

Jon Brooks Fripp, PE
USDA-NRCS
(817) 509-3771 (office)
(817) 975-0203 (cell)
Email: jon.fripp@usda.gov

TECHNICAL AREAS OF EXPERIENCE: As a federal employee, I have performed a variety of hydraulic computations, studies and evaluations related to the planning, design, construction, and operation of various types of water resource projects and studies. Some of the studies/projects which I have had direct involvement includes the following:

- Dam Design
- Dam Rehabilitation
- Dam safety analysis
- Water Conveyance Assessment and Design
- Watershed Planning
- Planning and design of water storage and flood control dams
- Flood control assessment and design
- Sedimentation analysis
- Reservoir reallocation
- Rural road design
- Stream Bank Restoration Assessment and Design
- Stream and River Geomorphology
- Design of Stream Bank Soil Bioengineering
- Fish habitat improvement assessment and design
- Stream and Wetland Restoration
- Storm water management assessment and design
- Acid mine drainage abatement assessment and design
- Pipe network design
- Fish hatcheries assessment and design
- Fish Passage

I have developed project study plans, scopes of work, estimates, and contractor work orders. A large part of my responsibilities includes developing the engineering portions of multi objective watershed studies as well as developing and refining study goals. I have participated in contractor negotiations as well as in the inspections of various projects as the hydraulic representative. I have completed a detail at the US Army Corps of Engineers Waterways Experiment Station as a research civil engineer where I investigated channel response to urbanization as well as developed design guidance in river design and stabilization. National technical guidance for the USACE was developed as part of my efforts. I was one of the three, lead technical editors in the development of the Natural Resources Conservation Service (NRCS) Stream Restoration Design Handbook (NEH 654). I have also authored numerous technical papers and taught numerous classes and workshops related to water.

I have served on over 30 Outside the Continental United States (OCONUS) TDY assignments (including Afghanistan, Pakistan, Mexico, Doha, Turkey, Republic of Georgia and the Philippines) as well as the NRCS technical lead for two international fellowship programs (Cochran and Borlaug). My overseas work included being imbedded in the Afghan Ministry of Agriculture, Irrigation and Livestock (MAIL). I have provided instruction in soil and water conservation implementations in dry areas for three National Guard units prior to their Afghanistan deployments.

I have taught in numerous classes related to ecology, soil bioengineering, and various aspects of hydraulic design and analysis. Outside federal employment, I have had experience in site development, water distribution systems, and wastewater management.

NRCS-NDCSMC WORK EXPERIENCE: I have served as the Stream Mechanics Civil Engineer at the USDA NRCS National Design Construction and Soil Mechanics Center since the center's establishment in 2000. I have been involved in all aspects of the work that is conducted by the center including:

- participating in over 300 design reviews,
- providing over 100 training workshops and classes and
- providing over 175 direct assistance field responses.

I have served as a COR for IDIQ technical review contracts. I have been directly involved as lead author or editor in the development of numerous NRCS guidance documents including but not limited to NEH 654, TR 56, NEH 628 Ch 54, NEH 630 Ch 5 and NEH 630 Ch 6. I have represented NRCS in ASTM and I am currently one of the two NRCS representatives on the interagency sedimentation group. My work has been recognized with selection as the 2016 USDA Federal Engineer of the Year and two USDA Honor awards. Finally, I have assisted leadership with employee selection, new employee professional development and training as well as served occasionally in the acting co-director capacity on an ad-hoc basis.

COLLABORATION EXPERIENCE: I have led and participated in collaborative NRCS technical teams that have performed reviews of complex engineering projects, conducted technical training, provided direct assistance, and developed design guidance. This experience has provided me an opportunity to fully understand, appreciate and develop the needed interpersonal skills needed to coordinate the concerns and views of technical experts in service of the conservation mission of the NRCS.

I am familiar with successfully coordinating a variety of strong personalities with competing interests. For example, the development of NEH 654 Stream Restoration Design Guide effort, of which I was one of three editors, compiled the work of over 200 contributing authors. This collection of experts included not only NRCS authors but those from other federal agencies, regulatory, academia and the private sector. Many of the contributing authors had very good ideas and strongly held opinions that needed to be brought together to successfully produce this well-received guidance document.

Leading and participating on projects in the developing world has also provided me with an opportunity to develop and refine interpersonal and leadership skills. Work in OCONUS (Outside Continental United States) environments can often be challenging from not just a technical standpoint but from a social one as well. The multiple trips where I have served both with the USACE and with the NRCS have provided an opportunity to work with a variety of cultures and interests. These efforts have included coordination and involvement with personnel ranging from local farmers, through technical experts to cabinet level officials.

I have served as leader and technical mentor for several Engineers Without Borders missions that planned, designed and constructed a variety of aid projects in the developing world. This work included leading student teams, and coordinating with local laws, customs and regulations while maintaining good design practices in a challenging environment. I have also served on boards and in leadership positions on a variety of both secular and religious organizations which have served in the United States and abroad.

