soil, water and plant protection laboratory capacity at Balkh and Kabul Universities in cooperation with A4. The appropriate testing kits have been shipped to Afghanistan. A soil testing kit and training has already been provided to the Ag Faculty staff of Kabul University;
- Agreed with ASAP to conduct training and demonstration activities at the Badham Bagh farm instructing in water system measurement methods;
- Agreed with A4 to demonstrate irrigation technologies and best practices at the Agronomy farm at Kabul University.

Project PI, Dr. Roger Beck spent approximately seven weeks in Afghanistan working directly with the USAID CTO Jensen and her USAID colleagues. Dr. Beck and Ms. Jensen agreed on several programmatic changes to the AWATT program. There are included here in this section on accomplishments as they were agreed on by both parties and thus impact the AWATT project objectives.

- The CTO deobligated $2.0 of the $6.1 million FY08 USAID funding of AWATT. This deobligation was in response to NMSU's inability to produce timely reports on project expenditures.
- As an outcome of the deobligation, Beck has impressed upon NMSU the need for a more responsive accounting system and has instituted a search for a person to be located at NMSU to oversee AWATT accounting. NMSU is also seeking a replacement for the Chief Financial Officer (CFO) located in Kabul. The previous CFO's employment was terminated in January 2009.
- The CTO and the PI agreed that the current Chief of Party (COP) would be replaced within 60 days. Several candidates have applied for this position and their resumes have been forwarded to USAID for consideration.
- The CTO requested the above-mentioned change in fiscal year for the *AWATT Year Two Plan of Work*. This request was accommodated and the *Year Two Plan of Work* was filed during the last week in February. The Year Two POW received CTO approval in early March, conditional on modifications once the new COP is in place and of cooperation between AWATT and A4 on the soils laboratory tasks.

Beck, current COP Qayyum Khan, and AWATT personnel Santas and Myers attended the USAID Partner Workshop in Kabul in January, 2009. This event allowed the AWATT team to present an overview of AWATT to other USAID implanting partners (IP) and to gain insight into other programs being conducted in Afghanistan.

C. Year One Expenditures

The table below shows AWATT expenditures to date as of February 28, 2009. As shown, AWATT expenditures totaled $3,805,779.74 for the fiscal year. Also, as indicted, the budget reduction incurred from the deobligation of $2.0 million will show in the March report.

New Mexico State University
College of Agricultural Consumer & Environmental Sciences
Agency for International Development Agreement

Fiscal Analysis as of Janaury 31, 2009

	Budget	Actual @ 28-Feb-09	Open Commitments	Total Expended & Committed at February 28, 2009	Budget Vs. Actual
Salaries & Wages	$ 957,330.00	$ 603,976.27		$ 603,976.27	$ 353,353.73
Fringe Costs	$ 277,626.00	$ 148,365.27		$ 148,365.27	$ 129,260.73
Total Personnel Service Costs	**$ 1,234,956.00**	**$ 752,341.54**		**$ 752,341.54**	**$ 482,614.46**
Other Direct Costs	$ 643,352.00	$ 177,827.98	$ 69,716.99	$ 247,544.97	$ 395,807.03
Cummulative Subtotal	**$ 1,878,308.00**	**$ 930,169.52**	**$ 69,716.99**	**$ 999,886.51**	**$ 878,421.49**
Security	$ 900,000.00	$ 166,353.50	$ 56,550.00	$ 222,903.50	$ 677,096.50
In Country Support, Travel & Training	$ 900,000.00	$ 163,815.89		$ 163,815.89	$ 736,184.11
U of I	$ 150,000.00	$ 19,627.63	$ 130,372.37	$ 150,000.00	$ -
SIU	$ 450,000.00	$ 185,883.45	$ 264,116.55	$ 450,000.00	$ -
CSU	$ 1,427,655.00	$ 430,355.04	$ 997,299.96	$ 1,427,655.00	$ -
Cummulative Subtotal	**$ 5,705,963.00**	**$ 1,896,205.03**	**$ 1,518,055.87**	**$ 3,414,260.90**	**$ 2,291,702.10**
Indirect Costs	$ 562,996.00	$ 391,518.84		$ 391,518.84	$ 171,477.16
Grand Total	**$ 6,268,959.00**	**$ 2,287,723.87**	**$ 1,518,055.87**	**$ 3,805,779.74**	**$ 2,463,179.26**

