

**Vincent W. Uhl**  
**Water Resources and Environmental Consultant**  
**UHL & Associates, Inc.**

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**Certified Professional Geologist - AIPG No. 6519**  
**Certified Professional Hydrogeologist - AIH No. 389**

MS Hydrogeology, University of Arizona, 1976  
MS Agricultural Engineering, Oklahoma State University, 1970  
BS Mechanical Engineering, University of Notre Dame, 1966

### **SPECIALTIES**

#### **WATER RESOURCES DEVELOPMENT, PLANNING AND MANAGEMENT**

- **Regional and country-wide water resources institutional and policy analysis.**
- **Groundwater sustainability analysis at local, regional and countrywide level.**
- **Integrated Water Resources Management (IWRM).**
- **International Water Resources assessment, development, planning, management and protection.**
- **Watershed/River Basin sustainability evaluation, management, protection and planning.**
- **Water Quality monitoring program design, and coordination; assessment of impacts to water systems and remedial measures.**
- **Agricultural irrigation and watershed protection.**
- **Groundwater – surface water interaction and streamflow depletion analysis.**
- **Innovative applications including artificial recharge, horizontal collector wells and aquifer storage recovery (ASR).**
- **Modeling of groundwater systems.**

#### **ENVIRONMENTAL EVALUATION, PROTECTION AND REMEDIATION**

- **Industrial facility environmental assessments and remediation.**
- **Remediation applications, evaluation and costing.**
- **Water Quality monitoring program design, and implementation.**
- **Risk analysis, impact assessment, fate and transport evaluation and modeling for heavy metal and organic pollutants.**
- **Regulation analysis and preparation.**
- **Regulatory interface and environmental policy.**

**PROJECT MANAGEMENT**

- **Financial, technical and personnel management.**
- **Capacity building, training program development.**
- **Strategic planning and project development**
- **New project conceptualization, planning, funding, staffing and initiation.**
- **Proposal writer, fund raiser, international business development.**
- **Project review specialist; report preparation, editing, communications.**

**EMPLOYMENT HISTORY**

<b>UHL &amp; Associates, Inc.</b>	1991 to Present
<b>Geraghty &amp; Miller, Inc.</b>	Vice President, 1984 to 1990
<b>Malcolm Pirnie, Inc.</b>	Manager Hydrogeology Group, 1982 to 1984
<b>Geraghty &amp; Miller, Inc.</b>	Senior Hydrogeologist, 1977 to 1982
<b>Water Development Project, India.</b>	Project Manager and Advisor, 1970 to 1977
<b>Peace Corps Volunteer, India.</b>	1966 to 1968
<b>WorldWater &amp; Solar Corporation:</b>	Member of the Board of Advisors
<b>Philadelphia Global Water Initiative:</b>	Founding Member and Board Member

**COUNTRY EXPERIENCE:**

<b>Asia:</b>	<b>Afghanistan, Bangladesh, Jordan, Lebanon, India, Sri Lanka, Pakistan, Saudi Arabia, Malaysia, and the Philippines.</b>
<b>Africa:</b>	<b>Angola, Botswana, Cameroon, Djibouti, Ethiopia, Liberia, Senegal, Somaliland, Somalia, Mozambique, South Africa, and Nigeria.</b>
<b>Caribbean:</b>	<b>Guatemala, Haiti and St. Croix.</b>
<b>South America:</b>	<b>Ecuador</b>

**PROFESSIONAL PROFILE**

Mr. Uhl began his career in water supply development and management in Central India where he initiated a water development project for the Lutheran Church at the age of 25. This project evolved into an organization with over 50 employees and provided a full service approach to water supply development from the siting of production wells utilizing geophysics and remote sensing applications to well repairs and drinking water quality evaluation. The project installed over 3,000 wells in the hard rock regions of central and southern India and provided a training ground for other projects in the region including UNICEF - WES.

Since that time, Mr. Uhl has specialized in the exploration, development, protection and management of water resources for public, industrial and agricultural uses and in the investigation and remediation of soil, groundwater, and surface water contamination incidence. He has investigated and characterized hundreds of industrial sites, large municipal landfills,

interstate petroleum and gas pipelines and formulated monitoring and remedial strategies with regulatory authorities. While with Geraghty & Miller, Inc. he led a 2-year project that culminated in the preparation of the Underground Injection Control (UIC) regulations for the United States Environmental Protection Agency.