The work experience that I have enjoyed has taught me that Civil Engineering is fundamentally a collaborative profession. Good work requires a variety of viewpoints. Effective leadership is most often a combination of providing direction and listening.

OTHER WORK EXPERIENCE: I have had private sector engineering experience in site development, road layout, culvert design, drainage systems, water distribution systems, and wastewater management. I have volunteered for Habitat for Humanity both in West Virginia and in Texas. Since 2007, I have organized and led a religious NGO that constructed and disseminated simple drip irrigation kits to farmers in the developing world. This effort has distributed over 1500 kits. I have also provided technical planning, design and construction oversight for the irrigation and water supply in local community gardens including Refugee Services of Texas and Tarrant Area Food Bank.

I have served as vice president of the North Texas Chapter of Engineers Without Borders and have served as the coeditor of the technical publication board for the national chapter of EWB-USA. As a technical mentor lead with EWB, I have led teams on over 20 different trips to perform a variety of water supply and treatment, irrigation and general infrastructure work in Belize, Rwanda, Nicaragua, Mexico, Cost Rica, Honduras, Guatemala and Bolivia. I have also served on the board of an NGO called *Long Way Home*, centered in Guatemala. This organization focuses on school construction and promoting educational opportunities. I have also served on the board (vice president) of the NGO titled *International Fountain of Hope* (later name changed to *INTUBA*) which works on irrigation and water supply efforts in southern Africa. Finally, I am an active member of the *North Texas Renewable Energy Group (NTREG)* with a focus on solar power.

WORK EXPERIENCE HISTORY:

2000-Present: NRCS, National Design, Construction, and Soil Mechanics Center, Stream Mechanics Civil Engineer, Fort Worth, TX

1996-2000: Hydraulic Engineer, U.S. Army Corps of Engineers, Baltimore District. Baltimore MD

1999 (March)–1999 (May): Research Civil Engineer, Detail to the Environmental Laboratory, U.S. Army Corps of Engineers Waterways Experiment Station. Vicksburg, MS

1992-1996: Hydraulic Engineer, U.S. Army Corps of Engineers, Huntington District. Huntington, WV

1989-1992: Teaching and Research Assistant, Dept. of Civil Engineering, VPI&SU. Blacksburg, VA

1988-1989: Engineer and Part time surveyor (party chief) with Rainey Engineering, Christiansburg, VA

1987: Civil Engineer Technician at AES Engineering, Williamsburg, VA

1986-1987: Surveyor (instrument man) at AES Engineering, Williamsburg, VA (Full time, 40 hours/week,

1981-1985: Carpenter, plumber, electrician, site foreman. I have been involved with all phases of Residential construction. Williamsburg, VA; Newport News, VA; and Avon, NC

EDUCATION:

- **Post Graduate Course Work and Research** in pursuant of PhD program in hydraulics, 1991-1992 VPI & SU, Blacksburg, Va.
- **Master of Science, Civil Engineering**, June 1991. VPI & SU, Blacksburg, Va. Thesis Title: *Adhesive Areal Sampling of Gravel Bed Streams*
- **Bachelor of Science, Civil Engineering**, August 1989. VPI & SU, Blacksburg, Va.

PROFESSIONAL SOCIETIES AND REGISTRATIONS:

- Registered Professional Engineer – Virginia. License Number 0402026654 Initial certification date 1996-01-30
- Tau Beta Pi and Chi Epsilon honor societies
- Membership in ASCE, AGU, ASTM
- Member (invitational) ADTI – Acid Drainage Technology Initiative – coal mining sector

SELECTED AWARDS/HONORS/ACTIVITIES:

- 2016 USDA Federal Engineer of the Year, National Society of Professional Engineers
- 2016 USDA Abraham Lincoln Honor Award
- 2013 USDA Honor Award. Presented by US Foreign Agricultural Service for recognition as the Outstanding Cross-Agency Team for assistance provided to the Office of Agricultural Affairs in Pakistan
- 2007-2008 North Texas Engineers Without Borders Vice President
- 2005 Richard S. Ladd Standards Development Award. Presented by ASTM International, Committee D18 on Soil and Rock for D6939 "Standard Practice for Brush Mattressing"
- 2000 Partnership Award. Presented by Coastal America –A Partnership for Action for the Little Falls Fishway Project.
- 2000 Golden Sextant, Presented by the US Army Corps of Engineer Baltimore District Engineering Division

SELECTED TRAINING EXPERIENCE I have developed instructional material and been an instructor in the following classes:

