U.S. Army Agriculture Development Teams, Afghanistan: The Role of the Geoscientist

Alexander K. Stewart

Abstract In the spring of 2008, the National Guard Bureau and the U.S. Army began employing a new counterinsurgency tool in Afghanistan—Agriculture Development Teams (ADT). These specialized, egalitarian U.S. Army teams, consisting of 12 soldier-expert hybrids, work directly with Afghanistan officials and farmers to support their agricultural needs. ADTs provide agriculture-related education, training and sustainable projects, which are U.S. funded and locally operated and maintained.

For the Texas ADT, geoscientists are generalists working in three areas: (a) Hydrology, (b) Education and (c) Geology. Hydrologically speaking, control, conservation and management of spring snowmelt from the Hindu Kush is vital to farming and livestock management, so delay-action dams, gabion structures and irrigation projects were developed. In response to village concerns, a dam assessment and hazard-mitigation program was developed and implemented. Team geoscientists also helped in watershed delineation and the selection of dam emplacement locations. With respect to education, university- and high-school-level support and training projects are also developed and implemented. Genuine geology-based projects were atypical due to overall security and time constraints; however, Texas ADT geoscientists completed remote sensing of chromite mineral resources in their area of operation.

Overall, ADT geoscientists are essential for mission success because of their flexible approach to problem solving, which is paramount in an ever-changing battle space where data and observations are limited to time, space and support. The role of a geoscientist in these teams varies depending on the unit's deployed location and their commander's intent. The success of an ADT geoscientist, however, is contingent upon the commander's understanding of what a geoscientist IS and DOES!

A. K. Stewart (✉)
143rd Infantry Detachment, Long-Range Surveillance (LRSD),
36th Infantry Division, APO AE 09364, Ghazni, Afghanistan
e-mail: astewart@stlawu.edu

Department of Geology, St. Lawrence University, Canton, NY 13617, USA

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1 Introduction

The military and the geosciences have been loosely connected since the dawn of warfare (Guth 1998) where a commander's better understanding of the terrain led to successful action against the enemy (e.g., Kiersch and Underwood 1998; Winters et al. 1998; Hippensteel 2011). After the two World Wars, the U.S. military formally recognized the need for routine input of terrain analysis and developed "Terrain Analysis" teams that were included at the division and corps level (ATRRS 2013). These teams still survive, albeit in an updated capacity as computer-savvy geospatial engineers and analysts (ATRRS 2013). Guth (1998) recognized the military's continued need for geoscientists, not terrain analysts, by summarizing his abstract with, "the classic dilemma for military geology has been whether support can best be provided by civilian technical-matter experts or by uniformed soldiers who routinely work with combat units." This pre-War on Terror statement has been answered by the U.S. Army, not as an either/or, but as a hybrid of both expert and soldier. Civilian technical-matter experts, who are Army National Guard soldiers, are currently being selected to support the War on Terror as uniformed soldiers in a specialized, counterinsurgency (COIN) unit. This hybrid solider-expert, working as a ground troop in a platoon-sized combat unit, is unique in the history of warfare and is being typified in the U.S. Army's Agriculture Development Teams (ADTs) (CALL 2009; Stewart 2010, 2011, 2012; Turner 2010).

Despite the existence of geospatial military occupational specialties (MOS), the development and proper implementation of the ADT concept requires real-world experience associated with the agricultural field in order to maximize the product. This use of real-world experience is not new to the military, for they commonly use civilian expertise in those skills that directly influence logistics and welfare. For example, whether at war in Afghanistan or on a humanitarian mission in Nicaragua, soldiers who have civilian skill sets, such as a plumber or electrician, will most likely support a unit's needs in these areas. This commonsense use of real-world expertise, as opposed to a technical, MOS-trained, limited-experience use (even in plumbing or electrical work), is ingrained in the military, which adapts and overcomes with the resources at hand.