At Malcolm Pirnie, Inc., an international civil engineering firm, he managed the firm's Groundwater Group. In 1984, he opened and managed a New Jersey office for Geraghty & Miller, Inc., a highly respected groundwater and environmental engineering consulting firm. In 1991, he started his own consulting practice that provides water and environmental consulting to industry, municipalities, international governments, consulting firms and legal clients on all projects with water and/or environmental components. He has worked extensively in the United States, southern and eastern Africa, the Philippines, and India, and in 10 other countries on short-term assignments. He has managed and directed many large water-supply development, management, planning, and protection projects in the United States and abroad.

He has a seasoned, field-based background that is invaluable for detailed analysis of groundwater systems as a basis for sustainability/recharge evaluations and optimal groundwater systems management. Mr. Uhl has taught graduate level courses in Hydrogeology at the University of Maryland, the University of Akola in India, and at the New Jersey Institute of Technology in Newark, New Jersey. He has given many presentations at seminars, international conferences, universities, and for corporate forums.

## **REPRESENTATIVE PROJECTS**

### **Water Supply Development, Planning and Management**

Mr. Uhl has a range of experience in water development that covers the initial phase of project development through final analysis of resource sustainability, development alternatives, and groundwater systems installation and commissioning. He has directed projects over large study areas and in complex hydrologic and hydrogeologic settings. He has particular experience in practical applications including appropriate drilling techniques for unconsolidated and bedrock conditions, test and production well design, test drilling, production well drilling and aquifer testing programs. He has been involved with the design and installation of many hundreds of production wells (up to 1000 meters deep) and aquifer pumping tests in all types of hydrogeologic settings.

He is currently managing water development projects for large groundwater based municipal and industrial utilities and international clients. These projects address basic and complex water issues such as protection, management, new source development and sustainability. He has had the opportunity overseas to work in unexplored areas and in large scale multi-disciplinary water resource evaluation and planning.

## International Projects

**Bangladesh, Asian Development Bank – ADB TA 7820 – Supporting the Khulna Water Supply Project – 2012:** Project Team Leader. The principal purpose of this capacity building technical assistance (TA) was to strengthen KWASA's capacity in advance of the investment from JICA and the ADB to enable KWASA to implement the Khulna Water Supply Project effectively and efficiently. Main components included: a. Updating the 5-year business plan; b. Development of training programs for KWASA staff; c. Input on service connection policy, technical standards for meters, etc.

**Liberia, The World Bank – 2011:** Coordinated and implemented a water point sampling program at 200 water points in the capital city of Monrovia, Liberia. The collected samples were analyzed for bacteriological content (total coliform and E coli) and chemical content. The program is designed to assist the World Bank in developing recommendations for improving impacted water sources.

**Lebanon, USAID - 2010 – Present:** Litani River Basin – Bekaa Valley. Overview of groundwater conditions in the heavily irrigated Bekaa Valley and development of a program to quantify the impacts of irrigation pumpage on water levels in the valley. Formulation of field data collection activities for the development of a groundwater management model and program.

**Guatemala, Engineers without Borders (EWB) – 2010:** Mentored University of Pennsylvania engineering school students (EWB Student Group) in evaluating potential options for a water resources project for implementation.

**Afghanistan, USAID – 2009 - 2010:** Farah Province – Western Afghanistan. Conducted a groundwater assessment of Bakwa District to evaluate irrigation development potential and studied groundwater resources for specific areas of Farah District along the Farah River.

**Catholic Relief Services – 2008 - 2009:** Assisted CRS in the development of a Groundwater Development Manual for use by country offices and projects.

**Afghanistan, USAID – 2007 - 2008:** Provided technical assistance to our partner firm (Basic Afghanistan Services) and Chemonics International for water resource evaluation projects in the northern desert of Afghanistan in Balkh Province. Assisted BAS in an irrigation feasibility assessment project in Northern Afghanistan for Chemonics International and for a village water supply project in Baghlan Province in Northern Afghanistan for ARD.

**Cameroon, Engineers Without Borders (EWB) – 2007 and 2009:** Mentor for University of Pennsylvania engineering school EWB student group for village water supply projects in western Cameroon.

