

## PERSONAL INFORMATION

**Name:** Ahmed Mohamed Abdel Sattar

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**E-mail:** ahmoudy77@yahoo.com

**Nationality:** Egyptian

**Date of birth:** 22-11-1977

**Gender:** Male

**Marital Status:** Married with two daughters

## ACADEMIC QUALIFICATIONS

Cairo University • Cairo, Egypt 2008

**Certified E-Learning Environment Developer**

Think-Interdisciplinary: Training of Trainers Program In Interdisciplinary Water Management – European Commission- Tempus JEP\_33136\_2005

Cairo University & Ministry of Water Resources (MWRI) • Cairo, Egypt 2008

**Certified trainer for GIS and Water Resources Modeling**

Think-Interdisciplinary: Training of Trainers Program In Interdisciplinary Water Management – European Commission- Tempus JEP\_33136\_2005

University of South Carolina-Center of teaching experience • Columbia, SC, USA 2007

**Preparing Future Faculty (PFF) credential**

National program established by the Council of Graduate Schools, The Association of American Colleges and Universities, the Pew Charitable Trust and the National Science Foundation

University of South Carolina-College of Engineering • Columbia, SC, USA 2006

**Ph.D., Water Resources • GPA: 4**

Dissertation: "Leak and Blockage detection in pipelines using hydraulic transients"

Cairo University- Faculty of Engineering • Cairo, Egypt 2003

**M.S., Water Resources • GPA: 3.95**

Thesis: "Estimation of BOD/DO variation within Bahr Hadous Catchment in the Eastern Delta of Egypt using water quality monitoring data"

Cairo University-Faculty of Engineering • Cairo, Egypt 2000

**B.S., Civil Engineering • GPA: 3.90**

Graduation in the top 5 of a class of 1000.

## RELEVANT WORK EXPERIENCE

Arab Consulting Engineers (ACE) Moharram & Bakkhoum • Cairo, Egypt 2009-2011  
**WTP & WWTP Hydraulic Expert**

Misr Consult • Cairo, Egypt 2007 to present  
**Senior Hydraulic Engineer**

Cairo University • Cairo, Egypt 2007-present  
**Trainer for GIS and Water Resources modeling**

- Responsible for organizing workshops and training personnel at Cairo University, Fayoum University, National Water Research Center and Ministry of Water Resources.
- Training includes Geographical Information system and the use of (ArcGis) for analysis in addition to various modeling tools in water resources (including the implementation of SewerGems and WaterGems in hydraulic analysis).

Cairo University-Faculty of Engineering- Irrigation and Hydraulics Dept • Cairo, Egypt 2007-present  
**Assistant Professor of Hydraulics**

- Research and Teaching interests: Fluid Mechanics, Hydraulics, Environmental Hydraulics, and EIA

Center for Advanced Stormwater Studies and Forensic Hydraulic Engineering,  
University of South Carolina-College of Engineering • Columbia, SC 2005 to 2006  
**Research Fellow and Hydraulic Investigator**

- Comparing one-dimensional stormwater modeling software in real life applications.
- Assessing the dynamic capability of various commercial software for stormwater and flood modeling.
- Applying HEC-RAS, Storm2000, SewerGEMS, and MIKE-SHE to creeks and storm water networks in Columbia, SC.
- Providing recommendations for the City of Columbia for an Early Flooding Warning Program implementation.

University of South Carolina-College of Engineering • Columbia, SC 2004 to 2006  
**Graduate Research Assistant and Post Doctoral Fellow**

- Numerical solution of unsteady flow equations in closed conduits using explicit finite difference and wavelet-Galerkin methods.
- Characterization of pipeline systems and leak/blockage detection using the frequency response and wavelet methods.
- Experimental investigation of unsteady flow and transient conditions in pipeline with emphasis on leak and blockage detection.
- Development of a standard technique for comparing one-dimensional open channel flow models, culvert hydraulic models, and watershed analysis models.
- Experimental investigation of turbulent open channel flow, flood flows and levee closure procedures, applying CFD to analyze and identify various flow parameters and investigate the flow field for a number of levee closure procedures, and investigating incipient motion of particles (sandbags) in relation to critical flow.