As a result, the use of geo-related, MOS-trained technicians is not the answer to supporting a specialized, COIN team. State National Guard units are selecting from within their ranks (from Specialist, E-4 to Lieutenant Colonel, O-5) civilian-educated, real-world-trained workers in agriculture-related/supporting fields (e.g., agricultural science, engineering). The qualifications of any particular soldier range from having a high school diploma and a life on the farm (for a "farm manager/maintenance" position), to the preferred qualification of a college degree, or, rarely, even a graduate degree in an agriculture-related specialty.

Using this logic, the U.S. Army and the National Guard jointly deployed ADTs for Afghanistan. For most ADTs, the most prevalent members of the teams are geoscientists who can make up 25 % of the team's expertise. Redundancy in the geosciences is critical for the success of an ADT, for the geoscientist is a traditionally trained, quantitative describer of observations who is well versed in critical-thinking skills (Kastens et al. 2009). The training and experience of a geoscientist, moreover, is key because of their flexible approach to problem solving; geoscientists typically approach problems with an intellectual toolbox that contains a variety of tools selected as appropriate to the job at hand (Frodeman 1995). This "toolbox" approach to problem solving is becoming more and more important on the battlefield where a soldier is required to solve problems with limited time and resources (Frodeman 1995; Powell and Leveson 2004).

2 Agriculture Development Teams

During early 2008, the U.S. Army, in conjunction with the Army National Guard, developed and began employing ADTs to Afghanistan. These specialized U.S. Army teams comprise 12 hand-selected, soldier-expert hybrids in the agriculture field; supported by an organic security team and a headquarters element. As an egalitarian team, these soldiers work directly with both regional and local Afghanistan government officials and farmers to support their agricultural needs. ADTs provide agriculture-related education, training and sustainable projects, which are US funded and locally operated and maintained. As of the spring of 2012, 12 states have supported the ADT mission (Fig. 1) providing a total, thus far, of 34 teams that operated in 15 provinces and contributed over 595 agriculture-related projects, which generated over $35 million in economic impacts for the people of Afghanistan (USA 2012).

Of these 12 agriculture-related experts, geoscientists can make up to 25 % of their strength. The civilian and military planners who implemented these teams in 2008 were correct by including geoscientists who are traditionally trained in quantitative observation and critical thinking. Geoscientists in these ADTs typically work as civilian geoscientists. Due to the flexibility of the geoscientist's mindset and training, they are currently undertaking a variety of missions that challenge the limits of their traditional expertise, while doing so with ease and success. Typical projects run by geoscientists range from delay-action dam planning and emplacement to mineral-resource reconnaissance to environmental protection projects and general agricultural projects such as animal husbandry, irrigation and infrastructure support. Geoscientists thrive in this environment requiring functionality beyond their formal training.

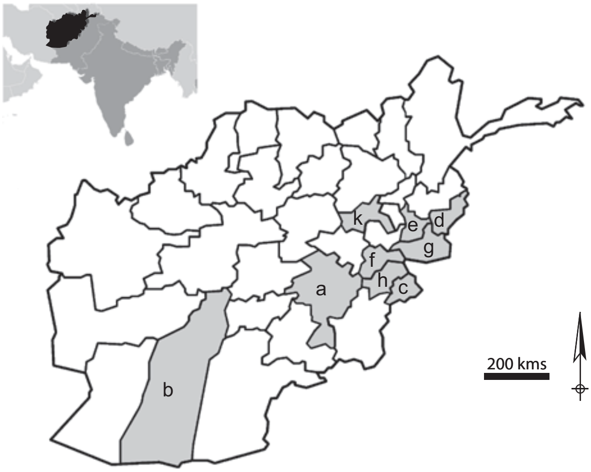

Fig. 1 Map of Afghanistan showing provincial boundaries and locations of ADT efforts (*gray* shading). Note the focus of ADT efforts in the east-central portion of Afghanistan, linked to population and the cross-border influx of Taliban from Pakistan (and poppy-dominated Helmand Province "b". List of annotated provinces/ADT-sponsoring state: *a* Ghazni/Texas, *b* Helmand/South Carolina, *c* Khost/Indiana, *d* Kunar/Illinois, Iowa and California, *e* Laghman/Kansas, *f* Logar/Georgia and North Carolina, *g* Nangarhar/Missouri, *h* Paktia/Nebraska and *k* Parwan/Kentucky. For clarity, "i" and "j" are not used. Map modified from cia.gov)