**Jordan, USAID – 2006:** Contracted by Associates in Rural Development (ARD) to provide technical assistance/training in the area of water meter applications, installation, and maintenance for high capacity irrigation wells. The training program was part of a larger United States Agency for International Development (USAID) project being implemented by the ARD to enhance the Water Authority of Jordan's operations to improve the compliance and

monitoring of groundwater resources country-wide. Groundwater provides over 70 percent of the country's water production for drinking, irrigation, institutional, and industrial water supply. Metering of large capacity irrigation wells is considered a vital step in regulating and conserving the groundwater resources for sustainable future supply.

**Sri Lanka, USTDA and WorldWater Corporation – 2005/06:** Retained by WorldWater Corporation to provide hydrogeologic exploration and groundwater supply development services for a pilot village water supply program in Southern Sri Lanka. Analyzed satellite imagery, conducted ground geophysical surveys and installed production wells for selected villages for drinking water supply purposes.

**Afghanistan, USAID – 2003:** Retained by Development Alternatives Inc. /USAID to develop an overall assessment of groundwater conditions in Afghanistan at large and to assess potential river basins where groundwater might be in a state of overdevelopment. Vincent Uhl travelled to several river basins and interviewed/met with relevant governmental departments and NGOs and United Nations organizations. Developed an analysis of recharge to the principal aquifer systems in the 5 major river basins and developed the scope of and elements for an in-depth analysis of river basins where overdevelopment of groundwater is a concern. A technical scope was also developed for river basins where groundwater is underutilized and represents a potential source for future irrigation use.

**Botswana, Southern Africa – Government of Botswana - 1995 to 2004:** Project Team Leader for a two-year regional groundwater exploration project over a 14,000 km<sup>2</sup> study area to identify and assess potable groundwater resources for the Town of Maun on the distal end of the Okavango Delta. A multidisciplinary approach was applied to this large study area to evaluate promising areas for groundwater exploration in a heretofore unexplored region. Most of the study area lies in the Kalahari Desert and a small portion lies within the seasonal swamps of the Okavango Delta. Managed a 30-person multi-disciplinary team from eight countries. The principal technical disciplines for delineation of exploration areas included remote sensing, vegetation analysis, geomorphology, structural geology, surface water hydrology, surface and airborne geophysics, stable and radioactive isotopes, hydrogeochemistry, groundwater and surface water modeling and hydrogeology.

The project included installation of over 60 exploration wells and 50 aquifer pumping tests. It assessed the development potential of six exploration areas which involved groundwater modeling, recharge analysis, assessment of quantities of sustainable recoverable groundwater, and development costs. We developed a strategic plan for phased groundwater development to the year 2030. This was the largest groundwater project conducted for the Government of Botswana Department of Water Affairs. Technical Consultant for the Maun Phase 2 project. Directed a Feasibility Assessment to evaluate applicability of horizontal collector wells for supply to the Town of Maun.

**Philippines, Cebu Province – 1999 – 2001:** Project Team Leader for a six-month project to assess water supply and sanitation conditions and alternatives in 140 barangays (villages) for feasibility study of solar pumping systems application, preliminary design and costing. Managed a 40 person staff and 12 field teams.

**Philippines, Bohol Province – 2001:** Evaluated groundwater development potential for a private utility for ten municipalities in the Province. Developed the elements and costs for an exploration and development program to develop supplies into the 21<sup>st</sup> century for the project area.

**Philippines, Sulu Province – 2000:** Conducted an assessment of groundwater development potential for this island province and prepared a phased water development plan for the Provincial Governor.

**City of Hargeisa, Somaliland – 1998:** Evaluated the water supply system for the capital city of Somaliland at the request of the President. The project included an evaluation of operational production wells, analysis of water level changes, and recommendations for mechanical improvements and future hydrologic data collection and analysis.

**Saudi Arabia – 1980s:** Feasibility study for utilizing groundwater as a source of supply for several communities in Central Saudi Arabia.

**Madhya Pradesh – India – 1970s:** Initiated and directed a rural water-supply development project in Central India that developed groundwater for town, village, agricultural irrigation, industrial and institutional supply. The project evolved into an organization with more than 50 employees and provided services in well siting surveys (primarily geophysics), production well installations, aquifer pumping tests, well and pump maintenance, water-quality studies and groundwater consulting. The project was funded by the Lutheran World Federation and other NGO and governmental organizations including the Canadian International Development Agency (CIDA).

