

**ASSESSING EXTENSION EDUCATION EFFORTS IN AFGHANISTAN THROUGH
THE EYES OF U.S. AGRICULTURAL SUPPORT PERSONNEL**

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Introduction

The southeastern Afghanistan provinces of Khost, Paktika, and Paktya encompass a wide range of agro-ecological zones and once boasted a strong agriculture-export based economy (FAO, 2007). Agriculture remains at the center of a national economic recovery strategy. However, Soviet invasion, sporadic war and government collapse have left an agricultural landscape, infrastructure, and human capacity devastated from decades of fighting and neglect (Kock, Harder & Saisi, 2010). Irrigation systems were destroyed by the Soviets and many families fled their homes for refugee camps in Pakistan. Schools closed and generations of farmers and potential farmers were killed in conflicts, interrupting the intergenerational transfer of agricultural knowledge (Jurenas, 2001; Thomas & Ramzi, 2011).

Since the start of Operation Enduring Freedom (OEF), the United States military operation in Afghanistan which began on October 7, 2001 (Global Security, 2002), has explored many options to address the crippled agricultural sector. U.S. policy objectives are presently focused on building Afghan confidence in their government. In rural areas, agriculture development was the face of this policy because this may have been the only government program or personnel with whom farmers interact (Groninger & Lasko, 2011). This support has taken many forms, including building community agriculture infrastructure, providing seed, fertilizer and equipment, and hiring agriculture trainers and extension personnel.

Agriculture was at greater risk due to violence in the southeastern Afghanistan provinces of Khost, Paktika, and Paktya than many other areas, and developing sustainability was a serious concern (FAO, 2007). The strength of Afghan government institutions and relative stability of agricultural communities varied considerably at both provincial and district –levels. Overall, this region was considered violent even by Afghan standards (Afghanistan NGO Safety Office,

2011). These conditions had significantly slowed, but certainly not stopped, agricultural development and reconstruction relative to many other portions of Afghanistan (Groninger & Lasko, 2011). Here, U.S. military Agribusiness Development Teams, USDA agriculture advisors and USAID field personnel worked both with the Afghan government's offices of the Director of Agriculture Irrigation and Livestock (DAIL) within each province and behind the scenes to support the development of an agriculture infrastructure in locations or capacities where the DAIL was not functioning (Groninger & Ruffner, 2010).

Need for the study

Due to evolving policy, coupled with disappointing results from other development approaches through the first several years of OEF, U.S. civilian and military personnel in the region had increasingly focused on agriculture training, including education and extension programs, to address policy objectives that would ensure sustainability in the agriculture industry (Kock, et al., 2010). In a recent study (Kock & Turnbull, 2011), Afghan farm store owners perceived extension education and services to be essential.

Similarly, the Afghan government was in the process of formalizing a program to increase extension capacity. These efforts had been managed from Kabul with little input from the southeastern provinces, which remained relatively isolated from the central government in terms of programmatic guidance or resources (FAO, 2007). At that time, several institutions carried out agriculture extension functions with limited programmatic evaluation. U.S. agriculture support personnel needed to assess the current extension efforts if they were to improve the transfer of the agricultural knowledge needed in re-establishing sustainable agricultural systems in a persistently insecure area.

Theoretical/Conceptual Framework

This project established a theoretical framework by identifying five areas of concern in Afghan extension efforts. By employing three constructs from a train-the-trainer agricultural education program in Egypt (Barrick, Samy, Gunderson & Thoron, 2009), researchers in the project proposed an initial theoretical model; which included assessment, content and process. Using qualitative case study methodology to develop grounded theory (Creswell, 1998), they added two areas identifying unique constraints under which agricultural extension must take place in Afghanistan; these included the two constructs of security and access, and provincial diversity (Figure 1).

