SUFIAN A. KHONDKER, PHD, PE, D.WRE, F. ASCE (LIFE MEMBER)

Senior Vice President, National Technology Director for Water Management

Dr. Khondker is a world-renowned engineer with over 50 years experiences in Hydraulics, River Engineering, Geotechnical and Civil Engineering aspects of complex Water Resources and Infrastructure projects. He has completed many hydroelectric, nuclear, fossil fuel power plants and water supply projects, for which he specialized in the design of dams, gates, spillways and appurtenant structures, tunnels, pumping stations, intake and discharge structures.

Dr. Khondker's expertise has been sought worldwide for troubleshooting, consulting, and value engineering assignments. For example, he visited the Al-Jubail Desalination Plant in Saudi Arabia to evaluate the failure of the fiberglass intake pipe; visited Taipei, Taiwan, to make a presentation to the Taiwan Power Company for the design of cooling water system; the Laguna Verde Power Plant in Mexico to direct field tests and evaluate pump sump design; Delta Barrage in Egypt to supervise a hydraulic model study to realign the Nile River; to Grenoble and Paris, France, to review the offshore intake design by French engineers; to Fuzhou, China, to provide consulting services to Chinese engineers; to Puerto Plata in the Dominican Republic to investigate the floatation of cooling water pipes and to direct and supervise pumping tests; and to Vancouver, Canada, to witness the model testing of the pump chamber for the Rachaburi Power Plant in Thailand.

Dr. Khondker has a strong geotechnical background associated with dams, pipelines, tunnels, deep/shallow foundations and retaining structures. He has a doctorate degree in geotechnical engineering and taught graduate courses in geotechnical engineering as an adjunct professor. He oversaw the geotechnical aspects of all projects he managed. He participated in Value Engineering for many projects for OMB and served as Independent Technical Review Member for The Gilboa Dam Reconstruction.

In addition to his technical expertise his extensive experience includes Project Management, Program Development, Interagency Co-ordination and Administration.

Dr. Khondker co-authored three Technical Books and authored over thirty Technical Papers, which were presented at various National and International Conferences. His biosketch was published by Marquis Who's Who in the World and *the* ***United States Congress has recognized his thirty years of experience as a world-renowned engineering expert and for his countless contributions to the field of science and technology*****.** He serves as an expert panelist on flood issues in South Asia for the Voice of America (VOA), a radio program sponsored by the US State Department***. He is currently serving as an ADVISOR to Bangladesh Atomic Energy Commission (BAEC) for review and design of the 1st Nuclear Power Plant in Bangladesh.***

AFFILIATIONS:

- Fellow, American Society of Civil Engineers (ASCE), Life Member
- Member, Environmental and Water Resources Institute (EWRI)
- Member, International Society for Environmental Geotechnology (ISEG)
- Adjunct Member, New York Academy of Sciences
- Adjunct Member, International Association of Hydraulic Research (IAHR)
- Adjunct Member, International Water Resources Association (IWRA)
- Founding-President, American Association of Bangladeshi Engineers and Architects (AABEA), Tristate

EDUCATION:

- PhD/Polytechnic University of New York/Civil Engineering / 1982.
- MS/Delft University of Technology, Netherlands/Hydraulic Engineering /1973. Specialized in River Engineering

- BS/Bangladesh University of Engineering & Technology/Civil Engineering /1967.

REGISTRATIONS:

- Professional Engineer No. 055070/1977/NY
- Professional Engineer No. 21595 /1995/MD
- Diplomate Water Resources Engineer (D.WRE), 2010
- ASCE Grade IX/US

EXECUTIVE TRAININGS:

- Collaborative Solution Based Negotiation by Innovative Negotiation, McLean, Virginia, March 2007.
- Building an Effective Organization by Newport Group LLC, March 2007.
- Enterprise One Project Management Training, October 2006.
- Project Management Training by Penn State, March 2003.
- Training on Partnering and Conflict Resolution, 1995.
- Professional Development Program (PDP) Training for Young Engineers – Instructor from 1978 to 1986.