- Application of Hydrologic Models in Water Resources Planning (NRCS – U.S.)
- New Professional Engineers, Geologists, and Landscape Architects (NPEGLA) (NRCS – U.S.)
- Watershed Planning (USAID/NRCS- Pakistan)
- Solar Power – Solar Powered High Efficiency Irrigation Pumping Systems (USAID/NRCS- Pakistan)
- Introduction to Hydrologic and Hydraulic Computer Models (NRCS-US)
- Small Water Storage Ponds (USAID/NRCS - Pakistan)
- Build a Solar Lunch Box (NTREG – USA)
- Mission Workshop – Solar Power in the Developing World (U.S.)
- Mission Workshop – Water Assessment and Planning in the Developing World (U.S.)
- Basic and Advanced HECRAS (NRCS – U.S.)
- Watershed Management, Bioengineering, and Disaster Risk Reduction (USFS/NRCS – Republic of Georgia)
- Riparian Ecology Restoration and Management (NRCS – U.S.)
- Stream Corridor Restoration (NRCS – U.S.)
- Construction Inspection (NRCS – U.S.)
- Soil Bioengineering (NRCS – U.S. and NRCS/USAID - Nicaragua)
- Advanced Hydrologic Modeling (NRCS – U.S.)
- Interdisciplinary Training for Ecosystem Restoration (USACE – U.S.)
- Watershed Assessment, Management and Rehabilitation (NRCS/USAID – Afghanistan)
- Soil and Water Conservation (NRCS/USAID – Afghanistan)
- Small Scale Projects to Rehabilitate Degraded Watersheds and Provide Local Employment (NRCS/FAS/USACE – Afghanistan)
- Land Surveyor Refresher and Professional Exam Review (Va. Tech – U.S.)

I have also taught numerous seminars and workshops at professional conferences, Universities, and for local organizations. Topics range from water testing to environmental restoration.

SELECTED TECHNICAL PUBLICATIONS

Technical Guidance Documents:

Fripp and Visser (2019). **Articulated Concrete Block Armored Spillways**. USDA/NRCS National Engineering Handbook (NEH) Part 628, Ch 54

Randle, Kimbrel, Collins, Boyd, Jonas, Vermeeren, Eidson, Cooper, Shelley, Juracek, Fripp, Altinakar, Hotchkiss, Kondolf, Nelson, and Tullos (2018), **Reservoir Sediment Management: Building a Legacy of Sustainable Water Storage Reservoirs**. National Reservoir Sedimentation and Sustainability Team

Randle, Kimbrel, Collins, Boyd, Jonas, Vermeeren, Eidson, Cooper, Shelley, Juracek, Fripp, Altinakar, Hotchkiss, Kondolf, Nelson (2017) **Frequently Asked Questions about Reservoir Sedimentation and Sustainability**. Subcommittee on Sedimentation, National Reservoir Sedimentation and Sustainability Team

Saleem, Ashraf and Fripp (2015). **Solar Powered Pumping Systems for High Efficiency Irrigation: A Design Manual for Practitioners** (printed in English and Urdu). Pakistan Agricultural Research Council and International Center for Agriculture Research in Dry Areas (ICARDA)

Fatima, Ashraf, and Fripp (2015). **Drip Bucket Irrigation System for Small Scale Agriculture**. (printed in English and Urdu). Pakistan Agricultural Research Council and International Center for Agriculture Research in Dry Areas (ICARDA)

Fripp and Hernandez (2015). **Introduction to Stream Bank Stabilization – Field Guide for the Philippines**. B+WISER offices in Manila and in Legazpi City

Fripp and Douglas (2014). **A Guide for Design and Layout of Vegetated Wave Protection for Earthen Embankments and Shorelines**. Technical Release 56. USDA/NRCS 210–VI–TR–56, April 2014

Fripp, Todea, Visser, Vu and Weber (2014). **Stream Reaches and Hydrologic Units**. USDA/NRCS National Engineering Handbook (NEH) 210-VI-Part 630 Chapter 6

Fripp, Visser, Vu and Weber (2014). **Streamflow Data**. USDA/NRCS National Engineering Handbook (NEH) 210-VI-Part 630 Chapter 5

Buskmiller, Bentley, and Fripp (2014). **Electrical Infrastructure in Remote Areas: A Review of Potential Threats to Safety and Sustainability**, EWB-USA TP 102

Fripp, Vu and Cruz (2014). **Concrete Construction: Field Techniques for Use in the Developing World**. EWB-USA TP 103

Fripp J. Gordon, B., Meyers, J. and Mtvarelidze, T (2012). **Introduction to Watershed Protection** (printed in English and Georgian). Field Guide prepared as part of training provided by the United States Department of Agriculture in Tbilisi, Republic of Georgia.

Fripp, J., Weber, R., Wells, G., Myszka, R., Robinson, K., Bernard, J., Hoag, C., and Boyer, K. (2012). **Stream Restoration Planning and Design – Fluvial System Stabilization and Restoration**, USDA/NRCS

Fripp, J., and Weber, R., (2010) **Understanding Fluvial Systems – Streams, Floodplains, and Wetlands**, USDA/NRCS Hydrology Technical Note 4

Fripp, J., Hoag, C, and Moody, T (2008) **Streambank Soil Bioengineering: A Proposed Refinement of the Definition**, USDA/PMC Riparian/Wetland Project Information Series No. 23

Bernard, J., Fripp, J., and Robinson, K. (editors) (2007), **Stream Restoration Design**. USDA/NRCS National Engineering Handbook (NEH) 210-VI-Part 654

Copeland, McComas, Thorne, Soar, Jonas, and Fripp, 2001, **Hydraulic Design of Stream Restoration Projects**, , ERDC/CHL TR-01-28 USACE WES, Vicksburg, MS. 2001.