"At February 28, 2009 the Budget Reduction had not yet been entered into the accounting system. That reduction will appear in March 2009 report

D. Year One Accomplishments

AWATT's first year of operation in Afghanistan was primarily focused on the administrative and relationship building tasks necessary to establish a platform for assuring program success in future years. In addition to formulating an understanding of what water-related needs existed in Afghanistan, we also worked with other USAID implementing partners to integrate our program to leverage impacts through cooperative efforts. The AWATT team also developed and delivered capacity building workshops in skills that should result in increasing production in the upcoming season.

Indeed the first year of AWATT operation resulted in substantial learning for the AWATT team members and administrators. The combination of long distances, language and cultural barriers, difficulties in finding and employing staff, and security issues slowed the progress of our intended first year programs. As the in-country field team began to gain more understanding of institutional and regional needs, and with the desires expressed by ADAG, programs and personnel modifications were made with the intent of delivering higher value to the people of Afghanistan. These programmatic changes, as well as our more tightly focused objectives, were made explicit in the *AWATT Year Two Plan of Work*.

As indicated in our *Year 1 Plan of Work (POW)*, our first year work was to be in selected water basins in Balkh and Kapisa Provinces. Adapting to the desires and needs of our advisory committee, we expanded our Year 1 plans to include efforts in Kabul and Nangarhar as well. We have appended Herat Province as another geographic location for inclusion in the capacity building offerings that will be provided in upcoming months.

In the following sections, we have paralleled the proposed activities presented in the *Year 1 Plan of Work (POW)* to point to our accomplishments. Also, as directed by the *Cooperative Agreement*, we discuss those that were incomplete at the conclusion of FY08, the reasons for they were not completed, and our intended path to remedy this.

1. Administrative and AWATT Team Support

As found in the Year 1 POW, these tasks were developed to provide the AWATT team with an administrative base. Seven areas were included in this category. The progress on each of these items is discussed below.

a) General Administrative Tasks

A long list of items comprised the General Administrative tasks that were needed to render the AWATT program operational in the first year and for future years. These included such seemingly mundane tasks as finding office space and setting up an in country bank account. We found that in an economy based on cash and with asymmetric information systems, these tasks were more time consuming than anticipated. However most of these have now been completed. Other important issues such as security are in place but are being reconsidered based on knowledge gained during this first year.

Included as well in General Administrative Tasks list were the completion of subcontracts with the AWATT university partners and the acceptance by USAID of various documents produced as directed in the *Cooperative Agreement*. It has only been within recent days that the AWATT PI was informed of the acceptance of the *AWATT Life of Plan (LOP)* document and the *Year 1 Plan of Work*. Prior to this, there had been limited indications of acceptance of any of the planning documents filed by the NMSU team. This lack of communication created substantial confusion as to how we should proceed. The recent quick turn around on the acceptance of the *AWATT Year Two Plan of Work* by the new CTO sends a valuable signal to the AWATT team in terms of our ability to proceed with the proposed plans.

