

Afghanistan Water, Agriculture and Technology Transfer (AWATT)  
AWATT Cooperative Agreement No. 306-A-08-00506

Quarterly Report II  
June-July-August 2008

Submitted by

New Mexico State University (lead institution)

In cooperation with Colorado State University CSU, (CSU separate QR II Appendix I)  
University of Illinois at Urbana-Champaign (UIUC), (UIUC separate QR II Appendix II)  
Southern Illinois University Carbondale (SIUC), (SIUC separate QR II Appendix III)

The AWATT program is designed to support the Alternative Agriculture and Development (ADAG) objectives by concentrating on the function of land and water in realizing its economic development objectives. This goal is accomplished by the AWATT project through the implementation of five specific objectives

1. Develop land and water policy analytic decision making tools
2. Assess appropriate technology and adoption strategies
3. Strengthen the IRoA Agriculture Research System structure
4. Propose a legal/policy framework for water ownership/use rights
5. Propose a legal/policy framework for land ownership/use rights

These five specific objectives are consolidated into AWATT project components by meeting three strategic objectives (SO's) that serve as the cornerstones of the AWATT program.

- SO 1: Identify feasible, sustainable natural resource-based technologies that improve water management and increase agriculture production
- SO 2: Identify water and land use policies and institutional frameworks that encourage individuals, local, provincial and the national governments (IRoA) to increase sustainable economic development from the agriculture and natural resource sectors
- SO 3: Improve capabilities of the professional staffs of Afghanistan's ministries and universities by partnering with them on research-based decision making and outreach projects to benefit the people and economy of their country

Within each of these activity groupings, multiple tasks support the production of outputs (e.g., tools, resources, capacity building). These outputs provide the foundation for meeting AWATT's three strategic objectives and ultimately, the goals of ADAG and the people of rural Afghanistan.

Embedded in the activities supporting project outputs and objectives, are activities that focus on providing increased opportunities for women and disadvantaged groups to access financial and social benefit from improved land and water management.

During the second quarter of the implementation phase, major emphasis has been placed on setting up and staffing the AWATT Kabul Office and Residential Compound found at Wazir Akbar Khan district, Kabul. The team has actively been verifying specific project components and needs that can be effectively served by resources available at the respective universities (NMSU, CSU, UIUC, and SIUC). Illustrative examples of our accomplishments are:

1. Hiring and filling the following positions at the AWATT compound: Chief of Party, Deputy Chief of Party, Financial Officer (FO), and Water Specialist. These positions are filled by: Dr. Abdul Qayyum Khan, Eng. Robert Foster, B. Gray Lowrey, and Abdul Hakeem Khan. All of these persons have been hired on the staff of the cooperating institutions; Khan, Foster, and Lowrey by NMSU and Hakeem Khan by CSU and all have been approved by the AWATT USAID CTO. Michael Satin. Khan and Foster are in place, Lowrey is en route at this writing (Sept 19) and Hakeem Khan is due to be on post by the end of October, 2008. A lease was signed for the property on July 16, backup generator(s) installed, and an internet system is in place as of this writing. Office and residential equipment and furnishings have been purchased and are in place in the property. The AWATT Kabul office is secure, open for business and is functioning. In addition to the positions described above, Afghans have been hired as follows : Finance officer (1) ,Liaison officer (1) , IT manager (1), secretaries (2) ,maintenance (1), driver (1), (cook(1) ,grounds keeper(1),and janitorial person(1) for a total of 10 Afghans hired. A security firm, Saladin Group, has been contracted to provide 24/7 static security at the AWATT compound.
2. NMSU Board of Regents has approved opening of an account with Standard Chartered Bank in Kabul. The account is opened and functioning. The approved NMSU employees who are on the account who can withdraw monies from the account are: Terry Crawford, Roger Beck, Abdul Qayyum Khan, and Robert Foster. This action has greatly facilitated opening of office space, securing housing, purchasing of equipment, and hiring security in Kabul. In addition, Mike Abernethy, NMSU Director of Procurement Services and Risk Management at NMSU accompanied Roger Beck Co-PI of AWATT to Kabul in July 2008 to finalize in- country purchases, rental agreements, and to authorize other fiscal management decisions on behalf of NMSU. Mr. Abernethy drew up a policy statement for the AWATT project staff guiding them in purchase decisions after discussions with relevant USAID Kabul personnel.
3. Collaborative agreements are being discussed and actions taken to, Chemonics (demonstration farm), A4 project (irrigation demonstration and agricultural training, USGS (data collection), ICARDA (data collection and technology transfer), USDA FAS (PRT's and horticultural projects). The expectation is that these agreements will be finalized during the third quarter of the project with appropriate funds encumbered anticipating a drawdown of funds allocated by USAID during the first year of the AWATT project. An agreement has been finalized with USGS to collaborate on data collection activities in Afghanistan. Also, the AWATT team is using Participatory Rural Appraisal (RPA) (initial report attached as Appendix IV) to collect data in a variety of settings to assist in assessment of current information on agriculture, water, and technology transfer and to determine where and how the resources of AWATT can be most effectively used to achieve the stated goals of the project. To facilitate that discussion, a meeting was held in Chicago, Illinois on June 26 and 27 utilizing the services of Dr. Burt Swanson of UIUC who has effectively used this approach in a variety of developing country settings (and Illinois) to collect and analyze producer and community level data. Swanson also lead the discussion of cooperating institutions in a feasible, constructive way to do the Technology Transfer activities planned for Afghanistan in the AWATT project.
4. Dr. William Gorman, Agribusiness Management Professor, NMSU and Dr. Robert Grassberger, Development Economist, NMSU traveled to Afghanistan the latter part of July, 2008 to begin work on the farmer to market linkages identified as a task in the LOP. During this trip they met with business firms and government agencies supplying inputs to farmers and livestock agencies and businesses that market farm products (trip report attached as Appendix V). They anticipate recommending a structure for evaluating and suggesting ways of improving linkages between

farmers and their input suppliers and markets which will facilitate evaluation of changes in farming technology, and irrigation systems and practices on agricultural productivity and rural incomes.

5. A Sept 11-12 planning session was held at NMSU by the AWATT advisory committee (Crawford and Beck, NMSU; Davies, CSU; Swanson substituting for Santas, UIUC; and Myers, SIUC, and Khan COP). Partner institution representatives (the advisory committee) shared ideas with the COP on their respective strengths. CSU is taking the lead on the water component of the project as well as short courses in agribusiness economics. CSU will be negotiating a subcontract with Joint Development Associates, International (JDA) to firm up some collaborative work on horticultural projects in Balkh province. UIUC has offered Dr. Swanson to lead the PRA efforts as well as Dr. Ximing Cai, a well respected water basin specialist. As part of this planning process, a management and evaluation framework was discussed at length with tasks, subtasks, responsible persons, and timelines formulated. A planning workshop is planned for October 2 and 3 which will include the team that will be doing the water basin modeling work for the AWATT project. This will include USGS technical persons with whom AWATT will collaborate on data collection functions in Afghanistan.
6. A principal outcome of the September planning session was consensus that regional advisory working groups or “centers in an understood, implicit sense” (not physical centers) is a key element in our implementation strategy. With this decision made, the established Illinois (UIUC and SIUC) relationships with regional/provincial universities and with the Ministry of Agriculture, Irrigation and Livestock (MAIL) become valuable contributions to the planning process and the implementation phase of the project.
7. The July meetings in Kabul permitted the AWATT representatives to meet with Michael Satin (CTO) and other USAID staff to discuss means and strategies for meeting the approved objectives of the project. These discussions proved to be most valuable for elaboration and implementation of work plans, and also for the AWATT team to firmly grasp the intent of the project and expected measurable outcomes at the end of the project period in terms of improvements in agricultural sales, farm family incomes, and value-added employment levels in rural Afghanistan resulting from project activities. Meetings with MAIL officials were most cordial and productive (see Attached July trip report).
8. To facilitate the visitors (Beck, Abernethy, Grassberger, and Gorman from NMSU; Oad, Davies and Jha, from CSU; and Eberle from SIUC in July (see July trip report)., UIUC decided to have the Director of the Illinois Field office in Peshawar, Pakistan (Dr. Abdul Qayyum Khan) meet the NMSU delegation in Kabul and be available for logistical support and to arrange meetings with selected Afghan collaborators and institutions, as well as to represent the Illinois universities at this conference. Dr. Qayyum’s involvement and his six years of experience in Afghanistan made a significant UIUC contribution to this April event.
9. Another significant UIUC contribution was made when Dr. Qayyum accepted NMSU’s offer (confirmed by USAID) as the Chief of Party position on the AWATT long-term resident field team. Dr. Qayyum had already begun the transition to this new role. He was in Illinois May 24 to June 6 for his annual TDY. This gave UIUC and SIUC an opportunity for extended discussions about project priorities and urgent AWATT needs, as well as the need for continuing attention to his current role in the Illinois project that started in 2002 and is known as “Human Capacity Development for the Agriculture Sector in Afghanistan.” The advisory committee of AWATT (Crawford, Beck, Davies, Santas, Khan, and Myers) has accepted the recommendation from UIUC that there are parallels in the AWATT project with the latter named project so the two projects are merged for all practical purposes in terms of scope and implementation sharing a

- common set of resources and personnel.
10. Extended discussions also took place with Dr. Roger Beck in his role as AWATT Co-PI, while he, Dr. Myers, Dr. Qayyum Khan and Dr. Santas were in Washington D.C. June 1 - 4 for a professional society meeting, Association of International Agriculture and Rural Development (AIARD). Existing plans were reviewed and decisions were made about adjustments in near-term plans for field activities during July and August.
  11. Dr Roger Beck traveled to Washington D.C. to represent AWATT at the annual meeting of the Association of International Agriculture and Rural Development (AIARD). AIARD members are from universities, private voluntary organizations, consulting companies, trade associations, and private firms, national and international agencies. While in Washington D. C. , Dr. Myers, Dr. Qayyum Khan Dr. Santas, and Dr. Beck met with Bruce G. Crossan, Branch Chief, Post Conflict and Disaster Assistance of the USDA Foreign Agriculture Service. This group is responsible for assigning agricultural specialists to the PRT units in Afghanistan. It is believed that during Quarter III of the Awatt Project a subcontract will be negotiated between AWATT and this group that can facilitate the data collection efforts envisioned as needed by AWATT staff.
  12. It is known that UIUC and SIUC have institutional strengths that can most effectively be used within the Technology Transfer component of this project. These activities are detailed under Tasks 2 and 3 in the Life-of-Project (LOP) Report. UIUC Professor Emeritus of Rural Development, Burton E. Swanson, is part of AWATT and presented his vision of a Participatory Rural Appraisal (PRA) approach to collecting information at the community level concerning a needs assessment. That process is now on-going ;( see Activity Report by Dr.Krishna M. Singh, Appendix xxx).
  13. A total of \$202,292 was actually disbursed during the second quarter of the project. However as the sub-contracts with the CSU, UIUC, and SIUC have been negotiated the reconciling amounts (encumbered) are \$1,470,829 for Quarter II or a total to date of \$1,654,997. This implies that approximately 30% of the year 1 AWATT allocation has been spent and/or encumbered. A separate accounting report for Quarter II accompanies this report.
  14. An observation which should be added to the reporting system is a reminder that AWATT activities will run parallel with UIUC's current training project in Afghanistan for at least one year. The Cooperative Agreement with USAID/ANE that supports this project will remain in effect until September 30, 2009. UIUC respects the integrity of this on-going stream of funding and will meet existing commitments to training programs, while at the same time looking for areas of synergy, mutual benefit and coordination. UIUC's six years of human resource development experience and UIUC's contributions to recovery of the agriculture section in Afghanistan are being used as a foundation for AWATT activities during the months ahead.
  15. A field trip took place took August 5 to the NMSU Cooperative Extension Service Field Days at Alcalde New Mexico. It is believed that many types of appropriate technology transfer activities can be effectively planned and implemented in Afghanistan because of the similarities in farm size, rainfall, and environmental conditions. Some of the enterprises were irrigation technologies, hoop green houses, small family poultry enterprises, fruit and nut trees, and forage projects.

## **Afghanistan Water, Agriculture and Technology Transfer (AWATT)**

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**June-July-August 2008**

### **Colorado State University CSU**

In first two quarters of AWATT activity several organizational meeting and conference was conducted to create a synergy and strategy among the partner institutions and other agencies working in Afghanistan. We have spent most of the time to gather information about different organizations work in Afghanistan and different reports and publication on agriculture and water development. A number of drafts plan and narratives were sent across other AWATT partners for their comment and feedback. CSU's responsibility for annual work plan was drafted and project component activity was detailed out. Second quarter's main emphasis was to make implementation strategy for project component in coordination with in-country team at Afghanistan and other consortium partners at US.

#### **Activities during the second quarter undertaken by CSU:**

1. Detailed project plan was mapped for the CSU part of activities includes logistics for the projects, securing water specialist as a part of in-country staff, and establishing a connection with the Afghanistan ground personnel's and stakeholders.
2. Joint meeting was organized with NMSU on June 13th to closely look at the AWATT tasks and the deliverables and strategy. Also, how to bring communication, database and expertise linkage with AWATT partners and Afghan stakeholders for implementing farm level Decision model(s) linkage to farm production and consumption decisions to prices, costs, technology, and water supply. Purpose of the meeting was to developing Afghanistan Regional models that spatially integrate economics, hydrology, and land and water development, policy.
3. A joint AWATT partner meeting was planned for Chicago, Illinois to understand the Participatory Rural Assessment (PRA) practiced in India by UIUC support. This meeting was also to meet with the people to plan for July trip to Afghanistan. This meeting was also meant for greater cooperation between the partner institution and creating a roadmap for the different activity in Afghanistan.
4. In-country water specialist selection was made after a rigorous selection and interview process. Abdul Hakeem Khan, Director of International Water Management Institute (IWMI) in Pakistan has accepted offer for long term in-country water specialist position and will join the AWATT in-country team at Afghanistan during month of October.
5. The team from CSU (Steve Davies, Ajay Jha and Ramchand Oad) have visited Afghanistan to assess the land, water, technology through the interaction with USAID, MAIL, provincials and other stakeholders for two weeks in July, 2008. Brief trip summary

is attached as annexure I.

6. Post-Afghanistan trip meeting was conducted on July 5<sup>th</sup>, 2008 in NMSU small farm demonstration research station in Alcalde in New Mexico State. This field day was attended by Ajay Jha from CSU with NMSU team of AWATT to evaluate the technology relevance for Afghanistan.
7. On July 6-7<sup>th</sup>, 2008, AWATT team meeting was conducted in SIUC campus in Carbondale, Illinois to brief the SIUC team visit to Afghanistan. The focus of the meeting was to share the experience of earlier team visit to Afghanistan and their recommendations for the best use of the trip. The team has also discussed the need of revised annual plan and more on how to be action-oriented for the project.
8. CSU has consistently taken the position that our institutional strengths will be most effectively used within the Water, Technology Transfer and Policy component of this project. Hence, a group of experts and team have been built for delivering the project tasks with the timeline aligned with the annual plan.
9. Weekly CSU team and consortium partner meetings have been scheduled for rest of the project period. An evaluation and monitoring working team has been also organized at CSU which will devise operational plan for M&E. This team will also assess the project deliverables and timeline. During this quarter we have organized our reporting and meeting schedule and timeline for deliverables for the project. The web-conferencing tools and equipment was ordered during this quarter to be more effective with coordination among partners and saving resource and time for travel.
10. Three graduate research assistant had helped during summer for reviewing literature on water and agricultural situation in Afghanistan. A number of fact sheets and information have been catalogued for the AWATT team.
11. CSU has also developed informational intranet database for sharing files, folder, sharing member profile/folders/calendars/creating email blasts. Also, the project component related threaded discussion has been created for greater synergy in communication and feedback for the relevant project deliverables.
12. Since sub-contract has been transmitted only in the second quarter, the anticipation account has minimal spending in the first quarter. Some of expenses have been carried forward in second quarter and some outstanding will reflect later in third quarter spending.

A total of \$118,679.15 on salaries and fringe benefits, on travel, \$21,731.34 on supplies, \$19,934.49 and \$24,510.26 on indirect costs for a total of \$187,911.99 has thus far been disbursed through the AWATT account established at CSU. Many expenses incurred

during Quarter I will be accounted for during Quarter III of year 1 of the project. A separate accounting report for Quarter I and II accompany this report.

## **ANNEXURE-I**

**Afghanistan Meetings Reports from CSU (Steve Davies, Ajay Jha and Ramchand Oad):**  
*Detailed meeting report is annexed with this brief report as annexure for entire team activity in Afghanistan during the Month of July, 2008.*

**1. Meetings with Extension Officials in the Afghanistan Ministry of Agriculture, Irrigation and Livestock (MAIL).** AWATT team members met following senior administrative personnel from the extension office of MAIL:

- Ghulam Mustafa Jawad, Deputy Minister of agriculture, animal husbandry and food
- Mr. Mohammed Hassan Rashedi, DG Research and extension
- Dr. Osmanzai, Director, Research
- Dr. Fazluddin Fazl, Director of Extension and Ag development

MAIL has asked the following support for building the capacity of MAIL Extension:

- Capacity building for extension officials of MAIL in the area of water management and deficit irrigation management.

- Support for an assessment of water and agricultural infrastructure in Afghanistan.

- On-farm demonstration of irrigation technologies

- Training and infrastructure development for research stations of the ministry especially demonstration of affordable appropriate technology.

**2. Participation in the Workshop on “Extension Communications in perennial crops” sponsored by UC Davis in Kabul.**

Participation for the meeting was helpful to understand the extension capability of Afghanistan and technology transfer need for horticulture crop production in Afghanistan.

The following lesson has been learned in the workshop:

a.

Participatory approach to the extension systems (bottom up approach), starting with the agents’ interaction with farmers and other local stakeholders and follow the “Train the Trainer” for enhancing the outreach activity.

b.

Training needs for modern extension practices for horticulture crop production, post harvest management and market linkage.

**3. Meeting with Department of Natural Resources in MAIL.**

The AWATT team was given an overview of the department by Dr. Hashmi Barikzai, Director General of Natural Resource Management, and Harzat H. Kawareen, Director of Forestry. A detailed presentation of issues related to the naturally growing pistachio forests in Afghanistan

was given and relevance of better genetic stocks and irrigation system was discussed.

**4. Meeting with MAIL Irrigation Deputy Minister Mr. Pir Azizi.**

Several meetings were organized with the Deputy Minister of Irrigation, Professor Azizi. He was having a great understanding of the issues related to water and irrigation of Afghanistan. A verbal agreement was provided by minister to create a liaison group under Ministry who would work on finding demonstration farms, designing on farm water management experiments and an organizational framework for looking at basin analysis and development.

**5. Meeting with USAID officials in Afghanistan (Michael Satin and Kathryn Carpenter).**

Kathryn Carpenter (USAID water coordinator) has briefed the group about USAID's and other donors/agencies ongoing water initiatives across Afghanistan and Michael **Satin** has talked about the administrative issues and about the capacity building need of University and MAIL. Satin has also mentioned about the action-oriented work in Afghanistan for visible agriculture development and change in the rural lifestyle.

**6. Meeting with Governor of Kapisa province and visiting Irrigation canals and irrigated agriculture.**

The Governor of Kapisa has stressed on efficient irrigation and crop management approach. He was concerned for non availability of water at downstream due to inefficient water management at upstream of Khurram and Kwaja canal. He mentioned about the existence of an opportunity in Kapisa for excellent horticultural production. Visit to Khurram and Khwaja canal has given a great snapshot about water distribution and management issues in Kapisa. Visit to the canal site has also helped in understanding for the genuine needs of local people and situation of irrigation and water availability at the farm gate.

**7. Meeting with the International Center for Soil Fertility and Agricultural Development (IFDC) Kabul.**

IFDC operates the Food for Agriculture Revitalization and Market System (FARMS) project and is responsible to test the quality of fertilizers coming to Afghanistan, and generally for urea and DAP (white and black). The quality was adequate but that there was very little in the way of other types of fertilizers or micronutrients available.

**8. Meeting with Noor Agro Group (Durukhshan Agricultural and Social Association) in**

## **Kabul.**

Dr. Abdul Noor runs last 20 year old businesses as a progressive farm input supplier through AG-Depots or Durukhshan Agricultural and Social Association. This operation he runs at 19 provinces and has 300 Ag-Depots in 119 villages, additional 150 stores called Noor Agro Group. They sell seeds, chemicals, drip irrigation, tools, agricultural machinery, livestock and veterinarian supplies.

### **9. *Meeting with Asian Development Bank (ADB) Deputy Country Director, Joji Takeshi.***

The main theme of the meeting was to understand the different water, irrigation and agricultural development activities by ADB in Afghanistan.

### **10. Meeting at the Faculty of Agriculture, Kabul University.**

Prof. Mohammad Yasin Mohsini, Dean of the Faculty of Agriculture at Kabul University has briefed about Kabul University legacy and strength of Faculties, academic and research departments. Also we met Dean of Faculty of Agriculture in Nangarhar University, Prof. Mohammad Asif Bawary and he has provided overview about Nangarhar agriculture and irrigation situation.

### **11. Meeting with Thomas Fattori , Deputy Chief of Party for Chemonics-Accelerating Sustainable Agriculture Program (ASAP).**

Tom has provided background on Chemonics project (RAMP and ASAP) activities in Afghanistan. He also mentioned that AWATT has lot of activities which can be synergistic for Chemonics program.

### **13.Meeting with FAO's Emergency Irrigation Rehabilitation project (EIRP) representative.**

We met Mr. Shankracharya, hydrologist and water engineer expert from FAO who works for the EIRP program. He told us about the status of EIRP and other FAO and MEW work on water and irrigation rehabilitation projects in Afghanistan.

### **14.Meeting with the FAO Country Representative on Seed technology.**

Meeting with the FAO seed technology office in Afghanistan was helpful to understand the existing seed business of field crops and also the policy of maintaining the seed banks in Afghanistan.

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University of Illinois at  
Urbana-Champaign (UIUC)

1. A principal accomplishment during this second quarter of project activity has been the identification of two UIUC faculty who can make unique and valuable contributions to the AWATT project. The services of Professors Burton E. Swanson and Ximing Cai are included in the NMSU/UIUC subcontract which is now finalized.

Professor Swanson will serve as Senior Advisor to the Technology Transfer Component of the AWATT project. This component is being coordinated by J. Michael Patrick, an NMSU Faculty member. Dr. Swanson has introduced the AWATT consortium to an approach that consists of using Participatory Rural Appraisal (PRA) as an initial step toward the design of a Strategic Research and Extension Plan (SREP) for each district and unit being reached by the existing MAIL extension system. This approach was presented to representatives of the AWATT partner institutions at the June 26/27 meeting in Chicago and was endorsed by that group. The PRA phase of this process was initiated during the second half of August by Dr. K.M. Singh, a consultant selected for this assignment by NMSU. Dr. Singh is tentatively scheduled to return to Afghanistan in October for more work on the Technology Transfer component.

Professor Cai brings a unique set of qualifications in Hydrology, Engineering and Economics to the AWATT project. Dr. Cai has become part of a three person team (with Dr. Frank Ward of NMSU and Dr. Chris Goemans of CSU) who will direct their attention, through a staged and sequenced series of activities, to the broad area of river basin management and the policy implications drawn from surveys and studies of these basins. This team of three will schedule a one-day meeting soon to make specific plans for their activities during year one. It is worth mentioning that both Dr. Cai and Dr. Swanson have collaborated extensively with ICARDA and will be able to guide any AWATT initiatives to draw on the resources of this international center.

2. UIUC assisted with arrangements for the June 26/27 meeting in Chicago by reserving space at the Big 10 Conference Center. Drs. Santas and Swanson attended this meeting of representatives from all AWATT partner institutions. Among the many outcomes, everyone left convinced that these face-to-face gatherings are critical to internal communication and the smooth functioning of our project.

3. Dr. Santas was the UIUC representative at another productive face-to-face meeting held August 6-7-8 at SIUC. The timing of this meeting allowed us to: A) Hear reports on the accomplishments of eight recent TDY personnel, B) Prepare a four-person SIUC group for their TDY and C) make progress on revision and resubmission of the AWATT Annual Plan of Work. Task C was the main reason for our August meeting at SIUC.

4. It is a pleasure to report that late in this quarter the UIUC/NMSU subcontract was signed and finalized.

Although we are almost six months into the project and there is no good explanation for the extraordinary length of time required to complete this process, the AWATT project is now institutionalized on our campus. Life-of-project accounting and reporting procedures will now be established. The anticipation account that was being used in the interim, has thus far disbursed a total of \$6,200.04.