2.1 *Soldier Always, Geoscientist Sometimes*

These technical-matter experts must be proficient soldiers, yet work as if they are civilian professionals in a non-military-styled, egalitarian team. Team members typically excel both as soldiers and civilians, so the fusion may appear simple; however, it can be a constant struggle to work inside the limits of the battlefield. For example, depending on the location, times on target (data-collection location) may be as short as 10–15 min for counter-sniper procedures, which means the soldier-expert needs to be able to survey the situation, collect the appropriate data and be sure that the mission is complete because returning may not be an option. In addition to time limits on the battlefield, there is also a spatial limit—both general location (e.g., is it accessible) and site maneuverability. Working inside a security bubble adds another dimension to the site survey and data collection. The freedom to work and wander as one would in the non-battle environment is not an option. Inside this temporal-spatial context, the soldier-expert has to also adapt to the socio-political environment. The soldier-expert must master this anthropocentric environment in order to maximize the effectiveness of a particular mission and the ADT as a whole. The local population is the primary source of information regarding the area and their expectations and needs (CALL 2009; Fig. 2).

While tackling these soldier-expert duties, whether it's being a member of a district's *shura* determining the fate of a particular project or scouting out the location

Fig. 2 Four generations of Hazara from Malistan District, Ghazni Province. Unlike the Pashtun found in Ghazni city and along the Kabul-Kandahar road, the Hazara are more western thinking; notice the matriarch *left of center* who allowed us to take photographs. The *left* column represents the Texas ADT's message card, which were distributed to locals to help initiate and foster a friendly, working relationship. (Message card modified from CALL, 2009; photograph by author)

of a new slaughterhouse, the soldier-expert is always a soldier first. The primacy of the rifleman in U.S. Army is not lost on these soldier experts. They, like their security teammates, are battle hardened, carrying the same weapons and munitions (e.g., rifle, pistol, grenades, ammunition) and with the same situational awareness; however, they must skillfully juggle their soldierly duties with the expectations of their civilian specialty.

2.2 Mission Statement and Selected Mission Assignments Involving a Geoscientist

The mission statement of the ADTs in general, is simple: to provide basic agricultural education and services for the people of a particular province (Fig. 1) in order to support the legitimacy of the Government of the Islamic Republic of Afghanistan (GIRoA). Due to the general nature of this mission statement, "agricultural education and services" is broadly defined. Working to support the national Ministry of

Table 1 Examples of Texas ADT projects in Ghazni province, 2009–2010

District	Theme	Title
Ghazni	Agriculture	Agriculture extension agent training
	Agriculture	Agriculture centers and veterinary clinics
	Agriculture	Demonstration farm upgrades
	Agriculture	Farmer's market assay and upgrades
	Power	Demonstration farm wind and solar power
	Animal Husbandry	Livestock husbandry training
	Animal Husbandry	Poultry training
	Animal Husbandry	Refugee village poultry training
	Animal Husbandry	Para-veterinary training
	Animal Husbandry	Slaughter facility extension
	Govt. Agency	Environmental conservancy park
Jaghori	Agriculture	Demonstration farm
	Power	Demonstration farm wind and solar power
	Animal Husbandry	Slaughter facility
	Irrigation	Crop irrigation
	Irrigation	Earthen, delay-action dam
Malistan	Agriculture	Demonstration farm
	Animal Husbandry	Livestock husbandry training
	Animal Husbandry	Poultry training
	Animal Husbandry	Aquaculture assessment
	Irrigation	Earthen, delay-action dam
Nawur	Agriculture	Demonstration farm
	Agriculture	Wheat planting and processing
	Power	Demo. Farm wind and solar power
	Animal Husbandry	Poultry education
	Animal Husbandry	General husbandry education
Deh Yak	Agriculture	Fruit and vegetable processing
	Animal Husbandry	Livestock husbandry training
	Animal Husbandry	Poultry training
Gelan	Animal Husbandry	Livestock husbandry training
	Animal Husbandry	Poultry training
Jaghatu	Animal Husbandry	Poultry training