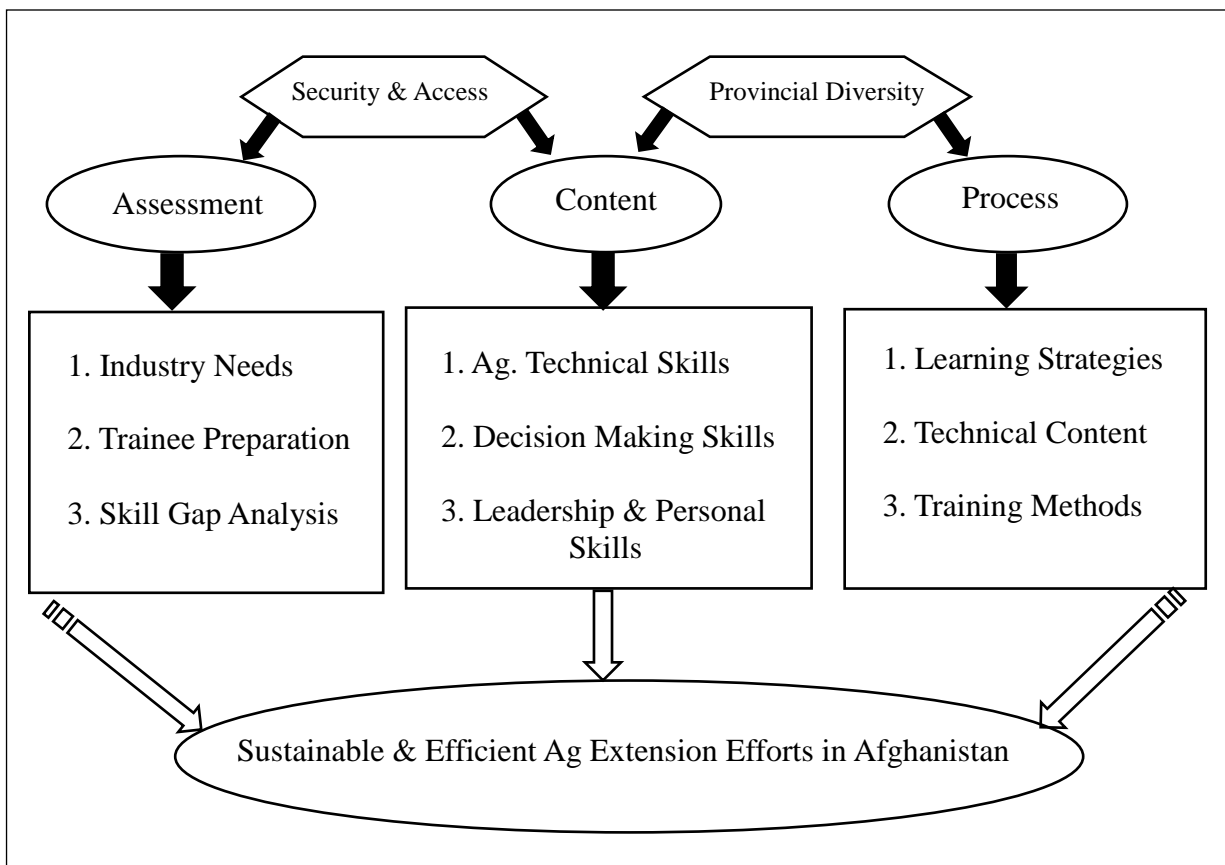


FIGURE 1. Conceptual Framework of Train-the-Trainer Model for Agricultural Extension in Afghanistan.

Assessment allows responsiveness to industry needs, preparation of trainees to master those skills deemed essential for success, and skill-gap analysis which helps identify needed changes in the curricula. *Content* addresses a comprehensive curriculum through which trainees may cultivate competence in agricultural technical skills, decision making skills, and leadership and personal skills. The *process* component not only provides trainees with learning strategies, but also provides technical content and training methods needed in this type of a train-the-trainer program for agricultural extension (Barrick, et al., 2009).

Security and Access issues were identified in the data as drivers of the type of content addressed and the vehicle for process in and assessment of the program. *Provincial Diversity* issues called for flexibility in the delivery of extension education, and impacted decisions in the other four components of the model.