AWARDS AND RECOGNITIONS:

- ***Marquis Who's Who in the World*** (13th Edition), only 35,000 received the award in the entire world, 1996.
- ***Marquis Who's Who in Science and Engineering***, 1997.
- American Association of Bangladeshi Engineers and Architects (AABEA) awarded ***Engineer of the Year 2004.***
- ***US Congressional Recognition*** for over 30 years of outstanding achievements in Engineering and Science, presented by Hon. Congressman Joseph Crowley, Chairman Bangladesh Caucus, 2005.
- ***New York State Assembly Citation*** by Hon. Mark Weprin, Assemblyman, State of New York, 2005.
- ***Certificate of Merit*** from New York State Assembly for outstanding Community Service, presented by Hon. McLaughlin, Assemblyman, State of New York, 2005.
- ***City Council Citation*** by Hon. Councilmen John C. Liu, Hiram Monserrate and David Weprin, 2005.
- ***AABEA Recognition*** for outstanding services as 7th President of the organization, 2006.
- ***"Our Pride"*** award for outstanding achievements by Bangladeshi American Foundation Inc (BAFI), 2007.

SUMMARY OF EXPERIENCE

JULY/2013-TODATE: ARCADIS U.S. INC., NEW YORK: SR. VICE PRESIDENT AND NATIONAL TECHNOLOGY DIRECTOR FOR WATER MANAGEMENT

Dr. Khondker is the Project Manager for NYCEDC's Green Infrastructure – Civil Engineering Design Services.

MTA / NYCT, New York

Overall Project Manager and Principal-in-Charge for this Indefinite Quantity Contract. Under this Contract Arcadis already won four Task Orders to perform Engineering Design Services for Superstorm Sandy-related Flood Mitigation/Resiliency Projects. All projects will be designed for two criteria: (1) SLOSH 2 + 3' FB (Free board) and (2) FEMA 100-year flood + 1' FB. Most of the projects included perimeter flood walls; internal hardening of major facilities and drainage design. Dr Khondker presented a technical paper titled, "Superstorm Sandy Related Flood Mitigation/Resiliency Projects for New York City Transit Authority", at the

8th International Perspective on Water Resources and Environment (IPWE 2016) held in Colombo, Sri Lanka in January 2016.

APRIL/2004 – JULY/2013: DEWBERRY ENGINEERS, INC. (DEWBERRY), NEW YORK: SENIOR ASSOCIATE AND DIRECTOR OF WATER RESOURCES

Dr. Khondker established the Water Resources Department in New York. Within four years, the Water Resources Department has become the "Center of Excellence" for Hydrologic and Hydraulic (H & H) Analyses and received the ***"Entrepreneur Award for Excellence"*** in 2008. During this time, Dr. Khondker was responsible for the following major projects:

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION (NYCDEP), BUREAU OF ENGINEERING, DESIGN AND CONSTRUCTION – ENGINEERING DESIGN AND DESIGN SERVICES TO CONSTRUCT NEW RELIEF SEWER, BENDING WEIRS, AND FLOATABLES CONTROL IN THE NEWTOWN CREEK DRAINAGE AREA, NEW YORK: Project Manager responsible for the design of Bending Weirs and Floatables Control Structures for four Regulators/Outfalls in Newtown Creek Watershed. **Supervised the numerical model study (CFD) for regulators conducted by Alden Research Laboratory.** This is a $15.56 million dollars (Fee) project of which $9.0 million has been released for the current work.

NEW YORK CITY DEPARTMENT OF DESIGN AND CONSTRUCTION (NYCDDC) – PRELIMINARY & FINAL DESIGN OF INSTALLATION OF NEW 20" SUB-AQUEOUS WATER MAINS TO CITY ISLAND: Project Manager responsible for the design of two 20" Water Mains using trenchless technology (HDD, Microtunnel, RTB). This is a $1.0 million fee project.

METRO NORTH RAILROAD (MNR) – SYSTEMWIDE DRAINAGE STRUCTURE INVENTORY & PILOT FLOOD STUDY: Project Manager responsible for drainage structure inventory within New York Stare on Harlem Line, Hudson Line and New Haven Line and flood control pilot study for 8 miles on Hudson Line. **Pilot study involved numerical hydraulic model study of 14 drainage basins comprising the project area.** *Dr. Khondker presented a paper on "Global Climate Change-Overview, Impacts, Mitigation and Adaptations with Special Reference to the New York City's Transportation Systems", at the 5th International Perspective on Water Resources and the Environment (IPWE 2012) held in Marrakech, Morocco, January 2012.*

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION (NYCDEP), BUREAU OF WATER AND SEWER OPERATIONS - SPRINGFIELD AND SOUTH JAMAICA BASINS DRAINAGE PLANS, QUEENS COUNTY, NEW YORK. Project Director responsible for the preparation and design of Drainage Plans for the Springfield Drainage Basin and Southern Jamaica Drainage Basin, which comprised of approximately 9,300 acres in Phase I and 4,500 acres in Phase II. Several locations within the drainage basins have been identified with street flooding problems and sewer back-ups. The scope of work includes topographical base maps; analyses of existing sewers and previously designed drainage plans and zoning requirements; design of alternative trunk sewers and high-level storm sewers; evaluation of existing street and property elevations; capacity determination of existing trunk sewers, plans and profile drawings and preliminary and final Drainage Plans. The Final Drainage Plans developed under this contract will be adopted by the City and form the basis for future Capital Sewer Projects.