Still to be completed is the development of the Project Monitoring and Evaluation plan. While this plan has been in development since the beginning of the project, it has yet to be filed with ADAG as we awaited confirmation of an acceptable LOP. While formative metrics were included in the work breakout of the programs for Year Two, the M&E plan will include mechanisms for measuring summative outcomes that relate to the larger AWATT objectives of advancing farm incomes, creating rural jobs, and improving food security.

b) Hiring the Afghanistan Field Team

The in-country field team was put in place during Year One. The staff differs from that proposed in the *Cooperative Agreement* as per the recommendations of the past CTO. As agreed, NMSU will replace the current CTO within the next several weeks – resumes for candidates have been submitted for ADAG approval. We will also be seeking to put the experts named in the *Cooperative Agreement* in place in the field office. Currently, the Water Specialist is in place. Over the next months we intend to add a Land Resource Management Specialist and a Policy Reform and Analysis Specialist. The AWATT team has also made a request for adding a Research and Technology Transfer Specialist. Already a member of the in-country field team is a Special Projects Coordinator who will be engaged in designing and demonstrating alternative energy solutions in rural communities.

c) Establish US Advisory Team

The US Advisory team is comprised of the NMSU's two Principal Investigators (PI) and one advisor from each of the partner universities. The five-member US Advisory team is in place and functioning. Monthly meetings are conducted via Polycom or by phone.

d) Establish In-Country Advisory Team

To assure that AWATT efforts are relevant and focused on delivering value to the Afghan people, the AWATT leadership has formed an in-country advisory board. Major decisions about programs proposed for delivery by the AWATT team are discussed with this advisory team (or with various members of this group) prior to implementation. Vetting ideas with the advisory board assures relevance, adds expert information to the program design and delivery, and improves the efficiency of AWATT interventions. Below is a list of those who were asked to serve on the AWATT in-country advisory board:

Name	Title	Organization
Dr. Pir Mohammad Azizi	Deputy Minister of Irrigation	Ministry of Agriculture, Irrigation and Livestock
Dr. Fazluddin Fazel	Director General, Extension	Ministry of Agriculture, Irrigation and Livestock
Dr. Mohammad Aziz Osmanzai	Director General, Research, MAIL	Ministry of Agriculture, Irrigation and Livestock
Mr. Mohammad Hashim Barakzai	Director General, Natural Resources Management	Ministry of Agriculture, Irrigation and Livestock
Mr. Hazrat Hussain Khawren	Director, Forestry	Ministry of Agriculture, Irrigation and Livestock
Mr. Shams Katib	Director, Agriculture, Balkh	Ministry of Agriculture, Irrigation and Livestock
Eng. M. Hussain Safi	Director, Agriculture, Nangarhar	Ministry of Agriculture, Irrigation and Livestock
Mrs. Nazera	Director, Family Economy	Ministry of Agriculture, Irrigation and Livestock
Eng. Sultan Mahmood Mahmoodi	Director General	Ministry of Energy and Water
Mr. M. Yasin Mohsini	Dean, Faculty of Agriculture	Kabul University
Mr. Asif Bawary	Dean, Faculty of Agriculture	Nangarhar University
Mr. Abdul Qayyum Ansari	Dean, Faculty of Agriculture	Balkh University
Mr. Shah Mamood Bari	Dean, Faculty of Agriculture	Kandhar University
Mr. Abdul Rahim Omid	Dean, Faculty of Agriculture	Herat University
Dr. Javed Rizvi	Country Manager	ICARDA, Kabul
Mr. Mark Henning		JDA, Mazar, Balkh
IFDC Representative		Kabul
Ms. Catalina Jensen	Cognizant Technical Officer	USAID, Kabul
Dr. Abdul Qayyum Khan	Chief of Party	AWATT, Kabul
Mr. Robert Foster	Deputy Chief of Party	AWATT, Kabul
Mr. Abdul Hakeem Khan	Water Resources Specialist	AWATT, Kabul

e) Brand and Establish AWATT in Afghanistan

Part of the learning curve for NMSU during the first year was gaining an understanding of USAID policies for collateral materials such as brochures, posters and banners that are acceptable. We now have an approved brochure describing AWATT and a logo that can be used in limited situations. NMSU is in process of defining its communication strategy for external and internal documents.

f) Integrate Gender and Equity Considerations

NMSU has an agreement pending with Kabul University to add Ms. Rahima Noori to the AWATT team. Noori is an Afghan national holding a M.S. degree and will take a leave of absence as assistant professor at Kabul University. She will be paid with AWATT funds to assist AWATT in finding opportunities for Afghan women. Ms. Noori's Year Two work will include training women in the preservation of fruits, in home gardening, and in raising household poultry flocks.