**Union Carbide, Bhopal, India – 1970s:** Conducted geophysical surveys for siting test wells, and implemented a test drilling program to evaluate the potential for utilization of onsite wells for process water.

**City of Bhopal, India – 1970s:** Coordinated and implemented an exploration and water development program for this City with the objective of augmenting the City's water supply sources and to provide water in areas beyond the reach of the existing infrastructure. The project entailed regional exploration, and the installation and testing of 10 production wells.

**Hospital Albert Schweitzer, Haiti – 1999:** Evaluation of the hospital's existing sources of water supply and development of recommendations for more sustainable supply source. Finding and procurement of a cable tool drilling rig for shipment to Haiti for rural water supply wells. Coordinated drilling rig purchase, repairs, and shipment.

## United States

**Morris County Municipal Utilities Authority –** Feasibility assessment of potential to use an underground mine (3,200 feet deep) as a storage reservoir with skimmed surface water as a source of supply.

**City of East Orange, NJ** - Wellfield redevelopment program for a 10 mgd (1,600 m<sup>3</sup>/hr) wellfield, design and installation of four 1 mgd (160 m<sup>3</sup>/hr) production wells, and aquifer management evaluation. Well field protection and sustainability evaluations. Strategic Planning.

**Montville Township MUA, NJ** - Geophysical studies to site test wells, evaluation of recharge and sustainability for the township's main aquifer system, wellhead protection analyses, and aquifer management evaluation. Water quality studies and evaluation of groundwater/surface water interaction. Well redevelopment program(s) management, strategic planning.

**City of Orange, NJ** - Design and installation of 2 mgd replacement production well. Permit preparation. River basin sustainability assessment.

**New Jersey American Water Company, NJ** - Wellfield redevelopment program for a 10 mgd (1,600 m<sup>3</sup>/hr) wellfield.

**Borough of Fairlawn, NJ** - Water-supply development project from exploration through production well installation that resulted in the development of 1 mgd (160 m<sup>3</sup>/hr) from a consolidated bedrock aquifer system. Permit preparation and regulatory interface.

**City of Virginia Beach, VA** - Several groundwater exploration and development projects including feasibility study and field program to assess utilization of brackish groundwater for desalination feed water; installation of deep large capacity production wells (350 m<sup>3</sup>/hr); and assessment of shallow aquifer systems within the City.

**Warminster Heights, PA** - Evaluation of safe sustained yield of bedrock production wells and impact assessment.

**Hoechst Celanese, NJ** - NJDEP groundwater allocation permit for existing and new bedrock production wells involving well installation; aquifer pumping tests, and impact assessment/permit application preparation.

**Great Bear/Perrier, NY** - Spring feasibility assessments, source and catchment area evaluations, recharge assessments, protection planning, and source development for bottled water companies.

### **Environmental Evaluation, Protection and Remediation**

Mr. Uhl has directed and managed a wide spectrum of projects in the environmental arena ranging from policy and regulatory matters to site-specific industrial/landfill evaluations and technical support for litigation matters. He led the project team that developed the United States Environmental Protection Agency's Underground Injection Regulations (UIC). He has worked on more than 30 landfill sites and over 150 industrial facilities of various sizes on a wide range of issues from investigation of the nature/extent of land and groundwater pollution to remedial design and implementation. Investigations were at sites and land areas impacted by organic, heavy metal, PCB, and inorganic pollutants.

He has been involved with regulatory negotiation in regard to remediation and has worked on over 20 sites on the federal Superfund list. He is often requested to provide independent review and analysis of technical work carried out by other consultants. A significant part of his environmental experience has been in the assessment of groundwater flow systems, hydraulics, and remediation of contaminated sites underlain by fractured bedrock aquifer systems.

**Insurance Companies – Eastern United States** – Technical assistance and provision of oversight for gasoline and fuel oil spills. Remedial strategies, impact analysis, and costing.

**Alcoa (Howmet), NJ** - Evaluation of groundwater flow in an area with multiple pumping stresses, contaminant plume delineation (final phase) and development of alternatives for addressing groundwater impacts.