Irrigation, Agriculture and Livestock, ADTs co-ordinate with their respective Provincial Directors of Irrigation, Agriculture and Livestock (DAIL) and district elders to develop and implement sustainable, Afghan-run, U.S.-funded projects supporting GIRoA and COIN (Table 1).

The following are examples of projects that the author developed and implemented as a soldier-geoscientist:

2.2.1 Hydrology

Dam Assessment

The March 2005 failure of the Band-e Soltan dam in Ghazni City killed 14 people, displaced thousands (Nasrat and Sharifzad 2005) and renewed villagers' interest and concern about their local dams (Fig. 3). The anxiety generated from this failed dam and the addition of U.S. forces into Ghazni Province prompted village elders to seek assistance in assessing the stability and usability of their dams. Most dams in Afghanistan are small, earthen, delayed-action dams and present little hazard to the communities associated with them. There are, however, several masonry dams on the decameter scale, which are a cause for concern. Because of the Taliban influence in Ghazni Province, the Texas ADT realized dams were neglected and went without appropriate management and maintenance. According to village elders, the addition of the Texas ADT into the province and its ability to operate in a hostile environment gave them an outlet for their concern.

The Texas ADT geoscientists only observed those portions of the dam that could be measured (e.g., dimensions, composition, sections, type) with unseen sections

Fig. 3 Okaak village elders (Nawur District of Ghazni Province) discussing the results of their Texas ADT dam assessment. *Inset* shows author taking oral notes on a locally devised wing-wall extension to the larger, Okaak dam. At previous inspection, the Texas ADT recommended no action; however, the locals moved forward with this wing wall, despite our recommendations. (Photographs by author)

(e.g., internal workings or internal damage) not interpreted (Fig. 3 inset). As an observational scientist, the geoscientist was able to approach these dams with a keen, trained eye, without being a dam engineer. These data, results and summaries were relayed to the local elders (Fig. 3) and were summarized in a series of Dam Assessment Reports and submitted to the Joint Task Force Command, provincial authorities and, for the Band-e Soltan assessment, to U.S. and Afghanistan national authorities.

Band-e Soltan Dam

The Band-e Soltan dam, located approximately 23 km north of Ghazni City, is a curved gravity dam with portions of it dating to the tenth century. The original structure, the oldest in Afghanistan, worked until the early part of the twentieth century when a new dam was partially built upon the same footing (Ezzat 2001; Fig. 4a, b). The Band-e Soltan reservoir currently has an approximate maximum capacity of 2.0×10^7 m^3 and is fed by an approximately 1200-km^2 basin ranging in elevation from 2400 to 3800 m (Stewart 2009). With proper management, the reservoir is able to irrigate approximately 15,000 ha farmed by approximately 25,000 families (Ezzat 2001).

Fig. 4 Band-e Soltan dam; *arrow* in "b" is pointing to the original, tenth-century portion and *dash-encircled* section is the repaired wing-wall section represented in a, c and d. **a** March 2005 collapsed wing-wall section; **b** overview of the dam facing westerly; **c** author (second from *left*) inspecting the repaired wing-wall section (reservoir side) and **d** downstream section of repaired wing-wall. (August 2009; Photographs by author)