Fripp, J., Fischenich, J.C., and Biedenbarn, D., 1999. **The Design and Function of Stone Weirs in Stream Restoration**, TN SR-99, USACE WES, Vicksburg, MS. 1999.

Fripp, J., Ziemkiewicz, P. F., and Charkavorki, H., 1999. **Acid Mine Drainage Treatment – An Overview**, TN SR-99, USACE WES, Vicksburg, MS. 1999

Journals:

Sholtes, Ubing, Randle, Fripp, Cenderelli and Baird. ***“Managing Infrastructure in the Stream Environment”*** Journal of the American Water Resources Association, December 2018

Fripp, Alexander, Canclini, Brooks, and Fripp. ***“Water Quality and Infant Nutrition: Implications for Public Health Practice in Developing Countries.”*** Maternal and Child Health Care Journal submitted 2017

Fripp, J.B. and Diplas, P. ***“Surface Sampling in Gravel Bed Streams”***. Journal of Hydraulic Engineering, ASCE. April 1993.

Diplas, P. and Fripp, J.B. ***“Properties of Various Sediment Sampling Procedures”***. Journal of Hydraulic Engineering, ASCE. July 1992.

Selected Conference Papers:

Fripp, Brown, Randle (2017), ***“What a Mess! Sedimentation Issues in Reservoirs.”*** 2017 ASABE Annual meeting in Spokane WA

Stellbauer, Gonzalez, Simmons and Fripp (2015) ***“Demonstrating and Disseminating the Best Practices and Technologies for Watershed Rehabilitation to Help Rural Farmers: A Case Study in Pakistan”***. 2015 ASABE Annual meeting in New Orleans, LA

Alexander, Canclini, Fripp, Brooks, and Fripp (2015). ***“Public Health Simulation: Collaborative Water Quality Assessment”***, 2015 Annual meeting, Chicago. American Public Health Association

Fripp, W., M. Hanna, K. Filep and J. Fripp. (2013). ***“A Collaboration of Statistics and Engineers Without Borders: Health and Water Survey in Belize”***. In *JSM Proceedings*, Statistical Computing Section. Alexandria, VA: American Statistical Association

Fripp, J., Robinson, K. , and Bernard, J (2004) ***“Design Discharges”***. Presented at the ASAE Self Sustaining Solutions for Streams, Wetlands, and Watersheds Conference held in St Paul, MN, Sept. 12-15, 2004

Fripp, J.B., Copeland, R.R; and Jonas, M.:(2001) ***“An Overview of the USACE Stream Restoration Guidelines”***. Presented at the Seventh Federal Interagency Sedimentation Conference, Reno, Nevada, March 2001.

Fripp, J.B.; Stiles, J. M.; and Ziemkiewicz, P.F. (2000); ***“Advanced Planning Tools for Optimization of AMD Treatment”***; Invited speaker. Presented at the 21st WV Surface Mine Drainage Task Force Symposium, April 2000, Morgantown, WV

- Nielson, G. and Fripp, J.B. **"Case Study: Dents Run Acid Mine Drainage"**. (2000) Presented at the Abandoned Mine Land Remediation Workshop, November 2000, St. Louis, MO
- Soar, P.,J., Thorne, C. R., Fripp, J.B., and Copeland, R.R.; (1999) **"Dominant Discharge For River Restoration Design"**; Presented at the ASCE Water Resources Engineering Division Conference, Seattle Washington.
- Spaur, C; Fripp, J.B., Bistany, M; and Flanagan, L; (1999) **"Watershed Restoration: Setting Objectives with a Consideration of Restoration 'Need' - an Essay of Modest Proportions"**; Presented at the ASCE Water Resources Engineering Division Conference, Seattle Washington.
- Fripp, J.B.; Burns, M.; Cavalry, J.S.; (1998) **"Stream Stability Assessment Techniques"**. Presented at ASCE Wetlands Engineering and River Restoration Conference, Denver, CO.
- Fripp, J.B.; O'Neil, J.; Goldsmith, W; (1998) **"Do Ecologists and Engineers Have Differing Views of Stream Restoration?"**. Results of Panel Discussion moderated by authors at the ASCE Wetlands Engineering and River Restoration Conference, Denver, CO, March 1998.
- Halstead, K.C.; Fripp, J.B.; Bhamidipaty, S. (1996) **"Dam Safety Assurance Study of Piedmont Dam"**. Presented at the 1996 Annual Meeting of the American Institute of Hydrology, Boston, Massachusetts, April 1996.
- Fripp, J.B.; Webb, J.W.; Bhamidipaty, S. (1996) **"Application of Corps Sedimentation Computer Models"**. Presented at the Sixth Federal Interagency Sedimentation Conference, Las Vegas, Nevada,
- Fripp, J.B., and Miller, C.W (1994). **"Hydraulic Design of On-Site Mitigation Ponds, R.C. Byrd L&D"**. Presented at the Ohio River Division, Engineering Division Hydrology and Hydraulics Symposium, Lexington KY
- Fripp, J.B., and Halstead, K.C.(1994) **"UNET Model Applications - Piedmont Lake Dam Safety Assurance Study"**. Presented at the Ohio River Division, Engineering Division Hydrology and Hydraulics Symposium, Lexington KY
- Fripp, J.B.; Halstead, K.C.; and Bhamidipaty, S.(1994) **"Hocking River Sedimentation Study"**. Presented at the ASCE Hydraulics Division 1994 National Conference on Hydraulic Engineering, Buffalo NY
- Fripp, J.B. and Diplas, P. (1992) **"Surface Sampling Dry and Underwater Sediment in Gravel Bed Streams"**. Presented at the ASCE Water Forum '92 (Hydraulics Session), Baltimore, Maryland