NYCEDC/NYCDEP/NYCDOT - SPRINGFIELD GARDENS RECONSTRUCTION AREAS, SPRINGFIELD GARDENS, NEW YORK. CHIEF WATER RESOURCES ENGINEER, RESPONSIBLE FOR THE DESIGN OF SPRINGFIELD LAKE RESTORATION. DESIGN INCLUDED CONSTRUCTED WETLANDS, FOREBAYS, STILLING BASINS, AND STREAMBANK AND LAKE SHORE RESTORATION. SPRINGFIELD LAKE AND ITS ASSOCIATED STREAM WILL BE DREDGED, RECONTOURED AND RESTORED WITH NATIVE VEGETATION AND PLANTINGS. INNOVATIVE GREEN

INFRASTRUCTURE AND THE INSTALLATION OF 490 TREES ALONG SPRINGFIELD BOULEVARD. DR. KHONDKER PRESENTED A PAPER TITLED *"Dredging of the Springfield Lake to Eliminate Algal Bloom", presented at the ASCE/EWRI International Conference on Water Resources and Environment held at Singapore in January 2011*.

NYSOGS/NYSDEC – MULTIPLE IDIQ CONTRACTS FOR ZONE A FLOODPLAIN DELINEATION STUDY, AND DETAILED HYDROLOGIC AND HYDRAULIC ANALYSES FOR DUTCHESS COUNTY, MONROE COUNTY & CORTLAND COUNTY, NEW YORK. Task Manager, responsible for supervising detailed hydrologic analysis (by using regression equations, Peak FQ and New York Flood Frequency Tool in conjunction with Arc GIS 9.2) and detailed hydraulic analysis in conjunction with survey data (by using GeoFIRM tools and HEC-RAS program) to create digital flood insurance rate map (D-FIRM).

FEMA/URS – HAZARD MITIGATION TECHNICAL ASSISTANCE PROGRAM (HMTAP), TASK ORDER 65, NEW YORK & TASK ORDER 34, PENNSYLVANIA. Task Manager, responsible for supervising detailed hydrologic analysis (by using regression equations, Peak FQ and New York Flood Frequency Tool in conjunction with Arc GIS 9.2) and detailed hydraulic analysis in conjunction with survey data (by using GeoFIRM tools and HEC-RAS program) to create digital flood insurance rate map (D-FIRM) to represent detailed floodplain delineation.

NYSOGS/NYCDEC – HYDROLOGIC AND HYDRAULIC QUALITY REVIEWS, GREENE COUNTY, NEW YORK. Lead Engineer responsible for quality reviews of the Schoharie Creek watershed hydraulic analysis within Greene County and ensure that the hydraulic deliverables from NYS DEC's contractor follow FEMA's guidelines for incorporation into DFIRM. Project included quality review of 73 miles of detailed hydraulic analyses and 45 miles of approximate/limited detail hydraulic analyses in the Schoharie Creek watershed, Green County. Ensured hydrologic deliverables from NYS DEC's contractor were following FEMA Guidelines and Specifications for incorporation into the DFIRM.

NYC PARKS & RECREATION CALL-IN CONTRACT, HARLEM RIVER SEAWALL AND BIKE PATH, NEW YORK Chief Water Resources Engineer, responsible for the design of the Harlem River waterfront retaining structure. Existing steel sheet pile seawall corroded at the splash zone and allowed tide water to enter and exit through the holes causing undermining of the backfill soil and creation of sink holes. The existing sheet pile wall was replaced with a soft-edge gabion wall with specially designed stainless-steel wire baskets at the front end facing the Harlem River. The scope of work included under water inspection to determine the extent of corrosion, surveying, design of gabion retaining walls, fender system, bike path, tide pools and landscaping. Assignments also included inspections, preparation of plans and specifications, cost estimating and construction support services. Dr. Khondker received the most prestigious ***"Best of 2010 Award"*** by McGraw Hill and New York Construction for this project.