Further, our M&E Plan will include metrics for capturing the involvement of women in our programs. Since many of our programs target Universities, we have expectations of reaching Afghan women in higher education.

g) Administrative Reporting and Measurement

While we have met the deadlines for various reporting requirements, not all of our reports have been within the USAID guidelines expressed in the AWATT project RFA. As discussed earlier, there have been problems in aligning NMSU's Banner accounting system with the reporting requirements of USAID. We are seeking to remedy this by the addition of an Afghan local familiar with USAID accounting systems to our in-country team. He will be supervised by the AWATT CFO (currently being advertised). In the interim, current DCOP and MBA, Robert Foster, will act as CFO. Perhaps equally importantly, NMSU will add a person located on campus devoted entirely to oversight of AWATT accounting.

Another shortfall is that we still lack an M&E plan. As indicated above, we are cognizant of this and have placed it as a priority for completion.

While the previous CFO had been designated as the representative and our primary point of contact on the USAID GeoBase management system, his departure has left a gap in meeting this requirement. We will seek to have the US-based AWATT accounting person trained in this system and responsible for assuring this component is up to date.

2. Participatory Rural Appraisal

Having had substantial success in India with a participatory approach in developing a bottom up extension service, we had intended on a quick roll out of this program. As proposed in the *Year 1 Plan of Work*, the objective was to train Afghans to in the methods of Participatory Rural Appraisal (PRA), use the results to discover needs at the grass roots level, assist extension agents in helping to form Farmer Organizations (FO) and Self-Help Groups (SHG), use these organizations to develop more community relevant Strategic Research and Extension Plan (SREP), and advise in the implementation of these bottom up plans.

We got off to a quick start and were able to organize training in the PRA methodology in Balkh and Nangarhar for 49 extension and research staff of MAIL and teachers and students from the Balkh and Nangarhar Agriculture Faculties. We encountered unanticipated cultural barriers between the instructors and the Afghan training participants. Several Afghans were cleared to participate in more detailed training through MANAGE in India however this did not materialize as we considered the approach and how it might be modified to better meet the more specific call for AWATT to focus on water issues.

We have reformulated our approach using an evolution of the PRA called the Diagnostic Analysis (DA). The DA has been tested elsewhere and, in the inception to be used by AWATT, is designed for disclosing water use behaviors. Field team Water Specialist Hakeem Khan is overseeing the work in Balkh, Nangarhar, and Kapisa Provinces. We will capitalize on those previously trained in the PRA method to the degree possible. The implementation will be concurrent with other activities such as the instruction and installation of water measurement systems in these same Provinces.

The move from the broader PRA to the more focused DA arises from the lessons learned through our first year on-the-ground experience, from the advice of our in-country advisory team, and from the strong direction provided by the new CTO to remain focused on water issues. The DA will help us to understand the needs of users at a micro level. This understanding will allow the AWATT Team to develop training targeted to the needs of the users and user associations. It will also help to disclose institutional structures key to making policy recommendations for both the conveyance of water and its use in the field. With an eye on water use, we will focus on training MAIL personnel in the processes of forming water user associations (WUA) rather than the more broad FO's and SHG's from the PRA. The obvious value of WUA's is their ability to develop and oversee strategic water plans. However, WUA's also offer homogeneous groups who can speed dissemination of knowledge and technology.