Plans are being made for the final year (year 7) of the IALC/USAID-ANE Cooperative Agreement that has supported work done by the UIUC/SIUC/NWFPAU consortium on “Human Capacity Development for the Agriculture Sector in Afghanistan”. As was explained in point 8 of the previous quarterly report, this training project will run parallel with AWATT activities during its final year, i.e., until September 30, 2009. Given his current role as the AWATT Chief of Party and his previous position as Director of the Illinois Field Office in Peshawar, Dr. Abdul Qayyum Khan is well-positioned to ensure that activities supported by both the IALC Cooperative Agreement and the AWATT Cooperative Agreement

Quarterly Report II  
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Submitted by  
Southern Illinois University Carbondale (SIUC)

The second quarter of the project has been an active phase with emphasis on AWATT consortium team building and on planning and conducting SIUC team TDYs to Afghanistan. Since SIUC and the University of Illinois at Urbana-Champaign (UIUC) were the only two consortium universities with previous Afghanistan development experience, we have continued to provide guidance into the overall plan of work activities based on our on-ground experiences. Examples of our specific activities and accomplishments are:

1. Participation in the June 1-3, 2008 Association of International Agriculture and Rural Development (AIARD) annual meeting in Washington, DC by Dr. Oval Myers, Jr. (SIUC), Dr. John Santas (UIUC), Dr. Abdul Qayyum Khan (UIUC), and Dr. Roger Beck of New Mexico State University (NMSU). This was the first AIARD meeting for Dr. Beck and provided an opportunity for all of us to interact extensively with university, government, NGO, and other public and private organization individuals attending the meeting. The theme of the meeting was public-private partnerships. Among these contacts was Dr. James Hill, University of California-Davis, who invited our AWATT team to attend an extension workshop in perennial horticulture in Kabul during July.
2. On June 4 the four of us visited USDA to discuss the AWATT project and their related Afghanistan activities with Otto Gonzalez, Mark Holt, Phillipe Chabot, Bruce Crossman, and an Afghan Humphries Scholar studying at Cornell, but interning for the summer at USDA. This meeting was very productive, particularly in understanding the USDA role in the Afghanistan PRTs. The Afghan scholar helped us gain insight on various Afghan cultural customs and, particularly on land tenure and water rights. This meeting was followed up by a meeting with James Stevenson of USDA to discuss potential linkages between the Agricultural University in Peshawar (AUP), Pakistan and Nangarhar University, Jalalabad, Afghanistan. Later we met with Bruce Brower of Chemonics to discuss their ASAP project and possible interaction with the AWATT project. This was an important day for making contact with organizations that we will need to interact with at some level in implementing the AWATT project.
3. SIUC participated in the June 26-27, 2008 AWATT meeting in Chicago arranged by UIUC at the Big 10 Conference Center. Drs. Oval Myers, Jr, John Russin, Phil Eberle, and Alan Walters attended this meeting of representatives from all four AWATT partner institutions. This meeting provided useful insight into activities that could be implemented in the field, particularly the Participatory Rural Appraisal (PRA). The group was convinced that face-to-face meetings are essential for the smooth implementation of our consortium project.
4. Dr. Phil Eberle was a TDY member of the AWATT consortium team that was in Afghanistan from July 20-28, 2008. Dr. Eberle, an agricultural economist, was particularly involved in the farm to market meetings and discussions, but also participated in the various meetings with Ministry officials, Kabul University Faculty of Agriculture, and other implementing organizations involved in agricultural development activities.
5. The SIUC/NMSU subcontract was signed, finalized and an account set up on July 16, 2008. AWATT project expenses, including deferred expenses and encumbrances, can now be processed. Project

accounting and standard reporting procedures will now be established and project expenses through the second quarter billed to NMSU.

6. An AWATT meeting held August 6-8, 2008 at SIUC. This meeting allowed for: A) Presentation of reports on the findings and accomplishments of the several recent administrative and technical TDY personnel who visited Kabul and nearby areas in July 2008; B) Preparation of a four-person SIUC team for their TDY in August 2008; and C) Discussion of the revision and resubmission of the AWATT 1<sup>st</sup> year Annual Plan of Work. For some members of the AWATT team this was their first visit to SIUC, for others it was a return to their former school several years after graduation or employment and for the several person SIUC AWATT team, it was a chance to meet new consortium colleagues and learn more about project goals, near-term objectives, and implementation activities.

7. The four person SIUC team of Drs. Oval Myers, Jr., Alan Walters, John Groninger, and Charles Ruffner were on TDY to Afghanistan from August 9-27, 2008 with time in Afghanistan from August 11-26, 2008. Dr. Myers, agronomist and plant breeder, has been numerous times to Afghanistan since 2003 for various projects, Dr. Groninger, forester, was on TDY there on an education project in 2005, and for Drs. Ruffner, forester, and Walters, horticulturalist, it was their first visit. The team worked both in the Kabul and Mazar-e-Sharif areas. Meetings were held with several Ministry (MAIL) officials, Deans of the Faculties of Agriculture at Kabul and Balkh Universities, other agricultural implementing organizations, including NGOs, and some private for-profit organizations. In addition to meetings, this group had the opportunity to visit and observe widely in the field, particularly in the Mazar-e-Sharif area.

8. Activities planned for the third quarter include the SIUC AWATT team developing anticipated workshop and/or curriculum materials for use in Afghanistan. Dr. Myers will participate in AWATT core advisory meetings by polycom. The results of the Participatory Rural Appraisal to be conducted in October 2008 will help the entire AWATT team, both field and US based, to determine specific training and demonstration needs. We do anticipate planning for the development of a regional soil testing lab and, possibly, a plant disease lab for the coming season.

## **Joint Trip Report for AWATT Team members from July 2008 Trip**

**July 20, 2008-July 28, 2008**

This paper is a joint report, which is a portion of each individual's trip report. A series of productive meetings occurred with all team members in attendance. Dr Qayyum Khan, Agha, and Mr. Nassery set up a series of meeting for the team from July 21, 2008 through July 27, 2008 for the representatives from the various universities. The team members in attendance for at least some of the meetings included Abernathy, Beck, Gorman, and Grassberger from NMSU, Davies, Jha and Oad from CSU, Eberle from SIUC and Agha, Qayyum Khan, and Mr. A. Nassery from the Kabul team. This document first presents the key conclusions and recommendations from these meetings, which will be used to re-evaluate the Annual Work Plan and the Life of the Project document. Secondly, we report on the main contacts made and insights from the series of meetings that the team attended. (The main contributors to the written report are listed in parentheses after the date and description of the meeting)

### **Meetings Summaries**

A series of productive meetings occurred with all team members in attendance. (The team members in attendance for at least some of the meetings included Abernathy, Beck, Gorman, and Grassberger from NMSU, Davies, Jha and Oad from CSU, Eberle from SIUC and Agha, Qayyum Khan, and Mr. Nassery from In-Country AWATT team.) The main contacts made and insights from these meetings are given below:

***1. Meetings with Extension Officials at the Ministry of Agriculture, Irrigation and Livestock (MAIL) (Davies, Jha, Eberle).*** In attendance, in addition to AWATT team members were the following senior administrative personnel from the Extension offices in MAIL, on July 21<sup>st</sup> and 22<sup>nd</sup> were:

- Ghulam Mustafa Jawad, Deputy Minister of agriculture, animal husbandry and food
- Mr. Mohammed Hassan Rashedi, DG Research and extension
- Dr. Osmanzai, Director, Research
- Dr. Fazluddin Fazl, Director of Extension and Ag development

This meeting mainly provided introductions for members of the AWATT team to interested counterparts in MAIL. Dr. Fazl, extension director, introduced the background of Ministry, its existing facilities and the need for improvement in extension. He sought research and outreach in the area for supplemental irrigation for rain fed areas to save crop from damage due to drought. Mr. Rashedi, Director General of extension, felt that capacity building under AWATT program for extension officials of MAIL, specifically in the area of Water management and Deficit irrigation management, would be useful.

Deputy Minister Ghulam Mustafa asked for support for an assessment of water and agricultural infrastructure in Afghanistan and to provide training and create infrastructure on research farms of the ministry. The Minister has also felt that existing extension farms/demonstration farms needs to be assessed in regard to demonstrating affordable appropriate technology in the research farm which can be replicated to farmer's field.

Davies returned to meet Dr. Fazl with the UC Davis team in Kabul looking at Extension

Communications in perennial crops. (This is the same team that will be giving the conference on perennials over the next few days). Dr. Fazl provided an *overview of the Extension service* and issues in regard to its performance. The current Extension system is comprised of individuals in the central ministry in Kabul, in each of the provinces, and also in many districts. There are altogether 600 employees and about 250 active districts out of about 371 possible areas. On average, there are therefore about 1.5 persons per unit. The USDA has invested in upgrading facilities in 17 provinces, so that the major agricultural areas have central administration buildings of several stories and numerous rooms. However, at the district level there appears to be few if any resources of any kind. (For instance, there is no budget at all for fuel, and while some provincial offices have been given motorbikes or vehicles, there is not a fuel budget). It seems unlikely that there is much in the way of other communications resources either.

There has also been some personnel reform in the system, and Dr. Fazl prefers to hire only those with Vocational agricultural degrees from the local high schools or agricultural college graduates. He was unable to give the proportion of agents who had college degrees. He did feel that the college graduates needed considerable post-graduate experience to be effective agents.

As expected, he had a long list of partners from the international community, including ICARDA, USDA, DAI, ASAP, French groups, as well as DFID and Chemonics, to name several. However, he was particularly enamored with one person from DAI, who created many extension materials that could be replicated. This seemed so remarkable that it must be that many other partners are not that engaged in the development of extension in a fundamental way to this point. He exhibited a significant frustration with the tendency of NGOs to not work systematically with Extension but rather with individual agents on an ad hoc basis.

Dr. Faisal showed us a very extensive manual that had been recently completed, including 52 chapters on Extension methodologies and short overviews on many crop and livestock topics. He had also developed several presentations on extension methodologies based on GRM methods developed by DFID. He had been working on a draft Strategy for extension, which he shared with the UC Davis team, who will provide the document to us. A quick perusal indicated that he felt a participatory approach to the extension systems, starting with the agents' interaction with farmers and other local stakeholders was preferable, something that is at the heart of the AWATT approach. He had recently completed a two week training course for 1,000 members of MAIL based on his manual and implemented with a "Train the Trainer" approach.

For some time, we had a sense that we could develop counterpart groups with professionals in Extension, who would help us initiate a farm management training counterpart group and training modules to be administered in regions. However, with more recent interactions, it is our feeling that a greater focus on universities and a lesser one on Extension might be better. We would continue to invite Extension personnel to all training courses and demonstrations, and will create a liaison group with the Irrigation Department, as that seems to be an appropriate public sector activity and they will be hiring new employees who will need training.

**2. Meeting with Department of Natural Resources in MAIL (Davies).** The AWATT team was given an overview of the department by Dr. Hashim Barikzai, Director General of Natural Resource Management, and Harzat H. Kawareen, Director of Forestry. A detailed presentation of issues related to the naturally growing pistachio forests in Afghanistan was given. While a fascinating example of Garret Hardin's

Tragedy of the commons, this commodity was largely felt to be outside the groups' focus unless the forestry groups in AWATT who will come out in August deem it to be useful. These were not on farms, nor were they using irrigation water, so little extra attention is necessary.

**3. Department of Irrigation, MAIL Deputy Minister Pir Aziz (Davies, Eberle).** We had several meetings with the Deputy Minister of Irrigation, Professor Azizi. These were easily the best meetings of the first days. He was very excited about the project and had a good understanding of the issues. Professor Azizi realized that there are a number of practices that would be low cost technologies that would improve production and that there were many on farm trials and water management options to examine and extend. He thought it be important to have separate programs for each agro ecological zone. He noted many issues that we think are ones to work on: the fact that second crops often fail because there is no storage of water; the fact that the Shura law, which fixes irrigation schedules across days, leads to significant losses in productivity; radically, he also felt it was time for the Mirabs to move into the 21<sup>st</sup> century and allocate water on scientific basis; he also understood that with water changes, there are needed adjustments in other inputs; finally, he recognized that the best way to work on the water issues is using a basin level perspective. This was as close to our interests as we could imagine. (Dr Azizi is also a professor in the Faculty of Engineering at Kabul University, and Drs. Oad and Azizi knew of each other's writings).

Roger Beck and Ram Oad returned to Prof. Azizi the next day and received a verbal agreement from him to provide a liaison group who would work on finding demonstration farms, designing on farm water management experiments and, like Dr Fazal, he was also concerned with the issue of supplemental irrigation, probably because of the drought and the issue of food security. This came up several times in meetings during the week.

One point made by Dr. Azizi, could possibly be an organizational framework for looking at basin analysis and development. He suggested that basins contain a beginning region (headwaters); a middle region, where farms have enough water; and farms in the lower portion of the basin, where farms have inadequate and where most of the population resides. This would suggest that we choose representative districts in so far as possible, for each part of a basin and begin our work in those districts. (The area around Mazar-i-Sharif will afford this possibility, in an area with significant agriculture, security, and manageable and distinct basins with few transboundary issues).

#### **4. USAID, Michael Satin and Kathryn Carpenter (Grassberger, Davies)**

The AWATT team representatives met on the afternoon of 7/21/08 in the USAID facility in Kabul, Afghanistan. Present from USAID were project CTO Michael Satin; Kathryn Carpenter and her colleague Gul from the Office of Infrastructure, Engineering and Energy. AWATT team members included; Roger Beck, Bill Gorman, and Bob Grassberger from NMSU; AWATT acting COP Qayyum Khan; Steve Davies and Ajay Jha from CSU; and Phil Eberle of SIUC. Michael Abernathy, NMSU's Procurement Officer was also present. Members of the team also met with Carpenter and Satin at several later times, and the insights from those meetings are added here.

**Results of Discussion with Kathryn Carpenter.** Kathryn Carpenter oversees much of the water work done at USAID, specifically with regard to infrastructure. Kathryn was also credited by Michael Satin as being the person who was the catalyst for USAID's water initiatives across the mission (a coordinated / integrated approach between the various groups within USAID Kabul). She has been seconded from the Army Corps of Engineers until next January, but will apparently not be going back to the Corps. She provided us with an overview of the current players in water in the country, and at the later meeting made

some suggestions on where we should consider working.

At the highest level is the **SCWAM** – the Supreme Council for Water and Agricultural Management. The SCWAM is comprised of the Secretaries from 9 Ministries. A Technical Secretariat comprised of Deputy Ministers represents the 9 Ministries. A diagram of the structure of SCWAM was provided earlier to AWATT and will be attached to this report.

There are a series of **technical working groups** (TWG's) that support the SCWAM. The specific goal of the TWG's is to develop policy, guidance, and regulation. TWG areas include:

- Drought
- Flood
- Transboundary
- Water / Sewer
- Capacity Building
- IWRM / Institutional Suppliers
- Data Management
- Public Education
- Infrastructure (with a promise of \$5.3 billion in new funding to come soon)

The TWG's are comprised of representatives from consultants and donor agencies. IRD was mentioned as a consultancy. Donors mentioned were USAID, Asian Development Bank, World Bank, the European Commission (EC), Germany's – KFW and GTZ, and CIDA. At a second meeting, we discussed where AWATT might participate in these focus areas, and we concluded that having representatives on drought, capacity building and IWRM would make a lot of sense.

There are also a series of **subnational groups** (mostly just getting started) with representatives from all of the various ministries. The Ministry of Energy and Water is the main ministry with control over water resource development at the national scale (dams, canal rehabilitation, and hydropower). Currently, this ministry will be assisted with significant funds from some international donor (can't remember who) to start building over 50 dams, mostly not large, over the next fifteen years. There is also a significant project in that Ministry called the EIRP (Emergency Irrigation Rehabilitation Program (?)), which is being run by ADB and is rehabilitating canals across parts of the country. (A question is how close the fields are to the water courses being improved, and whether there is room for analysis or extension in regard to rehabbing field level courses). MAIL, in most provinces, has both an irrigation director and an agricultural director.

The country is also putting together **River Basin Agencies** (5 RBAs) and Sub Basin Agencies (41 SBAs). The communities also have River Basin Councils, Sub River Basin Councils, and Water User Associations. The key institution/player in water allocation at the local level is the mirab, who determines how water is to be allocated, and knows who has what crops and how much acreage. The job is passed from generation to generation, and they act like ditch riders in the American West. The European Commission (Hans Visillman) and GTZ are working with the mirabs currently in Kunduz region. There are also a number of organizations involved in Water and Power Commercialization: AUWSSC – water; DABM – power; and WUA (water users associations, which are more just being contemplated than actually active entities at this point).

Carpenter listed the donors currently working throughout Afghanistan in the five basin areas.

- Northern

- Asian Development Bank (ADB)
- USAID
- Amu Darya
- ADB
- GTZ
- KFW
- Kabul
- World Bank
- GTZ
- KFW
- Helmand
- Nothing much happening here
- Western
- ADB
- KFW

The US Military is showing an increasing interest in water issues, especially in areas in the east. The **Regional Command East (RC East)** under General McConnville has been developing detailed profiles of resources patterns in several provinces, where they have finished Paktia and will do Paktika. At a second meeting with Oad and Davies, Carpenter suggested that we work with these PRT, and that we might get them to analyze resources in ways that would help us. In fact, the Army admitted that it had not used the initial data collection well, as wells and other infrastructural additions were often put in incorrect locations. As such, they were trying to add the USDA to their team to get better perspectives on agriculture in the five provinces being analyzed. She also noted that one major push of the US is Nangarhar Inc, which will be a major investment in Eastern Afghanistan in areas where we have contacts (at Nangarhar University) and a program coordinator identified. It might be possible to get additional funding from the PRT's (which is not exactly our problem) who can do smaller dam-type projects and can use CERP dollars to fund development activities. She in fact thought that one area that we should consider would be in Paktika, where the Corps and PRTs are working. However, Carl Harris, a Deputy Chief of Party for the VEGA CDA-P2K team thought that area was quite insecure, and that it would be very hard to get work done. (He was working in Gardez).

**US Government** has established a **Water Team** including PRTs in RC East (there are a total of 14 or 15 PRT's in country, and RC East does not include all of these), USAID, USDA, USACE (Army Corps of Engineers), ADB, and ISAF (International Security Assistance Force). According to Carpenter, USDA can provide AWATT with an **instant connection into the field**. Both NRCS (National Resource Conservation Service) and the Forest Service have a presence in Afghanistan. The PRT's can also provide direct connections into the field. Carpenter warned us that these agencies have their own work assignments and collaboration may not always be possible.

**Other donor agencies** are also very active in the water area and with the Afghan government. ADB and World Bank are building the big infrastructure projects. In fact, Herat (with its new dam) is in the black with payments for water. World Bank has a prioritization project underway – modeling to determine how to prioritize water use. Carpenter also mentioned Danny Marquez of Nuristan as someone we should connect with. Moreover, AWATT needs to be in touch with the Europeans, as they have been in Afghanistan a very long time, and have done much water work in the Kunduz and using mirabs. We also learned that the World Bank funds ~60% of the government of Afghanistan, as the government currently has very few revenue sources due to its inability to tax many imports and local businesses. Households

are on average very poor, or engaged in illegal activities. Some revenues on goods arriving at airports and a few other sources but these are insufficient to support government operations.

Carpenter and her colleagues left and the discussion continued with Michael Satin and the AWATT team.

**Discussions with Michael Satin.** Michael Satin noted first that *USAID is primarily concerned with capacity building*. We need to help the Ministries build technical abilities, to transfer the skills that allow 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. USAID perceives us as a working arm of them and a working arm of the Afghan government. The USAID mission in Afghanistan is vetted through a document known as the ANDS – Afghanistan National Development Strategy, which is the road map for development in the country. It looks at development by 35 sectors. According to Satin, ANDS is the seminal document that drives USAID strategic objectives in Afghanistan. It provides a “greater mission view” and answers the questions “what is the goal?” and “how is our mission implemented?”

Satin gave a personal view about the decline of agriculture development funding from AID, why it happened, especially to universities, and how it should be structured. He noted that too much research focus occurred in agricultural development projects in the 70's and 80's, which led to lots of research reports, but few tangible benefits. He contrasted agricultural development outcomes with the Public Health area, where programs are rolled out in a standard fashion to solve problems. A useful paradigm was created and could be implemented around the world. Satin seeks similar programs that can be operationalized for agriculture that could lead to verifiable growth of farm incomes and improvement in the rural quality of life. He also made an argument similar to that made by John Mellor and others that *“Agriculture must be at the forefront of the agenda”* because success in agriculture drives success in all other areas, by putting money in people's pockets, permitting children to go to school, and allowing them to improve personal and community health.

He suggested that it is okay to generate journal articles but not what he is interested in seeing from AWATT. (We can put 10-20% into academic research but no more, at least in ways that are obvious).

Satin then discussed the Cooperative Agreement between AWATT and USAID. We were joined by ADAG director Loren Stoddard. Stoddard explained in detail how the project came into being and how AWATT ended up with the contract. (This had many interesting political dimensions, which most of us have heard). He politely, but sternly chastised the team for our slow burn rate (rate of spending). After Stoddard departed, Satin provided the following details on how the project would work.

- Each year we receive an allocation (this year ~ \$6.2 million), which when we work down to 25% of that annual money, USAID will cut another chunk.
- Burn rate is critical. If not burned at the appropriate rate, funding will be cut back.
- AWATT is way behind – to date has invoiced only \$60,340. At the current rate, we will need 392 months to spend the awarded \$19.8 million.
- Ambassador wants to know what is going on.
- We have two more months to get spending up or our funding will be cut.
- Effectively, must spend \$6.1 million over the next 8 months.

Satin gave several recommendations for increasing the burn rate quickly, referred to as spending “big chunks”. We can buy into services provided by US agencies, such as spending money with USDA and USGS to collect data. We will need an MOU to work with these agencies, and the Statement of work must be specified in detail.

- Aid effectiveness metric – money that gets spent in country. Do not plan on having this work

being done from outside the country. Spend the money in country to the degree possible.

- Consider using “residential advisors” – professionals who commit to working in Afghanistan for a year or more. Satin provided an example of a curriculum specialist who is currently here to help the universities rebuild their agricultural curriculum.
- Involvement of domestic agencies or hiring residential advisors should yield project obligations of \$1/2 million for each incidence. One expat with security burns \$1/2 million each year.

Satin concluded that cultural sensitivity is paramount, and that AWATT results should be operationalized, applied, and done in-country. Finally, he noted that we have to pay attention to the three tender rule and get bids from three tenders. We don't have to choose lowest cost, but must make the case for which contractor you choose.

### ***24<sup>th</sup> July Visit to Kapisa Province Irrigation canals and examples of irrigated agriculture (Jha)***

See separate file for Kapisa pictures;

6:30 am-6 Pm: AWATT team members Ramchand Oad, Roger Beck, Abdul Qayyum and Ajay Jha visited Kapisa province to assess the irrigation and crop management system. The Governor of Kapisa welcomed the AWATT team and explained the non availability of water at downstream-most 12 km of canals; he sought help to create a reservoir for storage and release of water during hardship. We thought that the problem is not about a lack of water, but really the management of water and awareness about water use and availability. The Governor mentioned that Kapisa province has a temperate climate, good production of oranges, pomegranate, grapes, plums and almonds. Pomegranate has been exported earlier to India and Pakistan; however the export has gone down due to insect attacks.

In the Kapisa Provincial Governor's Office, the AWATT team met with the provincial irrigation engineer, Khan Alam, who showed us a report on Irrigation and planning, but no water measurement for the Canal was provided in the report. Despite the entire donor's work in the province no methodology for measuring water and crop water requirements existed. We also met with the Mirab Bashi, who controls the water in the canal and is responsible for its distribution to farmers. Mirab is also responsible for the maintenance of canal and distribution channels. We also observed the sub canal and problem of non-availability of water at the downstream. We have travelled to the downstream site to look at non-functional and damaged irrigation infrastructure.

We observed that availability of water is not a problem at Khurram and Kwaja canal, however the distribution and management is really a big issues. We have walked almost 1-2 miles of both the upstream and downstream of canal to assess the farm situation around the canal. Most of the population was living around canal and also lot of activity at the surrounding of canal and has a big plantation of Mulberry tree around the canal, a real activity place all around the canal.

Surprisingly, around canal side we have seen some vegetables field which looked much stressed and was lacking irrigation and better management practice. This cultivation area was lacking a better water management system. Access of water is existing, however crop water management was lacking. The crop fields of vegetables were of ½ acres and also small vegetable garden next to the house to meet their household requirements.

Following are the vegetables grown in the farmers' field adjacent to canals and near some bore wells: Tomato, Eggplant, Onion, Mint, Okra, Green peppers.

### **24 July 2008: Site Visit---An International Center for Soil Fertility and Agricultural Development (IFDC) Kabul.** Website: [www.ifdc.org](http://www.ifdc.org). (Eberle, Gorman)

IFDC Participants: Mir Hassamuddin Hashimi,  
Homatoun Watan,

Yashpal Singh Saharewat  
AWATT Participants: Phil Eberle, SIUC  
Steve Davies, CSU  
Bob Grassberger, NMSU  
Bill Gorman, NMSU

IFDC operates the Food for Agriculture Revitalization and Market System (FARMS) project. They have tested the quality of fertilizers coming to Afghanistan, and generally concluded that for urea and DAP (white and black), the quality was adequate but that there was very little in the way of other types of fertilizers or micronutrients available. (Note: Dr Azizi mentioned that DAP is manufactured for areas having acid soils and not for Afghanistan's alkaline soils.) They are doing forage, vegetable and wheat trials in Jalalabad, Kabul, Baghlan, Kunduz, Herat, and Balkh (and so will be useful partners for our efforts). They described the fertilizer industry as having a number of importers and local dealers. Farmers pay cash, no credit provided by dealers. No subsidies other than indirect subsidies from smuggled fertilizer from Pakistan. There is an association of fertilizer dealers (19 provinces Durukhshan) set up under ASAP by Chemonics, for which the inspirational and organizing forces appears to be the Noor brothers, which is discussed below.

Afghanistan fertility problems are:

- Recommendations for fertilizer applications are not based on local soil tests. Apparently there are no or limited local soil labs available.
- Recommendations for fertilizer use are based on neighboring countries.
- Fertilizer is typically applied by hand broadcasting, possibly resulting in uneven application. IFDC is experimenting with urea tablets, drip irrigation with fertilizer applied through the drip system. They are also starting tree crop and forage trials.

Other problems/issues discussed:

- Need for small machinery appropriate for use on small (.5 to 1 acre) farms, particular custom harvesters. Need for a domestic group to manufacture small machines based on designs from India and China. These would be cheaper and thus more affordable.
- Availability of water at right time.
- No problems with leaching nitrogen because soils are heavy.
- Salt build up is the problem.
- If increase in production occurs there may be no market. There is no storage. Apples, onions, and potatoes are sent to Pakistan stored then resold in Afghanistan. Need for domestic storage.
- They work with Research and Extension (they fund them).
- They stressed that farmers must see with their eyes to be convinced to change farming practices. Demonstrations work well. They conduct farm tours.
- Farmers don't readily accept recommendations from scientists. Farmer to farmer works better.
- They mentioned that DAI is working in Jalalabad to develop export markets to Dubai.
- They also expressed concern about the availability of domestically produced fertilizers in the long run.