Misr Consult • Cairo, Egypt 2003  
**Environmental hydraulic researcher**

- Preparing the EIA report for Ridge Wood Water Desalination plants in Hurghada with emphasis on their impact on coral and marine environment.
- Preparing the EIA report for Ridge Wood Water Desalination plants in Marsa Alam with emphasis on their impact on underground aquifer salinity and recharge.

Misr Consult • Cairo, Egypt

2001 to 2002

**Hydraulic Engineer**

- Modeling Point and non-points sources of pollution on Bahr Hadous Catchment and developing standards for allowable maximum daily loads of non-point sources of pollution.
- Investigating the danger on aquatic life from non-point sources of pollution.
- Final report was recommended by the German Financing Governmental agency for extra funding to extend research to other catchments in Delta and Upper parts of Egypt.
- Was a good opportunity to gain experience in water quality modeling and environmental hydraulics.

Misr Consult • Cairo, Egypt

1997 to 2000

**Hydraulic Engineer**

- Designed water piping systems for recreation resorts.
- Designed artificial lakes.
- Was responsible of the design of concrete water structures in water/wastewater treatment plants and pumping stations, elevated tanks, and steel structures.
- Planned, organized, and coordinated a variety of projects, studies, evaluations and reports for water production, treatment, distribution, wastewater collection, treatment projects.
- Monitored budget and schedules of projects and brought the engineering design phase of the projects under budget and on schedule.
- Helped in conducting construction bid processes including selecting qualified contractors.

**RELEVANT TEACHING EXPERIENCE**

Cairo University-Faculty of Engineering- Irrigation and Hydraulics Dept • Cairo, Egypt

2007-present

**Associate Professor of Hydraulics**

**Courses taught:** Fluid Mechanics, Hydraulics, Environmental Hydraulics, and EIA

*Fluid Mechanics:* fluid properties & hydrostatics, fluid kinematics, Reynolds transport theorem, conservation of mass, momentum and energy, viscous internal flow, pipe flow networks, external flows and boundary layer concepts

*Environmental Hydraulics:* Effluent disposal; environmental transport phenomena in receiving waters; turbulent diffusion; jets and plumes; mixing in rivers and coastal waters; determination of assimilative capacity.

*EIA:* Strategic Environmental Assessment, Social Impact Assessment, Guidelines and administrative procedures, Public involvement, EIA-process, mitigation and impact management, reporting, reviewing, decision making, monitoring/implementing/auditing), EIA-management.

University of South Carolina- College of Engineering • Columbia, SC, USA

2007

**Lecturer - "Water Resources Engineering Laboratory-ECIV362"**

*Water Resources Laboratory:* Experiments, exercises and demonstrations on flow in pipes and open channels, pumps, flow measurement, seepage, and infiltration

University of South Carolina - College of Engineering • Columbia, SC, USA  
**Teaching Assistant - "Open Channel Hydraulics-ECIV562"**

2005 to 2006

*Open Channel Hydraulics*: uniform flow, flow resistance, gradually varied flow, flow transitions, and unsteady flow, flow in irregular and compound channels, backwater and 2-D flow modeling, and applications to channel design and stability.

American University in Cairo – Construction Engineering Department• Cairo, Egypt  
**Lecturer - "Fundamentals of Hydraulic Engineering"**

2003

*Fundamentals of Hydraulic Engineering*: Free surface flow: Classification of flows, Velocity distribution, Energy and hydraulic grade lines, Open channel flow formulas, Design of open channels, Most efficient cross sections, Compound channel, Specific Energy and critical flow, The hydraulic jump; Non-uniform flow: Governing equations, Classification of channel slopes, Principles for determining the surface profiles; Pipe systems: Laminar flow

Cairo University-Faculty of Engineering- Irrigation and Hydraulics Dept • Cairo, Egypt  
**Teaching assistant and assistant lecturer**

2000 to 2003

- Courses taught: "Environmental Hydraulic Engineering", "Water Quality Modeling", "Design of Hydraulic Structures I", "Design of Hydraulic Structures II", "Irrigation and Hydraulic Design", "Fluid Mechanics".