MTA/NEW YORK CITY TRANSIT, IDIQ CONTRACT, TASK ORDER #30 – DESIGN OF NEW DRAIN LINE VALVES AT SEVEN LOCATIONS IN THE BOROUGHS OF MANHATTAN AND BRONX, NEW YORK. Project Manager, responsible for investigation and design of new check valve and gate valve installations at the existing subway track drain lines at seven subway locations. Design of the drain line valve installations involved field inspections to identify the locations of track drains, video inspections to verify the locations and conditions of the drains, dye testing to determine the direction of flow and selection of special check valves and gate valves for each individual location. The scope of work also included preparation of plans and specifications, development of detailed contract documents and support during construction. He authored a Technical Paper which was presented at the ***ASCE/EWRI International Conference on Environmental and Water Resources held in Bangkok, Thailand in January 5-7, 2009.***

MTA/NEW YORK CITY TRANSIT, IDIQ CONTRACT, TASK ORDER #33 – DESIGN OF NEW DRAIN LINE VALVES AT FIFTEEN LOCATIONS IN THE BOROUGH OF MANHATTAN, NEW YORK. Project Director, responsible for investigation and design of new check valve and gate valve installations at 15 subway line locations on the Broadway/7th Avenue Line. Design of the drain line valve installations involved field inspections to identify the locations of track drains, video inspections to verify the locations and conditions of the drains, dye testing to determine the direction of flow and selection of special check valves and gate valves for each individual location. The scope of work also included preparation of plans and specifications, development of detailed contract documents and support during construction.

DUKE ENERGY CORPORATION, BELEWS CREEK STEAM STATION, PERMANENT PUMPING STATION, NC. Chief Water Resources Engineer, responsible for the conceptual design of offshore intake with velocity caps and permanent pumping station. During dry period the pumping station will withdraw 100 cfs of water from the Dan River to provide make up water for the Belews Lake. **The scope of work also involved surveying and preparation of river cross-sections**. Belews Lake is the primary source of cooling water for the steam station.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION, ROUTE 110 DESIGN PHASE I – IV, NY. Chief Water Resources Engineer, responsible for reviewing the hydraulic analysis using SWMM soft ware and supervision of the preliminary design of multi-barrel box culvert and tide gates. He also supervised the preparation of plans and specifications (40% submittal) for the concrete box culvert and tide gates for this $12-million highway reconstruction project which analyzed the contributing watershed and existing storm drainage network, evaluated possible solutions to flooding and recommend design alternatives to alleviate the flooding.

GANNETT FLAMING / HAZEN AND SAWYER / NYCDEP - IDIQ CONTRACT FOR THE RECONSTRUCTION OF GILBOA DAM, NY. Independent Technical Reviewer, responsible for reviewing the design of stepped spillway, side channel, low level outlet and stilling basin.

JUNE/2001 – APRIL/2004: STV INCORPORATED, NEW YORK:

SENIOR ASSOCIATE AND CHIEF WATER RESOURCES ENGINEER

Dr. Khondker joined STV Inc. in June 2001 and started the Water Resources Department. In October 2001, the newly formed Water Resources Department won its first project from New Jersey Water Supply Authority.

Dr. Khondker is a world-renowned hydraulic engineer and ***best known for power plant cooling water system design and construction.*** His reputation brought a high-level team from South Korea in October 2001, seeking help in the design and construction of submerged ocean intake and discharge structures for three nuclear power plants. ***Dr. Khondker put together a formidable team consisting of STV (Prime), Washington Group International (WGI) and Dr. Sauer Corp. (DSC); presented the team's qualifications to Korea Power Engineering Company (KOPEC) in Seoul, prepared the technical proposal and negotiated a $3.2 million (Fee) contract from KOPEC.*** Other outstanding projects that Dr. Khondker managed are presented below:

MBTA - GREENBUSH COMMUTER RAIL RESTORATION, MA.
Design Packages Manager for the Greenbush Project, a $252 million railroad restoration ***design-build project***. He was responsible for 14 Design Packages producing 530 contract drawings involving track drainage, drainage basins, cross culverts, tidal analysis, bridge scour and permitting. By far the greatest challenge was to support the permitting efforts. Dr. Khondker personally presented all design

improvements to various regulatory agencies and defended all proposed modifications. He met with all town representatives and their consultants, attended public hearings, and made presentations to DEP, Fish and Wildlife and Army Corps of Engineers. He managed between 13 to 23 professionals from New York, Trenton and Douglassville offices. Dr. Khondker received letters of commendations from the client and project manager.

NJ TRANSIT, HOBOKEN YARD DRAINAGE STUDY, HOBOKEN, NJ. Lead Hydraulic Engineer, responsible for the hydraulic analysis and design for a new drainage system and preparation of a Master Plan for the entire yard drainage. Coordinated among various disciplines in completing the drainage system at this commuter rail maintenance facility. The drainage design and other consultation services are part of a three-year, $250 million project to rehabilitate and redevelop the entire facility.