Purpose/Objectives

The purpose of this study was to provide an evaluation of agriculture extension in the southeastern Afghanistan provinces of Khost, Paktika, and Paktya, utilizing the proposed model for Afghan extension (see Figure 1) by obtaining input from U.S. personnel supporting extension in the war theatre of Afghanistan. Insights gained from this study were intended to guide future activities and establish sustainable agricultural systems. The specific objectives of the study were to establish:

1. How *assessment* used industry needs to guide trainee preparation by identifying gaps in trainees' skill levels.
2. The *content* needed in Afghan extension to ensure all needed skills are imparted to both trainers and trainees.
3. The *process* components which would be effective in Afghan extension to accomplish

information dissemination.

4. Identify additional components in an Afghan train-the-trainer program through the use of grounded theory.

Methodology

Base line assessment of agricultural extension efforts toward agriculture sustainability was conducted employing a qualitative case study methodology (Merriam, 1998; Yin, 1984). Open-ended interviews were conducted with eight individuals, who supported and facilitated extension efforts in Afghanistan, to assess the initial three areas of concern. Two additional areas of concern, security & access, and provincial diversity, were added as a result of the grounded theory developed through the study.

Strauss and Corbin (1998) indicated grounded theory is “derived from the data, systematically gathered and analyzed through the research process” (p. 12). Data collection, analysis, and developing theory are comingled activities when using this methodology. The portion of the theoretical framework resulting from this study was not preconceived, but developed through the researchers’ desire to understand the respondents’ construction of reality in Afghan extension.

Instrumentation

Interview questions were developed utilizing information obtained from a literature review and first-hand knowledge of the researchers from extension efforts in Afghanistan. The initial questions were reviewed by a group of experts who had also conducted agricultural extension efforts in Afghanistan from 2005 to 2010. Existing questions were modified, and new questions added, before a final instrument was ready for use with the targeted population of United States agricultural extension personnel in Afghanistan. The final interview instrument

was validated by a panel of experts in Afghanistan (Wiersma, 1995) and used in open ended, qualitative semi-structured interviews with the selected participants.

Population

Respondents included five members of the Agribusiness Development Team (ADT) from the U.S. Oklahoma National Guard. In addition, interviewees included an agricultural advisor for the USDA, a general development officer for USAID and a forestry professor from (*a U.S. University*). Respondents (Table 1) were selected because of their service related to agricultural extension efforts in southeastern Afghanistan, and identified by a key informant who was an expert in Afghanistan agricultural extension. Respondents' terms of service, as noted in Table 1, were typically less than one year.

The interviews were conducted by one of the researchers on location in Afghanistan November 9 – December 10, 2010. Interviews were recorded using a microcassette voice recorder, and transcribed at a later date. After each formal interview, observations were made and recorded. Richard J. Lasko, USDA senior agriculture advisor who coordinated U.S. agriculture activity in the study areas of Khost, Paktika, and Paktya provinces, was then contacted and acted as key informant. The researcher was then directed to key participants in the project; who, in turn, referred others to create a more reliable interview atmosphere, making use of the snowball technique put forth by Patton (1990). One of the researchers in the project also provided data, based on Patton's view that contextual observations cannot be made that preclude the presence of the observer, and that observations on how people organize their worlds and the meanings they attach to what goes on in the world would be limited. Interviews and researcher observation were therefore appropriate for addressing the study's theoretical questions and analytical situations.

Table 1. Respondent Demographics

Pseudonym	Title	Org.	Gender	Specialization	In Afghanistan
Patton	1 st Sgt.	ADT	Male	Food Storage	1½ Months
Smith	Sgt.	ADT	Female	Poultry	2 Months
Kraft	Specialist	ADT	Male	Ag Ext/Equine	2 Months
Amos	Lt. Col.	ADT	Male	Ag Ext/Soils, Hay, Greenhouses, Equine	1½ Months
Milner	Sgt.	ADT	Female	Ag Ext/Marketing	1½ Months
Livingston	Ag Advisor	USDA	Male	NRCS/Ag Ext/Natl. Resources/Mgt.	11 Months
Alvin	Dev. Officer	USAID	Male	Ag NGOs in Egypt & Sudan – bees/wheat	8 Months
Granite	Professor	(a university)	Male	Forestry/Watershed	5+ Years

Prior to conducting interviews, written clearance was first obtained from Major James Kenit, of the U.S. Army Task Force Rakkasans, 187th Infantry Regiment of the 101st Airborne Division headquartered at Ft. Campbell, Kentucky. Human subjects clearance for this project was obtained through the Office of Research Development and Administration at (*a U.S. University, a U.S. city*) (Assurance # 00005334). Pseudonyms were assigned to each respondent to assure confidentiality.