Other Publications

- Fripp, J. and Wilson, C. (2011). **A Contemporary Christian Discussion - the Abrahamic Faiths, Poverty, and the Scary Stuff in the Bible**. RCCC Publications. Texas, ISBN-13: 9781475098235
- Fripp, A., Fripp, J., and Fripp, M, (2003) **Just-In-Time Math for Engineers**, Newness Press (imprint of Elsevier Science) Burlington MA, ISBN 0-7506-7535-7
- Fripp, J., Fripp, V., Fripp, J. (2001), **Secret of the Sand**, Bicast Publishing, Williamsburg, Va., ISBN 9780970100825
- Fripp, J., Fripp, V., Fripp, J. (2000), **Thunder and the Pirates**, Bicast Publishing, Williamsburg, Va., ISBN 9780970100894

Frupp, J., Frupp, M. Frupp, D., (2000) **Speaking of Science**, LLH Technology Publishing, Eagle Rock Va, ISBN 1-878707-51-5

Frupp, J., Frupp, V., Frupp, J. (2000), **Kinnakeet and the Lighthouse**, Bicast Publishing, Williamsburg, Va., ISBN 978-0963825841

INTERNATIONAL DEVELOPMENT EXPERIENCE: I have traveled to multiple countries as part of my professional job as well as a volunteer with different NGO organizations. Work has primarily involved engineering activities on a short-term basis. Below is a summary of these activities, countries listed alphabetically, then by date.

Afghanistan

- **2004** - TDY as USDA-NRCS employee and engineering representative where I developed and provided a workshop on soil conservation practices and water development. Efforts were focused on capacity building for the ACC (Afghan Conservation Corps). Demonstration projects in spring development and check dams were planned, designed and constructed as part of this trip.
- **2005** - TDY as USDA-NRCS employee and engineering representative to provide capacity-strengthening training to Afghan Government institutions. I provided technical support and training to selected personnel of the Afghan Forestry and Range Department of the Ministry of Agriculture in basic soil and water conservation watershed planning. The scope of work for this effort included the following objectives:
 - To develop in relevant ministry staff a basic understanding of a watershed, how it functions and how it relates to human activities.
 - To develop in relevant ministry staff a basic understanding of impairments and management problems within a watershed.
 - To develop in relevant ministry staff a basic understanding of measures to address watershed impairments and management problems.
 - To develop in relevant ministry staff a basic understanding of decisions that should be made in watershed rehabilitation.
- **2006** – TDY as USDA-NRCS employee and engineering representative as part of a larger technical assistance mission to provide capacity-strengthening training to Afghan Government institutions. I provided technical support and training to provincial personnel and selected Kabul-based personnel from the Afghan Forestry and Range Department of the Ministry of Agriculture. Technical topics that were addressed during this training included:
 - Watershed issues and functions (including basic soil and water resources, hydrologic cycle; river basin and watershed delineations)
 - Measures to reduce loss of vegetation and to reestablish vegetation in areas where it has been lost (including range management, grazing management, vegetation establishment in dry areas, seeding, riparian buffers, and irrigation)
 - Measures to control and reduce soil erosion (including hillside ditches, check dams, soil bioengineering, riprap design, stream deflectors, windbreaks)
 - Measures to increase available water potable water (including spring developments, cisterns and rain harvesters, filtration techniques, as well as discussion of the water savings and other advantages of using drip and micro sprinkler irrigation over the traditional flood irrigation).Several irrigation systems (drip bucket, conventional drip, and micro sprinklers) were

installed as demonstrations during this trip.