3. Integrated Water Resource Management

While the first year AWATT programs in IWRM were delayed slightly while the hiring of the Water Specialist took place, these programs are now on track. Relationships have been cemented with the Ministries and Universities. The Water Specialist will be provided office space with MAIL and will become a visible part of the efforts conducted by the Ministry.

a) Hire Long-Term In-Country Water Specialist:

In the first year, the Integrated Water Resources Management (IWRM) component has made successful progress on critical organizational aspects and is now poised to make rapid progress in its planned program and field activities. The first priority was to search and fill the key position of in-country water resources management specialist. Mr. Hakeem Khan was hired for this position in October 2008, and has since then made good progress in implementing IWRM program. Some of the activities conducted are summarized below.

- Conducted an in-country workshop to identify major issues related to water resources and irrigated agriculture, in November 2008. This workshop was attended by staff of Afghan Ministries of Water Resources, Agriculture and Irrigation and many non-government organizations working on issues related to water resources. The workshop was very successful as the participants actively discussed the issues and provided material for planning AWATT activities.
- Strong collaboration established with the four local universities (Kabul, Nangarhar, Balkh and Qandahar) and the A4 project.
- Prepared final program for IWRM activities in the Second Year, which is now approved and ready for implementation. The irrigation systems and research farms where AWATT will conduct its field research program have been selected in consultation with MAIL and MEW. The local staff of these Ministries will be involved in the implementation of activities with technical support from AWATT team.
- Identified and purchased flow measuring equipment that will be used to train MEW and MAIL staff in flow measurement in main canals and at the farm.

b) Water Management Workshop

The AWATT project hosted a one-day stakeholders' workshop in Kabul with attendees from the Afghan government and non-government agencies. This workshop was attended by Dr. Pir Azizi, Deputy Minister of Irrigation and representatives of the

Ministry of Agriculture, Irrigation and Livestock (MAIL), Ministry of Energy and Power, Ministry of Rehabilitation and Rural Development (MRRD), Afghanistan Research and Evaluation Unit (AREU), World Bank, Asian Development Bank, Food and Agriculture Organization of the United Nations (FAO), GTZ, Deans of the Faculties of Agriculture at Kabul, Balkh, Nangarhar and Kabul Polytechnic Universities, Directors of Irrigation of Kapisa and Nangarhar Provinces, ICARDA, Purdue University (A4 Program), and the AWATT Field Team. The primary purpose of this workshop was to inform the stakeholders about the overall scope of the AWATT Project and seek their guidance on project focus and detailed future activities in order to minimize duplication of efforts.

The recommendations that came from this workshop were in five categories;

- On-Farm Irrigation Water Management,
- Efficient and Equitable Canal Water Delivery and Distribution,
- Water Resources Policy,
- Capacity Building
- Technology Transfer

The meeting minutes, including a list of those in attendance, is posted at the AWATT website (under meeting notes) http://cahe.nmsu.edu/awatt/.

c) Set up Liaison Teams with Irrigation Department in MAIL

Through our Water Specialist, Hakeem Khan, AWATT has established strong working relationships with the Ministry of Agriculture, Irrigation and Livestock (MAIL) and the Ministry of Energy and Water (MEW). Mr. Khan will have some staff from these government organizations as counterparts. As such, all IWRM program activities will be conducted with full participation of these organizations and can be sustained in the future. For example, the work plan of work for Year 2 (2009) was developed with close consultation with the two ministries and the concerned Afghan universities.

4. Technology Transfer

Many rural Afghans are subsistence farmers, surviving on small plots with insufficient irrigation water and inadequate farm production resources. Technology transfer is a tool for enhancing productivity and sustainability for farmers because it demonstrates the use of different equipment, practices and technologies. Moreover, effective technology transfer can have positive economic spillovers into the larger community and region.