DECEMBER/1973 - JUNE/2001: EBASCO, RAYTHEON ENGINEERS AND CONSTRUCTORS AND WASHINGTON GROUP INTERNATIONAL: ASSOCIATE ENGINEER TO SENIOR CONSULTANT AND DEPARTMENT HEAD

Sufian Khondker joined Ebasco in December of 1973 as Associate Engineer and quickly climbed up the corporate ladder. He was promoted to Design Engineer in 1975; Senior Engineer in 1978; Principal Engineer in 1981; Associate Consulting Engineer in 1985; Consulting Engineer in 1990 and Senior Consulting Engineer and Department Head in 1993. From 1993 to 2001 Dr. Khondker served as Department Head at Raytheon Engineers and Constructors, a 20,000-employee firm. As Department Head, Dr. Khondker provided engineering directions to 15/20 engineering staff specialized in hydraulics and water resources. He personally represented the Company in many domestic and international projects. He visited the Al-Jubail Desalination Plant in Saudi Arabia to evaluate the failure of the fiberglass intake pipe; traveled to Taipei, Taiwan to make presentation to the Taiwan Power Company; to Laguna Verde Power Plant in Mexico to direct field test and evaluate pump sump design; to Delta Barrage in Egypt to supervise the hydraulic model study; to Grenoble and Paris to review the offshore intake design by French Engineers; to Fuzhou, China to provide consulting services to Chinese Engineers; to Puerto Plata in Dominican Republic to investigate the floatation of cooling water pipes and to direct and supervise pumping tests; to Vancouver, Canada to witness the model testing of pump chamber for the Rachaburi Power Plant in Thailand. Some selected relevant projects from his 28 years career at Ebasco/Raytheon/WGI are presented below:

WASHINGTON SUBURBAN SANITARY COMMISSION (WSSC), 96-INCH PCCP WATER MAIN REHABILITATION, PRINCE GEORGE'S COUNTY, MD. Project Manager, responsible for managing all aspects of this multi-disciplinary, $65 million-dollar project. He oversaw the project scoping, labor forecasting, and technical supervision of a multi-disciplinary staff. He was responsible for coordination of subcontractors and various agencies for permits. The project included the rehabilitation of 8.5 miles of 96-inch diameter PCCP to supply 150 MGD of drinking water. Three alternate schemes of rehabilitation such as relining with steel pipe in developed areas, open-cut and replacement with steel pipe in underdeveloped areas and use of exterior tendons were employed in this project. Constructability was the key issue for the project and the construction was completed under three contracts. He prepared all bid documents; evaluated bids, provided support during construction; reviewed vendor submittals, RFIs and Change Orders. He authored a technical paper which was presented at the ASCE Pipeline Conference in San Diego, CA in 1998 and the project was identified as “Outstanding Civil Engineering Achievements” and became the cover story for the ASCE Civil Engineering Magazine, July 1999.

FLORIDA POWER AND LIGHT COMPANY, ST. LUCIE VELOCITY CAP REHABILITATION, FL. Project Engineering Manager/Principal Investigator, responsible for managing this multi-disciplinary, $11 million-dollar project which included a root cause evaluation, **a hydraulic model study**, and the evaluation of alternate

rehabilitation schemes, as well as the development of innovative construction schemes. He selected and coordinated the work of outside consultants. He also supervised the mock-up testing and provided technical supervision during construction. He received a letter of commendation from the client for this project. He authored a technical paper which was presented at the Water Forum 92 in Baltimore, MD.

COMMISSION FEDERAL DE ELECTRICIDAD, LAGUNA VERDE GENERATING STATION, VERACRUZ, MEXICO. Project Engineering Manager and Principal Investigator, responsible for analyzing the circulating water intake design modifications for this nuclear power plant. The primary tasks were to address the problem of sedimentation and recirculation, to evaluate possible long-term solutions, and to recommend the best alternative to the client. He supervised field tests to measure vibrations, motor current variations, discharge pressure fluctuations, noises and uneven flow patterns caused by the dual flow traveling water screens. **He recommended solutions to eliminate the problems based on a hydraulic model study of the intake/pumphouse conducted at the Iowa Institute of Hydraulic Research**. He authored a technical paper which was presented at the International Symposium held in Colorado Springs, CO.