**Big V Supermarkets, Westchester County, NY** – Remedial Investigation/Feasibility Study (RI/FS) - site characterization, remedial system selection, negotiation, design, and implementation at a state Superfund site with solvent contamination underlain by multi-layered glacial and crystalline bedrock aquifer system. Implementation of groundwater remediation.

**Novak Landfill Superfund Site, South Whitehall Township, PA** - RI/FS investigation at a Federal Superfund site underlain by a complex carbonate rock aquifer system.

**Elco Facility, Huntington, PA** - Site characterization, remedy selection and installation/operation of vacuum enhanced recovery system for remediation of VOC plume.

**Williams Gas Pipelines - Transco** - Groundwater sampling programs over eastern United States. Negotiated release from groundwater sampling at several compressor stations. Soil remediation and cleanup at many facilities. Participation in negotiations with the United States EPA and state regulatory bodies.

**Pennsylvania Avenue Landfill, Brooklyn, NY** - Field investigation at a New York City landfill to assess magnitude and extent of a hazardous waste oil contamination problem and evaluate potential remedial/recovery options.

**Rural Utilities Board, Gainesville, FL** - Deep test injection well installation and testing project. The well was drilled to a depth of 3,400 feet.

**Virgin Alumina, St. Croix, Virgin Islands** - Pre-purchase site assessment at a large (2 mi<sup>2</sup>) and complex industrial facility underlain by a carbonate rock aquifer system.

### Artificial Recharge

**Maun, Botswana, Southern Africa** - Assessment of artificial recharge feasibility as a method to sustain the life of the Town of Maun's existing wellfield. The project involved field pilot tests, evaluation of water source alternatives, computer modeling, and economic analysis.



**Cessna Facility, NJ** - Evaluated a non-functioning injection well system designed for recharge of treated groundwater. Located a more suitable locale for the injection wellfield and designed, installed and tested a new replacement injection well system.

**Prudential-at-Princeton, NJ** - Designed a shallow large diameter well system for the recharge of return water (30 m<sup>3</sup>/hr) from a heat pump system used for heating and air conditioning.

### **Expert Testimony**

Mr. Uhl has provided technical support and expertise in over 30 legal cases involving water rights, insurance issues and groundwater contamination incidents. He has testified in court for eight of these cases and has been deposed in over twelve cases.

**Waterbury, CT** - Corden v. Anderson: Represented the Corden family in a matter involving a property transfer and gasoline contamination of a domestic well in Connecticut.  
Attorneys: Grady & Riley, Waterbury, CT.

**Newark, NJ** - Township of Bloomfield v. URS/MSR Engineers, Inc.: Represented URS Inc. in a case involving production well design, capacity and water quality issues.  
Attorneys - Ross & Hirsh, Parsippany, NJ

**Doylestown, PA** - Carr v. Getty Oil and Magnus Construction Co.: Represented Magnus Construction Company in a case involving gasoline contamination at a service station.  
Attorneys - Power, Bowen & Valimont, Doylestown, PA.

**Dedham, MA** - A&W Artesian v. Leo O'Hara and Marilyn O'Hara. Represented the O'Hara's in a case involving well development and well damage.  
Attorney - William P. Lenahan, Mansfield, MA.

**Indianapolis, IN** - Represented the Northside Landfill Trustees in a case involving potential impacts from an upgradient landfill facility.  
Attorneys - Barnes & Thornburg, Indianapolis, IN

**Belvidere, NJ** – Represented J&D Development in a case involving lot size and groundwater recharge issues.  
Attorneys – Garofalo & Pryor

**Conshohocken, PA** – Solebury Township v. New Hope Crushed Stone and Pennsylvania Department of Environmental Protection (PADEP). Represented Solebury Township, PA in a case involving limiting a quarry pumpage to be in line with a small drainage basin's groundwater recharge characteristics.  
Attorneys – Harris & Harris, Warminster, PA

**Morristown, NJ** – Pio Costa Enterprises v. Township of Montville. Represented Township of Montville in a case involving groundwater allocation in a small glacial basin.