Results & Discussion

Interviews of the eight individuals associated with the U.S. extension efforts in southeastern Afghanistan were transcribed, loaded into ATLAS.ti[®] qualitative analysis software, coded, and analyzed following Miles and Huberman's memoing and matrix techniques (1994). Through coding, themes emerged which explained the constructs targeted in the study's first three objectives, and the two additional theories identified.

Constructs of the Initial Theoretical Model

Assessment

Respondents observed extension carried out by the Afghan government as primarily involving Afghan agents waiting for farmers to come into district offices for answers to farming problems and the distribution of goods and seeds. Afghan extension agents also lobbied the government on behalf of the farmers for equipment, heavy machinery, seed, fertilizer and other goods. Unfortunately, such services primarily represented those farmers in areas most accessible to Kabul, as the government was separated from other provinces due to geographic obstacles such as mountains, tribal diversity, and security issues.

Informants reported Afghanistan's government traditionally relied heavily on a Soviet-influenced central planning model, but with no reliable means of ensuring that planned activities were actually taking place. They observed the only control the central government maintained was by funds. They were viewed as determining how all the money was to be spent in the provinces, but delivered very little money to the provinces beyond payroll for DAIL personnel. Respondents indicated the money they did deliver, many times, was lost to corruption. Sergeant Smith observed: "...the DAIL wants everything done here in Gardez at his compound, and have people come here instead of pushing it out to the more rural districts that need it."

The problem of corruption did not only lie with the government; respondents indicated that the corruption existed at all levels. Dr. Granite summed the situation in this way:

Everybody up and down the line is trying to work the system and benefit themselves; they really don't know what tomorrow is going to bring. It's really a war time, every man for himself - every family for themselves, type of situation.

Other provinces seemed to be working well, however, varying from one neighborhood to

the next, depending on a combination of events and forces. When describing the overall expected goals and outcomes of the Afghan government's approach to extension, Dr. Granite explained there was some emphasis on education in a couple of the provinces, but not in all cases. He pointed to tremendous variability from one province to another as to what agents did and what they perceived the extension system to be.

American personnel, on the other hand, sought to make education the primary goal. As it was put by Lieutenant Colonel Amos:

The primary goal of extension programs is basically an education issue. Getting the people educated on agriculture and agriculture programs. Over the last 30 years, they lost a tremendous amount of agricultural knowledge. Instead of people growing up and learning how to raise animals and raise crops, they've been picking up weapons and fighting. ...Focus on the youth. Focus on the women. Focus on education... because it's the one thing you can give them that can't be taken away.

Content

Subject areas identified by respondents as being addressed by the ADT train-the-trainer program ranged from forestry to agronomic crops, to fruit and vegetable production; including, wheat, alfalfa, animal husbandry, bee keeping, apples, and poultry. Other topics taught included irrigation, watershed management, cold storage, contract writing, cooperatives, greenhouses, and veterinary medicine.

When asked about additional technical support that may be needed by the ADT team, the consensus was that much of the information was already available. Lieutenant Colonel Amos emphasized that their training had linked them to NGO organizations, many governmental organizations and other military units set up to support one another. These included such groups

as the USDA, USAID and the U.S. Department of State; all working together through Provincial Reconstruction Teams housed on U.S. bases. However, since U.S. agriculture personnel saw education as the most crucial function of an extension program to Afghans, they stressed extension education planning and delivery methods as critical subject areas.

Process

Learning Strategies: Barriers & Strengths

The USDA agricultural adviser, Mr. Livingston, underscored the importance of training Afghan extension educators when he said: “Because Americans listen to American farmers, Afghans are going to listen to Afghan farmers. So, you get that. And I think you will see just a mushroom effect occur.”