During this first year, we worked to determine what technologies and crops were appropriate for demonstration, scouted and secured locations, and delivered some preliminary trainings to MAIL extension and University faculty.

a) Advisory Group for On-Farm Demonstrations

For the current on-farm demonstrations scheduled for the FY09 season, members of the AWATT in-country advisory and the AWATT field team were consulted. As we expand these efforts, our intention is to involve more leaders from the localities where the demonstrations are being conducted. We will identify these candidates through recommendations received from our in-country advisory board and from the finding of the DA efforts conducted over the next year. Additionally, a more specific technical advisory committee will be constituted involving MAIL, provincial extensions, regional universities and local NGO's for the effective dissemination of technology from on-farm demonstration to the different regions of Afghanistan. These groups will help in identifying priority, needs and assess outcomes for technology transfer activities to improve the efficiency of water and agricultural production practices in Afghanistan.

b) Workshop Design in Conjunction with the PRA

The AWATT team had intended to use the results obtained from the PRA to inform our workshop offerings to communities and regions. However, as indicated in an earlier section, we were unsuccessful in our initial effort with the PRA. Under the direction of Water Specialist Hakeem Khan the Diagnostic Analysis (DA) will be conducted in the upcoming year. We will utilize these results, and any indicators while collecting water use data with the DA, to meet the training needs of those surveyed.

c) On-Farm Demonstration and Technology Transfer

In the first year of the AWATT project, on-farm demonstration and technology transfer initiatives have made good progress in terms of identifying 1) locations, 2) partners and stakeholders, and 3) appropriate technologies (i.e., irrigation efficiency, crop propagation techniques, water measurement methods, crop water requirements, high-value and alternative crops).

The research farms and on-farm demonstration plots (Badham Bagh research farm and the student research farm at Faculty of Agriculture at Kabul and Balkh University) were selected in consultation with MAIL and Universities. The local staffs of ministries and stakeholders were involved from the inception of the demonstrations and will continue to be consulted throughout the implementation of the demonstrations. Also, we have developed strategic partnership with USAID projects (ASAP and A4) for leveraging our partner strengths, the demonstrations we will do, and the training events we will conduct. This will help us to minimize any duplication and redundancies between programs while capitalizing on the knowledge of these partners. In collaboration with ASAP, three demonstration plots will be developed at the Badham Bagh research farm to demonstrate different irrigation methods and water efficiency in high-value crop production. We will also use these farms to work with researchers at Kabul and Balkh

Universities to conduct research on limited (deficit/supplementary) irrigation and soil fertility.

In the first year of the project, AWATT has procured and delivered six mobile soil and water laboratory kits to Afghanistan for facilitating soil and water analysis for farmers through MAIL extension and Universities. These mobile kits will be used for the demonstration and training activities in the field.

d) Short Courses

To initiate the technology adoption strategy and on-farm demonstration, in the first year we delivered two short course on "Soil Fertility Management" and "Irrigation and Cropping Systems Management." These were attended by MAIL extension and Afghan University Faculty. Additional courses are planned for delivery in our second year. Most of our effort in the first year was in identifying need. In the second year we will deliver these courses in parallel with the tech transfer and demonstration activities.

5. Capacity Building

In a July 2008 meeting of AWATT and USAID representatives, the AWATT team was informed that "USAID is primarily concerned with capacity building." Further we were instructed that the AWATT program needed to help the Ministries build technical abilities, to transfer the skills that allowed the Afghan people to do work for themselves, and to provide to services to a government that doesn't have the capacity to provide many services needed in a modern economy.

We have heard the call for capacity building and have put it at the forefront in the design of all of our programs. The AWATT team recognizes that the residual of the AWATT program will be largely the skill sets we help Afghans to develop and the procedures we help to embed in Afghan institutions. Thus all proposed AWATT trainings and workshops are tied to the projects we have underway or to field exercises that allow hands-on experience.