**PUBLICATIONS****Technical Peer-Reviewed Journals**

- Uhl, Vincent W. and J. E. Garton. 1972. Semi-Portable Sheet Metal Flume for Automated Irrigation: **Transactions of the ASCE**, Vol. 15, No. 2, pp. 356-360.
- Uhl, Vincent W., V. G. Joshi, A. Alpheus and G. K. Sharma. 1976. The Application of Step-Drawdown Pumping Tests to Water Wells in Consolidated Rock Aquifers: **Indian Geohydrology**, Vol. II, Nos. 3 and 4.
- Uhl, Vincent W. and G. K. Sharma. 1978. Results of Pumping Tests in Crystalline Rock Aquifers: **Ground Water**, Vol. 16, No. 3.
- Uhl, Vincent W., K. Nagabushanam and J. O. Johansson. 1979. Hydrogeology of Crystalline Rocks: Case Studies of Two Areas in India: **Nordic Hydrology**, Vol. 10.
- Uhl, Vincent W. 1979. Occurrence of Groundwater in the Satpura Hills Region of Central India: **Journal of Hydrology**, Vol. 41, pp. 123-141.
- Uhl, Vincent W. 1980. Improving Yields of Open Wells in Consolidated Rocks Using Extension Drilling Techniques: **Ground Water**, Vol. 18, No. 2.
- Uhl, Vincent W. and G. P. Westerhoff. 1982. Control Measures for Groundwater VOCs: **Water Engineering and Management**, July 1982.
- Uhl, Vincent W., M. R. Warfel and D. I. Stillman. 1983. Tapping Ground Water for Heating and Cooling: **Consulting Engineer**, March 1983.
- Uhl, Vincent W. and V. G. Joshi. 1986. Results of Pumping Tests in Deccan Trap Basalts of Central India: **Journal of Hydrology**, Vol. 86, pp. 147-168.
- Ray, Chittaranjan and Vincent W. Uhl. 1993. Drinking Water and Nitrate Issues in the United States and India. **Impact Assessment**, Vol. 11.
- Uhl, Vincent W., Anthony J. Rana and Jaclyn A. Baron. 1998. Groundwater Resource Evaluation, Maun, Botswana, S. Africa. **The Professional Geologist**, November, 1998.
- Thangarajan, M., Vincent W. Uhl et al. 2000. Simulation of Arid Multi-Layer Aquifer System - Case Study in Shashe River Valley, Okavango Delta, Botswana. **Journal Geologic Society of India**, June, 2000.
- Uhl, Vincent W. 2002. The Springs of Bohol Province, the Philippines. **The Professional Geologist**, December 2002.
- Coppola, Emery, A. J. Rana, V. W. Uhl, et al. 2005. A Neural Network for Predicting Water-Level Elevations, **Ground Water**, March, 2005.
- Uhl, Vincent W. 2006. Afghanistan, an Overview of Groundwater Resources and Challenges. **Ground Water**, September 2006.

Uhl, Vincent W. 2006. The East Orange Water Reserve – 100 Years of Wellhead Protection. New Jersey Flows (NJWRR), Fall 2006, Vol. VII, Issue 3.

### **Conference Presentations**

Uhl, Vincent W. 1984. Ground Water Investigation in Fractured Bedrock. Paper presented at National Water Well Conference in New Hampshire.

Uhl, Vincent W. and Kobinah Atobrah. 1987. A Global View on the Hydrogeology of Crystalline Rocks: Paper presented at African Water Technology Conference, Nairobi, Kenya, February 1987.

Uhl, Vincent W. 1989. Abandoned Wells: A Practical Approach for Restoring Yields: Paper presented at Water, Engineering and Development Conference in Kano, Nigeria.

Uhl, Vincent W. 1990. Quantifying Well Redevelopment Efforts: Paper presented at International Groundwater Engineering Conference on Water Well Monitoring, Maintenance and Rehabilitation in Cranfield, U. K.

Uhl, Vincent W. and D. Sousa. 1990. Case Study of a Well Redevelopment Program on a 10 MGD Well Field: Paper presented at International Groundwater Engineering Conference on Water Well Monitoring, Maintenance and Rehabilitation in Cranfield, U.K.

Uhl, Vincent W., M. Findlay and A. Scillia. 1992. The East Orange Water Reserve: A Case Study of Municipal Water Supply Management and Well Head Protection Planning: Paper presented at Third Annual Environment Virginia Symposium, Virginia Military Institute, Lexington, Virginia.

Ray, Chittaranjan and Vincent W. Uhl. 1992. Drinking Water and Nitrate Issues in the Industrial and Developing Countries. Paper presented at conference on Industrial and Third World Environmental Assessments, World Bank Headquarters, Washington D.C.