During the 1990's, the dam was in general disrepair and the Danish Committee for Afghan Aid to Refugees (DACAAR), a nongovernmental organization dedicated to supplying aid to Afghans through water and sanitation projects, worked at repairing the dam from May 2000 to July 2002, based on an associated engineering report (Ezzat 2001). Because the engineering report failed to assess the entire dam, the repair efforts were insufficient and the dam failed in 2005. As a result of this catastrophe, the World Bank in Afghanistan supported the completion of the first of two phases of emergency repairs for approximately US$500,000 . The second phase of the operation was stalled due to the Taliban killing and kidnapping contractors at the site. It is because of this failed second phase that the national and provincial authorities requested assistance from the Texas ADT. The Texas ADT geoscientists completed the assessment of the entire dam, including the recently repaired wing-wall section (Stewart 2009; Fig. 4b, c, and d). Based on 2008 and 2009 observations, it was clear no additional work had been completed on the repaired section (Fig. 4d). Based on the observed 2009 dimensions of the repaired section, Texas ADT geoscientists estimated with engineering calculations the maximum, safe-stage-level of the reservoir at 4.8 m (6.5 m below the crest). This estimate effectively reduced the capabilities of this dam by 42 %. This reduction, driven by improper engineering and its incompletion, affects a significant number of families downstream. The assessment noted that buttressing and/or backfilling of the wing wall would improve the overall safety of the repaired section; thereby, returning the dam to more normal operational conditions.

The assessment and recommendations (Stewart 2009) were sent to Joint Task Force command and provincial and national authorities suggesting that emergency repairs were paramount to the safety of the villages downstream and to continued optimal operation. Recommended repairs, however, were suggested to be completed to western standards with appropriate earthquake mitigation/design. In addition, upon completion, the Texas ADT suggested that an archaeological park (or signage) should be added to conserve/preserve/educate about the remains of the tenth-century portion—an Afghanistan national treasure (Fig. 4b). Based on months of proving their worth, the Texas ADT commander trusted the observational, analytical and postdiction skills of the Texas ADT geoscientists; therefore, the Texas ADT was able to expand its scope and support local needs beyond expectations.

2.2.2 Education

University Agriculture Education Support

The Texas ADT developed a relationship with the University of Ghazni to support the future of Afghanistan's agriculture, and to better prepare its students for post-graduate work in the field of agriculture. Because the University of Ghazni was a new, under-funded extension of the University of Kabul, the Texas ADT, in consultation with its rector, Dr. Ahmed Rafiqi, agreed upon logistical support by modernizing their facilities. Of paramount importance was the Farsi- and

English-language library with redundancy (by language) of each, agriculture and general-education-related textbooks. Additional computers and internet access was also included and, together, the library and connectivity better prepared the university's faculty to educate the student body in modern theory and methods of agriculture.

Based on discussions with Dr. Rafiqi, the Texas ADT realized that University of Ghazni faculty is not able to offer field or laboratory opportunities to their students to help solidify lecture material because of security and transportation concerns. As a result, the Texas ADT developed and implemented both an experimental farm (on FOB Ghazni) and a demonstration farm (outside Ghazni City); giving the faculty and students a secure location to practice their agricultural skills. To help encourage the use of these farms, the Texas ADT geoscientists developed and implemented a series of lecture and laboratory/field courses in "modern" methods of farming (e.g., grape trellising, Fig. 5). The best qualified Texas ADT team members to work with the professors of the University of Ghazni were the geoscientists. Of the 12 soldier-expert members, the geoscientists were the only experts accustomed to extensive

Fig. 5 University of Ghazni Agricultural Education training sequence. *Upper, center* image is the initial meeting between the Texas ADT (author) and the University's Rector, Dr. Ahmed Shah Rafiqi; following *arrows* through in-class lecture, outdoor-laboratory lecture for grape trellising and, finally, a hands-on practical exercise. Projects come *full circle* with a Quality Assessment, Quality Assurance summary and discussion with all involved. (Photographs by author)

laboratory/field training in their education. As a result of many years of laboratory/field training, the geoscientists successfully completed a series of lecture and laboratory practical where the faculty and students were able to apply the tools learned under the close supervision of the Texas ADT instructors. The addition of a hands-on, field component to lecture material was readily accepted by the students and faculty; leading to an improved understanding of the material (cf. Matz et al. 2012). In addition, the Provincial Minister of Higher Education recognized the Texas ADT's support and helped the University better align its academic ideals with a westernized standard thereby, increasing the female enrollment from 13 to 44 % in one academic year. The increase of females into the University is helping to break down traditional barriers to women's rights in Afghanistan. Because education is the key to moving beyond subsistence farming, this relationship with the University was seen as critical in helping develop the nation's capacity to produce and export agricultural goods.