While we have developed the curriculum for many of the workshops and trainings we proposed during the first year, we have yet to deliver the majority of them. Several courses are queued for delivery in the upcoming months (water measurement, ditch water management, research methods, on-farm irrigation methods for pomegranates and other high-value crops, integrated pest management, farmer panel methods for collection of cost and returns data, and economic and farm decision tools). However, to date we have delivered but a few of those we had expected to deliver during FY08.

a) University Faculty and Staff Knowledge Transfer

The AWATT team has substantial bench depth in agricultural economics and agricultural business. As indicated in the *Year 1 Plan of Work (POW)*, we believe that, longer-term, we can contribute substantially to improving rural incomes, the capabilities of extension, and improving the university research infrastructure by working directly with University faculty and their students. Although we have met with the Deans of the Agricultural Universities at Kabul, Nangarhar, and Balkh, we have yet come to agreement on how we can best work with them to improve their Agricultural Economics and Agricultural Business courses. While the Deans all agree that the need exists for these courses, they are in various degrees of readiness – from an existing program at Kabul University to none at Balkh.

As stated, AWATT has the curriculum and the support materials ready to deliver. However, we must have additional discussions with the Deans and Department Heads to assure that the courses we deliver are valued and can be diffused to students by finding a place in the University offerings.

The following courses agribusiness management classes were developed as video modules specifically for University faculty and students.

- Water resources economics I: overview of basin-wide institutions and water allocation approaches across the world. Overview of water issues throughout the world
- Water resources II; Economics of supply and demand for water resources. Specification of various uses and associated investment and quality requirements. Valuation of water in different uses.
- Water resources III: Modeling basins and agricultural/non agricultural uses of water

Through CSU we have also developed undergraduate online degree completion courses which can be used during 2009 for selected participants from Afghan faculty in Kabul and regional universities. As envisioned, site facilitation would be provided by AWATT's in-country field team.

One of the lessons to emerge from our first year was that there is another level of formal education where AWATT can make a contribution – the 13 Vocational Agricultural Education institutions offering training throughout Afghanistan. During FY08, AWATT team members met with University faculty who told us of connections between the various Universities and the Vo Ag Ed institutes. As these institutions are the training grounds for many of those eventually employed by extension and by private sector firms like input suppliers, we will also develop courses for these programs. Because of the connections to Universities, we will seek to deliver curriculum and materials using the Universities as conduit.

b) Irrigation Department in MAIL

We are working closely with MAIL and MEW to develop relevant capacity building programs for their engineering staff as well as for Mirabs and members of Water User Associations. These workshops and trainings are in process.

While we had been told that MAIL would have several hundred new employees who might participate in training and workshops conducted by AWATT, we have not seen an indication that this hiring occurred. However, when these new MAIL employees are retained, we will be ready to deliver the appropriate content.

c) Extension System

AWATT Subject Matter Experts stand ready to deliver training to extension personnel. Courses have been developed in agribusiness as well as other areas, including horticulture, agronomy, and soils science if deemed appropriate by the Extension Service. As indicated previously, courses in PRA methods and soils were delivered in FY08. We were told that 200 to 300 new employees were to be added to the Extension System who would be ready candidates for this training.

In the upcoming months of FY09, we will be rolling out several workshops targeting extension including trainings in irrigation technologies, water measurement, and in the use and development of economic decision tools.

A reassessment of our objectives and how we can best utilize AWATT personnel, has caused us to drop our initial plans of the development of farmer's market organizations and in educational components aimed at strengthening producer-market linkages. As we have learned, these efforts would be redundancies of other donor programs already under way. Similarly, we will leave the development of training in contract production, input loans, and farm credit to others and sharpen our focus on water and natural resource issues. We had also proposed in the *Year 1 Plan of Work (POW)* to develop a food and agribusiness association. We have since learned that others have taken the lead on this as well. We will however, coordinate with other Implementing Partners and participate in these areas at their request.

d) Afghan Conservation Corps

The AWATT team, through the SIUC Forestry Department, has been actively involved in assisting the ACC efforts through training and expert assistance. These efforts will expand under the AWATT program. During FY08, a team of AWATT foresters traveled to Afghanistan and worked with a PRT in building capacity with ACC employees. Based on this experience several capacity building workshops have been developed and will be delivered in early summer of FY09 in Balkh, Herat, Kabul, and Nangarhar Provinces.