EI-KUREIMAT POWER PLANT, EGYPTIAN ELECTRIC AUTHORITY, EGYPT. Corporate Hydraulic Consultant, responsible for the design of the cooling water system (CWS) with special emphasis on the hydraulic model study to realign a stretch of the Nile River to eliminate sedimentation inside the pump houses and to assure supply of cooling water during low river flow. **The scope work also included extensive surveying of the Nile River**. The CWS is a once-through system that withdraws 50 cms of water from the Nile River. He authored a technical paper which was presented at the 1st International conference on Rivertech 96 held in Chicago, IL.

HUB RIVER POWER PROJECT, PAKISTAN. Corporate Hydraulic Specialist, responsible for reviewing the offshore ocean intake design by Campenon Bernard SGE and SOGREAH of France and recommended modifications to eliminate the siltation problems caused by littoral drifts.

ILIJAN COMBINED CYCLE GENERATING PLANT; KEPCO, PHILIPPINES. Consulting Hydraulic Engineer, responsible for hydraulic analyses of the Circulating Water System (CWS); conceptual design of the offshore intake with velocity cap and intake/pumphouse; and supervision of both **numerical model study of near-field ocean area** and physical hydraulic model study of the pump chamber. **The scope of work included bathymetric survey**. The $20 million CWS is a once-through system withdrawing 28 cms through two velocity caps and discharging through two multi-port diffusers.

WASHINGTON PUBLIC POWER SUPPLY SYSTEM (WPPSS), NUCLEAR PROJECT NO. 3, WA. Lead Hydraulic Engineer, responsible for administering a $20 million contract for the Makeup Water System for the nuclear power plant. He was responsible for the design of the makeup water system that consisted of the Ranney Horizontal Collectors, pumping stations, and a 4.5-mile-long PCCP makeup water pipeline. He supervised the preparation of drawings and specifications, and prepared bid documents, solicited bids and negotiated sole source contract. He also led the design of the Chehalis Riverbank protection system using gabion revet mattresses, which was reviewed by the Army Corps of Engineers and outside consultants.

TAIWAN POWER COMPANY, ULTIMATE SITE DEVELOPMENT FOR CHIN SHAN NUCLEAR POWER PLANT, TAIWAN. Project Hydraulic Engineer, responsible for the site selection of the circulating water system (CWS) for two 1000 MW units at this proposed nuclear power plant in Taipei, Taiwan. He visited Taiwan to make presentations to the client on the overall site selection criteria. He also provided technical assistance for the preliminary design of tunnels for the CWS.

WASHINGTON WATERPOWER COMPANY, NOXON RAPIDS HYDROELECTRIC DEVELOPMENT UNIT NO. 5, WA. Lead Design Engineer, responsible for reviewing vendor submittals for the Francis Turbine and mechanical piping system and structural design of the generator floor. The structural design included the pedestal, turbine block, spiral case supports; and transmission tower foundation.

BLOOMINGTON LAKE HYDROELECTRIC, BLOOMINGTON LAKE, MD. Project Engineering Manager, responsible for the feasibility study of installing a 78-inch stainless steel penstock inside an existing Army Corps of Engineer's 16-foot flood control tunnel. He supervised evaluation of alternate pipe and tunnel schemes, design of a diversion system with an energy dissipater, and alternate-pumping scheme. He also supervised powerhouse design, detail construction scheme, including crafts and equipment, and safety plan during construction.

LOUSIANA LIGHT & POWER COMPANY, WATERFORD UNIT NO. 3 INTAKE CANAL MODIFICATIONS, LA Project Engineering Manager, responsible for the supervision of **a hydraulic model study** to improve the debris-handling capability of the intake canal for the cooling water system. Supervised the preparation of plans, specifications, and permit drawings, as well as the structural modification to the intake canal. He authored a technical paper which was presented at the ASCE National Conference on Hydraulic Engineering held in Williamsburg, VA.

THE CITY OF HOUSTON PHASE I DAM REPARATION AT LAKE HOUSTON, HOUSTON, TX. Project Lead Hydraulic Engineer. He led the investigation of downstream erosion for the improvement of existing hydraulic structures at this 200-MGD municipal water supply reservoir. Developed the conceptual design and delivered an in-depth slide presentation to the client to explain the key issues and challenges of the project. His preliminary design included an ogee spillway and a USBR Type II stilling basin.