**July 24, 2008: Site Visit: Noor Agro Group---Main Office in Kabul. Website: [www.canafa.net](http://www.canafa.net). They also use the name CANAFA. (Eberle, Gorman)**

**Noor Agro Group participants:** Abdul Fatah Noor, Managing Director

His brother and partner (we did not get his first name)

Jahan Masudi, DASA Director of Operations

**AWATT Participants:** Phil Eberle, SIUC

Bob Grassberger, NMSU

Bill Gorman, NMSU

This family owned 20 year old business appears to be a very progressive farm input supplier. Dr. Abdul Noor and his brothers are medical doctors and speak perfect English. They sell a wide range of farm inputs to stores called AG-Depots in all but two provinces, Nuristan and Konar. They worked through the Durukhshan Agricultural and Social Association which is in 19 provinces and has 300 Ag-Depots in 119 villages (see attached map and listing of store locations. They also sell through an additional 150 stores called Noor Agro Group which is shown in yellow on the attached map. They sell seeds, chemicals, drip irrigation, tools, agricultural machinery, livestock and veterinarian supplies. They have four companies: 1) NASC--seed importer, 2) NOOR--chemical and equipment importer, 3) Afghan Aria Noor--livestock services and 4) Noorani—tourism and transportation. (See attached brochure).

- The Durukhshan Association AG Depots are locally owned.
- The Association collects a fee from each store.
- The NOOR companies give the Association stores a 5% discount.
- The additional 150 stores are believed to be owned by the NOOR Group (need to check).
- The company has agents in 32 provinces
- Hire graduates from ag schools. They don't do much training as it is too costly.
- They have agreements with professor to provide assistance when needed.
- They use their network of agents and stores to keep track of prices of ag commodities throughout the country. If there is a surplus and low prices in a region, they move products to regions with higher prices.

They are also exploring the possibility of exporting high quality apricots to Dubai. They have tried a few shipments. He only buys premium apricots from farms and airfreights it to Dubai. They use Quikbooks for keeping track of inventory and accounting. This company is an important prospect for a public-private partnership.

24 July 2008 to the Asian Development Bank (ADB) (Eberle)

The AWATT team went as a group to the Asian Development Bank (ADB) and had a meeting with the Deputy Country Director, Joji Takeshi, and Mohammad Hanif Ayubi, Natural Resources Management Project Analyst. Takeshi gave a brief history of ADB activity in Afghanistan. Prior to 2006 ADB did a little of everything, but since 2006 focused on transportation (roads and airways), energy (generation and transmission), and irrigation with minor commercial agricultural activities.

ADB operates within the GoIRA's Master Plan and is scheduled to spend \$1.3 billion during next 3 years and is currently investing \$152-\$165 million. One project will have GoIRA in charge of design and implementation.

Water projects of ADB include \$10 million on water management in Balkh province with focus primarily on rehabilitation of existing infrastructure. So far 154 small structures and 25 complex projects have

been completed in 3-4 districts of Balkh. Balkh was chosen because of better security and potential for poverty reduction new crops.

Lessons learned are problems transforming the mirab system (traditional water allocation system) cannot impose solutions from outside or top down must have community support. The Ministry of Regional and Rural Development (MRRD) has had some success using Community Development Councils, but there is no consensus on what works to obtain community support. For Afghanistan, cannot ignore tribal system and customs.

At government's request, ADB started an \$80.7 million loan and grant water project in Western River Basin (Herat, Badghis and Ghor provinces).

Other problems discussed were:

- Water policy issues are split over several ministries (MEW, MUD, MAIL, MMI).
- No measurement of water flows in place. Water flow data from Russian period.
- In response to a question about a lack of plant base water usage and on-farm management of water, Tokeshi discussed Rural Business Development Project of having a one stop all services provided project. Lessons learned: 1. Difficult changing traditional farming, 2. No market for surpluses, 3. Extension is a problem, poor quality, plus farmers view government either as enemy or out to collect taxes.
- ADB not undertaking big dam projects because difficulty doing environmental assessment requirements and security cost too high 40% of project. ADB security accounts for 20% of current project costs.
- PRTs do good work. PRTs work with provincial government. Problem if do not use locals projects do not last. No school built by locals has been destroyed. PRTs do not share information.

July 27, 2008: **Meeting at the Faculty of Agriculture, Kabul University (Davies, Eberle)**

AWATT Participants: Phil Eberle, SIUC  
Steve Davies, CSU  
Qayyum Khan, NMSU  
Ajay Jha, CSU  
Agha, AWATT  
Nassery, AWATT

The AWATT team received overviews for the *Faculties of Agriculture at both Kabul and Nangarhar Universities* during this meeting. First, Prof. Mohammad Yasin Mohsini, Dean of the Faculty of Agriculture at Kabul University, reviewed the history of the faculty in Kabul University since its inception in 1956. Prior to the wars beginning in the 1980s, there had been a fairly well developed program, with American lecturers and 10 labs, reputed to be state of the art, connections with University of Wyoming and Nebraska, and teaching in English. Much of the University was essentially destroyed during the wars. Dr Mohsini had made considerable improvements in the faculty since the Taliban left and reconstruction began.

The Faculty received \$4.5 million from the USDA to improve the facilities (which was in fairly good shape, but too small). Additionally, they appear to have funds to add a wing with two stories that should increase capacity. Ultimately, the Deans would like to create a College of Agriculture, and they are looking for land in the "Despayrs" region for demonstration farms.

The Faculty has had connections with Purdue, who received thirteen MS students, and also Cornell and

University of California, Davis. Because of costs and sources of funds, training had also been done in India and Japan in addition to the US. One question is the extensiveness of the interactions and course development that is occurring between these US departments and Kabul University.

The faculty has six departments: Animal Production; Agricultural Economics and Extension (of which Dr Fazl, the director of Extension in MAIL, is the chair); Agronomy; Plant Protection; Horticulture; Forestry and National Resources; and a contemplated seventh department, Soil Science and Irrigation (planned). There are now 1,200 students, about 5 labs (with reasonable equipment), a computer lab with 24-30 stations, and an electronic library associated with the University of Illinois. The program runs 4 years, and students choose majors in the third (junior) year. The Dean noted that the largest numbers of majors is in agricultural economics and the major is popular with females.

Additionally, we heard a summary of the Faculty of Agriculture in Nangarhar University from Prof. Mohammad Asif Bawary, Dean of that Faculty, which was started in 1978. The Nangarhar faculty of Agriculture has five departments: Animal Husbandry, Agricultural Economics and Extension; Agronomy; Plant Protection; and Horticulture. There are now 1,300 students, and 27 lecturers (with 9 studying abroad now, 2 with MS degrees from Purdue, and 5 having MS degrees from Peshawar under the University of Illinois/Qayyum Khan program).

The situation in Nangarhar was harder in many ways than that in Kabul. The major source of power generation was hydro power, but due to the drought, both water for demonstration farms and electricity shortages were constraints. This caused many problems with computer and internet use. San Diego State University and the San Diego Rotary Club had donated eleven computers, and there are internet connections but they are often not available due to the electricity situation (and all Faculty and students seem to have to use these eleven computers to access the Internet).

Dr. Bawary also noted that many options for crop production were being reviewed, and that a consultant from DAI had worked with them and suggested fish ponds, honey bees and silk worms as alternative crops. The fish ponds certainly appear to be related to the water availability and storage, so it might make some sense to figure out whether this can be incorporated in an income enhancing strategy. It also turned out that Dean Ansari from Balkh University was in Kabul to make arrangements for a USAID trip for agricultural faculty deans to the U.S, so we were able to review his situation briefly as well. There are about 670 students in that faculty, and 18 lecturers in the faculty. The largest department is plant protection followed by animal science. There is no agricultural economics faculty in the University, although there is a general economics department with about 350 students. Nearly 40% of the students are women and up to 60% can speak decent English. (The latter remains a testable hypothesis). There is also one vocational agriculture high school in Balkh that has close ties with the university.

All of the Deans indicated interest in having us work with them. The question would be what classes should be offered and how to structure them. It appears that running six week courses at Kabul University and bringing in faculty and/or students from other universities would be easily accommodated. Clearly, we will want to understand the types of water resources, economics and irrigation courses that could be taught. Also, soil and crop science courses are potentially useful and important courses, as there is little if any understanding of soil profiles and testing done throughout the country. (Kabul University does not have a department of soil and irrigation now because of a shortage of staff, so this is one clear opportunity).

One added possibility is to focus on agribusiness, as this is what will enhance entrepreneurial spirit in the country. This could be done by starting with a capstone-like class, which is project based, and use that to determine what other skills are needed (accounting, marketing, etc.). These topics could then be adapted

for agricultural high schools, and competition created to generate interest and visibility in the area. In the best of all worlds, good projects from these courses could be reviewed in collaboration with the ASAP project's efforts on expanding agribusiness in the country, and perhaps awards could be presented at the AgFair.

27 July 2008 -- **Accelerating Sustainable Agriculture Program (ASAP) (Eberle)**

Qayyum, Jha, Davies, Agha, Nassery and Eberle visited Thomas Fattori (Chemonics), Deputy Chief of Party for Accelerating Sustainable Agriculture Program (ASAP) and a Sr. Agribusiness Development Specialist.

Fattori gave us some background on RAMP's water related activities and provided us with a document related to water management for agriculture in Afghanistan. He also promised to supply us with a number of other documents as well as spreadsheets with cost of production estimates. It is important that AWATT makes sure that these documents are received.

Comments by Fattori:

- Balkh area had a cash for work project for canal cleaning.
- Developed weirs on Balkh river to feed 18 major canals and opened up 150,000 ha of land for agriculture.
- Canal activities also conducted in Nangarhar, Baghlan and Kunduz provinces.
- Big payoff agriculture projects have been animal health and water structure improvements.
- Any new water projects expanding irrigated lands will have social-economic ramifications.
- New water projects will require work with the government and clear methods of access, or else water goes to those with the most guns.
- MRRD has established CDCs based on Shura system to obtain quick community support for local infrastructure programs. Note: AWATT should inquire about those efforts and how may fit with our proposed PRAs.
- CDCs asking for roads, water and power.
- ASAP projects Mazar Foods (\$40 mil) 10,000 hectare vegetable demonstration (with forages in rotation for livestock) to show potential for large scale agribusiness in Afghanistan. Problems are salty land and salty water. Wells are 140 to 300 meters deep.
- Suggestions for AWATT project is watershed management of which a number of watersheds in the North and northeast would be good candidates e.g. Balkh, Kunduz, Baghlan, Takhar. Germans have been working on watershed in Pul-e-khumri in Baghlan province.
- Suggestion 2 is capacity building to use information. ASAP established National Agriculture Information System (NAIS) which collects data from 19 stations, such as prices and quantities of farm inputs sold, along with weather data. This will be internet based and available to approved users.
- Suggestion 3 is developing processing (e.g. rice processing mill in Kunduz started by an Afghan private investor from Peshawar). There is almost a total lack of processing capacity in the country. (This lack of processing increases the risk of producing perishable horticulture products especially).
- Suggestion 4 plant health issues (e.g. sun pest is major problem in wheat production, melon fly in melons and northern Afghanistan is the melon capital).
- Suggestion 5 work with VFU, veterinarian field units related providing better animal health services.
- Suggestion 6 under plastic winter vegetable production in Balkh.
- Suggestion 7 work with Ag Depots or Durukhshan association of input suppliers. (Avoid referring to Noor Brothers for their safety.)

(Note suggestions are not prioritized list)

- Human resources related to water are John Priest, Mazar Foods; Engineer Tahiri, BAS; and Engineer Tawab. Human resources related to crop budgets is Teshome Lemma.
- According to Fattori 70% of land is share cropped.

**USAID/Afghanistan (ADAG) Cooperative Agreement No. 306-A-00-08-00506**

**Dr. Oval Myers, Jr.**

**9-27 August 2008**

The Afghanistan Water, Agriculture and Technology Transfer (AWATT) Project is being implemented by New Mexico State University (NMSU) in cooperation with Colorado State University (CSU), Southern Illinois University Carbondale (SIUC), and University of Illinois at Urbana-Champaign (UIUC)..

This draft summary report represents the integrated draft reports of the following AWATT team members:

Dr. John Groninger, Dr. Oval Myers, Dr. Charles Ruffner, and Dr. Alan Walters. Drs. Groninger and Ruffner are from the Department of Forestry and Drs. Myers and Walters are from the Department of Plant, Soil and Agricultural Systems at Southern Illinois University Carbondale.

Travel Schedule:

9 August Depart Carbondale

10 August Arrive Delhi

11 August Arrive Kabul

13 August Arrive Mazar-e-Sharif

20 August Return to Kabul

26 August Depart Kabul

27 August Arrive Carbondale

The SIUC team departed Carbondale for St. Louis airport by ground transportation early 9 August. We flew from St. Louis to Newark and on to Delhi arriving in early evening 10 August. We flew from Delhi to Kabul early morning 11 August. We were met at the airport by COP Abdul Qayyum Khan and taken directly to the AWATT project house for briefing concerning our visitation schedule and objectives while in country. We checked into the Safi Landmark Hotel about mid-day.

We wish to thank the AWATT field team of Dr. Qayyum, Mr. Nassery, and Mr. Agha Jabarkhil together with drivers Ahmed Shah and Babrak for their assistance throughout the trip.

Our return to Illinois began on the early morning of 26 August when we departed Kabul for Delhi.

Ruffner volunteered to watch the luggage for our long layover and the rest of us took a driver to see some of the sights of Delhi, which included a good Indian restaurant lunch. Upon our return to the airport we went through a very thorough luggage search since we had come from Kabul. A very long 14 hour flight to Newark followed by the connecting flight to St. Louis. A 2 ½ van drive returned us to Carbondale about 1100 and a reunion with our families.

**Kabul Meetings 11-12 August**

In the afternoon 11 August we went to the USAID compound and held discussions with CTO Michael Satin. This was a very informative two hour meeting in which the AWATT project objectives and goals were discussed.

The 12 August meetings began in the Ministry of Agriculture, Irrigation and Livestock (MAIL) with Deputy Minister for Irrigation Per Azizi and several colleagues including the Deputy was a very informative for us to better understand the irrigation situation in the country and also the forest and range situation. This information was useful to us in later meetings with others and in our discussions and observations while visiting in Mazar-e-Sharif and Balkh Province.

Our next stop was at Noor Bros. where we discussed the Durukhshan Agricultural and Social Association. The network of Ag Depots was discussed and the general lack of soil analysis capability and plant protection information was identified as lacking and, therefore, an important need.

We also visited with Greg Cullen of the EU Perennial Horticulture Development Project concerning their work and discussed possible collaborative activities in Balkh Province.

### **Mazar-e-Sharif Meetings 14-19 August**

We met with Mark Henning, JDA international, who has been working in the Balkh province for several years, both on horticultural and agronomic crops as well as on adoption of small machinery. JDA is a potential collaborator in conducting demonstration trials of traditional and potential new crops. Dean Ansari, Faculty of Agriculture, Balkh University took us to his home village area where we observed irrigation and cropping practices and visited with representative farmers concerning their problems of production. As anticipated water, pests, markets, and lack of credit were cited. The effects of this year's water shortage was evident, particularly on their onion harvest.

On Friday Dean Ansari went with us to Hairatan where we observed the desertification problem of that area. The ASAP Mazar Food project will be located near Mazar-e-Sharif and some collaboration on horticulture production may be possible. Upon our return we visited the new campus of Balkh University. The Faculty of Agriculture has land there for a small demonstration and teaching farm. This may be an area where AWATT and the A4 project can collaborate in work with Balkh University.

On 16 August we met with the Provincial Director of Agriculture, the Director of Extension, and the Heads of Forestry and Plant Protection. Among problems identified were lack of soil analysis labs and pest identification labs. Also visited with IAK in the afternoon and were taken to two farmer fields, mostly fruit orchards where the effects of a cold winter, summer drought and disease had drastically reduced production. However, good alfalfa production was noted. Forages should be considered more of a cash crop as demand is high. Returns may be higher than some other crops if diseases aren't controlled.

On 17 August we visited Usiyo Humkerlich Trading, LTD, which is involved in a dried tomato project and is developing a farm machinery repair facility. This private company was assisting the surrounding community by employing women in the processing stage. We also visited the JDA research and demonstration farm, which may be used for collaborative activities. Promising new varieties of orange-fleshed watermelon, strawberries, and the introduction of pecans are interventions. We visited Mohammad ZIA, USAID assistant to discuss the interaction with the Balkh PRT.

We visited a urea fertilizer factory on 18 August. We also visited the PHDP farm and discussed possible collaborative activities. This well managed farm would be a good site for a soil analysis lab and plant protection lab and in cooperation with IAK, which has an extensive extension capability, could reach many fruit and nut farmers in the region. A highlight of the return trip to Mazar-e-Sharif was visiting a canal system along the Balkh River. We were surprised at the large size of fields and the extent of cotton production.

### **Kabul Meetings 21-25 August**

We met with Deputy Minister Sharif of Mail on 21 August who discussed the Amu River irrigation development situation. He also discussed the current major plant pest problems locusts, brown mottle, melon fly, and sun pest.

We next met with Tom Brown of ASAP. He gave us a good briefing on the marketing situation, both in country and for export. He supported our idea of considering pecan as a new nut crop and noted germplasm sources in Tajikistan. We also discussed erosion control, laser leveling for improved irrigation, and possible new shrub species for fodder, fuel and agriculture land conservation.

Our meeting with Director Ahmadi of Plant Protection was the last of the morning. He stressed the importance of having identification labs and trained people for the Department. Human capacity building was cited as an urgent need with training to the MS level for most and a few for PHD degrees.

Our afternoon was spent at the Ag Fair. We were pleased at the diversity of value-added products, the number of women's enterprises, and the development of private company operations. We were expecting more machinery displays, but most displays were of hand sprayers, although a milking machine was displayed.

On 23 August we visited Dean Mohsini and Kabul University. After some general historical discussion

we toured labs, the ag library, the computer facilities, and the student farm. It is evident that recent physical improvements are enhancing instruction opportunities. About half the classes are in English or have English visuals. We also visited the central library.

We met with Director of Forestry Khawarin. This was a good discussion of the forest situation in the country. We discussed plant species, agroforestry, community forestry, the Afghanistan Conservation Corps, and the Nuristan Conservation Corps. We spent some time discussing possible training interactions and perennial vegetation cropping schemes.

Our last meeting of the morning was with Director of ARIA, Dr. Osmanzai. He outlined the scope of the research activities and stressed the need for a functioning soils lab. The scope of activities requires much more capacity building than exists in the current staff.

On 24 August we met with several individuals working with the Afghanistan Conservation Corps, Engr. M. Nasri from MAIL, Noorullah Malang, M. Ullah, M. Koshani, and Hasman Kasin. This was one of our best meetings to understand the natural resources rehabilitation and village level activities to assist farmers and reduce unemployment. We discussed technical training needs and possible ways our AWATT team might assist. Natural resource conservation is one of the AWATT overall objectives.

On 25 August we met with Steven Kovach of the IFDC and his colleagues. They are implementing a soil fertility and management project called FARMS focusing not only on wheat production and milling, but also on water management and mulching on vegetables. They have an extensive (120) on-farm demonstration network in the areas where AWATT should work and could be useful partners.

We met for a final debriefing meeting with Kimberley Lucas of USAID. We presented the pertinent points of this summary in draft form and discussed our overall impressions of the area we visited.

Upon our return to the Safi Landmark, we interacted with Joern Seigies of the Advancing Afghan Agriculture Alliance (A4) project concerning interaction of AWATT in presenting short or long-term courses at Kabul and the regional universities as part of TDY programs.

### **General conclusions and recommendations**

Our objectives for this TDY were to interact with as many Ministry programs, NGOs, and other organizations both private and public that worked in the broad overall mandate of the AWATT project. Our focus was on agriculture and technology transfer with attention on water use efficiency and new or underutilized technologies and cropping schemes. Among the interaction objectives was to identify possible collaborative partnerships already established with a field presence. AWATT needs to supplement not duplicate existing activities and “fill in the gaps”.

We have identified potential collaborators and identified activity gaps, probably in excess of AWATT resource capabilities. Possible collaborators already working in Mazar-e-Sharif are JDA and PHDP in addition to the university and MAIL. Another possible collaborator is IFDC in Jalalabad and Mazar-e-Sharif, Kabul, and, perhaps other areas. The Afghanistan Conservation Corps is another group needing assistance in training assistance.

Specific areas identified are in soil analysis, pest management, improved crop management and utilization of woody crop –based technologies for soil conservation and income generation. Assistance in providing regional IPM lab facilities and soil analysis capability is very important and may provide the biggest return per investment dollar. There is an opportunity for public-private cooperation in working with the Durukshan Association. Human capacity ability building and technical training was an often cited need by the groups we interacted with on this visit.

The area of agriculture and technology transfer needs a full time or, at least, significant time TDY field persons to carry out these components of the AWATT project. Short term TDYs will be fine for training purposes, but this area needs a continuing field presence.

The challenges are great, the opportunities are many, and the resources limited, but progress can be made

in many areas.

### **Contacts**

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Aug 10-27, 2008

AWATT contingent Oval Myers, Charles Ruffner, Alan Walters, John Groninger  
College of Agricultural Sciences, Southern Illinois University

Prepared by John Groninger

Aug 10 (Sunday)

Arrived in Delhi approx. 7:30 PM. Ours was only plane arriving at the time so we cleared customs and baggage pickup quickly. Radisson Hotel was very comfortable. They feature a free happy hour from 7-9 which launched us on an enjoyable (and expensive) bonding session and discussion of development work from the SIUC COAS perspective.

Aug 11 (Monday) Delhi-Kabul

Left for Delhi airport from Radisson at approximately 4:45 AM and cleared customs quickly. Found airport to again be very efficient and well run as was the Air India flight to Kabul. The only inconvenience was a second check of carry-on baggage immediately outside of terminal and prior to boarding the plane. Few passengers were on this flight. Most appeared to be Indian with a few Americans.

Upon arriving in Kabul, was struck by the amount of progress since fall, 2005. Much of the rebuilding so evident in 2005 has clearly been completed. Ornamental plantings along streets and improved traffic control were obvious. More men in western clothes and women without burqas. More trees are growing and many planted during the post-soviet era are now big enough to contribute substantially to shading and esthetic quality. All the streets are no longer crowded with goods for sale. Some of the scenic charm evident in photographs from the pre-soviet era has now returned.

We were met at the airport by Dr Qayyum, Nasri, Babrak, and Agha. We proceeded immediately to the AWATT house. Dr Qayyum reviewed a possible itinerary for our stay. The house provides an excellent home base for the project in many ways: The neighborhood is already very pleasant and is undergoing further renovation and improvement. The house itself is spacious enough to accommodate the entire staff and will provide an attractive work environment and lodging for employees. The view of the Kabul hills is inspiring and fitting for a water-and rebuilding –related project. Office furniture has been purchased and other renovations, such as the kitchen and generator installation are ongoing. Long-term security concerns are prompting construction of a higher wall. The roof provides an excellent space for receptions. I noted raw timbers used in roof construction on the very substantial house being rebuilt next door.

Afterward, we checked into the Safi Landmark. Ate the very good buffet lunch and went back to our rooms for a brief rest. Magazines and TV paint a generally upbeat picture of the national situation but the continuing influence of terrorism and the Taliban are not downplayed in any way.

Later in the afternoon, we met Mike Satin at the USAID compound under very tight security. Had a wide ranging discussion and Q and A session. He started by emphasizing the importance of alternative agricultural development (i.e. alternatives to poppies or development of a licit rural economy). Other phrases used included helping rural communities develop new income generators and make economic alternatives more accessible. Regarding AWATT, he saw or desired to see a group of academics in a practical form. He mentioned his background was primarily in Africa with work in monitoring and evaluation as well as in agroforestry.

Kim Lucas walked into the meeting briefly to be introduced. She is a deputy for USAID and Alternative cognizant technical officer on AWATT. She would likely be involved in some capacity upon Satin's

departure at the end of Sept.

The following came out of what I saw as the Q and A portion of the meeting with Satin..

As far as goals or outputs from AWATT, Satin identified a thriving economy through improved livelihoods, improved production, an improved policy climate, farmers selling goods and putting money in their pockets.

Satin expressed interest in a soils labs.

Satin took many opportunities to emphasize the importance of Dr Qayuum's experience and leadership and offered his view that that the academics on the team serve as backstoppers

He expressed interest in reforestation, also putting people to work in rural areas and developing markets, both local and for export.

Satin then offered that land tenure issues were not going to receive much attention.

Regarding background data, he said 65,000 aid workers are in Afghanistan , many in water related issues so there are lots of data. A recurring notion was that he did not want to see academics on the project using AWATT as a mechanism to generate journal articles and graduate research projects without having an impact on the ground.. He stressed value of working with NGO since they get a full view of the landscape. We should look to fill the gaps and not look to concentrate on doing any one thing.

Working with the agriculture faculty at Afghan Universities was viewed as being a good thing. At this point he mentioned that US Senator Kit Bond wanted to make sure land grand universities were on this project. Work with these professors is sufficiently close to improving the livelihood of farmers for the purpose of this project. He agreed that the teaching materials we produce for AWATT will help us more effectively work with Afghan university faculty.

He offered that the cooperative agreement under which AWATT is written is a middle ground between a grant where the recipient is free pursue their own agenda and a contract where the job is specified for the contractor. Satin saw us supporting the building the extension part of the university system. Also, he mentioned that the AWATT academics need to feed technical expertise to Dr Quayyum. We also learned that the Ag. Fair in Kabul is Aug. 19-22. Oval mentioned to me that this was an unusually long meeting with a USAID person.

Ended the day with a buffet at the Safi landmark . I also learned the importance of not taking the key card out of the receptacle/light switch of the room after locking the door from the inside, especially if there are no other sources of light in the room. This is especially pertinent if one is sleep deprived to the point of having difficulty finding said key in ones own pants pocket. The day ended without further incident except a couple minor and very short power outages.