ADT personnel determined the best delivery for agricultural extension education would be sequential in nature. Sergeant Milner phrased it as, “Educating the farmers, extension agents, and hoping that they’ll also carry this educational training into the school systems.” He further stated the need to connect the extension agents to formal government educational programs. At the time, vocational programs and university programs existed, but they were controlled by a different ministry and had no incentive to cooperate with the MAIL-controlled extension system (Groninger, 2006). The ADT members saw their roles not only in the realm of teaching, but also facilitating cooperation among Afghan agriculture and education institutions; including, MAIL extension agents, schools and colleges, agricultural associations, and other related organizations. Specialist Kraft stated,

If we can work more with them and bring them along with the different organizations we need, and help make those contacts and introductions, and if we have credibility with the organization that we introduce to a new extension agent, then

hopefully some of our credibility with roll over and then they'll value that individual. So when we're gone, the extension agents can help sustain all the groups.

Respondents reported much of the training took place at DAIL compounds and at established demonstration farms. While they stated this was due to difficult travel through mountains, lack of infrastructure, and security threats; the greatest barrier for attendance at training sessions was, simply, farmers not being told of the opportunities. They emphasized communication, then, as a critical element for effective extension, indicating its conspicuous absence. In trying to work through the government office of the DAIL, the ADT personnel cited few or no announcements of events. "The DAILS never tried to put that issue out there," stated Sergeant Milner.

Since travel is difficult and costly, when people travel to receive training, they also expect to receive something of monetary value to offset their expenses. Dr. Granite indicated, "The price of gasoline is equivalent there to what it is here in the U.S., but a laborer can only expect to make maybe eight dollars a day (if he can find work). So they spend a considerable amount of income just to get to where they are going."

Methods of information transfer varied from one region to another. The Afghans liked the formal setting of a classroom and lecture, while American personnel emphasized experiential learning and demonstration. Dr. Granite pointed out that one Afghan farmer observing another was an especially effective method for transferring information. A farmer seemed to value information more if he took the information, almost surreptitiously, rather than being taught it.

While associations and cooperatives were another venue that was sometimes effective for marketing, a more common and cultural entity identified by respondents was the shura, a small representative body that acted for a village or group of villages in the decision making process.

The Afghan people saw a shura as less corrupt and more efficient than the official government, and so farmers and support personnel alike especially preferred it where other governing entities functioned poorly.

However, in some regions the governor (provincial) and sub-governor (district) positively influenced extension programs. Mr. Livingston, USDA agricultural advisor, indicated the DAIL and his line directors conducted most extension work. Lieutenant Colonel Amos reinforced the need for extension conducted through the DAIL in order to develop and build confidence in the governmental system. To illustrate this concept, he described a situation that stood in stark contrast by saying:

The USDA rep in an adjacent province has done a contract and hired extension agents, and has 18 extension agents down there working for the USDA. But we're in an argument with them because, in our mind, that's not building the system. That needs to be run through the DAIL for us to be effective. We could go out and do the same thing here, but all we're doing is cutting the DAIL out of the picture instead of pushing them to establish the government and the extension program in the government.

Technical Content

Lieutenant Colonel Amos and Sergeant Milner pointed out that the long-term goal for the U.S. personnel was to support Afghan extension agents so they could educate farmers and agricultural businesses. In so doing, they insisted we could get them to the point of sustaining themselves; they, in turn, could then move past self-sustainment and learn to market their goods.

Dr. Granite saw the function of U.S. personnel and coalition forces as providers of expertise in agriculture, providing or facilitating technical training to Afghan people who function as Afghan extension agents employed by the Afghan government. He explained this

would comprise a train-the-trainer program that would enable Afghan agriculture to be self-sustainable and ongoing. U.S. personnel would provide access to technical content in every aspect of agriculture, as well as techniques in communications and information dissemination.

The training, which ADT personnel said they received from U.S. universities, provided technical information and “reach back” capabilities via Internet to the universities, libraries and industries in the United States. Both U.S. personnel and Afghan agents also had a considerable network within the country that included regional education institutions, USAID, USDA and many NGOs.

ADT personnel also emphasized providing trainers who had practical experience. Sergeant Milner stressed the need for agents to teach basic agricultural functions, training Afghan extension agents in such things as how to properly harvest crops, plant a nursery, prune trees, and harvest pine nuts. Adding to that list, Lieutenant Colonel Amos underscored the need for trainers knowledgeable about agricultural mechanics. He indicated that once a piece of machinery broke, it would be abandoned.