- **2007** – TDY assignment as USDA-NRCS employee and engineering representative in support of the work plan titled “Improving Propagation of Afghan Tree Species at Paghman Nursery and Regional Nurseries” led by the USDA Forest Service. This work plan is part of a larger technical assistance mission to provide capacity-strengthening training to Afghan Government institutions. My responsibilities on this trip included the following:
 - Follow up on previously delivered training from 2004, 2005, and 2006. Evaluate demonstration and sustainability of work undertaken as result of previous training.
 - Provide engineering assistance in the development of conceptual and final design for improving irrigation at Paghman nursery.
 - Design and install small scale project level irrigation systems. I also provided training and other materials to facilitate education efforts by the ACC and DFR personnel to other areas in Afghanistan.
- **2008** - TDY assignment as USDA-NRCS employee and engineering representative to assist with conducting a “Forestry Partners Workshop” on behalf of USAID Afghanistan's Alternative Development and Agriculture Office (ADAG), in Kabul, Afghanistan. This effort is in support of the Participating Agency Service Agreement (PASA) component, “Biodiversity Conservation and Natural Resource Management” with USAID/Afghanistan. It is part of a larger technical assistance mission to provide capacity-strengthening training to Afghan government institutions.
- **2009a** - TDY assignment as USDA-NRCS employee and engineering representative to assist with a follow up to the 2008 “Forestry Partners Workshop” on behalf of USAID Afghanistan's Alternative Development and Agriculture Office (ADAG), in Kabul, Afghanistan. This effort included more of an economic focus for Afghan government institutions.
- **2009b** – TDY assignment as USDA-NRCS employee and engineering representative to develop and conduct a U.S. Army Corps of Engineers (USACE) funded workshop on watershed management in Khost, Afghanistan. This workshop was titled “Small Scale Projects to Rehabilitate Degraded Watersheds and Provide Local Improvement’. The purpose of the workshop is largely described in its long title. Overall, the workshop presented a variety of basic soil and water conservation and irrigation techniques that are useful in the rehabilitation of degraded watersheds. Training included hands-on exercises. A secondary benefit was that several informal consultations and contacts that were facilitated between USG and the UNOPS officials.
- **2010** - TDY assignment as USDA-NRCS employee and engineering representative to provide assistance to the Ministry of Agriculture, Irrigation and Livestock (MAIL) in the preparation and refinement of strategies for the Kabul Donors Conference. This conference brought together representatives of more than 70 partner countries, international and regional organizations and financial institutions to deliberate and endorse an Afghan Government-led plan for improved development, governance, and stability. This conference was opened by H.E. President Hamid Karzai, and UN Secretary General Ban Ki-Moon, and co-chaired by Foreign Minister Rassoul and UN Special Representative Staffan de Mistura. I was stationed in the MAIL offices for the duration of this TDY. I provided assistance to this effort under the specific instructions of Senior

Advisor to the Agricultural Minister, Ms. Alison Rhind. This included the development of the following two documents:

- Establishment of a National Water and Natural Resources Database - Working Group Concept Note for Chapter 6. This document addresses the general program for the establishment, development and maintenance of a water resources database.
- Capacity Development - Working Group Concept Note for Chapter 5. This document describes a general framework to increase technical and organization capacity in MAIL, Ministry of Rural Reconstruction and Development (MRRD) and Ministry of Energy and Water (MEW) to develop, implement and manage water sector projects; a part of the Afghanistan National Development Strategy, Agriculture and Rural Development Cluster, Bankable Program One, Component A: National Water Resource and Irrigation.

The detail, format, and coverage of these two documents were coordinated closely with Irrigation Advisor Mr. Pieter Jan Zijlstra. Additional assistance was also requested and provided to Mr. Abdul Ghani Ghuriani, Deputy Minister MAIL including:

- Memorandum titled *Recommendations for development of process to implement 100-day action plan projects*.
- “*NRM Action Plan Table and Tracking tool*”. This spreadsheet-based tracking tool is a companion document to the above memorandum. It presents a stepwise sequence of project specific tasks that must be developed to develop a successful project.

Finally, I consulted with Ms. Victoria Wilson (USDA/FAS/FMET) and, on her direction, completed the following proposals:

- *NRCS Proposal for Rehabilitation of Watersheds and Improvement of Irrigation Infrastructure in Afghanistan*. This \$15 million proposal was initially prepared and provided by USDA/NRCS and USDA/FAS/OCBD on 2 June 2010 to FAS/FMET.
- *NRCS Proposal for Building the Institutional Capacity of the Afghanistan Ministry of Agriculture, Irrigation, and Livestock*. This \$2.5 million proposal was initially prepared and provided by USDA/NRCS and USDA/FAS/OCBD on 1 June 2010 to FAS/FMET.
- **2011** - TDY assignment as USDA-NRCS employee and engineering representative to develop and conduct a workshop for U.S military personnel on watershed rehabilitation, water conservation, soil conservation and irrigation. Also consulted with several USG personnel as well as cooperating NGOs on scope development and refinement of the proposals discussed in the 2010 TDY detail.