Gabion Training

As part of a routine inspection of a recently implemented demonstration farm, the Texas ADT geoscientists noticed the direct effect of cut-bank erosion on the only access bridge to the farm. Due to the placement of the bridge at a cut-bank section of the river, its wing abutment extension of dry-stacked riprap was being sapped (Fig. 6). In response to much-needed repair, the Texas ADT geoscientists developed a gabion-training program. Gabions are inexpensive, easily used and maintained wire cages that when filled with earth or rocks are suitable for engineering purposes (e.g., mitigation of mass-wasting processes; Burroughs 1979). Because gabions are inexpensive and easy to make and use, they were the perfect tool to repair and protect the bridge (Fig. 6). The objectives of the three-day training program promoted by the Texas ADT geoscientists were three fold: (1) proper training in mass-wasting recognition and emplacement of gabions for University of Ghazni faculty and local farmers (30 persons), (2) repairing and protecting a cut-bank section associated with the bridge wing abutment and (3) promulgation of the training via radio interviews to support the efforts of the Texas ADT, the University of Ghazni, and local farmers. All three objectives were successfully met thanks to the geoscientists' recognition and understanding of the "unseen" natural process of cut-bank erosion.

2.2.3 Geoscience

Mineral Resources

A uniquely geology-oriented project was given to the Texas ADT's geoscientists from the S-2 (Intelligence/Security) section to determine the likelihood of chromite-mine activity in Taliban-friendly territories of the Zana Khan and Deh Yak districts. With the region's proximity to the Kabul-Kandahar route and the Pakistan border, it

Fig. 6 Junghal Bagh Demonstration Farm (Ghazni District) gabion-training/emplacement project photographs. Notice the sapped, dry-stacked rocks in the *upper* image, which did not minimize bank erosion behind the abutment. These rocks in the May 2009 image had been placed approximately 2 months prior to this picture being taken. After the training program, the section was protected with gabions (*lower* image). (Photographs by author)

was of concern that any additional income supporting the Taliban would be an issue that may need to be dealt with.

Based on Internet access to Papp and Lipin's (2006) book chapter entitled "Chromite" and general USGS GIS data, Texas ADT geoscientists predicted possible mining activity in these districts. The prediction was based upon an extrapolation of chromite-bearing rock units, such as peridotites and serpentinites, along structural strike from known mining sites in Logar Province (northeast of Ghazni Province). These predictions were forwarded to Joint Task Force command and perhaps contributed to the news coverage of an estimate that $1 trillion in mineral resources are available in Afghanistan (Risen 2010).

In addition to this geoscience-related mission, it was common for the geoscientists to both train soldiers and/or "assess" their purchase of semi-precious/precious stones from local souk merchants. Unit-level classes were held on occasion presenting some very basic geological techniques to help soldiers overcome the sales experience of the souk merchant with a basic knowledge of minerals and gemology. As a result of these 60-min lectures and demonstrations, soldiers were more confident and informed about gemological terms (e.g., rarity, color and carat); moreover, they were made aware of some of the flashy tools used by the merchant. The "gem tester," using heat conductivity for identification of a gemstone, was an easy-to-use analog device, but was nearly useless in determining synthetic from natural stones and the differences between non-, semi- and precious stones. The merchant also used a refractometer to "convince" the buyer of gem type/quality. Although the meter can give accurate and precise birefringence values and refractive indices, it is used by inexperienced merchants using inappropriate refraction liquids (e.g., olive oil). Armed with this new knowledge, groups of soldiers were better situated to deal with the merchant and were able to support each other when making relatively significant purchases. Although small in scope, the unit cohesion nurtured by these more confident sojourns to the souk was an important part of unit morale (cf. Campise et al. 2006).