Tuesday, August 12, 2008 Kabul

Meeting at National MAIL with Azizi, Lute Obaidi (an irrigation engineer , Ahmadyar, later joined by Hasim Barikzai and Erin Hannan, a Natural Resources Management advisor hired by afghan govt. (phone 0796498433, email [erin\\_hannan@yahoo.com](mailto:erin_hannan@yahoo.com) )

Azizi started by stating his interests in introduction of irrigation technology to farming. More specifically, he mentioned specific needs: Methods for irrigation, watershed management needs, appropriate crops, and knowing how much of the country should be under forest cover. He said he would like to see our project at farm level, but also at the catchment level. He is also concerned about degradation of the non-agricultural terrestrial environment and discussed the history and legacy of overgrazing, and timber poaching. Figures he cited for deforestation was 1.5 percent of land cover deforested from a total of 3%.

He is interested in creating teams of partners. Specifically mentioned were ICARDA in dry country and CYMMIT working with wheat.

We learned much about irrigation and water management-related problems. Upstream areas can use water as much and anytime they want and downstream/tail areas have shortages. Even under conditions of shortages, there is enough water for a single wheat crop. Downstream areas typically get water every 15-20 days. He specifically mentioned the eleven canals region in Mazar area (part of 18 canal system). The irrigation turn is linked to the area of land and not to the needs of the crop. Size of the farm affects amount of water allocated. Overall, 300,000 ha (10% of potential) has an engineered water supply. Availability of reservoirs is limited and sedimentation is further limiting capacity. Jalalabad reservoir is nearly completely full of sediment and no reservoir in the North. Non-engineered areas tend to be more impacted during drought but engineered areas are also subject to water loss. Individual farmers typically lack water storage capacity.

A watershed program is planning for rehabilitation of overgrazed land and desertification. Including planting and check dams.

The government is working directly with communities in planning for natural resources rehabilitation and maintenance of livelihood. A particular concern is the practice of removing remaining bushes for fuel.

In southern Afghanistan forests are controlled by the community with very little government control. If an individual cuts woods around a village, something must be given in return to the community. In the north and west, the pistachio forests are regulated by the government but no active management is practiced. New laws are being drafted that transfer rights and responsibilities from the government to communities. Premature harvest remains a problem as there is no incentive to do otherwise. The communities would be involved in the planning process. In some cases, land allocation to specific villages is not clear. Hannan said lots of NGOs already have experience in social aspects of community forestry.

Some suggestions from Azizi include improved water harvesting techniques at the farm level, check dams and vegetation cover for grazing control to protect check dams. Bank protection along rivers and canals was also mentioned. He also suggested the need for an emphasis to move from fruit trees to more water tolerant plants such as pistachio and walnut. There is interest in other wild fruit trees as well. Barakzai mentioned a number of species of native trees with further potential for planting.

Hannan mentioned a national solidarity program focusing on social development. This includes the Afghanistan Conservation Corps. There are 12 trainers in Nuristan with plans for forest protection and nursery establishment as well as forest road and bridge building.

Other needs discussed included addressing ground water recharge and channelizing rivers to get more land into production.

Durukshan- Met with Jahan Masudi, then joined by Fatah Noor. Masudi discussed structure of company and mentioned their ability to implement donor projects, including in difficult areas. The company is in all provinces except Kunar and Nuristan and extends credit to merchants in return for the exclusive right to sell Duruckshan goods.

Discussed the seed approval role of the government. Private sector brings in new technology and convinces the government of its value. We discussed extension role played by company agronomists . Both Fatah and Masudi expressed support for a soil testing laboratory. We then toured a Durukshan showroom and saw a wide variety of implements and agrichemicals, typically packaged for very small operators.

Afternoon. Greg Cullen= website [www.afghanistanhorticulture.org](http://www.afghanistanhorticulture.org)

His organization works through NGOs and Mail and has 6 centers in each of six historically similar regions. Cooperators include traders, growers, World Bank, Roots of Peace, They have collected 860 accessions so far from Afghanistan and are testing imports but have a backlog of material. They also provide material for the approximately 2,000 nurseries developing in the country and are developing a registration/certification system. Results of trials are expected in 4 to 5 years. They are also looking for more direct funding for Afghan growers associations and provide vocational training for nurserymen. He noted a poor understanding among growers as to what export markets want. Upcoming projects include developing a citrus industry in the east, producing export-quality raisins in Herat, registration, and working with grower associations.

Greg identified several problems including the following:

- Understanding of basic sciences is lacking.
- Lack of a soil scientist and soils lab
- Lack of a pathologist, nematologist, entomologist, pesticide control, weather data.
- No appreciation for the role of bees
- Many people don't see fruit as a money-maker
- Need for "adaptive research" as universities have dictated practices without actual research to back it up

Some further interests he expressed include work with saffron-alfalfa intercropping (cut and carry) and drip irrigation. Some areas with potential they have not explored are walnuts and cane fruits such as currants.

Wednesday, Aug. 13- Drive from Kabul to Mazar-e Sharif

Just north of Kabul, Ahmed Shah noted location where trees were cut down to prevent concealment of ambushes by Taliban. He also pointed out location of Osama bin Laden's office during the Taliban era. We noted the abundance of grape culture and prosperous villages along road south of foothills. Just north of there, an abundance of tomatoes and onions were offered for sale along the road. Ailanthus is a common tree around villages and compounds. Noted pistachio plantations and wild pistachios on hillsides along roads. Briefly stopped as a mine was detonated on south side of Salang pass. The sound of the detonation suggested live mines are still very close to the road . Stopped for lunch at a restaurant in Pol-e Khomri Noted the distribution point for a coal mine. Ahmed Shah said 1kg coal retails for 1 Af in Kabul ( exchange rate is \$1= 50 AF). I thought further use of coal could provide a quick source of energy to take some pressure off the range and watersheds as a source of fuel, at least locally. I hope this

isn't ignored as at least a stopgap measure.

The large amounts of rice and fruit trees really drove home how easy it is to divert water in upper watersheds. Extensive preparation for winter wheat north of Pol-e Khomri. Arrived at Kefayat hotel in mid afternoon. Joined Mark Henning and his family at the Turkish restaurant near the airport. Noticed a lot of growth in Mazar-e Sharif, particularly new business enterprises and large houses east of the city where only walls stood in 2005. Lots of new traffic circles and beautification projects along the main East-West road. Much of the squalor of the market present in 2005 merely moved to unpaved roads just to the north of the main road.

The following notes on Mazar should consider the fact that 2008 has been a very dry year following the coldest winter in at least 60 years. Many of the problems, particularly with perennial plants, including yield and disease problems may be at least partially due to these conditions.

Thursday, August 14, Mazar-e Sharif

Mark Henning JDA

Mark shared a report published by the Asian Development Bank on water in the Balkh-Ab basin

JDA specializes in applied research to benefit farmers. They tried to find spineless safflower to accommodate hand harvesting and growth in semi-irrigated land. JDA also started a company to import 2 wheeled tractors from China. He mentioned the need for longer term credit options for farmers, i.e. more than the 1 year loans available presently. Mentioned that farmers are cautious in adapting new technology but they are open to change. An example he provided is the orange glow melons from the US. Farmers initially thought it couldn't be good because it looked funny but took seeds and planted some once they tasted it. By the second year, they were selling all they produced. Typically farmers are growing 30 year old varieties of watermelons. Some potential new crops mentioned by Mark include safflower on semi-irrigated lands and canola on irrigated lands. They are also doing some test plantings with cabbage and cauliflower for fertility and seed trials.

Typical farm sizes Mark works with are small (1-5 ha).

Regarding soil conservation, manure is saved for burning and wheat straw sold for construction. leaving very little residue for soil maintenance and little opportunity for conservation tillage

Some basic information on soils... pH is typically 8-8.5. Phosphorus is low and calcium is abundant. Some work being done on urea briquettes and using sulfur to reduce soil pH. There is typically no rain from April to November.

We continued to discuss some problems in agronomy and horticulture. Large weed problems are evident in irrigated land. Seed purity problems in wheat and water quality problems precluding drip irrigation. He mentioned research being done on fast growing poplars but mentioned strength problems regarding their use in construction. Mark encouraged us to come to him with ideas for projects and the costs associated with them as he is able to do new things if resources are available. Oval encouraged Mark to come up with ideas that AWATT can support. He encouraged us to try working with Pecan. He suggested seedlings could be sent via APO. Melons, raisins and almonds are exported to India and Pakistan. Sesame exported to turkey, tomato to Kabul. There are very few processing opportunities. Mark is working with an Afghan-American company to produce a container of sun-dried tomatoes for

the open market. This has been a challenge given the dry year. Back up plan is to sell to Turkey. Pistachio is being replanted from native genotypes that had been exported to other countries.

Afternoon. Met with Dean Ansari at the Kefayat guest house. In response to Ovals explanation of the AWATT project, he said this is a good time as water is a big concern, water table is low and river level is down making access by farmers difficult. He emphasized need for more water and canals and Oval explained AWATT will have limited ability to do this and that the emphasis is on improving efficiency of water use. Oval explained PRA process and Dean Ansari mentioned that students have been asked to identify problems suggesting this to be a possible supplement to the PRA. Ansari mentioned some of university needs of equipment, laboratories and water for the new farm. Oval mentioned we may be able to work with Mark Henning in helping develop farm, on the new campus. Ansari discussed student projects including a study of pine germination. He also mentioned some research with Mazar foods and desertification research. BUFA now has 650 students and a total of 17 faculty and staff. 3 faculty are presently in India.

Afternoon. Visited a farm in Siracea a town of 20,000. Ansari's son, who accompanied us in our vehicle, said 1,800 girls and 700 boys attend the school. This stands in stark contrast to an unwillingness to even discuss introducing education opportunities for girls in from of a district leader in a nearby village in 2005. The farm we visited normally gets water every 12 days but there was not enough water this year, resulting in the need to harvest onions prematurely. Noticed lots of weeds in crops. We sat for tea and discussion along an irrigation ditch. Mulberry growing along canals was cut for firewood and replanted yearly. Poplar is bought in the market. Advise on farming is gotten from the district extension agent. More was discussed but I was distracted by extreme intestinal woes during the later stages of our discussion.

Friday, August 15. Mazar-e Sharif

Observed dune formation and desertification in lands on the way to Haratan on the Uzbekistan border area. Grazing continues in sparse grass and shrub vegetation with large dunes as you approach the port. Ansari explained that shrubs include Artemisia, haloxylon and tamarisk. Photographs are prohibited in the port and border area. A large amount of derelict buildings and trucks are present and a working rail spur extends across the Amu Darya into Afghanistan. Looked at the very silt-laden Amu Darya and at verdant Uzbekistan. The latter is clearly making use of water from the river. Enjoyed a fried fish and nan picnic in a reed shelter on the banks of the river looking at Uzbekistan (or Russia as it is interchangeably called) through young willow cuttings planted in bank. On the return trip we visited the site of new balkh university where a wall surrounding the future farm is complete.

Late afternoon visited Mark and Shannon Henning and family at their house and compound in Mazar-e Sharif. Had a fascinating discussion about their life in Afghanistan over the past four years

Saturday, Aug 16, Mazar-e Sharif, MAIL compound

Director of Balkh Agriculture and Irrigation (Katib Shams) emphasized need for technical expertise to be provided by an irrigation or water specialist who is presently lacking. He also said lab facilities are lacking for insect and disease identification but that human capacity is adequate. Got a sense that the ministry at this level may feel threatened by more recently educated and better equipped individuals supported by NGOs. Other problems he identified were a lack of water. He suggested continued lack of water would lead farmers to grow poppies. He also mentioned need for more fertilizer, better (longer term) loans, and the lack of a market. Suggested crop diversification would be a good thing as well as interest in Karukul sheep. Mentioned that pastureland is lacking and the need for reservoirs. In discussing fuelwood. Sholgara valley is providing lots of wood. Other fuel is mulberry, grass,

camelthorn, and old fruit trees. He expressed interest in export quality walnuts and pistachios. Said forestry personnel in his agency advise farmers on what types of trees to plant and the benefits of growing trees.

He mentioned poultry production, one farm with 23,000 birds, but most is imported from Pakistan. Mentioned that vegetable storage and processing a problem. When asked about government action on water usage he said it is natural that people closer to water will use more water. Saw donated tractors and implements in the MAIL compound originating from Belarus

Then met with Samal Kunawi, northern regional coordinator for Horticulture and Livestock program funded by the World Bank and GTZ. Half of his staff of 220 is from MAIL. Said increased exports are mandated by Karzai with focus on almond, pomegranate, grape and apricot based on the historic importance of these crops. His organization has 33 clusters of farmers/extension groups. Introducing new management techniques to grape producers including need to fertilize with potash. Also introducing use of sulfur and lime and improving pruning practices.

Organization emphasizes gender mainstreaming with women extension agents provided use of a driver. They also produce budstock and look to establish a lab as part of a second phase

Late Morning, Balkh University

Met with Ansari and Rahimi. Also spoke with English instructors for ag program. They showed us the classroom in hallway where 160 students are taught English. Took a brief tour of the farm behind the BUFA building.

Afternoon

IAK farms-

First farm. This land is supposed to get water every 10 days but got it only every 30 days. Almond and alfalfa intercropping. Also saw alfalfa bundle that sells for 30 Af. Farm labor costs 150-170 Af/day.

Apple fruits heavily infested with apple scab, 97-98% crop loss.

Second farm- Grew a large amount of grapes with cuttings saved for fuel.

Sunday, August 17, Mazar-e Sharif

Usiyo Humkordick Trading/JDA compound. Primarily an oilseed processing facility with sun dried tomatoes being processed on site. Compound has partially constructed buildings and will have a tractor repair facility. Building houses processing facilities and will have 2 classrooms. The facility will serve and employ residents of 5-8 villages within a 3-5 km radius. 80 women are employed in processing tomatoes. Sun dried tomato operation. Crop has been small this year due to dry conditions and a number of pests

JDA compound has poplar poles to hold a screen over drying tomatoes. Poles marketed in 4 meter lengths ranging in price from 20 cents to \$20 dollars a piece. A 20 cm diameter pole costs 12-16 dollars a piece. Pine lumber comes through Tashkent, Uzbekistan.

Afternoon

Met with Mohammad Zia of USAID in Mazar. His supervisor Paul Ware was on vacation. Their offices primary focus is local government development. Supporting PRTs is also among their responsibilities. He said there are few PRT projects because the area is secure. There is some work being done on reservoirs and a few wells and there is a possible irrigation project with ADB. He mentioned irrigation canal and intake constructed by USAID. They are also installing wells east of Mazar that should impact approx 10,000 ha.

Monday, Aug 18, Mazar-e Sharif

Drs Qayyum and Singh arrived via air from Kabul. Briefly met with them and proceeded to a brief tour of old Balkh city. The grounds around the mosque and tomb of the poetess are the most park-like in terms of large trees (pine, ash sycamore and mulberry). Then drove south down an unpaved road with bridges built by USAID. This provided an interesting elevation transect, rising, then falling in elevation as we approached the Balkh river. Took a brief tour of the fertilizer factory. This was Afghanistan's independence day so few people were working. Walked through a tremendous stockpile of fertilizer in 50 kg bags. It was explained that the factory also produced electricity and soft drinks with natural gas acting as the energy source. This factory and soviet built dormitories here and elsewhere in Balkh province are tangible and useful reminders of a recent past which still plays a large role in the minds of middle aged and older afghans we have talked to. Went on to the intake of the canal network and noted the large amount of construction of water diversion structures with further work continuing just to the east.

The view of the valley across the Balkh-Ab River was spectacular and the swift current of the river made for a pleasant swim.

The desertification between the fertilizer factory and the Balkh River appeared to be getting worse from 2005, but I can't be certain of this. Near the factory we noticed a sign denoting a nature preserve developed by women and hope to make arrangements for a visit during a subsequent TDY.

Tuesday, Aug 19, Mazar-e Sharif

Morning, Perennial farmPHDP

West of Mazar. Met with Mohommad Ibrahim Karimi, a student with an MS from Peshawar. This is a 3 year project started in March 2007. This is one of the regional fruit tree variety collections described by Greg Cullen. Species in the collection include apple, plum, peach, pomegranate, fig, almond, and apricot. They would be willing to cooperate with AWATT if this is OK with MAIL. They had problems with almond sapling survival and decried lack of lab support in Kabul to help with diagnosis of disease. This facility gets as much water as it needs being a government facility. Saw a cooking stove with a reservoir with fuels for the fire. these consisted of grasses and small twigs

Afternoon.

Visited a sawmill east of Mazar. Had a large stock of pine cants from Siberia 15 x15 cm x 6 m. These sell for \$60/piece. Evidence of borer damage on the ends. These appear to have come from managed forests as there was evidence of release.

Wednesday, Aug 20. Drive from Mazar-e Sharif to Kabul. Made a number of short photo stops along the way. Traffic was light and security not a problem approaching Kabul as we heard it had been the previous day. Saw aftermath of a fatal car accident which was not surprising considering the prevailing driving patterns. Arrived at Safi Landmark by mid-afternoon.

Thursday, August 21, Kabul

MAIL compound. Paid a courtesy visit to Mohammad Sharif., first deputy minister of Agriculture. He mentioned several pests he believes are particularly problematic. Locust, sunpest, brown mottle, Colorado potato beetle, and melon fly.

Tom Brown-employed as advisor by MAIL

Tom has experience throughout southern Afghanistan and northern Pakistan. Tom mentioned market

connections between Pakistan, India and Afghanistan. Emphasized value chain development which is largely driven by a sequence of movements from farm to market rather than processing. He sees potential for contract production for emerging supermarkets in India, especially for melons and grapes. Pest infestations have posed a problem for export. Large vegetable markets are primarily domestic. He envisions processors buying from local areas. He liked the idea about pecans as a feasible new crop and mentioned there are good pecan varieties in Tajikistan. He has contacts there. Interplanting crops with potential include Siberian pea bush, four winged salt bush – atriplex. This latter species is good for fodder. There are experts on this in Aleppo (ICARDA). There is also bamboo exported from Pakistan which may be a potential species to plant in Afghanistan and *Arundo donax* also has potential as a commercially valuable reed species. Tom provided us passes for the Ag Expo at Badam Bagh.

Abdul Ghafar Ahmadi

Director of plant protection and quarantine

Individuals trained at the MS level, rather than PhDs. They have close relations with World Bank and FAO and believe continued help from international donor community is needed, primarily for education of staff.

Afternoon, Ag Expo.

After a brief dust storm, attended the Ag expo amid tight security. Grower coops were abundant with a wide variety of raw and processed agricultural products. Textiles sold by numerous women's social groups were probably the highlight of the expo. Women running these groups interacted freely with western men. In most, but not all, cases a man was standing by in the booth. Lots of rugs also on display. Various other agriculture related vendors were there including banks insurance, cell phones. Durukhshan hosted us in their booth and provided a lunch of barbecued meats and cokes. I enjoyed a Herat ice cream bar afterwards and took in the fair ambience that could have been anywhere in the U.S. In many ways, this was a pleasant and unexpected taste of home. It's a strange counterpoint to the sound of military jets in the distance and the recent attack on ISAF forces 30 km from Kabul.

Friday, August 22, 2008

A day off to stay in the hotel, rest, exercise and work on this report.

Saturday, August 23, 2008

Kabul University Faculty of Agriculture.

Although much of the campus remains overgrown, a lot of quads are mowed, landscaped with flowers and used by students.

Dean Mohsini met us and gave us a brief history of the Faculty of Agriculture. He mentioned that the Ag. Faculty now has an electronic library. Faculty have access to electronic communications, each department has a powerpoint projector where projected materials are in English and are narrated by the lecturer in Farsi. The faculty of agriculture now has 1200 students. Some faculty are getting degrees in Bangalore, Tokyo, and at Purdue.

Important problems he mentioned are a building constructed for 300 students and the loss of a farm at Darlaman

The dean then gave us a tour of the facilities.

The labs are being used to at least some extent and the agriculture library contains relevant, but dated texts.

Unlike 2005, the students didn't view us as objects of curiosity. They are apparently used to seeing

westerners in their building now. The student farm was quite impressive, demonstrating irrigation and a large number of crops. An apiary and livestock facility are also present. A research farm is also being established. In all cases, the contributions of foreign donors is very conspicuous.

The library's physical structure is on par with that of a small American college of 20 years ago. The absence of new books on the shelves is striking. Overall, something for the university to showcase.

Khaurin- Director of forestry. Erin Hannan was also present. The director discussed his background including an MS in agroforestry from India and a large project identifying fodder trees. Some present areas of interest include the following:

-Preventing loss of agricultural land due to shifting sand, drip irrigation systems and bank protection along the Amu Darya. He specifically mentioned Hanab district in Jowjan province and the area around Mazar-e Sharif. He discussed anti-desertification programs practiced before the war, specifically direct seeding of haloxylon, tamarisk and licorice. Natural regeneration of these were discussed as well in addition to tamarisk cuttings. Harvest of roots of these species continues to be a problem. He mentioned a large number of promising species including Robinia, Ulmus, Salix, Fraxinus with water and riverine areas and Caragana and Tamarisk in dry areas,

Talked about planting Fraxinus, Robinia, Ailanthus and Ulmus but intercropping with food crops is a problem since the roots interfere with digging "if a farmer turns over the soil, he expects to get food" That is why poplar is preferred, since it has soft roots. He seemed to like the idea of interplanting fuelwood with fodder plants. He expressed a desire to get *Pinus nigra* seed.

He was interested in getting Gleditsia without thorns for fodder. And said Morus was good for fodder. *Dalbargia sisso* was also mentioned as good along rivers.

He went on to talk about pistachio and that help was still needed in re-establishing plantations in the form of nurseries and propagation. Good forest land (pistachio) is largely cleared of mines. UNAMA does mine clearing and has maps on areas that have been cleared. While poplar is the primary focus for timber, he would welcome more drought tolerant species.

He said there is a shift in the belief that the government practiced forestry to the idea of participatory forestry. Rangers cannot protect forests and having villages be the primary stakeholders would allow protection from outside influences damaging the forests. He mentioned that criminal elements have deliberately destroyed forests and that high quality wood continues to be smuggled to Pakistan. Participatory forestry is not taught in the schools where the emphasis is on forestry/horticulture.

Aziz Ozmanzai, Research department

While basic research was practiced before the war, the department now focuses on adaptive and applied research. The department has 1 PhD and 14 MS, 18 research stations in 13 provinces and works with 11 departments within MAIL. Information is disseminated through the extension department. Mentioned Japan's role in setting up labs and providing technicians. He liked the idea of small labs distributed throughout the country.

An interesting conclusion to our visit is the discussion of a draft plan to establish a national agriculture university. The plan is in Farsi. Oval was able to provide a couple points for consideration.

An overall impression is that ministry and university people I met in 2005 are noticeably more upbeat. They can point to some level of accomplishment over the past couple of years and now have more specific suggestions to make further progress rather than merely making general states along the lines of it would be nice to rebuild production of such and such commodity. There is no longer an air of being overwhelmed by donor interest. Although, many cite huge problems and recognize the limitations of their position in getting things accomplished, the overall sense is that better days are ahead.

Had a very satisfying lunch at Chief Burger which broadened my horizons on sweetcorn and curry chicken as a pizza topping.

Sunday, August 24

UN OPS

Afghanistan Conservation Corps

Mohammad Ismail Nasri- National Technical Director

Noorullah Malang= Project manager ACC, Hazman Kasim= Finance and Admin. Officer

Mohammadullah Koshani=Senior training and liaison officer

ACC is a joint afghan government-UN program (MAIL and National environmental protection agency). The program has been funded since 2003 with work in nursery establishment, watershed management and park beautification. Retaining walls, gabions, spring development, tree plantations, and pistachios 42 projects have funding from USDA. Focus on job opportunities for the poorest, public works and community involvement. Wages are very low \$2 to restrict opportunities to the most local people (no one else could afford the cost of transportation at the rate of pay) and to provide opportunity to those most in need of work. ACC provides training in necessary skills before a job begins. The office has an outreach component for young people. Their activities include providing posters to schools, encourage students to bring home to family messages on the importance of conservation, in Kabul, trips to zoo teach respect for animals. The ministry has a program with Faculties of Agriculture to provide a 9 month program for recent college graduates. Seniors take a test to qualify. They learn planning, human surveying, and budgets.

For projects, some work done in communities, some on private land (nurseries) and some on government land. In communities, project planning involves the shura making request for a project in their community and bringing this request to the government for selection. In some cases the land originally was owned by ministry, then taken over by the community. Pistachio plantation in Samangan is an example. Participants don't learn skills beyond what is needed to implement the project but they bring these skills back to their community. Training sessions are needed for forestry and agriculture engineers and extension people. Here up to date technical information is needed.

Nasri summarized recent history of Afghansitan's forests in the post-taliban era. Said emphasis was first on conservation of remaining forests, especially pistachio and conifer forests in the east, then restoration of forest and range rehabilitation. Idea of participatory community forest management started 2-3 years ago with 8 areas in the north with at least some incorporating multiple villages.

Malang-Described community forestry work with pistachio in Samangan where 3 committees of 10 members each met every month and were responsible for protection of pistachio forests. A big problem is people harvesting prematurely, and reducing value of the nuts. The committees were voluntary, but transportation was provided and community leaders trained. This process began by making and posting announcements at the mosque. Henry Showick of USDA was the contact person.

An important point we got is that technical information provided by our group does not necessarily need to be synthesized for Afghanistan. Just provide up to date information and the Afghans will decide if they can implement it themselves. Areas mentioned were agroforestry, reforestation, forest and agricultural engineering, forest and range management, erosion control, terracing, check dams, road construction and nursery management. Alternative fuels and waste management. The group was receptive to Oval's suggestion of AWATT supporting a range management project. The need for regional training in these areas was mentioned. Mr Nasri also mentioned that he knows many head men and also that Otto Gonzales may be a good contact.

Spent the afternoon at the AWATT office summarizing our notes for a draft to be given to USAID on the 25th. Robert Foster arrived and joined the group.