Belize

- **2012** – As a volunteer with Engineers Without Borders, I led a team (as technical mentor) which conducted a water quality assessment and conducted planning work for infrastructure in an urban slum area. Road assessments and electrical surveys were performed. Dangerous pathogen vectors were identified, and work led to changes in municipal water treatment and delivery to the area.
- **2013** – As a follow up effort to the 2012 trip, I led an Engineers Without Borders team (as technical mentor) to the same area. Additional water and health measurements were conducted. Coordination with Belize Health Department and local governmental officials were made to help facilitate further improvements. The team conducted training for water filtration at point of use for local residents and water quality testing for health department officials. I led a geotechnical analysis to assess possible implementation of sand mound-

based sewage treatment. Finally, road design and drainage design assistance were provided.

Bolivia

- **2006** – As a volunteer with Engineers Without Borders, I co-led a team (as co- technical mentor) that provided planning and design assistance for irrigation, water supply and compost sewage treatment system and a rural school. During the trip, the team completed the installation of a diesel-electric well and installed a drip irrigation system. Additional efforts while in the United States led to further development and implementation of household scale drip irrigation systems and associated training. Follow on work from the United States led to the construction of a computer lab for the school.

Costa Rica

- **2009**– As a volunteer with Engineers Without Borders, I led a team (as technical mentor) that conducted planning and design analysis for a school site. This included an electrical load survey, soils analysis and surveying. Meetings with local authorities and school officials were conducted. A secondary result was to provide training in the implementation, management and maintenance of a household irrigation system.
- **2010**– As a follow up to the 2009 trip, I led an Engineers Without Borders team (as technical mentor) to oversee the construction of a school. This school included septic system and the structure was designed to be seismically resistant.

Doha

- **2010**- I was selected by the United States Secretary of Agriculture to be a member and technical expert on the **U.S.-Afghanistan-Pakistan Trilateral Initiative's Watershed Rehabilitation and Irrigation Technologies Work Group** as USDA engineering representative. This TDY was the inaugural meeting of this effort. The focus of this effort is on:
 - Efficient use and conservation of water for agriculture,
 - Soil and water conservation practices, and
 - Demonstration projects and capacity building (on farm work). Practices and techniques selected are typically low tech but applicable to the small farms and communities in the Afghanistan and Pakistan border areas.

Guatemala

- **2010** - As a volunteer with Engineers Without Borders, I co-led a team (as technical co-mentor) that evaluated water quality and quantity issues in a rural village. My efforts included the demonstration and implementation of a basic drip irrigation system, water quality and quantity testing and measurement, and structural assessment of retaining wall.
- **2012** - As a follow up to the 2009 trip, I co-led an Engineers Without Borders team (as technical co-mentor) to oversee the construction of a spring developments, water storage and water delivery system.

Honduras

- **2008** – I participated with a church-based NGO on a trip which included survey efforts for a medical clinic. Soils and drainage analysis were conducted as well as a structural assessment of existing buildings. Planning and design assistance was provided for well and

pump systems as well as testing for water quality issues. Finally, I conducted a short workshop on basic drip irrigation.

Mexico

- **2007** – I participated with a church-based NGO effort in the evaluation of the infrastructure and support for an orphanage and school. Work included water analysis, structural analysis, and electrical survey.
- **2008a** - Short term TDY as USDA-NRCS employee on the **Bi-National** (United States and Mexico) **Borderlands Ecological Restoration Program**. Work included consultation with technical experts on technical topics that included but were not limited to plant materials, Plant Materials Center operations, planting techniques, range management, soils, engineering design, irrigation, water shed planning, stream restoration, sediment issues and geomorphology.
- **2008b** - As a volunteer with Engineers Without Borders, I co-led a team (as technical mentor) that evaluated water quality and supply for a rural community. Water quality samples and a water survey were conducted. We also installed three test wells.
- **2008c** - As a volunteer with Engineers Without Borders, I led a team (as technical mentor) that conducted the site evaluation for a school expansion. This work included material analysis, soils, and an electrical survey. Water and sewage infrastructure were assessed.
- **2009** – As a follow up to the 2008c effort, I led an Engineers Without Borders team (as technical mentor) that constructed a school expansion. This building made use of structural stucco placed over a foam core to provide better insulation.