NEW JERSEY WATER SUPPLY AUTHORITY (NJWSA), ROUND VALLEY/SPRUCE RUN RESERVOIR RELEASE PIPELINE AND FORCE MAIN, HUNTERDON COUNTY, NJ. Project Manager, responsible for all technical and management aspects of this $6 million water supply project at the Round Valley/Spruce Run reservoir complex. His responsibilities included project scoping, construction scheme development, cost estimation, and construction scheduling as well as the supervision of drawing and specification preparations. He supervised design and installation of in-line multi-jet sleeve valves and the replacement of five segments of existing 108-inch PCCP with steel pipe to accommodate hydraulic jumps. In addition, he was responsible for the implementation of non-destructive testing (NDT) of the 3.5-mile, 108-inch PCCP force main for the Round Valley Reservoir.

SAIC/ AIR FORCE WEAPONS LABORATORY (AFWL), ALBUQUERQUE, NM. Project Manager/Engineer, responsible for the engineering services for this multi-disciplinary project to provide conceptual design for the AFWL Neutral Particle Beam (NPB) Space Experiments Research Facility. He received a letter of commendation from the client.

NEW YORK STATE THRUWAY AUTHORITY (NYSTA), HYDROLOGY AND HYDRAULIC STUDY OF 41 STREAM CROSSINGS, NY. Project Manager, responsible for all aspects of this $1.8 million-dollar study that included detailed bridge scour evaluations and stream stability analyses of 41 bridges along the New York State Thruway from Tappan Zee Bridge to Albany South. **The scope of work also included stream cross-section and surveys**. He supervised over 20 engineers from multiple disciplines to conduct the study and received a letter of commendation from the client for developing an innovative method of prioritizing the bridges. He authored a technical paper which was presented at the Water Forum 92 held in Baltimore, MD.

NJDOT BRIDGE SCOUR EVALUATION PROGRAM STAGE I AND STAGE II, NJ. Project Manager, responsible for screening of 157 State Bridges throughout New Jersey to prioritize bridges for detailed scour evaluations and performing detailed in-depth scour evaluation of 32 selected State Bridges and 12 selected County Bridges. The total fee for both phases of the project was $930,000.

COMMONWEALTH EDISON COMPANY, RIVER AND COOLING LAKE THERMAL MODELING, DOWNERS GROVE, IL. Project Engineering Manager, responsible for supervising the technical aspects of this $750,000 hydrodynamic modeling study of rivers and cooling lakes at three nuclear power plants. Coordinated the study with the Iowa Institute of Hydraulic Research (IIHR) and HydroQual Inc.

PUBLICATIONS AND PRESENTATIONS:

A. Books:

2013: "Technology and Infrastructure Improvements in Bangladesh"-Editor and Co-author, United Press Limited, Dhaka Bangladesh
Chapter 1: The Padma Barrage/Bridge Combined Project

2003: "Development Issues of Bangladesh II", the University Press Limited, Dhaka, Bangladesh.
Chapter 8: Regional Cooperation and Integrated Basin Development to Mitigate the Adverse Effects of the Farakka Barrage.

1998: "Bangladesh Floods –Views from Home and Abroad", the University Press Limited, Dhaka, Bangladesh.
Chapter 19: Comparative Evaluation of Flood Control Approaches to Develop Outline for Flood/Drought Control in Bangladesh.

1996: "Development Issues of Bangladesh", the University Press Limited, Dhaka, Bangladesh.
Chapter 19: Bangladesh's Economy, Environment and the Farakka Barrage.

B. Technical Papers and Presentations (Representative):

"Hydraulic Model to Improve Debris-Handling Capability of Waterford Unit No.3 Intake Canal", Proceedings of the ASCE National Conference on Hydraulic Engineering held in Williamsburg, Virginia, 1987.

"Vibration and Vortices at Laguna Verde CWS Pump Intake- A Case Study", Proceedings of the International Symposium on Model-Prototype Correlation of Hydraulic Structures, held in Colorado Springs, Colorado, 1988.

"Model Study to Design A Small Intake", Proceedings of the ASCE National Conference on Hydraulic Engineering held in San Diego, California, 1990.

"Geomorphic and Hydraulic Factors Affecting Stream Stability of the New York State Thruway Bridges", Proceedings of the Water Forum '92 held in Baltimore, Maryland, 1992.

"Model Study to Determine the Wave Forces Acting on the St. Lucie Velocity Caps", Proceedings of the Water Forum '92 held in Baltimore, Maryland, 1992.

"Evaluation of an Existing Scour Hole at the Castleton Bridge, a Tidal Crossing", Proceedings of the ASCE National Conference on Hydraulic Engineering, San Francisco, California, 1993.

"Farakka Barrage -An Overview", presented at the International Seminar on Farakka Barrage held at Columbia University, New York, 1993.