Monday, August 25, 2008

IFDC office. Received a summary of the FARMS project from Steve Kovach. Also present were Homayoun Watan, Jalal, Hashimi, Jaseem, and Yashpal Singh Saharawat. Their work is primarily with wheat and concerns fertilizer recommendations, water management, and outreach including demonstration. There is also a project on rice culture reducing the number of seedlings and amount of cultivation. They are active in 6 provinces. IFDC has collected extensive soils data and has weather data. They are also working with ICARDA on rust resistance in wheat. Jalal collected baseline data on production. The project is also addressing milling and value chain analysis. Extension means working with the ministry and agriculture input groups. They see a need to demonstrate to input groups that product quality (re. plastic mulch) is not always adequate. Yas described some of his work with cropping systems and it was mentioned that they are not dealing with dryland wheat. They are interested in IPM. They are not working with fruit tree nutrition but referred us to Steven Wright at PHDP as a possible source of information. Also Sherzi of Roots of Peace. Mentioned nutrient imbalance (Zn and K) may be a problem in these highly calcareous soils

Afternoon USAID debriefing.

With Kimberly Lucas serving in Michael Satin's absence

Oval summarized the TDY. Kim gave some pointers on navigating tribal politics. She suggested we contact Lina Jensen regarding agroforestry projects in Afghanistan funded by USAID. Also in a later meeting with a guy from UC Davis or Purdue, it was mentioned that Global Progress for Afghanistan, in cooperation with Cornell is doing agroforestry work.

Final dinner at the Chinese restaurant

Tuesday-Wednesday, August 26-27. Travel from Kabul to Delhi to Newark to St Louis to Murphysboro. If making an excursion in Delhi with a taxi, be sure to settle on the price of the cab ahead of time, expect to pay approx \$20 per person. Small currency in rupees is desirable as the Indians are less inclined to accept US dollars than in Afghanistan.

Recommendations provided by the July group proved useful. A new recommendation on getting through US Customs, mention that this is a project funded by US AID as soon as possible to avoid being taken out for special questioning. on these high value crops.

## **Vegetable Production in Balkh Province of Afghanistan and Recommendations to AWATT**

**S. Alan Walters**

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In August 2008, I traveled to Afghanistan as part of a USAID project-Afghanistan Water, Agriculture and Technology Transfer (AWATT). The project is a consortium of four U.S. universities (New Mexico State University, Colorado State University, University of Illinois, and Southern Illinois University) designed to provide better water use efficiency in Afghanistan, to identify and address gaps in other agricultural projects that have been implemented in country, and to transfer readily adaptive agricultural technologies to Afghan farmers. This paper provides an overview of what I observed for vegetable production activities in Afghanistan.

Afghanistan is a developing country that has been at war for the last several decades, and is currently an ancient culture trying to become westernized. Motorized vehicles, bottled water, wireless internet and cell phones are readily available, although many are still using animal pulled carts as the primary mode of transportation. Afghanistan has an agriculturally based economy, although most production and harvesting activities are done by hand without much mechanization in the overall agriculturally-based system. This country has a very dry climate, with everything covered in dust, but there is an elaborate system of canals that provide water to crops. About one-eighth of the land is tillable (about 9 million hectares), while two-eighths of could be used as dry rangeland (about 18 million hectares). There are 34 provinces in Afghanistan. The Balkh province is in the north and is the only province that borders Uzbekistan, although it also borders Tajikistan and Turkmenistan. Historically, there are 18 canals in the Balkh province, although there are really only 11 that are functional with most obtaining their water from the Balkh-Ab river basin. The 11 canals are referred to as the Balkh-Ab canal system. The Balkh province is very dry, with really no significant rainfall occurring during the production season.

Water is a critical issue in a dry climate and is of the utmost importance to a developing country like Afghanistan. Water is an important limiting factor for agricultural crop production not only in the Balkh province but throughout the country. All high value horticultural crops are irrigated with mostly surface water obtained from the various canal systems. Right now, there are too many people (primarily downstream users) that are not receiving the water they deserve due to over-use by up-stream users, especially if rice is grown upstream. The water distribution process from the canals is quite complicated as farmers receive so many minutes of water based on the amount of land they have; and, the frequency in which they receive water differs based normally on how far they are from the canal. Typically, the closer a farmer is to the canal, the more water, while further away, the less water. For one jireb of land (2,000 m<sup>2</sup> or one-fifth of a hectare), farmers in the Balkh province get 10 minutes of water use from the canal with the frequency ranging anywhere from about 7 to 30 days. Mirabs are responsible for water distribution and are employed by the Ministry of Energy and Water. A farmer that we visited irrigated every 12 days; however, since other crops also need to be irrigated, his onions only got irrigated about once a month and this frequency provided drought conditions, which related to small onions that had to be harvested earlier than normal to just obtain some revenues from the crop. So, water is really a limiting factor to vegetable production in this province.

Although wheat and cotton are the two primary agronomic crops grown in the Balkh province, vegetables are an important part of agricultural production in the Balkh province. There is a wide assortment of vegetables grown including cabbage, cucumber, garlic, lettuce, melon, okra, onion, potato, spinach, squash, tomato, and watermelon. The two most widely grown vegetables are okra and tomato, although I also observed significant acreages of melons, onions, and watermelons. Okra is the vegetable that is most often observed growing in community gardens. It surprised me that through my extensive travels in

the province, I observed more hectares of okra compared to any other vegetable including tomato. Many Afghans told me that this was the number one preferred vegetable in Afghanistan and it was readily available at most markets that I visited. However, both onion and tomato production is also significant around the Mazar-e-Sherif area. During peak production, tomatoes in this region average about \$1 Afghani per kg due to no sufficient cold storage facilities. The Director of Balkh Provincial Ministry of Agriculture and Irrigation indicated that tomato prices would likely increase to \$100 Afghani/kg with adequate cold storage facilities. He also suggested that more basic infrastructure is needed in his province and cold storage facilities are at the top of this list.

Vegetable production in the Balkh province is normally about 2-3 weeks earlier than in temperate regions of the eastern U.S. There is no specialized technology used that readily conserves water use, such as plastic mulch and drip irrigation, which is normally used in water-starved dry climates. However, low tunnels are used to produce 'out of season' cucumbers and as tomato transplant beds. Tomato transplants are pulled out of these beds and used as bare-root transplants. Most all vegetable production activities are done by hand with little mechanization, except maybe some tilling of the soil.

Raised beds that are about 4 feet wide are used for vegetable production with two rows generally planted near the furrow on either side. Depending on the vegetable grown, this often allows enough space for a small path between the two rows, so that maintenance and harvest activities can be done without having to step down into the deep furrow that is often muddy. Small holes are made into the raised beds at the proper in-row spacing depending on the vegetable crop grown, with manure (typically sheep manure) and diammonium phosphate (DAP) placed into the hole prior to placing in the vegetable transplant and covering roots with soil. Composted sheep manure (at least 1 year old) is a favorite manure of vegetable farmers. These vegetable plants are later sidedressed with Urea. Soils are mostly alkaline ranging in pH from about 7.5 to 8.5. There is really no long term soil management program used by farmers to improve the soil's physical condition or organic matter content.

Crop rotations are somewhat used, with the previous crops grown and crop water use requirements considered in the rotational scheme, but not always. For example, crops that have low water-use requirements (such as wheat) are often grown at the same time on another portion of land under the farmer's control with a high value horticultural crop that requires lots of water. This will allow the farmer to often divert water designated for the wheat crop to be used for horticultural crops, but again this depends on the numbers of jarebs that a particular farmer has at his disposal.

We also noticed that pest management is critical to vegetable production in the Balkh province, as many vegetable insects and diseases have often become the major limiting factors to vegetable production in the province. However, although pesticides are readily available, most farmers lack a basic understanding of pesticide use and the timing of pesticide applications. Several specific vegetable pest problems are described briefly in the next section.

### **Specific vegetable and fruit crop observations.**

*Cucumber.* Although most cucumbers grown were the beit alpha types, I did observe some slicing types being grown as well. However, some cucumbers are direct seeded into raised beds and covered with plastic low tunnels for 'out of season' cucumber production, while most are transplanted during the

spring and summer months in the production system previously described. Typically, cucumbers imported from Pakistan sell for about 30 Afghanis per kilogram, but the ones grown in low tunnels for 'out of season' production will sell for about 70 Afghani per kilogram. All of these cucumbers are marketed domestically, and farmers can make about 200 Aghanis/m<sup>2</sup>, twice a year, for 'out-of-season' cucumber production which is a significant amount of revenue.

*Watermelon and melon.* Watermelon cultivars are mostly open-pollinated types and include 'Charleston Gray', 'Crimson Sweet', and 'Sugar Baby'. Currently, orange- and yellow-flesh cultivars, such as 'Orangeglo' and 'Tendersweet Orange Flesh' are being evaluated; and, many Afghan growers are really excited about the marketing potential of these types. Although watermelon fruit are mostly sold by piece, in the near future, many growers will probably start selling by the kg to improve revenues, especially with the orange- and yellow-flesh cultivars (Mark Henning, personal commun.).

For melon production, all are local landraces, with seed saved from open-pollinated fruit and replanted each year. Afghanistan is the last arid temperate climate in central east-Asia before China, which provides an optimal climate for melon production if sufficient moisture is available. Locally-produced melons are typically white-fleshed and very sweet and tasty. Locally grown melons can also be easily found at road-side and other markets. Often times at road-side markets, these melons were the only product being sold. These melons can typically be purchased from about 80 to 200 Afghani/unit, depending on the province in which they were produced. Those produced in the Balkh province tended to cost around 80 to 90 Afghani per unit.

Since most watermelon and melon cultivars are open-pollinated, growers will typically select and extract seed from fruit having the highest quality and largest size to use as seed next year.

The melon fly is probably the most limiting pest to production and there is currently a lot of research effort being directed at management methods for this pest by both governmental and non-governmental organizations. Other significant problems that I noticed included blossom-end rot in watermelons, especially 'Charleston Gray' types, and Fusarium wilt especially on 'Sugar Baby' watermelons.

*Pepper.* Pepper is widely utilized as an additive to many different Afghan dishes as well as eaten fresh. The Dehdadi district in the Balkh province is well known for chile pepper production, with most exported to Pakistan. Peppers are often dried, although most are sold fresh. Since peppers plants often sit in water for extended periods due to the flooded conditions provided by the irrigation system, Phytophthora blight was observed to cause about a 10% to 15% loss in most production fields.

*Potatoes.* There are limited amounts of potatoes grown in the Balkh province. Most potatoes produced in Afghanistan are grown in the Bamyán province which is south of the Balkh province, but has a much higher elevation more suitable for potato production. There are lots of fresh market potatoes available at most roadside and other markets in Kabul that were produced in Bamyán province.

*Tomato.* Both processing and small fresh market tomatoes are produced in the Balkh province and both types can be readily seen in local markets. Many of the tomatoes produced in this province are shipped directly to the large Kabul market.

Sundried tomatoes primarily 'Roma' types are being developed in the Balkh province as a possible export crop to Turkey (Mark Henning, Personal commun.). Mature tomatoes are cut in half, spayed with

10.5% sulfur once that are laid out on a plastic tarp and then sprayed with the same sulfur concentration four hours after the initial spray. It takes about 4 to 5 days for these tomatoes to dry. The sundried tomatoes will not only provide a new market for growers, but will provide new jobs for women the community.

However, in 2008, only about a 10% yield was achieved with tomatoes produced in the Balkh province, as there were various constraints to their production. The tomato fruit worm provided about a 50% yield loss, blossom-end rot and sunscald provided another 20% loss, and an approximate 10% loss was due to fruit rot from soil contact, as tomato plants are not staked and fruit often contact the soil. Often times, 90% of the first set of tomato fruit is lost due to fruit contacting the soil.

*Strawberries.* There is great potential for strawberry production in the Balkh province. Growers can get about \$120 to 200 Afs/kg, which is a significant amount of revenue. Day-neutral types such as ‘Seascape’ have been evaluated and have done well in the dry climate in northern Afghanistan (Mark Henning, personal comm.). It was estimated that about 700 kg can be obtained from 1 jireb, which is relates to about 100,000 Afs/jareb.

*Marketing of vegetables.* Many of the vegetable crops grown in the Balkh province are sold into wholesale markets in Mazar-e-Sherif, which is the largest city in the province at with a population of approximately 350,000. Most produce that is produced in Afghanistan is sold in-country as there is a huge domestic market for vegetables, although some melons and a few other vegetables are sold to Pakistan. Many vegetables are sold even before they are even harvested due to the limited production in Afghanistan. All vegetables that are produced in-country are utilized regardless of whether they are overripe, insect-laden or highly diseased. Even without adequate storage and postharvest facilities, all vegetables are used to some extent with little waste.

Afghanistan is economically linked to Pakistan and vegetables flow across the border in both directions. A significant amount of Afghan melons are sold in India, which has an ever-expanding marketplace. These emerging supermarkets in India will most likely play a future role in Afghan produce sales, including various vegetables besides melons. There is great potential for more Afghan vegetables to be marketed in India, but, only if more can be produced through better field production and management methods. More vegetable production can occur in Afghanistan to fulfill the needs for export markets, but there are multiple issues that must be addressed before this will happen including better water and fertility management, and pest control. However, most would agree that the basic problem of vegetable production in the Balkh province is drought conditions provided by inefficient water use.

### **Recommendations.**

There are multiple pest problems of vegetables that need to be addressed. Due to the poor pest control tactics used and the lack of understanding of pesticide use and timing of applications by Afghan farmers, I would recommend that some type of cooperation between the AWATT project and the Durukshan Agricultural and Social Association be established to deliver essential pest control information to farmers. I would be willing to provide training and materials for disease management for a short-term assignment, which would also include information on nematology. However, without adequate pest diagnosis laboratories, it is difficult to provide the needed management information to growers since the pest problem cannot be definitively identified. Another possibility would be to conduct a few demonstrations with various biological control pesticides on vegetables.

Fertility issues in vegetable production and short or long term soil management is really not even considered in Afghanistan to any extent. Manures, DAP, and Urea are the only fertilizers used to produce vegetables and are used year after year without any recommendations provided by a soil analysis report. There is no sustainable soil management or fertility systems used to properly maintain organic matter levels or soil tilth. Thus, soil analysis labs are needed to properly advise farmers on soil fertility issues.

Strawberries and orange- and yellow-fleshed watermelons are unique crops that have great potential as high value horticultural crops in Afghanistan. Both can provide high revenues to farmers and apparently do well in the arid climate. Mark Henning of JDA would be the person to work with.

TDY Report

AWATT Afghanistan

Aug 10-27, 2008

AWATT contingent Oval Myers, Charles Ruffner, Alan Walters, John Groninger  
College of Agricultural Sciences, Southern Illinois University Carbondale

Prepared by Charles Ruffner

### **Saturday, 09 August 2008**

NYC- We are sitting in Newark NJ airport waiting for the plane to Delhi, India. Today saw us all leaving Murphysboro IL en route to Kabul Afghanistan. Drs. Oval Myers, John Groninger, Alan Walters, and myself set out from home and have spent a nice lazy day getting across the US getting to know each other's movements and insights. John G and I have traveled a lot together so I can pretty much anticipate his next move, but I'm getting used to Oval's pace and delivery of jokes, info, and wisdom. What a great leader to take us all to Kabul. I'm very confident in his ability to get us all there and interact on a diplomatic, professional level with our hosts the Afghans and Pakistani nationals. Our lives are pretty much in the hands of these guys.

So far we've talked about what has brought us here as individuals and as a group during our steak dinner at the Newark airport. Oval clued us in on some of things we may be doing with Dr. Khan and the others while in country, like visiting with many of the director's from the various Ministry's comprising Afghan natural land uses such as the Agriculture, Irrigation, and Livestock (MAIL) which includes a Division of Forestry, along with the USAID folks, and the likes of the locals we may encounter.

I sit here having a wonderfully tasty Brooklyn Ale wondering just what the hell I may be doing traveling to Afghanistan. Many years ago as a young paratrooper in the US Army I trained and anticipated dropping into Afghanistan as some sort of combatant but now offer my services as a forester and natural resource manager as if I could offer this nation some cogent info useful to this nation which has seen so much strife, hardship, and destruction at the hands of so many outsiders and regimes. Can we really do any good in this place? After our meeting with the folks that were essentially our advanced party at Carbondale this past week, it left me with the perception that there is much to do and little time to complete it during our 15 days in country. Will we be able to meet with all the people implicated in this project and see some of the countryside? What a concept to visit the Afghan countryside. Places like Mazar-e Sharif, Badakhshan, Nangahar, and Paktika. There are no other places in the world like these I have ever visited and it should be a trip I'm sure. All my family members are aware of where I'm going except DAD who is obviously gone and can't revel in my adventures overseas.

### **Sunday, 10 August 2008**

A 14 hour flight to Delhi. What else can I say but no sleep, too many poor Bollywood movies I couldn't understand and no free Guinness! However, the evening we spent in the Radisson was splendid, complete with plenty of Scotch and talk amongst the group before a well deserved sleep on my part.

### **11 August 2008**

Up at 4 am for our flight to Kabul. Overall an uneventful flight to Kabul. Upon arrival, Dr. Quyyum Khan and Mr Nassery were there to help us through the airport and customs. Really nothing unusual about the airport which looked like an army airfield with lot's of helicopters and armed men gallivanting around with sneering faces. Outside we met with our "trusty" drivers Babrack and Ahmed Shah, brothers who would be our eyes and ears for the next two weeks. More on them later!

Our drive to the AWATT office was eye opening with lot's of beggars and obvious infrastructure problems. I have come to the realization that much of the limitations of this country are with the medieval infrastructure including partially paved dirt roads, chronic lack of potable water, no sanitation sewers which are "provided" by the gutter alongside every roadway, and the lack of educational facilities.

Two weeks into our trip it was announced that 12K more US troops were being deployed here this winter to provide more security which ultimately is what is most needed. We can't expect to build the infrastructure and agricultural outputs of this nation until peace amongst the people is attained. I can't help but wonder how far along this place would be if we hadn't taken our finger off the pulse and bungled into Iraq! That debacle drained the necessary troops from Afghanistan which has allowed the Taliban to regroup, re-equip, and take back much of the territory we had wrested from their hands during the initial invasion. The Afghan people realize this and all the editorials I read here suggest that we have no one to blame but ourselves for the "re-Taliban era."

Our initial meeting with the AWATT team was easy going with Dr. Khan laying out the next couple of day's meeting schedule and the overall objectives of our time in country. After a quick clean-up at our hotel, the Safi Landmark Hotel, we set out for the US Embassy and USAID compound for a meeting with our CTO Michael Satin who turned out to be very knowledgeable and straightforward about our project's objectives and his expectations for our success. It seems we are basically working to reduce the role of poppy production by increasing other agricultural outputs and providing alternatives for the common peasant farmer of the country. He recognized that the common Afghan has no understanding of the important role of forests and ground cover in reducing soil erosion and conserving water and other ecological resources. It seems that this ecological vacuum exists everywhere and we can perhaps increase the common level of appreciation by providing education materials to the PRTs and other educational groups. What we need is the classic "crying Afghan" commercial for the Ariana Television Channel so that people through time might reconsider their wonton polluting, littering, and defecating in the streets.

All across the country we witnessed people completely clearing vegetation from "rangelands" for the home fuel markets (Figure 2) opening up the possibility of dustbowl conditions and soil depletion. Virtually every stick of carbon is used for fuelwood including grubbed out tree roots, shrubs, and twigs. Most other "waste" such as wheat and corn stalks is used for either wattle and daub construction or livestock fodder. After harvesting crops, all residue is removed for either fodder or fuel with no ability of reincorporation of nutrients and organic matter into the soil.

### **Tuesday 12 August 2008**

This morning we met with several key members of the MAIL including Dr. Pir Azizi (Director of MAIL), Lute Obaidi (chief engineer and Irrigation adviser), Ghayor Ahmad Ahmadyar (Deputy Director of the Dept. of Forestry), Ms. Erin Hannan (American Adviser to the Deputy Director). We discussed several key problems in MAIL including improving irrigation techniques and vegetable crop processing. Irrigation policy or lack thereof and the use of the *Mirab* system was discussed suggesting an old traditional water right's policy whereby *Mirab's* (who are controlled by the Ministry of Water and Energy, not the logical Ministry of Agriculture, Irrigation, and Livestock) control the flow of water to each farmer's field system depending on the flow amounts, and the size of each holding. Complaints amongst farmers in Mazar suggested that *Mirabs* have no control over those upstream users who illegally take more water than they are apportioned thus reducing overall flow to those downstream farmers. Another of the irrigation problems is the poor neglected conditions of many intakes, berms, and continual loss to infiltration and evaporation which can't be avoided until concrete canals are produced several hundred year's into the future.

One other portion of the project we mentioned was our interest in the Afghan Conservation Corps currently being implemented on a small scale in Nuristan. I contextualized the conditions of the US landscape during the Great Depression and the role the CCC played in building the infrastructure and natural resource base we now enjoy. Mr. OBaidi liked the idea very much and requested that I provide him with my presentation. Now after two weeks in country I have a greater ability to provide specific examples for the Ministry folks if I ever get to present it?!

They also mentioned the encroachment of desertification upon many rangelands across the country. Later in the areas north of Mazar we got to see it first hand. They seem pretty clear that a lot of illegal logging is removing vast timber from state owned land in the eastern provinces of Paktia, Paktika, Nuristan, and Laghman. I suggested the role that Forest Rangers could play but they said they already had them, but apparently with no shoot to kill orders or protections for state timber. Later in Mazar we saw lots of timber that mostly came from old Soviet republics but much was definitely from these eastern provinces. No timber market or ecological analysis has been done and sadly probably never will. By the time security enables access, the forests will be gone. We'll probably be planting Douglas-fir in those hills in the next millennium. One positive is the apparent training of 90 young men at a Province ACC type camp in Nuristan. We'd love to see it and contribute but this seems tangential to AWATT.

Next we were off to meet the Noor Agro Group, a part of the Durakshan Ag Coop people, who were very hospitable and provided us with a bit of their Coop objectives. These guys seem quite energetic to provide farmer inputs across the country and have emplaced over 300 small farmer stores in 19 provinces. We later got to see a couple of these around the country and they all seemed to be shipping crates (containers) full of pesticides, tools, and such. Primarily they sell imported vegetable seeds to farmers and employ regional agronomists who try to provide advice to farmers with pest or disease issues. One thing they liked us offering was the chance to build and equip a soils lab in the country.

Later that day we moved on to see Greg Cullen, the British Ex-pat running the Perennial Horticulture Development Program (PHDP) for the Ministry of AG folks. He has 6 demonstration farms in Kabul, Herat, Kunduz, Mazar, Jalalabad, and Kandahar to field test all of the varieties of fruit and nut trees collected from across the country. They seem the most scientific so far in their approach to collect germplasm of grapes, apricots, pomegranites, almonds, and olives. Apparently they are attempting to document all of the known fruit and nut varieties by their common/local names and systematically identify them, develop "mother stock" and disseminate these to the demonstration farms. This is obviously difficult as there are over 100 almond types (Figure 3) in Afghanistan and over 140 grape varieties. Of most interest to me was the mention of walnuts, hazelnuts, and pecans as potential trees of introduction and promise in this arid climate. He invited us to visit his farm in Mazar which we later did and enjoyed it.

### **Wednesday 13 August 2008**

What a drive to Mazar-e-Sharif! We witnessed a lot of countryside driving through the Hindu Kush mountains seeing lots of riparian zones, irrigation intakes that resembled "mill races" back home, and hundreds of acres of melons, rice paddies, and various croplands including cotton, corn, millet, and pistachio savannas on sideslopes. After looking through my pictures I realized there were many old hillside terraces that looked derelict which could possibly be resurrected if rebuilt and put on the irrigation system. Again garbage was everywhere, poor soil management along streamside zones, and excess use of water. Another telling feature were the numerous Russian armored vehicles littering the highway and byways. One important caveat here is the total need for infrastructure building like bridges, roadways, and tunnel systems. Riding through the Salang tunnel, the world's highest road system was a real treat other than the fact that the tunnel is unlit, largely broken into bits, and unvented which creates conditions akin to a steel mill when the road is crammed with jingle trucks and fast moving vehicles that actually overtake inside the tunnel. I wish my State Trooper friends could come and visit this country, they'd freak.

### **Thursday 14 August 2008**

Meeting with Mark Henning from JDA. Mark provided us with the most current assessment of the Balkh AB river and its 11 canal system, in a report by Dr. J.Lee entitled, "Water Resource Management on the Balkh Ab River and Hazhda Nahr Canal Network: From Crisis to Collapse." This report was later copied by Ahmed Shah and read by myself and Groninger.

Mark's organization does a lot of applied research for local farmers regarding thornless safflower seeds, watermelon and strawberry varieties, and providing roto-tillers to local farmer groups on short term loan. He seemed most keen on delivering info on melon fly infestations and IPM problems across the Balkh region. He also mentioned that all manure is used for fuel or fertilizer of high value vegetable crops and thus not incorporated into soil. Of some note was his interest in introducing pecan's (*Carya illinoensis*) into the Balkh province since it would do fairly well in this arid region of Afghanistan.

That afternoon we met with Dean Ansari from the Ag Faculty at Balkh University. He complained of poor water management within the local watershed and later took us to his home area near Dowdadi west of Mazar. We were welcomed by a few local farmers who showed us their paltry crop of onions due to the low rain this season (Figure 4). They complained of poor water management on the part of the local *mirab* and could most benefit from a water storage facility and better market availability. On the way home we saw a local girls school with over 1800 pupils while the boys school only had 700 pupils because they were need on the farm.

### **Friday 15 August 2008**

Drove to Hairatan with Dean Ansari to see the desertification problems north of Mazar. Looked a lot like desert already but Groninger corrected me that the native camel thorn rangelands were being over taken by desert. You can graze camel thorn, you can't graze sand. Hairatan was an old derelict Russian freight terminal on the Uzbek border, aka the Amu Darya river which was quite wide here and totally unused for irrigation by Afghanistan. Good thing too or it wouldn't go as far as it does. It already dries up before reaching its historic outlet in the Aral Sea. We had lunch in a riverside hooch surrounded by a large brick wall that turned out to be the toilet for all the men enjoying their fish lunches there. Must be the only food in town.