Training Methods

The U.S. personnel interviewed saw Afghan extension personnel as differing radically in terms of academic preparation. U.S. personnel sought to further Afghan extension agents’ training through the use of classroom lecture, demonstration and experiential learning at demonstration farms, and through modeling the information transfer techniques for extension agents during farmer training sessions. Thus, respondents stated a train-the-trainer approach was employed by U.S. personnel.

The DAILE hired Afghan extension agents primarily, and a process of advertising positions, application, interview, and hiring resulted from a set of criteria. Mr. Livingston, USDA

agricultural advisor, acknowledged that hiring criteria of extension agents varied in each region, however. A degree of nepotism exists in some areas, but the ADT staff agreed that extension should nonetheless be conducted through the government. When asked if the extension agents had adequate support to do their jobs, Sergeant Milner indicated they did not have the equipment with which to teach farmers. In some cases, they did not have the basic office furniture to even set up an office, nor did they possess a vehicle by which to travel around the district to observe what actually was occurring on the farms and orchards.

Security issues also determined where the extension agent located his base of operations. Respondents indicated the general population viewed Afghan extension agents as government representatives; they saw them as placing their lives, and the lives of their families, at risk. The following discussion on the topic illustrated the contradicting views on this issue of extension agent location:

[If I were an Afghan extension agent] I might be the sub-governor of a district that's an hour's drive from here, but I'm not going to put my family in that same district that I'm a sub-governor in; because now I not only put myself in danger, I just put my family in danger. –Sergeant Milner

Which I don't agree with... When in the states, you have to live in the district that you're an extension agent in. –Sergeant Smith

It's a different culture, too. Until they get good government security, then they're going to continue to operate in that manner. –Sergeant Milner

As security decreased, it was observed that training tended to transition from formal workshops with lectures and hands-on laboratory experience to impromptu demonstrations in a farmer's field, or demonstrations in a village where small groups of people had congregated. In

cases of extremely bad security, respondents reported representatives from areas inaccessible to trainers traveled to more secure villages to receive training on behalf of their communities. They pointed out since the population often had low levels of literacy, and since landline telephones and postal services were non-existent in the country, radio experienced considerable success in broadcasting agricultural information. Communication, in general however, was a primary need. U.S. personnel saw telecommunication links between Afghan universities and the United States as an important resource that would enhance the training of Afghan extension agents.

Materials currently used by the ADT included Power Point presentations using laptops, projectors and screens. They also employed blackboard and chalk lectures. Other venues for communicating agricultural information included the use of agricultural organizations or associations. Lieutenant Colonel Amos identified the beekeepers association as influencing the whole province, boasting over two hundred members. The Apple Growers Association also maintained a large membership, with Lieutenant Colonel Amos identifying apple trees as one of the largest fruit commodities in the region. Another agricultural organization useful to farmers included the Afghanistan Veterinary Association.

In Khost and Paktya, most training took place on demonstration farms at the university, at schools and in district centers. In Paktika, Mr. Alvin, USAID development officer, pointed out Afghan National Police (ANP) maintained security so as to minimize the sense of a foreign presence. They had constructed a greenhouse and grape trellises there for training purposes.

Target Populations for Agricultural Extension

Extension agents targeted farmers of all ages, but ADT staff felt extension should also explore the use of youth programs similar to 4-H and FFA. Many farmers were actually in their teen years, but were taught with the older farmers. Mr. Alvin, USAID development officer,

recorded the ages of farmers who attended extension training programs as ranging from 16 to 60. ADT staff saw women as another important group to target, but cultural boundaries made contact with them difficult. Sergeant Smith specialized in women's training, however, and sometimes assembled female training sessions in spite of barriers.

Two Additional Theories

Through multiple visits by the researcher to the study site over two years time, analysis of existing documents, and the interviews conducted, the researchers sought to generate new theory regarding agricultural extension work in Afghanistan (Corbin & Strauss, 2008). Grounded in the data from the field (Cresswell, 1998), two theories surfaced which were then incorporated into the theoretical model of this study; namely, Security & Access and Provincial Diversity.