Uhl, Vincent W. and Anthony J. Rana. 1993. Application of Step-Drawdown Pumping Tests in Consolidated Rock Aquifers: Paper presented at Africa Needs Groundwater Conference, University of Witwatersrand, Johannesburg, South Africa.

Linn, Flenner, Vincent W. Uhl and Anthony J. Rana. 1998. Groundwater Resources of the Lower Okavango Delta, Northwestern Botswana. Paper presented at International Conference on the Role of a National Geologic Survey in Sustainable Development, Gaborone, Botswana.

Tredoux, G., Vincent W. Uhl and Anthony J. Rana. 1998. Artificial Groundwater Recharge as a Sustainable Solution for Water Supply in Arid and Semi-Arid Regions. Paper presented at International Conference on the Role of a National Geologic Survey in Sustainable Development, Gaborone, Botswana.

Uhl, Vincent W., Anthony J. Rana, and Jaclyn A. Baron. 1999. Groundwater Resource Assessment for Maun at the Distal Edge of the Okavango Delta, Northern Botswana. Paper presented at the 9<sup>th</sup> Stockholm Water Symposium, Stockholm, Sweden

Coppola, Emery, Anthony J. Rana, Vincent W. Uhl et. al. 2003. An Artificial Neural Network Approach for Predicting Depths to Water in a Glacial Aquifer System Under Variable State Pumping and

Climatic Conditions. Paper presented at **AWRA 2003 International Conference on Watershed Management for Water Supply Systems.**

Uhl, Vincent W., Anthony J. Rana, and Jaclyn A. Baron. 2004. The East Orange Water Reserve – 100 Years of Wellhead Protection. Paper presented at the **AWWA New Jersey Conference, Atlantic City, New Jersey.**

Uhl, Vincent W. 2004. The Building Blocks of Urban Groundwater Management in the State of New Jersey, United States. Paper accepted for the **14<sup>th</sup> Stockholm Water Symposium, Stockholm, Sweden**

Uhl, Vincent W. 2005. Afghanistan, a Country Wide Overview of Groundwater Resources and Challenges. Paper presented at the **UN Sponsored Workshop in Cairo on Governance & Management of Groundwater Resources in Arid and Semi-Arid Countries.**

Uhl, Vincent W. and Jaclyn A. Baron. 2005. Wellhead Protection, Strategies for Drinking Water Wells. Paper presented at the **15<sup>th</sup> Stockholm Water Symposium, Stockholm, Sweden**

Uhl, Vincent W. 2006. The East Orange Water Reserve – 100 Years of Wellhead Protection. Paper presented at the **Second Passaic River Symposium.**

Uhl, Vincent W. 2010. Afghanistan Groundwater Overview. **American Water Resources Association Annual Conference, Philadelphia, Pennsylvania.**

Uhl, Vincent W. 2011. Crystalline Rock Aquifers, a Global View. **National Groundwater Association Conference in Baltimore, Maryland 2011.**

## INTERNATIONAL CLIENTS

- Asian Development Bank - Bangladesh
- Associates in Rural Development (ARD) – USAID Jordan, Okavango Basin, and Afghanistan.
- Bohol Water Utilities, Inc., Philippines
- Catholic Relief Services (CRS)
- Chemonics - Afghanistan
- City of Hargeisa, Somaliland
- Department of Interior and Local Government,  
Philippines
- Development Alternatives, Inc. (DAI) - USAID Afghanistan
- Hospital Albert Schweitzer, Haiti
- IRG, Lebanon – Litani River Basin
- Govt. of Botswana - Dept. of Water Affairs
- Louis Berger Group – USAID – Afghanistan
- MWH – MCC – Lesotho; USAID - Global
- National Irrigation Authority, Philippines
- Sulu Provincial Government, Philippines
- The World Bank - Liberia
- Winrock International – USAID - Philippines
- Water Resources Consultants (Pty.) Ltd.: Botswana and Lesotho
- World Vision - Senegal
- WorldWater and Solar Technologies Corp.:  
Botswana, Djibouti, Ethiopia, Mozambique, Nigeria, Pakistan, Philippines, Somalia, Somaliland, Sri Lanka,  
and South Africa.