3 Conclusions

The integration of ADTs among the combat forces in Afghanistan is a unique and modern approach to war fighting, which helps foster relationships between the locals and their elected government and to help move communities from subsistence to export-type farming. By developing and implementing locally requested, operated and maintained agriculture-related projects, the ADTs are not only generating over $35 million in economic impacts for the people of Afghanistan (USA 2012), but, more importantly winning their "hearts and minds" at the grassroots level.

The benefits of using civilian-soldier-experts are only beginning to be understood. Importantly for geoscientists, it is confirmation that both civilian and military leaders have recognized the importance of geoscientists and their role on the battlefield. Geoscientists are a critical part of ADTs because of their problem-solving skills, which are paramount to COIN mission success. Winning hearts and minds requires an understanding and compassion for the needs of the local populous. Traditional military units (e.g., infantry companies) don't have the time or skills necessary to support the local populous. This support comes only from soldier-experts, who are able to take any community need, develop it, manage it and make it a success.

Geoscientists excel on the modern, ever-changing battlefield because they use deductive reasoning based on a synthesis of the other natural sciences (i.e., physics, biology, and chemistry). Geoscience is also unique in that its training is founded in four areas, which are important to counterinsurgency operations: (1) critical thinking on multiple temporal scales, (2) understanding of the Earth as a complex physical-socio-political system, (3) the use of the field environment as an educational tool, and (4) the requirement of spatial thinking (Kastens et al. 2009). This educational mix of approaches allows geoscientists to "stack observations" by assigning different values to various observations, judge their worth, re-evaluate and extrapolate a plausible explanation. These observations and evaluations are placed in a temporal and spatial framework where certain events commonly occur in a particular four-dimensional space. As a result of this flexible approach to problem solving, geoscientists typically approach problems with an intellectual toolbox that contains a variety of tools selected as appropriate to the job at hand. This multifaceted approach to problem solving is paramount in an ever-changing world where data and observations are limited to time, space and support. Real-world problems rarely have a "correct" answer, so assessment of ideas based on probability is reasonable, pragmatic and very familiar to the geoscientist (e.g., Frodeman 1995).

Despite the U.S. conventional forces strength, the U.S. is fighting adaptive insurgent forces that mix modern technology with ancient techniques and terrorism (DoA 2006). Defeating these enemies requires an adaptive and flexible force that is prepared to employ a mix of familiar combat tasks and skills more associated with nonmilitary agencies (e.g., USGS or USDA). In order for COIN operations to be successful, soldiers should be prepared to take on missions infrequently practiced with an ever-increasing reliance on the basic ground troop. The ground, combat troop is where COIN begins and geoscientists are the best prepared to tackle operational changes that are greater than and more rapid than training opportunities within their field of expertise. Their ability to think quantitatively, objectively and descriptively is a winner for the U.S. Army and is being proven with the National Guard's ADTs in Afghanistan (Stewart 2011, 2012).

The use of the civilian-soldier-expert may be the norm for the National Guard Bureau, which has the luxury of a civil-experienced force. This win-win situation has been formally accepted by the former Secretary of Defense, the Honorable Robert Gates, who said "[m]ore programs like this [ADTs] can be developed and we are working with the Services and their Reserve components to find appropriate force structures that can capitalize on the professional skills of Reservists and Guardsmen, while not detracting from the readiness in our conventional formations" (quoted in Nagal and Sharp 2010). For these possible soldier-expert teams one thing will remain, regardless of civilian specialty: the need to convince their traditional, U.S. Army commanders of their abilities and how they will improve their commander's mission and move the nation forward.

Fig. 7 SSG Christopher N. Staats (*left*) and SGT A. Gabriel Green (*right*), both Killed in Action 16OCT09, Ghazni Province, Afghanistan

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