### **Saturday 16 August 2008**

Visited with the provincial MAIL director Mr. Katib Shams. He mentioned 6 priorities for his group here in Mazar:

1) lack of ag capacity at community level, 2) lack of soil/water analysis capacity, 3) no practical IPM expertise in the area (other than Mark Henning), 4) lack of market availability for local farmers (fix the roads), 5) lack of forage for livestock, and 6) not enough water reservoirs to hold water when it is available. His division of forestry guy came in and we talked about the 115K ha of pistachio forests in Balkh province. They mentioned the *mirabs* are controlled by the Min of Water and Energy which seems like a poor oversight group especially when irrigation is what they do and that moniker is in the MAIL title?

Immediately afterward we were the guests of Samad Kamawi the regional director of IAK group doing horticulture work and extension work in the area. They currently have over 200 extension agents with plans to hire up to 20 females for the job to work with women's interest groups.

Just before lunch we visited the Balkh University campus facilities and viewed their building and campus farm. While Oval suggests they've come a long way they still have miles to go and anything we can do to help them would be beneficial believe me. That afternoon we visited the IAK farm with Mr. Kamawi and witnessed the poor crop of apples with multiple pest problems. However, there was an outstanding little plot of alfalfa interplanted with almonds that would prove to be valuable fodder if we could get everyone to grow a little bit of that stuff.

### **Sunday 17 August 2008**

Our morning saw us moving again towards Dowdadi and the ever-present poor roads leading there. We went first to the private Usiyo Humkerlich farm farm with Hamid, one of Mark Henning's JDA field

researchers. There we saw the tomato drying process and the poplar pole set-up for elevating the dust screens. Hamid related the cost of such poles was between .20 cents per pole up to \$20 depending on the diameter. Here JDA employed many women for \$4 per day to pick, sort, split, and dry the tomatoes a nice wage for otherwise unemployable folks. Here to we witnessed the depths to which wells are dug for reaching water, when Hamid pointed out the 40' deep hand dug well.

We also visited the JDA research/demonstration farm. Later that day we met with Mohammed Zia the USAID PRT rep who was giving us a courtesy call and we unfortunately gained little info from him as he was new to the position.

### **Monday, 18 August 2008**

We spent much of the morning conducting an AAR debriefing before the expected arrival of Drs. Quyyum and Singh who were flying in on USAID air from Kabul. Upon their arrival around 0930 we caught up with them and filled them in on our travels around the Mazar area. After another great lunch at the Royal Oak, we embarked for a trip to see the old mosque in Balkh town and then onto the fertilizer plant and water intake on the Balkh Ab river just north of the Sholgara valley. The mosque was sadly violated by many previous invaders and in need of renovation, another perfect job for the ACC along with the decrepit park surrounding the mosque.

The Balkh Ab river was such a tenuous sight to see because so much of northern Afghanistan's agricultural productivity is based on the quite shallow flow of this great river that starts in Bamyan province in the Band-Amir lakes. The valley was beautiful and the mountains that shouldered the pass were majestic (Figure 8). I had hoped we'd be able to visit the main Sholgara valley to see the farms and woodlands of that immense valley. Here Pashtun farmers take as much water as they need, heedless of the masses downriver from them.

### **Tuesday 19 August 2008**

Moved again towards the Dowdadi area with Mohammad Karimi to see the PHDP research farms. Here we saw their mother stock plantings of all kinds of fruit and nut trees including apricot, almonds, peaches, and fig. Lots of nice rows of stock but many of the plantings look ill and were not doing well. Alan seemed to have many discussions regarding possible pest/pathogens affecting the farm. They certainly seemed willing to try pecans and Persian walnuts here if we could get them there. Later that afternoon Ahmad Shah and a friend from the hotel took us to one of the local saw mills to talk with a few of the millers. Finally something forestry oriented!! I liked to see the Siberian pine cants and the mounds of sawdust being gathered up for the home heating business (Figure 9). The miller said each cant (15 cm x 15 cm x 6 m) cost \$60 and he was processing them into window frames, doors, and trim wood. Many were quite knotty but others were clear, high grade material. He admitted all of it came from Russia but we found others in the Division of Forestry later tell us that much is cut from the eastern provinces and moved all over the place in this country. I can't wait to see those *Pinus gerardii* forests in Nuristan, Kunar, Paktia, and other provinces along the Pakistan border. I hope the security situation allows us a visit sometime in the future. We could probably do so much cool work up there including climate reconstructions and stand aging, not to mention lots of restoration work.

### **Wednesday 20 August 2008**

Spent the day driving from Mazar to Kabul. After setting off with some trepidation regarding possible Taliban roadblocks I soon came to realize the real enemy was the drivers of Afghanistan. We road along

at 70 mph cruising through Police roadblocks without stopping or even slowing down for the tank tread speed bumps! In addition going through the Salang tunnel was a treat as many other drivers attempted to pass inside the poorly lit tunnel and along its circuitous route. The fatal accident near Jabul Saraj was quite sobering to most except our driver Ahmed Shah who seemed only interested in washing the truck and getting us home (Figure 10). I was glad to see Kabul's relative civilization and was later goaded as a wimp due to my distaste for poor driving habits that could end my life?!

#### **Thursday 21 August 2008**

After a quick meeting with Deputy Minister Sharif at MAIL, we were off to see Tom Brown, USAID contractor for the ASAP program (Accelerated Sustainable Agriculture Program). Tom broke down for us the flow and transit of goods within/out Afghanistan and Pakistan. Lots of goods move seasonally when things are not available in Pakistan but are being grown and harvested in Afghan territory. He likened the area to 300K ha of top quality Central Valley of California type arable land. However, the markets are so laden with gluts of food due to infrastructure bottlenecks and problems with storage and movement over the long-term. I can't believe some big man with lots of trucks and money has not developed a food storage warehouse where many in the community could bring their goods to be refrigerated, sorted, packaged, and sold on the world market under the name of one common entity like Mazar foods. I guess growing up within the shadows of Martin's Chips and Snyder's of Hanover and the like have jaded my vision, but the idea of a big coop (of many owners/vendors) buying up excess food at a good price mind you, to either sell cheaply to a supermarket chain in India or convert the excess into soup, meals, and processed food items. This idea could put a lot of the young/old generations currently not working and sitting by the wayside or roundabout to work sorting, processing, trucking, and railroading top quality produce to the Uzbek border maybe or beyond?! But alas it all comes down to water availability and the control thereof.

Tom and others before him had mentioned the role local control of water plays in their irrigation system in which some farms thrive while many others barely survive on their sharecropping with the actual farm owners. The *mirabs* are largely responsible for the effective and timely deliveries of "water turns" to the appropriate farms along each main canal of the Balkh Ab river. Each farm plots' future depends largely on water availability, timing of seasonal floods and droughts, total distance from the canal intake, not to mention your *mirabs*' honesty and corruptability. So many issues with water availability and no baseline studies have been conducted to document current water flow in the Band-e-Amir watershed or perhaps if we ever see a stand of old *Pinus gerardii* we could build a model of past flow using tree ring information (hint hint Oval!!). Nonetheless, someone needs to address water use policy and begin discussions with the so-called Water Consortium or whatever it's called that represents all the 7 agencies currently entangled in water use in Afghanistan. I would quickly recommend a couple weeks up in the mountains collecting basic forest data such as tree dbh, height, age, and location along with basic geographic data which could include many items to be determined later. But if we could correlate these with some actual flow data over the next couple years we'd have a few baseline watershed models. It's worth a try modeling a few river's outputs and we could doubtless spend a bunch of our dollars doing this type of work out in the hills. I'll be sharpening my borers boys!

Tom also offered ideas on new progeny of established pecans from Tajikistan in the Qurghonteppa area and suggested possible visas to bring back research samples via MAIL interaction. His other key remark was the introduction of laser leveling on farm plots or paddies across the ag zones to improve slope and drainage across irrigated fields. These leveling improvements could be done by the ACC if Tom, us and others in the ACC could put our heads together on producing appropriate training materials, implementing them by field testing with some future ACCers, and providing long-term training and guidance as they continue to improve intakes, ditches, barriers, and reservoirs over the next five years.

These work teams could do lot's of easy work if only a handful were wholly trained and enlisted as Local Experienced Men as in the CCC report I gave the ACC leaders.

Later that morning we met with Dr. Abdul Ghafar Ahmadi, the director of the Plant Pathology department within MAIL. He seemed like a very competent scientist and administrator and he too welcomed us and told us about his current situation with low funding opportunities for MS students, and the need for training and infrastructure for his provincial people. I could not hear him well because of a loud fan in between Groninger and myself so I did the best I could with his accent and the fan but only came away with a few notes about locust control and implementing IPM across a widely difuse border with Pakistan. We spent the rest of the afternoon visiting the AG-Fair using Tom Brown's personal invitations at the Badham- Bagh research farm on a north-facing slope above Kabul (Figure 11). Here we ate with the Durakhshan Coop group's booth (Figure 12) and sampled the fares of many booths including honey, clothing and tapestries from some Women Cooperative's where the ladies were proud to display and sell their creative and traditional artistries. Across the board value added industries were displayed and a healthy showing of the public ensured widespread dissemination of the agricultural potential of this growing nation.

### **Friday 22 August 2008**

Rest day for the AWATers was welcome and deserved with most of us working on this report and checking up with emails. I spent lunch with Dr. Krishna Singh of India and found him to be most amiable and willing to share his experience with me as a native of India and his perspective on Afghanistan and even the United States. It's always interesting to get a read on how the US is perceived by others from around the world. You never truly know what to expect.

### **Saturday 23 August 2008**

Spent a nice morning on the campus of Kabul University as the guest of the dean, Dr. Mohsini in his spacious office where many faculty seemed to gravitate toward which is a good sign I guess that his faculty respect him enough to check in daily with him. Several layers there I'm sure! Anyway after learning much of the salient history of the college he took us on a personal tour of his facility and he was darnn proud of the work that they've done over the past few years since Oval's last visit. Many labs were together and operable save for a trained technician with chemicals or soil samples. The classes were generally full with eager young students and whiteboards seemed the measure of the day with lectures written in both Dari and English, about 50-50. After seeing the computer lab and library contents we took a tour of the grounds which included several pine plantings and a superb Student garden exposition area (Figure 13). We were impressed with the care exhibited and obvious commitment by all parties to develop and nurture this splendid community farm. It was obvious instructors were doing a few neat things like potato studies and keeping some apiary hives going right next to the soon to be finished Animal Sciences livery! It was a sweet visit and Oval was tickled to see the growth and promise on the faces we saw there. We finished off the KU tour with a sneak peek at the central library with its stacks and carved wooden doors.

Later that morning we were off to the Division of Forestry at MAIL right across the street from Kabul University. Hosted by the Director of Forestry, Mr. Khawarin, a 39 year veteran of the forestry service. We missed his earlier visit to Badakhshan where he promised to take us in the future to see real Afghan forestry before it is too late. Groninger introduced a series of ideas he and we had talked about including

the increase of fuel and fodder opportunities, introducing a few new dry site species, developing riparian buffer zones, use of saltbush along the Amu Darya. He definitely knew his silvics and site appropriate species.

In addition he mentioned his desire to see community ownership of the forest resource to ensure local governability and protection from exploitation. When virtually no-one controls forestlands but those with skidders, saws, and guns the local populace can hardly stand up to them. However, we discussed the due process of many local *shuras* that discern the needs and wants of many community's households. He referenced future training of students must include focus on community forest values and not a central management scheme to get the cut out which has only profited those in the illicit trade of timber. When questioned about the ACC he offered his phone to set up a meeting on the morrow with the Assistant Director of Forestry, a Mr. Nasiri and some ACC folks across town.

### **Sunday 25 August 2008**

What a great meeting this was with the Afghanistan Conservation Corps cadre including Project Manager Noorullah Malang, Senior Training Officer Koshani,, and Hazman Kasim, Finance Officer as well as the Forestry Liason Mr. Nasiri. Since July 2003 they have been organized on the California Conservation Corps model as witnessed by Pres. Karzai when visiting the US who then directed the Ministry folks to get one started. Their primary efforts surround nursery establishment, watershed management, park beautification, erosion and sedimentation control, and training the neediest among rural villages. They have over 42 current projects in 13 provinces. They have a central Kabul overhead with 5 regional offices. Most funds come from MAIL and go to day laborers chosen by *shuras* comprised of village elders. They work on various projects and welcomed our input on current procedures and future work projects. Their day laborers make \$3 daily and may only work every few days when needed. Despite the potential for the use of the ACC in this country it's people and central government don't yet know how badly they need such a program and sadly my efforts will not make it to Karzai's ear or privy so I'll quite now. I left my powerpoint presentation on the history of the CCC and its appropriateness to Afghanistan's needs and limitations with Mr. Malang the Program Manager and hope he wishes to pursue our help. I know Groninger will continue to pursue and develop our interests in the ACC and all its endeavors. Especially their basic role as trainers for their people. By building the capacity of the individual they are investing in the futures of their sons and daughters and their rural way of life.

They mentioned many of their most beneficial programs including building roundabouts, schools, check-dams and other water control structures to protect natural and cultural resources. The pistachio forests of Samangan had been connected via a network supplemented by provincial MAIL folks who have moved from direct seeding stock to conserving existing mature stands for seed production and nursery development. Here MAIL pays for full time guards while the communities feed them. Sadly many natural savannas are not protected and thus threatened by fuelwood collection efforts for the home heating market. They requested some forest engineering and soil movement workshops along with some forest/range management workshop/ training tours to further integrate MAIL and Kabul University faculty, staff, and students with potential employers. I say we help in any way we can! I've got all kinds of aerial photogrammetry-map reading skills to teach them, Schoonover, Williard and I could teach simple surveying/leveling and GPS techniques, while Groninger could teach marking skills and camel skidding!

### **Monday 26 August 2008**

This was our last full day in Kabul and so far no bomb blasts, random shots in the market, or rocket

attacks at the airport. Seems like we're gonna make it home guys! Well there's always our last trip to the Embassy compound to finish up with our Cognizant Technical Officer later today. In the meantime we have a lengthy visit with some people doing great work in Afghanistan, the International Fertilizer Development Center folks headed up by Steve Kuchner? His organization was field tested, mission oriented, and focused on helping many communities put simple techniques and sound science to work in their daily lives to produce food and provide incomes for hundreds of people across their many station offices. I was impressed with their annual report and the kinds of projects being done in their care across several continents. They admitted slow but steady progress towards building sustainability for Afghans and their way of life. They are so committed to understanding their farmsites that they send soil samples to the US for analysis and recommended treatments. They enjoin to reduce inputs and maximize outputs for farmers; improve soil nutrition and organic matter; improve efficient use of water resources, and provide integrated pest management training to employees. Our last embassy visit was a real let down, which seemed like a changing of the guard with Satin absent and no one really as attuned to our project's mission but us. As long as our keywords fit a matching set of theirs no flags were raised and we were back in our snug hotel by 1620.

### **Tuesday-Wednesday 27-28 August 2008**

Within a day we made it home with time to spare and no major problems at any airports including the fine female handlers at the Indira Gandhi International Airport who checked everything when we informed them we had come from Kabul. They even served us tea, best tea in India I'd say! A couple hours later, it seemed, I woke up in Newark and much to my surprise but lady Liberty standing tall in New York Harbor. I felt privileged to be coming home to such a wonderful nation as this and to have been given the opportunity of a lifetime to see and experience a different culture and landscape. Thanks go to Oval, John, and Alan who were great travel partners and colleagues to boot!

## **Preliminary Analysis of the Agricultural Technology Transfer System in Afghanistan, plus a Proposed AWATT Technology Transfer Strategy to help Improve Rural Livelihoods in Selected Afghan Provinces and Districts**

Activity Report prepared by Dr. Krishna M. Singh

## *Introduction:*

An estimated 85% of Afghanistan's population lives in rural areas, most of which are resource poor farmers whose livelihoods depend on agriculture and livestock in agro-pastoral or crop-livestock systems. Agriculture – including the processing of agricultural and livestock products -- provide employment to a bulk of the labor force. Thus, Afghanistan's economy is based mainly on agriculture and livestock production. Wheat provides the bulk of calorie intake, and accounts for about 70% of the area devoted to cereals and 75% of food grain production. During 2007-08, wheat covered more than 2.2 million hectares of the agricultural land. Rice, the next important cereal crop, is planted on about 210,000 ha. Barley and maize, along with other forage crops, are primarily grown as feed crops. Some 6% of the irrigated area is used to grow vegetables, both for domestic consumption and as export crops. Potato occupies some 90% of the area planted to vegetables and is another important staple food crop for the population. Onion, tomato and okra are the other major vegetable crops grown, throughout most of the country. Agricultural productivity in Afghanistan has declined markedly as a result of the prolonged conflict, which has damaged the agricultural infrastructure and considerably reduced the area under effective irrigation. The prolonged drought (1999-2004), also resulted in total failure of rainfed cropping, and reduced the water available for irrigated agriculture.

Livestock rearing provides opportunities for improved human nutrition through meat and milk products, income, asset building, and employment for poor farmers. In addition, livestock production provides raw materials for agro-industries, and contributes to crop production through provision of draft animal power for land preparation and the use of manure for soil fertility and power for land preparation. Past and projected trends in production and consumption of livestock products in Afghanistan and other developing countries point to enormous opportunities for dairy sector growth with extendable benefits to smallholder livestock producers, especially women who are responsible for milk processing and marketing. Dairying enables smallholder livestock producer access into high-value agricultural markets to generate income and improve food security; however, lack of access to appropriate technologies (e.g. feeds and feeding systems, milk processing) have hindered the development of the smallholder dairy enterprise in Afghanistan.

According to the National Agricultural Master Plan of Afghanistan, achieving food security is one of the top priorities of the Ministry of Agriculture, Irrigation and Livestock (MAIL). However, average yields of food and forage crops and livestock productivity are far lower in Afghanistan than their potential. Average yield of irrigated wheat in farmers' field is still around 2 tons/ha as compared with the regional potential of 4-5 tons/ha. Owing to recent drought, wheat yield is expected to go further down to less than 1.0 metric ton (mt)/hectare (ha)<sup>3</sup>. As a result, Afghanistan imports about 400,000 – 1,000,000 tons of wheat every year. Average yields of other staple crops like rice and potato are also 40-50% less than their potential. Other food and forage crops and vegetables also produce far below potential yields. Such low yields do not supply a sufficient quantity of food required by Afghanistan's rapidly growing population, augmented by returning refugees. As per the 2005 National Risk and Vulnerability Assessment some 6.6 million Afghans do not meet their minimum food requirements<sup>1</sup>. According to the FAO, food prices, particularly for wheat and wheat flour, have increased by 60-80% across Afghanistan during the past few months. This has pushed at least 2.55 million people into high-risk food insecurity<sup>2</sup>.

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<sup>1</sup> [http://www.wfp.org/country\\_brief/indexcountry.asp?country=004](http://www.wfp.org/country_brief/indexcountry.asp?country=004)

<sup>2</sup> <http://www.irinnews.org/Report.aspx?ReportId=76400>

<sup>3</sup> <http://www.pecad.fas.usda.gov/highlights/2008/08/Afghanistan%20Drought/>

Addressing the problems of Afghanistan's agriculture requires an integrated and multi-disciplinary approach because it is under serious threat due to:

1. Unavailability of quality seeds of improved high yielding crop and forage varieties,
2. Lack of knowledge about best practices to obtain optimum yields;
3. Continued deterioration of soil health;
4. Exhaustion of natural resources and damage to environment due to non-judicious use of resources and inputs;
5. Low on-farm water use efficiency, which among other reasons is often, associated with inappropriate tillage practices.

These problems are further compounded because of the limited human resource base of Afghan agricultural institutions, and their limited capacity due to unavailability of up-to-date information; lack of training opportunities and resources to adopt and disseminate new agricultural technologies.

Thus, there is substantial need to

1. Develop improved technologies through adaptive research that will maintain crop-livestock yields even under less favorable conditions,
2. Promote the transfer of technologies to obtain optimum benefits from improved food/forage and livestock systems, and
3. Develop the capacity of the researchers and extension workers of MAIL, members of agriculture faculties of universities, NGO staff, other developmental agencies, and farmers.

### ***Institutions Visited***

During the period of 16<sup>th</sup> August to 29<sup>th</sup> August 2008 meetings were held with key stakeholders to assess the technology transfer situation in Afghanistan. These visits included the Extension and Research (E-R) Officers of MAIL in Kabul, as well as the E-R officers in Balkh (Mazar-e-Sharif) and Nangarhar (Jalalabad) provinces. In addition, meetings were held with various NGOs and consulting firms working in this country, including Mercy Corp, Catholic Relief Services (CRS), the Drukshaan Agricultural and Social Association, Chemonics International, Joint Development Associates International (JDA) and Development Alternatives, Inc. (DAI), and USAID-Accelerating Sustainable Agriculture Program (ASAP) officials. Also, meetings were held with the Deans of Faculties of Agriculture at universities in Kabul, Balkh and Nangarhar Provinces. This provided an opportunity to get their assessment and feedback on the state of agricultural development in the country, including the institutional constraints being faced and possible solutions thereof. In addition, other private sector firms, which are involved in input supply and technology transfer to various groups of farmers, were also contacted to get their assessment about how to improve technology transfer within the country and how to usher in a more market-driven extension system in Afghanistan. The ATMA model and its application in India were also shared with these different groups. (A complete list of persons contacted can be seen at **Annex-I**)

All the stakeholders were asked to suggest ways and means to reform the institutions serving the Afghan agricultural sector and they were presented with the case study of ATMA model in India to solicit their views on its potential applicability in Afghanistan. It was the general opinion that though the model was

very good, it has to be modified to suit Afghan conditions. It was suggested that due to severe shortage of operating resources, agricultural infrastructure and qualified manpower, the implementation of market-led demand driven extension had a scope, but this should be done along with addressing other core issues, as mentioned above, to make any significant impact in improving rural livelihoods through a more market-driven agricultural sector.

▪ ***Overview of the MAIL and its departments***

The MAIL has Directorates of Agricultures in all 38 provinces of the country and these Directorates are manned by Director Generals of Agriculture. Under the DG of Agriculture there are departmental heads called Directors for Agriculture, Veterinary, Mechanization, Land records, Extension, Forestry, Cooperatives, Plant Protection, and Irrigation. At the district level the same set-up exists with the designation being Supervisors or District Officers. There is no effective extension infrastructure or staff available at sub-district level. Some NGOs, private sector firms and international agencies, who are working at the grass root level, have their own staff and the Directorate works in close cooperation with these agencies by extending to them whatever facilities are available to help transfer technology to the farmers. This has resulted in development of some farmer's organizations, cooperatives, etc. in different provinces. Though the mandate of Directorate of Agriculture, MAIL is very comprehensive-

1. Ensuring national food security
2. Developing and rehabilitating orchards
3. Livestock improvement and development
4. Management of natural resources
5. Development and rehabilitation of irrigation systems
6. Development of agricultural markets and infrastructure
7. Capacity building of the farmers and MAIL/extension officers

It was not possible to fully assess the validity of the various constraints that are outlined in following sections. For example, the Director ARIA (Agricultural Research Institute of Afghanistan) lamented that though there was a Master Plan available, which reflected the obvious needs and realities of the Afghanistan agricultural sector, no one was actually following that plan; external organizations and agencies were just doing what they deemed important.

▪ ***Assessment of Research Institutions***

**Agricultural Research**

In meeting with Dr. M. Aziz Osmanzai, Director, Agricultural Research Institute of Afghanistan (ARIA), MAIL in Kabul, he indicated that the most qualified and competent personnel are now working for NGOs, private firms and international organizations. He further indicated that the MAIL has to make do with the older, more poorly trained staff. He also indicated that research activities of the department are primarily focused on adaptive research and no basic research is being carried out at the present time.

The research department has one PhD, 20-25 MSc degree holders within the research department and it currently runs 13 research stations in 18 provinces. The director indicated that the constraints faced by farmers include, lack of water (av. Rainfall 400mm/yr; last year only 100mm) and that almost half of the country's land is under plantations and rainfed. Also, there is little or no mechanization and most farms are very small (average land holdings are less than 0.5 ha or about 1 acre) and these fragmented lands are not suitable for mechanization. Also, the on-going civil war has crippled the country's research and

extension system, testing labs have yet to be established and agro-chemicals and other production inputs are of poor quality and expensive. Finally, credit facilities for farmers are a problem, as banks have been unable to recover past loans to farmers and they are unwilling to lend any further funds until the repayment issue has been resolved. Also, prices of critical inputs like fertilizers continue to be very high due to high import costs; therefore, farmers still use old, out of date technologies, including in-efficient water technologies due to the cost factor.

▪ **Dehdadi Research Station, Balkh (MAIL)**

A visit was made to the Dehdadi Research Station in Balkh Province where the Perennial Horticulture Development Project (PHDP) is being implemented. In addition, there are six other sites where this project is being conducted, including Herat, Jalalabad and Kandhar Provinces, as well as three other provinces. The nursery at this station was multiplying almond, apricot, peach and pomegranate seed lines for sale to farmers. Also, the station works on the propagation, selection and documentation of local races of these high-value crops (HVCs). It also works with Nursery Associations and National Grower Association on a partnership basis, to make available good quality planting material to other parts of the country. It gets support from donors in form of germplasm and financial support to run its program. This is a 3 year project that started in March 2007 and it is one of the regional fruit tree variety collections. Species in the collection include apple, plum, peach, pomegranate, fig, almond and apricot. They would be willing to cooperate, if approached through MAIL. They reported that there was a problem with almond sapling survival and decried the lack of lab support from Kabul in helping to identify this disease. This facility gets as much water as it needs, being a government facility.

▪ **Sheeshambagh Research Station, Jalalabad, Nangarhar (MAIL)**

This station houses both a seed testing and soil testing laboratory and it also has most of the modern agricultural equipment needed for research. These labs and most of their equipment comes from the FAO and ICARDA; also, these institutions have helped set up a good research system at this station. Varietal trials on mung bean, rice, mint, were being done in the research plots of this station, and irrigation infrastructure was well laid out. There were some citrus plantations also which were planted during Russian occupation and were now in fruit stage. The seed testing and soil testing labs were catering the needs of farmers of 5-6 states. The local seed grower association also got its seeds tested here before marketing it through their Nangarhar Seeds Company.