Nicaragua

- **1999** - Short term TDY for Hurricane Mitch recovery efforts while employed by the U.S. Army Corps of Engineers. Work included scope development and watershed assessment
- **2001** – Three TDY trips for Hurricane Mitch recovery while employed by the USDA-NRCS. During these trips I taught two soil bioengineering classes, implemented several bioengineering projects, reviewed plans, and performed construction oversight. I also provided design and consultation on irrigation, soil stabilization, flood control, and road drainage issues.
- **2014** - As a volunteer with Engineers Without Borders, I co-led a team (as technical co-mentor) that evaluated water quality and quantity issues in a rural village. This work included health assessments, water quality and quantity analysis, and infrastructure assessment.
- **2015 -2018** – As a volunteer with Engineers Without Borders, I co-led a four teams (as technical co-mentor) that continued the evaluation of water quality and quantity issues in a rural village. Work on the trip including the following:
 - Demonstrating and testing a chlorine production unit (electrolysis based)
 - Assessment and design of sewage latrine systems
 - Installation of two proof of concept solar power lighting units.
 - Installation of five solar based chlorine production units for community use
 - Training in use of chlorine production and use
 - Evaluation and repair of solar units
 - Evaluation and repair of ceramic based water filtration
 - Water quality assessment off well and spring water

- Site evaluations for groundwater well

Pakistan

- **2010** –TDY as USDA engineering representative on the **U.S.-Afghanistan-Pakistan Trilateral Initiative's Watershed Rehabilitation and Irrigation Technologies Work Group**. This trip included a study tour of irrigation and water control technologies and practices used in Pakistan. The workgroup used this information to further refine scope and objectives.
- **2011-** TDY as USDA engineering representative on the **U.S.-Afghanistan-Pakistan Trilateral Initiative's Watershed Rehabilitation and Irrigation Technologies Work Group**. The focus of this trip was to meet with Pakistan partners on the implementation of Trilateral watershed and irrigation demonstration activities and to agree on selected practices and technologies.
- **2012 –2016** Four short term TDY as USDA engineering representative in support of project effort titled: **Watershed Rehabilitation and Irrigation Improvement in Pakistan: Demonstrating and Disseminating the Best Practices and Technologies to Help Rural Farmers**. The overall goal of the project is to promote sustainable agricultural production, higher incomes and improved livelihoods of rural communities in irrigated and rain fed areas through better management of land and water resources. The goal is to demonstrate and disseminate practices and technologies that can help farmers to more efficiently capture, store, and use water for irrigation, and reduce loss of water and soil. The objectives of the project are:
 - Demonstrate selected irrigation and soil/water conservation practices and technologies in Pakistan
 - Disseminate within Pakistan information on selected practices and technologies
 - Share and compare information and findings on selected practices and technologies with Afghanistan and
 - Identify and fill in key knowledge gaps on selected practices and technologies.

Work on this trip included evaluation of progress by various entities. A site evaluation of water capture dam was conducted, and I provided specific recommendations for improvements. I also provided workshops in irrigation, solar pumping, pond/lake design, and HECRAS. Design oversight and review was provided for projects. Work resulted in over 50 demonstration sites. Based on analysis provided, the GOP has provided funding for high efficiency solar irrigation on 30,000 sites.
- **2013 – 2018-** Nine short term TDY as USDA engineering representative in support of the **U.S. – Pakistan Strategic Dialogue on Water**. As the technical participant with this effort, I collaborated with Pakistani counterparts in an effort to increase water-use efficiency and water capture for agriculture. Work included scoping and program planning. Specific design assistance provided. Work included scoping and program planning. Specific design assistance provided. Classes and workshops were provided in:
 - Small Pond Design
 - Solar Power Pumping
 - Drip Irrigation
 - HECRAS flood modeling
 - Water Testing and Treatment
 - Soil Conservation Planning

Philippines

- **2015** – Short Term TDY with US Forest Service (USFS) as the USDA engineering representative. This project was designed by USAID in collaboration with the Department of Environment and Natural Resources, B+WISER (Biodiversity and Watersheds Improved for Stronger Economy and Ecosystem Resilience Program). It works to build capacity to manage forest areas at the national and sub-national levels and plans to contribute to disaster risk reduction programs. The project goals are to conserve biodiversity in forest areas and reduce forest degradation in priority watersheds. Tasks include program consultation and providing a six-day training with a focus on learning stream bank restoration techniques through directed implementation. Water quality testing and analysis instruction was also provided.

Republic of Georgia

- **2012** – Short term TDY with US Forest Service (USFS) as the USDA engineering representative. My work was in cooperation with the Caucasus Environmental NGO Network and included the delivery of a workshop and consultation to government agencies on reforestation, forest road construction, watershed protection, and mitigation of erosion-related natural disasters such as landslides and floods.
- **2014** - TDY assignment as USDA-NRCS employee and engineering representative to develop and deliver the Caucasus Environmental NGO Network (CENN), conducted a five-day training titled: **Disaster Risk Reduction ~ Contemporary Practices in Watershed Management and Protection Workshop** in Kazbegi, Georgia. This training was done in support of the project on Climate Change Adaptation and Disaster Mitigation (CCADM) funded by USAID that is being implemented by CENN.

Turkey

- **2010** – TDY assignment as USDA-NRCS employee and engineering representative where I participated in a meeting as the USDA engineering representative on **U.S.-Afghanistan-Pakistan Trilateral Initiative's Watershed Rehabilitation and Irrigation Technologies Work Group**. This trip included a meeting of all major participants and refinement of scope and objectives.