Security & Access

Respondents agreed security issues acted as the primary driver of the type of extension delivery system employed. In the best cases, the Afghan extension agents could travel freely and deliver workshops without additional security considerations. However, U.S. personnel observed some Afghan extension agents feared for their lives and those of their families; thus, were unable to live in the districts where they worked. While they observed some Afghan agents stayed under the U.S. security umbrella, both professionally and off the clock, other Afghan agents operated similarly with Afghan security forces. Afghan farmers who participated in extension programs, on the other hand, were not threatened, according to the U.S. extension personnel interviewed.

Provincial Diversity

Institutional Strength

Informants' impressions of the Afghan government (GIROA) also differed starkly among the provinces. In Khost, the provincial governor was seen by a U.S. informant to effectively

engage and support agriculture. In Paktya, corruption was formally and informally mentioned as an important force. In Paktika, GIRoA did very little in even the most basic government services. With the assent of insurgents, local people relied on non-government judges to settle disputes and dispense justice, reportedly preferring their prompt and relatively fair decisions to the purportedly slow and corrupt GIRoA judges.

Agro-ecological Resources and Infrastructure

Respondents described local agricultural capacity and sophistication as highly diverse, but not necessarily reflecting the security situation. For example, Paktya had a thriving fruit export business with India and Pakistan, and sought further markets on the Arabian Peninsula. Elsewhere, most engaged in subsistence farming. Many agronomic farms in the central Khost province were very productive. Fodder corn production and widespread use of fertilizer was evident during August 2010.

In eastern Paktika, respondents reported farm conditions varied considerably by district. Most areas there appeared to be particularly lacking in resources, even where irrigation water was available. In other areas, where irrigation systems remained non-functional, farmers lacked a means of licitly accumulating capital, and recent floods had destroyed already scarce fields. The shortage of available land and the loss of land due to floods presented a large concern in Paktika.

Inconsistent infrastructure and scattered electricity production made farming and post-harvest considerations difficult. Water availability differed starkly despite strong influences of monsoonal rains in that extreme southeastern corner of the country. Irrigation infrastructure showed varied states of repair and rehabilitation. Most major and secondary roads remained vulnerable to insurgent attacks, and informants often referenced anti-government elements as problematic throughout the region, most prominently the Haqqani network. Smuggling of goods,

munitions and combatants between these provinces and adjacent tribally-controlled lands across the Pakistan border was a common activity among insurgents and others.

A Paktika provincial government employee, reportedly interviewed by a respondent in eastern Paktika, was afraid to travel to the provincial capital due to safety concerns underscoring the functionally disjointed nature of the province. Furthermore, respondents reported GIROA had a limited presence, even in the most secure district in eastern Paktika province. Kinetic warfare was commonplace within several districts in both provinces. Use of buried improvised explosive devices, suicide bombers, and insurgent forces using grenades and automatic rifles also presented considerable danger to personnel outside all but the most secure confines. For U.S. bases, rocket attacks ranged from a regular occurrence, to rare or non-existent, depending on the location.

Implications and Recommendations

Many countries emulate the agricultural extension education model developed in the United States. Implications may be drawn from this study, which contribute to the further development of similar extension programs; thus, supporting the sustainability of agricultural systems in both Afghanistan and other countries with safety and security concerns. To ensure not only the establishment of the extension program, but also the sustainability of the program, the following recommendations based on the findings of this study and grouped according to its objectives are:

1. How security and access influenced efforts in Afghan extension.

- a. Agricultural extension training should be located on demonstration farms. However, they should be established on smaller demonstration farms which are farmer-owned rather than on government-owned and managed demonstration farms.
- b. Future extension agents should be recruited from the districts in which they will serve.

- c. U.S. personnel should train or facilitate training of Afghan extension agents; the extension agents should, in turn, teach farmers.

2. The role provincial diversity played in Afghan extension.

- a. Afghan extension agents should network among themselves to encourage an interchange of ideas among professionals.
- b. Program planners should account for the unique needs and relative strengths and weaknesses of each district and province.

3. How assessment uses industry needs to guide trainee preparation by identifying gaps in trainees' skill levels.

- a. Establish the role of an extension agent as educator, rather than simply the provider of seeds, fertilizer and equipment.