▪ ***Assessment of Extension Institutions***

**Technology Transfer in Balkh Province**

During a meeting with Mr. Katib Shums, Director General of Agriculture, Balkh Province, he informed me about the severe shortage of manpower, which was down from 1430 agricultural officers, at pre-war levels, to 342 at present and that the lack of well training officers was seriously hampering departmental activities in Balkh Province. He mentioned need for longer term credit options for farmers, i.e. more than the 1 year loans presently available. Also, he mentioned that *farmers are cautious in adapting new technologies but they are open to change*. An example he provided is the production of orange glow melon varieties from the US. Farmers initially thought this variety couldn't be any good, because it looked funny. However, they took some seeds and planted them and, when they tasted it, they were amazed. By second year, they were selling all of the melons they produced. Typically farmers are growing 30 year old varieties of watermelons. Also, some potential new crops, including safflower on semi-irrigated lands and canola on irrigated lands have potential.

The Director General of Agriculture Balkh emphasized need for technical expertise to be provided by an irrigation or water specialist, which is presently lacking. He also said that lab facilities are lacking for insect and disease identification, but that human capacity is adequate. The ministry appears to feel threatened by the more recently educated and better equipped individuals who have been hired and supported by NGOs; they are increasingly viewed as a threat to the MAIL at his level. When asked about government action on water usage he said it is natural that people, who are closer to the source of water, will use more of it. Also, there were donated tractors and implements in his compound that originated from Belarus.

### **Technology Transfer at Nangarhar Province**

The Deputy Director General of Agriculture, Nangarhar province (the Director General was away on an exposure-cum-training visit to the US), mentioned specific production constraints, including: the lack of water availability and poor irrigation infrastructure; lack of certified seeds, fertilizers and other quality production inputs; lack of transport infrastructure; the spread of diseases and insect pests; the lack of a marketing infrastructure; and the severe shortage of office space and infrastructure. Besides these problems he cited the lack of in-service training for officers and for farmers on good agricultural practices. He put the most emphasis on the developing the institutional infrastructure for the extension system, including transportation. During the presentation on market driven extension system he was in total agreement with the concept and said that such approach would help the farmers in organizing themselves into groups and then getting better access to the markets. He cited the example of Nangarhar Seed Growers Association which was doing very well, by bringing the farmers closer to the markets. He informed that several other associations were also being organized (e.g. Beekeeping Association).

Other problems he identified were a lack of water, otherwise they would grow poppies. Also mentioned the need for more fertilizer, loans and the lack of a market. He mentioned poultry production as a possible diversification option and told about a farm with 23,000 birds, most of which are imported from Pakistan, being run on profitable basis. He mentioned that the lack of vegetable storage and processing was a major constraint.

- *Assessment of the current technology transfer strategy and constraints at the provincial and district levels*

### **Technology Transfer Methods Being Used**

MAIL uses training, demonstrations, leaflets, radio and TV programs to popularize new technology and water saving methods among the farmers, however, the rate of success has been limited. Capacity building of the farmers and officers is a big challenge before the MAIL, and there has been an exodus of officers from MAIL to international NGOs, as they pay better and corner most of the bright professionals available in the country.

MAIL is working with international organizations like FAO, ICARDA, CIMMYT, IRRI and ICRISAT to bring new technologies into the country, like drought resistant wheat and other crops. There are plans to set up a new Afghanistan Agricultural University, with help from Govt. of India. An agreement has already been signed between the two governments.

Research-Extension (R-E) linkages are poor, which is partially due to lack of qualified research staff. In the two states visited, the number of staff members had come down significantly e.g. from 1460 (pre-war) to 342 (present) in Balkh province and from 750 (pre-war) to 250 (present) in Nangarhar province. It must be understood that both research and extension (technology transfer) are the primary responsibility of MAIL and, with current manpower shortages, both TT and research have suffered

immensely over the past 20 years in Afghanistan.

▪ ***Overall assessment of institutional capacity and constraints within the MAIL***

MAIL faces a serious problem due to the lack of operational funds; as a result, it is just able to pay the salaries its employees, and no more. It offers little demonstration support for its farmers (except what it gets from donors, which it helps in distributing sample inputs to a select few farmers for demonstration purposes). There is hardly any provision of in-service training and capacity building of the extension staff at lower levels, and mobility for the field staff is very limited, with no vehicles or even a facility for hiring vehicles being made available to the staff. Some donors have provided some staff with motorcycles, which again have to be run by the individuals themselves, with no funds for fuel or maintenance. Also, they have no facilities for testing soils, seeds, chemicals, fertilizers, etc. There was one lab located in Jalalabad, set up with ICARDA and FAO support which caters to the needs of Eastern Afghanistan; clearly there is a need to set up more such facilities at district and sub-district level to cater to the needs of the farming community. An unemployed youth can be trained to help run them and earn a meager income.

There is also a big problem of coordination among the different agencies, which are doing some good work, but in an ad-hoc manner and with limited effect. One problem is that there are places where a security threat exists, and where most international workers are not very eager to work.

During my presentation on market-driven extension before different stakeholders in both Balkh and Nangarhar Provinces, these new concepts evoked a good response from the various stakeholders (list appended). The response was generally warm, with participants asking about how this could be implemented in Afghanistan, and what support was needed to start and implement a PRA. In general, it was agreed that what worked in India may or may not work in Afghanistan, but pilot-testing this approach in two districts from each Balkh and Nangarhar provinces would set the tone and provide the basis for further expansion

• ***Assessment of Agricultural Universities***

**Kabul University, Faculty of Agriculture (KUFA)**

Dr. Md Yasin Mohisini, Dean of the Faculty, informed that KUFA was doing very little on Technology Transfer front, with the reason being given that it was primarily not part of their mandate. In addition, the severe shortage of faculty members, who were too busy teaching, was another major constraint and they could not be spared for extension work. However, if there was some sponsored program, for which a specific request was made to his office, he would spare some staff for extension training work. Moreover, he informed us that no university in Afghanistan was yet offering post graduate (PG) courses in the field of agriculture sciences, but there was a talk about starting PG courses in some departments in near future with support from countries like Japan, USA and India.

**Balkh University Faculty of Agriculture (BUFA)**

Mr. Abdul Qayyum Ansari, Dean, Faculty of Agriculture, Balkh University was briefed on the Technology Transfer component of AWATT project and he agreed to the overall strategy being recommended by the project leadership. He added that this is a good time as most farmers want some change in the way extension is being conducted within the country, and most of their problems are not being addressed either by research or extension. He informed us that water is a big concern, as water table is low and river level is also down, making access to water by farmers more and more difficult. He

emphasized the need for more water and canals. During this discussion, it was explained that AWATT would have limited capacity to do this; therefore, the emphasis would be on improving water use efficiency. The PRA process was explained to Dean Ansari and he mentioned that students have been asked to identify problems suggesting that it might be possible to engage students in this process as a possible supplement to the PRA.

Dean Ansari mentioned some specific university needs, in terms of equipment, laboratories and access to water for their new farm. Oval mentioned that we may be able to work with Mark Henning in helping develop this farm, on their new campus. Dean Ansari discussed student projects, including a new study of pine germination. He also mentioned some research with Mazar Foods and desertification research. BUFA now has 650 students and a total of 17 faculty and staff. 3 faculty members are presently in India.

The research farm, we visited normally gets water once every 12 days, but there is not enough water this year, resulting in need to harvest onions prematurely. In addition, there appeared to be lots of weeds within the research trials being executed. Mulberry growing along canals was cut for firewood and replanted yearly. Poplar is bought in the market. Some advice on farming practices is received by the district extension staff but this information is grossly inadequate.

### **Nangarhar University Faculty of Agriculture (NUFA)**

This faculty could not be visited due to time constraints, and also because the Dean was away at Kabul. All the Deans of Agricultural Faculties are visiting USA in the coming month and they were in Kabul to present them for interview for visa at the US Embassy. However Dean Bawaria was in the same hotel as me and when asked about his views of extension and research systems, he was in total agreement with the views of the other two.

#### **• *Assessment of Other Agricultural Organizations***

##### **Farmer owned Nangarhar Seed Company (owned by Nangarhar Seed Growers Federation)**

With technical help from ICARDA and FAO, seed production has started in a big way in this province. This company is owned by the farmers and some of the associations who are part of the company, known as Sharq, Koraniz, Israr, Canal Development Directorate, etc. While the Seed associations have been formed by farmers with facilitation from ICARDA, about 9 associations have come together to form one Federation located at Jalalabad

The breeder and/or foundation seeds are provided by FAO and ICARDA at no cost, and they are grown under the close supervision of these organization. Quality control and special practice for seed production are taught by ICARDA scientists. There are processing facilities available within the Sheeshambagh research farm and also elsewhere. Presently seeds of wheat, rice, mung bean, potato are being produced and sold by association members. The germination and disease testing is done at the research lab at Sheeshambagh. Seeds are sold at local stores and also through various Agricultural Fairs being held in the different provinces from time to time. One recently organized agricultural fair was held from 19-22<sup>nd</sup> Aug in Kabul. The Federation has a large storage facility in Besood district. After production, both the government and the farmer members of Federation jointly agree on a fixed price for the seed. Last year's price was 850 USD per MT for new certified seed and 800 for "truthful" seed.

Besides ICARDA, Foundation and breeders seed are also provided by MAIL. This producers company is registered with both the Ministry of Economy and the MAIL. However, hybrid seeds are not being

produced presently but there are plans to do so in near future. To support extension activities, FAO & ICARDA have provided one motorcycle to each district for use by extension workers, but the users have to bear the cost of fuel from their own pockets.

- ***Private Sector Involvement***

#### **Afghan Agro Service Company**

Mr. Shamal Khan of Afghan Agro Services Company, Kabul informed us that his company works in three major areas, namely: product marketing and extension services, research and development, and market development throughout the whole country. This is company which has mostly young and qualified workers; Mr. Khan himself is a post graduate from NWFP Agricultural University in Peshawar, Pakistan and most of his technical team members are at least university graduates. They teach basic agricultural skills to the farmers, like spraying and the use of other farm equipment, the safe use of machines and agro-chemicals, as well as training on mulching, crop management practices and the better use of agricultural technology to reduce water loss.

The company is working in Mazar-e-Sharif in the north and also in some eastern provinces of Afghanistan; they provide testing facilities to the farmers and hire expertise from Pakistan when needed to conduct field trials, farmer training and in conducting capacity building programs. They conduct demonstrations to effectively communicate the superiority of new technologies like improved seed, agro-chemicals etc. For demonstrations they use farmer's fields but in case of a crop demonstration failure, the farmer is fully compensated by the company.

Market development is another area where the company is active and it has recently started exploring the possibilities of tomato paste production and marketing from areas having surpluses, and in the process ensured that the farmers get a better deal in terms of prices and timely payments. The company is paying greater attention to cotton, melons and other cash crops, working in partnership with the government of Afghanistan.

#### **Noor Agro Service Company**

Some private sector companies like Noor Agro Seeds Company (NASC) which runs over 300 Rural Farm Stores in 119 villages located in 19 provinces through its channel partners. NASC is also a partner of Drukshaan Agro and Social Association (DASA), which is active in organizing farmers and linking them with markets, particularly with seed growers. These stores deal in various agro-inputs like seeds, fertilizers, plant protection chemicals, as well as farm equipment. These rural farm stores also help farmers with advisory services, like what to grow and how; this has resulted in better business in terms of sale of inputs from these stores.

NASC has a network of 450 farmers, who are producing seeds for the company under contract; the company on its part provides the breeder or foundation seed and then buys back the foundation or certified seed produced by these farmers at a premium price, which is about 10-15% higher than the market price. The sale price of the seeds sold by the company is also higher than the other competing players in the market, because of the goodwill earned by the company over years. The farmers are

supported by inputs made available by the company on credit and the dues are adjusted at the time of purchase by the company. The Group is working closely with FAO to get germplasm of recommended varieties and multiplying through its farmer partners. The company also imports seeds of vegetables for countries like Holland, India, USA and after it has been validated by local researchers, it goes for its resale in Afghanistan

▪ ***National and International NGOs***

**Mercy Corps**

Mercy Corps, an international NGO, is working in four areas namely, horticulture, agricultural infrastructure development, poultry development, and development of agri-businesses. It is working in selected provinces, such as Kandhar and Kundustakhab, through 5 clusters in north and 3 clusters in south. In the horticulture sector, the project is working in nursery, orchard establishment, and orchard development. In agricultural infrastructure project it works for irrigation infrastructure development, desilting of canals and development of link roads to markets (now stopped).

Under the poultry project it was providing chicks to poor women for backyard poultry.

Under agri-business project it was doing market surveys, linking farmers to markets and mobilizing the communities through its Community Mobilizing teams, which explains the project to the communities; helps them select the appropriate project; and remains in close contact with them for successfully commissioning the project. It was also involved in value-chain development for both horticultural and poultry products.

The Mercy Corps has developed about 200 Women's Groups for backyard poultry by providing 40 chicks to each member and helping them form Associations, which are successfully marketing both the eggs and broilers. This association has duly elected office bearers, but due to cultural constraints, male counterparts are taken along for marketing the output. The women are trained by women master trainers, and help is provided on all technical issues to them.

Under horticulture development, saplings of fruit trees grown by the individual farmers are being marketed collectively through the association. Mercy Corps has helped the farmers develop saplings by providing direct financial and technical support to them, the only precondition being that the farmers must own 1.5 zareeb of land and must be used for at least three years for developing the saplings of fruit trees. Financial support was provided to the participants of this program by the NGO.

In the area of animal husbandry, vaccinations, testing for worms and diseases, and AI facilities have been established in rural areas, by Mercy Corps. They have provided cash support to the tune of USD 15,000/- to each individual Village Field Unit (VFU) setup by contractual workers drawn from among the local youth. Initially these VFU were owned by the NGO, but gradually they are being transferred to the individuals who are running them after the initial cost was recovered. So far 11 such VFUs have been privatized and another 11 are expected to be privatized by Sept 2008.

**Livelihood Economic & Agricultural Development Organization (LEADO)**

This organization has been working closely with international organizations like FAO, Church Aid (CCA), and USAID-ASMED. The area of operation was horticulture & livestock development, capacity building and market linkages of carpet weavers, training of Master Trainers for running Farm School.

LEADO is working for development of value chains and market linkages by organizing farmers and

entrepreneurs into associations and, so far, has developed 3 women's association in Herat and 3 farmers association in Gazing province, which are working in milk production, fruits production etc. An association typically has 20-25 groups as its members and each group may have 4-8 persons/farmers as its members. In addition they have developed 3 women resource centers each in Herat and Gazing provinces. They have also trained about 200 extension workers in 10 provinces under Horticulture and Livestock Programme (HLP).

- *Efforts to organize farmers and farm women into producer groups*

### **Organizing Farmers**

Some initiatives in organizing farmers were seen both in Balkh and Nangarhar provinces, where MAIL with help from international donors and NGOs had been able to organize farmers into groups and federations based on different commodities, e.g. Nursery growers Association in Balkh, Beekeeping Association and Federation, Seed Growers Association and HMAAC Association in Nangarhar province formed with ICARDA support, however more such initiatives are needed at district and sub-district levels.

More specifically the NGO and private sector has been playing a greater role in organizing the farmers into producer companies, e.g. Noor Agro Group, which had organized its seed growers from which it makes assured purchases of certified seeds. Then there was Afghan Agro Company which was providing backward linkages to tomato growers, and also Mercy Corps, which helped organize women groups for backyard poultry.

- *International Organizations, including CGIAR Centers*

Agriculture is the main source of income in the Afghan economy. Despite the fact that only 12 percent of Afghanistan's total land area is arable and less than 6 percent is currently cultivated, 80 percent of Afghanistan's population is involved in farming, herding or both. An estimated 80 percent of Afghans are dependent on agriculture for their livelihoods. Afghanistan historically has been a prolific producer of high quality agricultural products, but a generation of civil war obliterated the systems and farmers who managed that efficient production. Commercial agriculture can play a significant role in increasing the wealth of rural populations. Many international agencies including CGIAR institutions are working for the development of agriculture in Afghanistan, some of them and their work is listed below:

### **UNDP**

In support of the Government of Afghanistan, UNDP aims to contribute to the establishment of sustainable development framework in the country by ensuring environmental concerns are fully taken into consideration in the course of the country's development. Ministry of Agriculture, Irrigation and Livestock (MAIL) as well as the Ministry of Rural Rehabilitation and Development (MRRD) are working closely with as other UN partners. UNDP also supports the government's efforts to address transboundary water management and other global environmental issues, as well as promotion of environmental financing for Afghanistan.

For the past two years UNDP has been an active partner in the Greening Afghanistan Initiative (GAIN), a UN Joint Programme implemented by several UN agencies including UNEP, FAO, WFP and UNOPS, with the objectives of improving government capacity on environmental management, providing alternative and environmentally sustainable livelihood options to selected communities, and promoting environmental awareness building and education. UNDP has been implementing an "Environmental Awareness Raising & Capacity Building" project, mainly targeting four provinces in northern Afghanistan: Balkh, Saripul, Samangan and Jawzjan. The project so far has established 40 Village Environment Committees and over 70 Green Generation Clubs at school as community- and youth-based

carriers of environmental messages and actions, and the recipients of the awareness raising campaign include 80 schools with over 100,000 school boys and girls, 160 provincial government officials and over 2,000 rural women.

### **United States Department of Agriculture**

The U.S. Department of Agriculture (USDA) is helping Afghanistan revitalize its agricultural sector through a variety of activities aimed to strengthen the capacity of the Afghan government, to rebuild agricultural markets, and to improve management of natural resources. USDA is providing technical assistance for the reconstruction of Afghanistan's agricultural sector.

### **Provincial Reconstruction Teams (PRTs)**

USDA has deployed 48 individuals from nine different USDA agencies to serve as advisors on PRTs. To effectively assist, train, and demonstrate techniques to Afghan farmers and agriculture officials, USDA PRT advisors travel in the field as part of military units of 50-100 personnel with 2-3 civilian U.S. Government advisors. Their work has resulted in the installation of windmills in southern Afghanistan to pump water for irrigation and livestock; the training of Afghan veterinarians in detection and treatment of parasites; rehabilitation of a university laboratory for agricultural teaching; stabilization of eroded river banks and irrigation canals; development of post-harvest storage facilities; rehabilitation of degraded orchards; reforestation; and mentoring of provincial directors of agriculture to help them improve their services to farmers.

### **Afghan Conservation Corps (ACC)**

The ACC is a collaborative effort of the Afghan Government with operational and management support from the United Nations Office of Project Services (UNOPS) staff in Afghanistan. USDA provides technical assistance to the ACC through a variety of training activities in areas of seed handling, nursery management, handling and planting of trees, soil and water conservation, and conservation education.

### **USAID Alternative Development and Agriculture (ADAG)**

The USAID's Alternative Development and Agriculture (ADAG) program is active throughout Afghanistan in trying to accelerate rural economic development. The goal is to increase commercial agriculture opportunities, improve agricultural productivity, create rural employment and improve family incomes and well being. The program dedicates significant resources to providing sources of credit, identifying and supporting value chains, developing new markets, improving infrastructure, and removing administrative constraints that hinder business growth. With an increased water supply to more than 494,000 hectares of land and the introduction of better seed varieties, farmers can once again harvest the wheat, grapes, and pomegranates that were once legendary in this country. Programs have been started to establish dried fruit and nut processing plants and provide marketing ad-vice to expand trade opportunities.

USAID is also offering animal health training to boost the poultry and livestock populations. As the women are among the poorest and most vulnerable populations in Afghanistan, particularly in the rural areas; to improve the economic status of women, USAID provides skills training and raw materials for jobs that women can perform at home. In Nangarhar province, ten percent of program participants are women employed in farming and textile making.

### **Institutional Development**

USAID helps Afghans become more self-sufficient while increasing agricultural productivity. Links between Kabul University's agriculture and veterinary schools and U.S. land grant universities allow technical specialists to share their expertise. By partnering with the U.S. Department of Agriculture, technical advisors are providing training and advice about livestock health, sanitation, rangeland

management, forestry, and biodiversity conservation. USAID also provides technical assistance to build capacity at the Ministry of Agriculture to make it more responsive to farmers' needs. The Ministry is promoting the formation of farmer associations, micro-credit, and trade organizations that help farmers sell their produce at local markets and export abroad for better prices.

## **ICARDA**

ICARDA, which has the CGIAR eco-regional mandate for Central and West Asia, including Afghanistan, is responsible for the overall management and coordination of Future Harvest Consortium to Rebuild Agriculture in Afghanistan (FHCRAA) activities, which will be implemented through a series of projects. ICARDA with funding from USAID and other donors, and in collaboration with other CGIAR centers (CIP, IRRI, and CIMMYT) and partners (IFDC and AVRDC-World Vegetable Center) has an active ongoing program delivering:

- Improved seed and fertilizer to farming communities
- Community-based seed production and marketing enterprises within RAMP (USAID-Rebuilding Agricultural Markets Project) and ALPs (USAID Alternative Livelihoods Programs in Eastern and Northern Afghanistan)
- On-station and on-farm adaptive research programs
- Technology transfer through more than 1600 crop demonstration plots in seven provinces of Afghanistan
- Extensive training and capacity building programs.

Before the conflict there were 19 agricultural stations in Afghanistan that produced and selected plant varieties according to the needs of different agro-climatic zones. Most of these stations were damaged during the conflicts, and materials and equipment were looted. Moreover, the trained personnel that staffed the stations dispersed, many leaving the country. Prior to 2002, crop improvement research was re-established by the agriculture section of the Swedish Committee for Afghanistan (SCA) in 1990 with UNDP and Swedish funding, which was later transferred to FAO. The planting material that was developed by this program was very useful and it is still in use by the farming community today. However, since these types of activities did not comprise emergency assistance, most of the donors withdrew their support to the respective NGOs (SCA, DACAAR, IRC, MC, MADERA, and FAO).

During 2002, through FHCRAA established with the financial assistance of USAID, some of the research stations were to some extent rehabilitated and some equipment provided. Germplasm was repatriated to Afghanistan, but unfortunately there is no gene bank in the country to maintain it. Lack of donor support for such activities has restricted what can be done in the past three years.

The CGIAR centers and other partners in FHCRAA are ready to share and have shared valuable semi-finished germplasm with MAIL, but there is no systematic adaptive research and testing program currently running in the country. MAIL's Agriculture Research Institute of Afghanistan (ARIA) is not actively conducting such research, because of lack of equipment and trained personnel.

Germplasm and semi-finished advanced lines of the different crop varieties are needed from international plant breeding programs for screening in-country for their adaptation under different agro-climatic conditions. The establishment of adaptive research programs, with the full involvement of ARIA, is needed to select and identify the best yielding varieties for release to the farmers. ARIA's staff needs both short and long term training, which can be provided both within country and outside at advanced

research institutes, in order to build its capacity to continue such research programs on sustainable basis.

▪ *Assessment of Specific Agricultural Sector Constraints*

**Water, Irrigation and related issues**

Water emerged as the most critical issue for developing agriculture in Afghanistan (av. Rainfall 400mm/yr, last year only 100mm), in both Balkh and Nangarhar provinces, despite having some good sources of water, many areas were facing acute shortages, when it was needed most. For example in Balkh province, there are 11 canals in Mazar-e-Sharif area (part of 18 canal system) which irrigate most parts of the province. A major complaint heard from most of the users of water through canal system in Balkh province was that upstream farmers use as much water as they want and at anytime they want. As a result, downstream users have shortages. There is enough water for a single wheat crop, still the downstream areas typically get water only every 15-20 days, this problem is also seen in many south Asian countries. The irrigation turn is linked to the area of land and not to the needs of the crop. In short, the size of farm determines the amount of water allocated. Overall 300,000 ha (10% of potential) has an engineered water supply.

Availability of reservoirs is limited and sedimentation is further limiting capacity. Jalalabad reservoir in Nangarhar province is nearly completely full of sediment and no reservoir in the North's non-engineered areas tends to be more impacted during drought but engineered areas also subject to water loss. Farmers individually typically lack water storage capacity. A watershed program is planning for rehabilitation of overgrazed land and desertification. Including planting and check dams.

The Director Generals of Agriculture in both provinces, emphasized need for technical expertise to be provided by an irrigation or water specialist. They also said that lab and testing facilities are lacking for insect and disease identification along with inadequate human capacity. It was sensed that ministry feels threatened by more recently educated and better equipped individuals supported by NGOs who are posing a threat to the ministry at this level, with none other than the Director ARIA airing such views.

Other problems mentioned were the need for more fertilizer, loans and the lack of markets. There were some poultry production initiatives, such as in Nangarhar, where one farm with 23,000 birds was established; however, most poultry products are imported from Pakistan. There was also a problem of vegetable storage and processing & value addition in the country. When asked about government action on water usage, the answer was that it is only natural that people closer to water will use more water. During my visit, I saw donated tractors and implements in compound originating from Belarus in office campus of Director General of Agriculture in Balkh.

**Soils**

Some basic information on soils obtained from the officials was, that soil's pH typically ranges between 8-8.5 and they are low in Phosphorus but calcium is abundant. Some work being done on urea briquettes and using sulfur to reduce soil pH. There is typically no rain from April to November. Regarding soil conservation, manure is saved for burning and wheat straw sold for construction, leaving very little residue and little opportunity for conservation tillage. Also, over-grazing appeared to be removing the top cover from the soils, making them more prone to wind and water erosion.

**Natural Resources**

MAIL is working directly with communities in planning for natural resources rehabilitation and maintenance of livelihood. A particular concern is removing remaining bushes for fuel. In southern

Afghanistan forests are controlled by the communities with very little government control. However, there is a custom that if an individual cuts woods around a village, he must give something in return to the community, which is a good practice, which needs to be supported.

In the north and west, the pistachio forests are regulated by the government but no active management is practiced. New laws are being drafted that transfer rights and responsibilities from government to communities, however there is still a very long way to go. Premature harvests remain a problem as there are no incentives to do otherwise. The communities should be involved in the planning process, so that they have a sense of both ownership and responsibility to use the resources responsibly. In some cases, land allocation to specific villages is not clear. Many NGOs have experience in social aspects of community forestry but not much was evident at the grassroots level.