"Farakka Barrage -Its Impacts and Possible Mitigation", Proceedings of the ASCE National Conference on Hydraulic Engineering held in Buffalo, New York, 1994.

"Comparative Evaluation of Flood Control Approaches for Bangladesh and Mississippi River *Basin -River Engineering Aspects", presented the Joint USA -Bangladesh Conference on Flood Control sponsored by National Science Foundation (NSF), USA and was held in Dhaka, 1995.*

"Realigning the Nile River to Provide Cooling Water to A Power Plant", Proceedings of the 1st International Conference on RIVERTECH '96, held in Chicago, Illinois, 1996.

"Regional Cooperation and Integrated Basin Development to Mitigate the Adverse Effects of the Farakka Barrage", Proceedings of the 1st International Conference on RIVERTECH '96, held in Chicago, Illinois, 1996.

"Design and Construction Aspects of the WSSC 96-inch PCCP Water Main Rehabilitation", Proceedings of the ASCE Pipeline Conference in San Diego, CA 1998.

"The Ganges/Padma Barrage in Bangladesh", Keynote Speaker at the International Seminar on the Ganges Barrage and Interlinking of Indian Rivers, held in Dhaka, Bangladesh, January 2004.

"Bridge Scour Evaluations" (1 PDH), Keynote lecture at the 64th Annual NYSATE (New York State Association of Transportation Engineers) Conference, held in Hauppauge, New York, 2004.

"A Comprehensive Analysis of Floods and Water Resources Development in Bangladesh", a Keynote Presentation at the Annual Seminar of AABEA Tristate, New York, April 2005.

"The Water Crisis of Bangladesh", an invited lecture at the Queens Public Library, Flushing, New York, July 2006.

"Tipaimukh Multipurpose Project and Potential Interstate and International Disputes", ASCE/EWRI Conference Proceedings on an International Perspective on Environmental and Water Resources, New Delhi, India, Dec. 2006.

"Bridge Scour Evaluations" (1 PDH), presented at the 68th Annual NYSATE (New York State Association of Transportation Engineers) Conference, held in Hudson Valley Resort and Spa in Kerhonkson, New York, May 2008.

"An Innovative Storm Sewer Design in an Urban Environment" presented at the World Water resources Congress 2008, Honolulu, Hawaii, May 2008.

"The Padma Barrage/Bridge Combined Project", presented at the Conference on Bangladesh in the 21st Century held at Harvard University on June 13&14, 2008. He Chaired the Session.

"Innovative Solutions to New York City Subway Flooding" Proceedings of ASCE/EWRI and AIT Conference on An International Perspective on Environmental and Water Resources held in Bangkok, Thailand on January 5-7, 2009.

"The Harlem Riverbank Restoration-Designing the Edges" presented at the ASCE/EWRI International Conference on Water Resources held at Chennai, India in January 2010.

"Dredging of the Springfield Lake to Eliminate Algal Bloom", presented at the ASCE/EWRI International Conference on Water Resources and Environment held at Singapore in January 2011.

Presentation on "Global Climate Change-Impacts, Mitigation and Adaptation" at the TRB Meeting in Washington D.C in March 2011

"Global Climate Change-Overview, Impacts, Mitigation and Adaptations with Special Reference to the New York City's Transportation Systems", presented at the 5th International Perspective on Water Resources and the Environment (IPWE 2012) held in Marrakech, Morocco, January 2012.

"Flood Mitigation at St. George Terminal in New York", presented at the 6th International Perspective on Water Resources and Environment (IPWE 2013) held at Izmir, Turkey, January 2013.

"Design and Implementation of Green Infrastructures in New York City", presented at the 7th International Perspective on Water Resources and the Environment (IPWE 2014) held in Quito, Ecuador, January 2014.

"Superstorm Sandy Related Flood Mitigation/Resiliency Projects for New York City Transit Authority", presented at the 8th International Perspective on Water Resources and Environment (IPWE 2016) held in Colombo, Sri Lanka in January 2016.

"Long Term Flood Mitigation/Resiliency Design at Four Bus Depots of the New York City Transit Authority", presented at the 9th International Perspective on Water Resources and the Environment (IPWE 2017) held in Wuhan, China in January 2017

"Haor Inhabitants-A Disaster Resilient Community in Bangladesh", Proceedings of the Urban Challenges in Emerging Economies ASCE India Conference 2017, held in New Delhi in December 2017.

"Green Infrastructure to Alleviate Waterlogging in Dhaka City", presented at the 10th International Perspective on Water Resources and the Environment (IPWE 2018), held at Cartagena, Colombia in December 2018.