4. The content needed in Afghan extension to ensure all needed skills are imparted to both trainers and trainees.

- a. Conduct further assessment, obtaining feedback from both Afghan extension agents and farmers, in order to further improve content and processes in the current agricultural extension effort.

5. The process components which would be effective in Afghan extension to accomplish information dissemination.

- a. In developing agricultural extension, the effort by U.S. personnel should be of very low intensity with long-term commitment; there is no substitute for time.
- b. Ensure the local and national governmental offices are directly involved in the establishment of the agricultural extension program.
- c. Avoid ineffective central planning by establishing a *cooperative* extension program;

including government, university and NGO collaboration - fostering local initiative.

- d. Engage young farmers and other youth through programs similar to 4-H and FFA in the United States, to receive agricultural extension education.

References

- Afghanistan NGO Safety Office (2011) *ANSO Quarterly Data Report Q. 4. 2010*. Kabul.
- Retrieved from: <http://www.ngosafety.org/2010crs.html>
- Barrick, R.K., Samy, M.M., Gunderson, M.A. and Thoron, A.C. (2009). A model for developing a well prepared agricultural workforce in an international setting. *Journal of International Agricultural and Extension Education*, 16(3), 25-31.
- Corbin, J. and Strauss, A. (2008). *Basics of Qualitative Research (3rd ed.)*. Thousand Oaks, CA: Sage Publications.
- Creswell, J.W. (1998). *Qualitative inquiry and research design: Choosing among five traditions*. Thousand Oaks, CA: Sage Publications.
- Food and Agriculture Organization of the United Nations (FAO). (2007). *Reconstructing agriculture in Afghanistan* (A. Pain & J. Sutton, eds.). Warwickshire, UK: Practical Action Publishing.
- Global Security. (2002). Operation Enduring Freedom – Afghanistan. Retrieved from: <http://www.globalsecurity.org/military/ops/enduring-freedom-intro.htm>.
- Groninger, J.W., (2006). Forestry and forestry education in Afghanistan. *Journal of Forestry*, 104(8), 426-430.
- Groninger J.W., and Lasko, R.J. (2011). Water for Agriculture: Challenges and opportunities in a war zone. *Water International*, 36(6), 693-707.
- Groninger, J.W. and Ruffner, C.M. (2010). Hearts, minds, and trees: Forestry's role in operation enduring freedom. *Journal of Forestry*, 108(3), 141-147.
- Jurenas, R. (2001). *Agriculture in Afghanistan and neighboring Asian countries*. Washington DC: Congressional Research Service. Retrieved from

<http://www.nationalaglawcenter.org/assets/crs/RL31190.pdf>

- Kock, T.K., Harder, A. and Saisi, P. (2010). The provision of extension services in Afghanistan: What is happening? *Journal of International Agricultural and Extension Education*, 17(1), 5-12. doi: 10.5191/jiaee.2010.17101
- Kock, T.K. and Turnbull, J. (2011). Rural development centers (farm stores) in Afghanistan, do they work? The business owners' perspectives. *Journal of International Agricultural and Extension Education*, 18(3), 35-44. doi: 10.5191/jiaee.2011.18303
- Merriam, S.B. (1998). *Qualitative research and case study applications in education*. San Francisco, CA: Jossey-Bass Publishers.
- Miles, M.B. and Huberman, A.M. (1994). *Qualitative data analysis: An expanded sourcebook* (2nd ed.). London: Sage Publications.
- Patton, M.Q. (1990). *Qualitative evaluation and research methods* (2nd ed.). Newbury Park, CA: Sage Publications.
- Strauss, A. and Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (2nd ed.). Thousand Oaks, CA: Sage Publications.
- Thomas, V. and Ramzi, A.M. (2011). SRI contributions to rice production dealing with water management constraints in northeastern Afghanistan. *Paddy Water Environ*, (9), 101-109. doi: 10.1007/s10333-010-0228-0
- Wiersma, W. (1995). *Research methods in education: An introduction* (6th ed.). Needham Heights, MA: Allyn and Bacon.
- Yin, R.K. (1984). *Case study research: Design and methods*. Beverly Hills, CA: Sage Publications.