### **Food crop production system**

Wheat is one of the most important crops both in Balkh and Nangarhar provinces, but there were problems of weed infestation in irrigated land. There are problems of Seed purity in wheat and water quality problems precluding drip irrigation. Lack of water availability and poor irrigation infrastructure, lack of certified seeds, fertilizers and other quality inputs, lack of transport infrastructure, spread of diseases/ insect pests, lack of market infrastructure, and severe shortage of office space and infrastructure (as much as only 6 out of 14 districts had any office space and the remaining 8 were being run from private buildings). Besides these problems lack of in-service training for the officers, and training to the farmers on new agricultural practices. Greater emphasis needs to be paid to the development of infrastructure, both at provincial and district level.

Some suggestions for improvement include improved water harvesting techniques at the farm level, check dams and vegetation cover and/or gazing control to protect check dams. Bank protection along rivers and canals and more emphasis on water tolerant plants such as pistachio and walnut is also needed urgently. There is a need for a national solidarity program focusing on social development. This includes the Afghanistan Conservation Corps. There are 12 trainers in Nuristan with plans forest protection and nursery establishment, forest road and bridge building. Other needs discussed included addressing ground water recharge and channelizing rivers to get more land into production.

### **Horticulture production systems**

It was mentioned by some scientists interviewed that research was being done on fast growing poplars but strength problems remained in their use in construction work. Melons, raisins and almonds are imported to India and Pakistan. Sesame exported to Turkey, tomatoes are sold at Kabul. But there is an acute shortage of processing opportunities. JDA (an NGO) is working with an Afghan-American company to produce a container of sun-dried tomatoes for the open market. Back-up plan is to sell it to Turkey. Pistachio is being replanted from native genotypes that had been exported to other countries

### **Other constraints**

There is a big problem of coordination among different agencies which are doing some good work, but in an ad-hoc manner and with limited effect. One problem is that there are places where exists a security threat and many international workers would not be very eager to work in those areas. Besides some other problems include: lack of a qualified people like soil scientist, pathologist, nematologist, entomologist, pesticide control, weather data and soils lab; need for “adaptive research” as universities have dictated practices without actual research to back it up and some interests include further work with saffron-alfalfa intercropping (cut and carry) and drip irrigation.

## **Problem of Quality Institutions**

There is serious shortage of good institutions who can train people and farmers about new technology, HVC, mechanization, use of farm machines etc. The Faculty of Agricultures in Balkh, Nangarhar and Kabul where I visited and interacted with the Dean's concerned; all lamented the shortage of funds, poor infrastructure, inadequate number and quality of faculty members. As such academic institutions are in the most need of reforms, with new curricula, modern labs, with qualified teachers are urgently needed for the development of good research and extension network, because only better qualified persons can understand and work for the development of agricultural sector in this country.

### **• *Summary of Institutional Constraints, as perceived by stakeholders***

1. *Afghanistan is a different country with different set of problems, mainly water availability which is one of the most scarce resource in most parts of the country*
2. *Lack of quality control measures--no facilities are available here to check the quality of fertilizers, seeds, agro- and plant protection chemicals, leading to sale of substandard inputs sold in the markets, causing serious damage to the country's agriculture.*
3. *The public MAIL system appears to be too bureaucratic—operational procedures are both complex and time consuming, leading to corrupt practices.*
4. *The security situation is bad—leading to insecurity among the extension and research workers both from public as well as private sector.*
5. *Lack of government support—the private sector feels that the support from the government for development of agricultural sector in general is not in place. This puts added burden on the private sector involved, in input supply as well as setting up of food processing industries in the country. The sector has by and large been left to fend for itself, and this has lead to poor growth in the agricultural sector, with very few daring to enter and sustain in long run.*
6. *Lack of market infrastructure*
7. *Severe shortage of qualified and trained manpower in all MAIL departments, but especially in extension.*
8. *Lack of storage and value addition facilities*
9. *ICT can play an important role in building the capacity of the farmers and extension personnel but no initiatives so far*
10. *Farmers are willing and eager to learn but appropriate capacity is not in place. The Ministry of Agriculture, Irrigation and Livestock (MAIL) and the Agriculture Faculties of various universities have little budget, manpower and desire to look beyond.*
11. *The private sector still being viewed as profit monger; therefore, partnerships with government departments are not forthcoming.*
12. *Almost all agricultural research in the country is funded by the external donors, little or no budgetary support from Govt.*
13. *Irrigation facilities are very poor almost non-existent*
14. *Lack of availability of quality inputs like certified seed, quality agro-chemicals.*
15. *Poor mechanization of agricultural sector.*
16. *Extension agencies lack trained staff and no effort to build the capacity of the Agricultural Technology System.*
17. *Agricultural infrastructure, like roads, market yards, office space, training and storage facilities have been badly damaged or are non-existent in most of the country and needs immediate*

- support. For example, out of 14 districts in Balkh province, only 6 have proper office facilities and the remaining 8 districts there are no permanent office facility for the staff to work.
18. The number of people dependent on agriculture shows a sharp increase, before war about 80-85% *population depended on agriculture*, this has now gone up to 90-95%, due to lack of any alternate vocation like industries etc.
  19. *No provision for In-service training or capacity building* of the officers of government departments engaged in the technology transfer and advisory services.
  20. Though some training courses and field days are being conducted for farmers with NGO or donor support, there are far too few extension activities of this type to have any significant impact of the agricultural sector.
  21. *Severe shortage of operating resources at provincial and district levels*, making it very difficult to provide extension and training services to farmers.
  22. There has been a *constant decline in the number of technically qualified staff with the govt. departments*. e.g. before war there were 1430 employees working with department of Agriculture in Balkh province, the number has come down to 342 employees, out of which only 200 are professionally qualified to provide advisory services to the farmers. Even among the so called qualified staff only 70 were Agriculture Graduates, and only 3 had post graduate qualifications, while the remaining ones had post-secondary level agricultural training.

▪ ***Scope for a More Market-Driven Extension System***

Presentation on market driven extension system before different stakeholders both at Balkh and Nangarhar provinces evoked good response from the various stakeholders (list appended). The response was generally warm, with participants asking about how this could be implemented in Afghanistan, and what support was needed for starting the PRA. In general, it was agreed that what worked in India may or may not work, but pilot testing in two districts from each Balkh and Nangarhar provinces would set the tone.

It is therefore felt that the market driven extension model, which was pilot-tested in India, could be tried on a pilot basis in two districts each of Balkh and Nangarhar provinces where the following strategy would be followed:

▪ ***Recommended Strategy, to Strengthen the Agricultural Extension System***

A. **Goal:**

To improve the livelihoods of rural households and communities in selected provinces and districts within Afghanistan by making more productive use of surface- and ground-water resources by helping farmers 1) diversify their farming systems through the use of high-value, water-efficient crop and livestock systems; and 2) learn how to use more sustainable land and water management practices within different ecosystems in each district.

B. **Purpose.**

To pilot-test a sustainable and integrated water and land management strategy in selected districts and provinces that will introduce or expand the use of high-value, water-efficient crop and livestock systems to increase farm household income. Where these new agricultural innovations or value-added systems are proven to be effective, then the next step will be to scale-up these innovations to other producer/farmer groups within the current and/or other comparable agro-ecological zones/districts within the country. An additional purpose will be to organize farmer,

producer, community and/or self-help groups (especially for rural women) at the community level so they can learn procedures for marketing specific high-value crops and products, as well as in managing their water resources at the community level.

### C. **Approach and Suggested Plan of Work**

The following section outlines the approach being recommended that was successfully pilot-tested in India (1998-2004) and that is now being scaled up to all rural districts in India:

- I. Training the Field Extension Staff (October 2008). In the selected district(s) in each province, to train the district extension workers how to conduct a Participatory Rural Appraisal (PRA) and then develop a Strategic Research and Extension Plan (SREP) for their respective district. After orienting the national and provincial extension officials about this proposed approach (this should be done during August 2008), to train key members of the provincial and district extension staff how to conducting a PRA and then develop a SREP that will identify key constraints and potential market opportunities that can increase farm household income for different types of farm households within each agro-ecological zone.
  
- II. Conducting the PRA (October-November, 2008). With project assistance (covering travel expenses), the local extension staff in each district will carry out the PRA to identify important water and land resource problems that are confronting the different categories of farmers within the different agro-ecological zones of each district, as well as to identify innovative farmers and other market opportunities that might be pursued in developing value-chains for potential high-value (HV) crop and livestock products.  
Time required for training the Field Extension Staff for PRA training for SREP preparation (This may be done in the months of October/November 2008)  
Week-1- Training of Field Extension Staff in Balkh province  
Week-2- Training of Field Extension Staff in Nangarhar province  
Week 3: Return to the Balkh province for interaction with the field extension staff in determining key constrains and possible innovative farmers that may be scaled up. Once they have completed visiting all key agro-ecological zones in respective district, to discuss how these findings should be transformed into a SREP.  
Week 4: Repeating this analysis and synthesis process in the Nangarhar province  
Week 5: Return to Kabul and summarize the preliminary findings with the MAIL extension leadership and the NMSU project team to begin preparing for likely interventions.
  
- III. Developing a SREP for each District (December, 2008 through February 2009). The findings from the PRA will then be translated in specific research and extension priorities as part of the SREP, including potential HV crop or livestock systems that may be suitable for different types of farm households in each agro-ecosystem of the district. The results of this SREP will become the primary focus of extension program activities to be pursued during the 2009 growing season.

It should be noted that the analysis of different value-chains within each district will be an integral part of developing the SREP. Particular emphasis will be given to “success stories” that are identified during the PRA, where different HV crops/products are already being produced by innovative farmers and then supplied to specific markets on a limited scale. The task will be to identify potential opportunities where specific HV crop or livestock systems can be scaled-up to a

sizeable number of additional farm households within a community or district. It should be noted that these success stories are the direct result of entrepreneurial farmers who have already identified specific markets, worked out the necessary production procedures, as well as determined the most efficient way of marketing these products. The task of each extension team will be to assess each success story to determine whether this farmer is merely supplying a small niche market or whether there is real potential to expand the production and marketing of this crop or product by organizing farmers into producer groups. The resulting SREP will establish specific research and extension priorities for water-efficient HV crops/products that can be field tested or disseminated within each agro-ecological area during both the 2009 and 2010 growing seasons.

- IV. Building Social Capital. Organizing farmers and rural women, who are interested in producing and marketing water efficient, HV crops/products into Community or Producer Groups (C/PGs) (December 2008 through the end of the project). It should be noted that different groups of farmers have different resources, interests and capacity to manage or tolerate risk. In organizing these different C/PGs, each of these factors must be taken into account, including group and gender dynamics. Different groups of farmers and farm women will be interested in pursuing different HV crops, livestock or other value-added enterprises. As a result, it is likely that many different F/PGs will be organized within each agro-ecological zone or district, depending on the interests and resources of these different groups of farmers and rural women. The field extension staff, possibly in collaboration with an NGO in each district, will organize these different categories of farmers and farm women into different types of commodity or product-based groups.

The farmers and extension workers from the pilot districts may be taken for training and/or an exposure visit to selected private sector firms and NGOs to understand how a market-oriented value chain operates (e.g. Afghan Agro-Service, and Noor Agro Group) and how to organize farmers into groups (e.g. Drukshaan Agro and Economic Association, Mercy Corps and LEADO). This would enable both the farmers and extension workers to learn from the experience of these organizations.

- V. Field testing, fine-tuning and/or disseminating water-efficient, high-value crop or livestock production systems to different C/PGs through on-farm trials and demonstrations (both the 2009 and 2010 growing seasons). As more detailed information is gathered on specific markets for different HV crops/products, and as the interests of different F/PGs become known within each district, the provincial and district extension team will set priorities for field-testing these different crop and livestock systems for the coming growing season. In setting these priorities, the district teams will consult with provincial and national research and extension personnel, the AWATT team, and other knowledgeable institutions, such as the local ICARDA staff. The project will provide the necessary resources (seed, fertilizer, chicks, fingerlings, etc.) to introduce these potential HV crops/products within each community. The point of these on-farm trials and demonstrations is to rapidly field-test, validated and disseminate these different HV production systems under local growing conditions and in supplying nearby markets for these different products.
- VI. Involving Researcher, NGOs and the Private Sector. As needed, MAIL researchers, NGOs and/or the private sector should be consulted to assess the feasibility of pursuing a particular HV crop or

product. If such a HV crop or enterprise appears feasible within the watershed or district, then the local extension staff will need to be trained in how to organize farmers into producer groups and then to move forward in linking these F/PGs to promising markets. Finally it will be necessary to identify several high-value crops/products within each target that are suitable for different types of farm conditions to bring about crop and livestock diversification. This approach will mitigate risk by not saturating the market with one or two products, thereby, driving down prices.

- VII. Preparing to Scale-up Specific Enterprises (June-August 2009). Conducting exposure visits or “farmer-to-farmer extension” for new groups of interested farmers and farm women is a particularly effective way in creating awareness and providing interested farmers with direct access to information about different high-value crops, products or enterprises. Also, consulting with an innovative farmer, who is already producing a particular HV crop/product, is an effective way of informing new F/PGs about the requisite production and post-harvest technologies, as well as alerting them to possible risks or problems that might be associated with specific enterprises. This information may then be shared these F/PG leaders and with other F/PG members to facilitate the development of a particular HV crop or enterprise within these new F/PGs.
- VIII. Conducting targeted training for new F/PGs. Once a particular F/PG has decided to pursue a particular HV crop/product, then they will need to learn how to produce and market this crop or product. The frontline extension staff within each district will be directly responsible for organizing these training courses for each F/PG, as well as in providing technical assistance for these F/PGs during the growing season. These extension staff will contact extension specialists or researchers who can take the lead in organizing these training courses and the project will cover the necessary training costs. Specialists may be brought in from the national level or from other provinces to strengthen farmer knowledge and skills, so they can successfully pursue these new enterprises. In some cases, they might also involve technical specialists from the buying firm or involve successful entrepreneurial farmers who can serve as “farmer professors” in sharing their knowledge and experience with these new F/PGs.
- IX. Facilitating the delivery of production inputs as specific enterprises are scaled-up (February and March during years 2- 3). At the inception phase (year one and two) technical assistance will be given to the F/PGs to help them learn how to secure the necessary production inputs, such as specific seed varieties that may be required to produce a specific crop/product to specification. Buyers (especially exporters) will be encouraged to provide the correct seeds and then deduct this seed cost at the time the product is delivered and sold to the buyer. Also, the participating research institutions may aid in seed multiplication or in the provision of planting material, and then sell these inputs to F/PG members. However, once the F/PG is successfully producing a specific crop or product, they will be expected to take over responsibility for securing the necessary seed and other production inputs.
- X. Producing crops/products to market specification. F/PG members may need regular supervision and technical support from the frontline extension staff to ensure that specific crops or products (especially for export) are produced to market specification. Where problems arise, the F/PG leader may need to contact the extension staff who will consult with researchers or others who specialize in producing these specific crops/products or someone from the buyer’s technical staff may be consulted. Also, a specialist from the national research organization or ICARDA might be called in to assist, should the need arise.

- XI. Harvest, process and/or deliver crop/product to market (July-October). The marketing of different crops or products may vary from district to district, and from province to province. Members could be involved in contract production where the post-harvest handling and delivery of the product is highly specified. Alternatively, F/PG members may arrange for the transport, marketing and/or processing of the crop/product themselves. The emerging extension network in each district or province will take the lead in working out the specific post-harvest handling, processing and marketing procedures that may be needed for the different products to ensure maximum benefit to the F/PG members in terms of profit.
- XII. Empirically Document that Rural Livelihoods in the target watershed have been improved (March 2009 and December 2010). Analyzing the impact of this project on farm incomes and rural households will be carried out as an integral part of two benchmark studies to be carried out within each target district. The first baseline study will be carried out in March 2009 at the beginning of the first production season for the project. This survey will include an in-depth analysis of different categories of rural households within different districts, including their human, physical, social and financial assets. By establishing this baseline data at the outset of the project will make it possible to assess the economic and social impact of this proposed approach in improving rural livelihoods. In conducting this baseline study, the previous experience of other similar projects within the region, such as in India, will be use in generating the necessary baseline indicators.
- ***Steps to be followed in Preparing an SREP for each district***
    - I. **Selection of pilot districts-** About 3-4 districts should be selected in each pilot province (i.e. Balkh and Nangarhar) for SREP preparation. While selecting these districts, it should be kept in mind that each district should be an accurate representation of the agricultural sector in that province.
    - II. **Selection of a Project Director/ Project Coordinator-** next task would be to select a person from the Ministry of Agriculture/University who has sufficient experience and seniority, and entrust him the job of the Project Director in each of the selected province. This person would be the key person and would be responsible for all the activities listed below. He must have a fair amount of knowledge of English language and a research background would be an added advantage.
    - III. **Selection of TOFA (Team of Farm Advisors)-** Field officers drawn from different departments like Agriculture, Animal Husbandry, Dairy, Fishery, Cooperative and scientists from the local research station and University, along with selected NGO representatives and progressive farmers will be oriented about the concept of participatory tools for preparation of SREP.
    - IV. **Training the TOFA-** A training program in which inductive methods of learning would be used and tools like brainstorming, group discussions and dummy exercises will be taken to make the participants very clear on the subject so that the SREP could be made more meaningful.
    - V. **Selection of Agro Ecological Situations (AES)-**On the basis of important factors like topography, type of soil, water availability, annual rainfall/snowfall, vegetation and types of orchards/range lands/ field and horticultural crops grown, the sources of irrigation, different Agro-ecological Situations

(AES) should be identified within the district for preparation of *situation specific, farmers-demand oriented* SREP.

Further, representative villages from each AES based on various agro-ecological factors will be identified. (If any village is found lacking in any particular enterprise the relevant information from adjoining village should be collected for carrying out SREP field exercises)

- VI. **Formation of Multi-disciplinary teams for each AES-** A team consisting of 5-6 members who should include one officer each from the major departments, one NGO representative active in that area, at least one scientist and one progressive farmer from that AES. These groups should be entrusted with collection of primary information from the representative villages using PRA techniques and participatory methods for the preparation of SREP.
- VII. **Secondary information-**These will be collected by the officers of Govt. department using different government publications, progress reports, and also from the records of the District offices of Agriculture, Horticulture, Rural Development Department, Livestock & Animal Husbandry, Dairy, Forestry, Cooperative Departments, Leading Bank in that area District Statistical Office, NIC, and office of the Ministry of Agriculture, Irrigation and Livestock in the province.
- VIII. **Collection of primary information-**Field exercises were conducted in the selected representative villages of each AES of each district where members of the multi-disciplinary team will identify issues, collect data and information using participatory methods. The team should spend a total of seven days in the villages in two phases (4 + 3 days) and judiciously use the participatory tools for the collection of field data. The primary data collected during field practical will then be checked with various groups in the villages through triangulation as well as verified with other sources like secondary data collected from the departments.
- IX. **Review, verification and sharing of data** - All AES teams should adopt a procedure to present the data/information collected by them to the villagers in the village before coming out from the village for final consolidation and sharing of information with the villagers. The collected data should then be summarized and presented by each AES team in presence of senior level officers and scientists from all concerning departments, district heads of all departments, and farmers' representatives from each selected village. Some of the AES teams may need to again visit the villages for rechecking the data and complete the missing links.
- X. **Developing activity schedule by the District Core team-**While strategies are long-term in nature, activities are systematic steps to achieve these strategies. Ongoing departmental activities should be dovetailed and the missing links are to be supported by the Project. Each Strategy has to be translated into a set of activities, which will clearly spell out the size of unit, total units required, cost per unit and total cost in respect of each activity.
- XI. **Approval of SREP-**After thorough scrutiny by the Team of Officers and Scientists and farmer, the SREP should be presented for approval as authenticated plan document. This document will form the basis for agricultural development in the district.
- XII. **Preparation and Implementation of Action Plans-**Keeping in view the strategic thrust in SREP, annual / seasonal block action plans are prepared by TOFA to facilitate technology dissemination

using innovative process like exposure visits, trainings both technological and managerial, demonstrations, field days, IT support etc. through the farmer groups. Simultaneously a research action plan consisting of on-farm trials is prepared and carried out in support of the research strategies spelt out in SREP by the Scientists of ZRS and KVK to assess and refine the existing generalized technologies.

- XIII. Revisiting the SREP Approach** The development of SREPs is a dynamic process as issues emerge during the implementation process and as suggested by the various stakeholders vis-a-vis the members of AGB/BTT/FAC/FOs that are included in implementing the subdistrict Block Action Plans (BAPs). Hence, necessary steps were initiated to revise and redress the SREP in light of the challenges and issues coming across during implementation of Block Action Plan in the future.
- XIV. Information and Communication Support**-A conscious effort has been promulgated to promote information and communication support to the farming community to keep abreast of latest developments regarding weather, market intelligentsia, and package of practices and sharing of success stories. Hand on trainings on computer application is being provided to the extension functionaries and farmer representatives through ATMA information kiosks at block level Farm Information and Advisory Centres (FIAC).
- XV. Success Stories**-Implementing these action plans, in consonance with the SREP, have generated “Centre/s of excellence” among different farmer groups as well as innovative farmers. With support of relevant technologies, inputs and markets; the epoch-making initiatives under the NATP pilot districts in India have brought about a sea change in the working pattern and attitudes of farming community, who are able to enhance their farm income with diversification and intensification of farming system. The cascading effect of such innovations would go a long way in replicating the same among other farmers.

**Probable Timeline for completing the SREP in each district**

<b>Task</b>	<b>Likely duration*</b>
Orientation of District Team	3 days
Identification of Agro-eco-situations (AES) within the district	3 days
Training of AES Teams	7 days
Data collection through participatory approaches	15 days
Data analysis, identification and prioritization of	15 days

research and extension issues	
Developing strategies for research and extension issues in the district	5 days
Developing activity schedule	5 days
Approval and acceptance of SREP	2 days
Total time required to develop SREP	55 days

\* Depending on the local factors and situation on the ground, the time may increase/decrease

**Different Stakeholders contacted during Afghanistan visit**

1. Dr. A.Q. Khan, Chief of Party, AWATT project, Kabul
2. Dr. Bob Foster, Deputy Chief of Party, AWATT project, Kabul
3. Dr. M. Aziz Osmanzai, Director of Agriculture Research Institute (ARIA)
4. Dr. Javed Rizvi, Country Head, ICARDA, Kabul
5. Eng. Mohammad Sharif, Deputy Minister of Agriculture, MAIL, Kabul
6. Mr. Michael Satin, Cognizant Technical Officer, USAID, US Embassy, Kabul
7. Prof. Mohammad Yasin Mohsini, Dean, Faculty of Agriculture, Kabul Univ. Kabul
8. Mr. Abdul Qayyum Ansari, Dean, Faculty of Agriculture, Balkh University
9. Mr. Abdul Fatah Noor, Managing Director, Noor Group, Kabul
10. Mr. Shamal Khan, Afghan Agro Services, Kabul
11. Dr. Oval Myers Jr., Director of International Agric., Southern Illinois University at Carbondale (SIUC)
12. Dr. Charles M. Ruffner, Assoc. Prof. at SIUC
13. Dr. John W. Groninger, Assoc. Prof., at SIUC
14. Dr. Alan Walters, Assoc. Prof., South Illinois University, Carbondale
15. Mr. Ibrahim Karimi, Perennial Horticulture Development Project, Mazar-e-sharif
16. Mr. Bakhtar Shakimi, Perennial Horticulture Development Project, Mazar-e-sharif
17. Mr. Katib Shums, Director General of Agriculture, Balkh Province
18. Mr. Tayyab Khan, Director of Extension, Balkh Province
19. Mr. Mohammad Zia, Project Management Specialist, USAID, Mazar-e-sharif
20. Dr. Hayatullah, Animal Health Coordinator, MercyCorps, Kabul
21. Mr. Shakespeare Vaidya, Agri-Business Program Specialist, MercyCorps, Kabul
22. Dr. Ab. Wasi Kohistani, Deputy Program Manager, AABAD, MercyCorps, Kabul
23. Mr. M Junaid Sahibzada, Director, Livelihood Econ.& Agric Dev. Org., Kabul
24. Mr. Anwar Hussain, Livelihood Econ.& Agric Dev. Org., Kabul
25. Mr. M. Amir, DDG of Agriculture, Nangarhar Province
26. Mr. Habib-ur-Rehman, Agronomist, ICARDA, Nangahar Station
27. Mr. Gulam Nabi, Nangarhar Agriculture Company, Jalalabad
28. Mr. Akbar Hussain, CRT Director, IF Hope, Jalalabad
29. Mr. M Waseem, Capacity Building Consultant, LGCD/DAI, Jalalabad

**Participants present during the presentation on Market driven extension at Directorate of Agriculture Balkh Province, Mazar-e-sharif on 20/08/2008**

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5	Mr. M. Hussain	Tech Extension Member Balkh	0799698250
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11	Mr. M. Anees	Head, Forestry and Pasture land development	0799254627
12	Mr. M. Yusuf	Supervisor, Extension, Dihdai dist.	0773131998
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27	Mr. Abdul Ghafoor	Supervisor, of Qarakol Farm	0797596799
28	Ms. Arzoo	Member, Economy Deptt.	0797457252
29	Ms. Farashtah	Supervisor Home Economy Deptt.	0774207060
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**Participants present during the presentation on Market driven extension at Directorate of Agriculture Nangarhar Province, Jalalabad on 25/08/2008**

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12	Mr. Md. Washir	Cooperative dept. MAIL	0799408808
13	Mr. Gulam Nabi	Nangarhar Agriculture Company Manager	0799463822
14	Mr. Md. Nayem Pukhla	Planning manager NAILD	070060550
15	Mr. Gulam Farukh	NAC member	
16	Mr. Ghulam Yahya	NAC member	
17	Mr. Qari Sheerali	NAC member	
18	Mr. Hamidullah	Member Agro forestry, MAIL	
19	Mr. Habib-ur-Rehamn	Agronomist, ICARDA	