## SOFTWARE APPLICATIONS

- [STORMCAD / Hydraulics]
- [WATERGEMS 8.0/ Hydraulics]
- [HY-8 6.1/ Hydraulics]
- [QUAL2E / Water Quality]
- [FLUENT 6.2 / CFD]
- [VisualStudio.NET/ Programming]
- [WATERCAD / Hydraulics]
- [SEWERGEMS 8.0 /Hydraulics]
- [HEC-RAS 3.1.1 / Hydraulics]
- [HEC-HMS 3.0.0 / Hydrology]
- [MATHCAD / Programming]
- [MATLAB / Programming]
- [SEWERCAD / Hydraulics]
- [HYDRA / Hydraulics]
- [ARC-GIS 9.2/ GIS]
- [AutoCAD 2011 / Drawing]
- [LABVIEW 8 / Programming]

## AWARDS OF EXCELLENCE

- (2010) STDF Young Researcher Award & 500,000EGP, Science & Technology Development Fund, •Kasr Aleiny, Egypt•
- (2010) International Publication Award & 7,000EGP, Faculty of Engineering, Cairo University • Giza, Egypt •
- (2009) International Publication Award & 4,000EGP, Faculty of Engineering, Cairo University • Giza, Egypt •
- (2008) Bibliotheca Alexandrina Researcher Award & 40,000EGP, Bibliotheca of Alexandrina, •Alexandria, Egypt •
- (2008) Best PhD Dissertation in Department of Irrigation & Hydraulic & 4,000EGP, Dr Ahab Prize Fund, Faculty of Engineering, Cairo University • Giza, Egypt •
- (2007) Best Graduate Student in Civil & Environmental Engineering (2006-2007), Graduate Student Day • University of South Carolina • Columbia, SC •

- (2006) First Place Award for Centennial Poster and \$1,000, USC Centennial Day • University of South Carolina • Columbia, SC •
- (2005) First Place Award for paper presentation and \$1,000, Graduate Student Day • University of South Carolina • Columbia, SC •
- (1995-2000) Top 5 Excellence Award • Faculty of Engineering-Cairo University • Cairo, Egypt • 1995 to 2000

## PUBLICATIONS

### *Peer-Reviewed Journals*

- ElHakeem M., **Sattar A.M.** (2015). "An entrainment model for non-uniform sediment." *Earth Surface Processes and Landforms*,
- Sattar A.M.** (2014). "Gene expression models for the prediction of longitudinal dispersion coefficients in transitional and turbulent pipe flow." *J. Pipeline Syst. Eng. Pract.*, 5(1), pp. 550-571.
- Sattar A.M.** (2014). "Gene expression models for prediction of dam breach parameters." *Journal of Hydroinformatics*, 16(3), pp. 550-571.
- Sattar A.M.**, Raslan Y. (2014). "Predicting morphological changes ds new Naga-Hammadi barrage for extreme Nile flood flows: A Monte Carlo analysis." *Journal of Advanced Research*, 5(1), pp. 97-107.
- Sattar A.M.** (2014). "Blockage in distensible tubing." *Journal of Engineering and Applied Science*, Faculty of Engineering, Cairo University, Egypt.
- Kassem A., **Sattar A. M.**, and Chaudhry M. (2009). "Guidelines for comparing one-dimensional open channel flow modeling software." *Journal of Hydraulic Engineering*, ASCE. (Under review)
- Sattar A.M.**, Dickerson J., and Chaudhry M. (2009). "A Wavelet Galerkin Solution to the Transient Flow Equations." *Journal of Hydraulic Engineering*, ASCE, Vol. 135, No.4, pp. 283-295.
- Sattar A.M.**, and Chaudhry M. (2008). "Case study: 17th Street Canal breach closure procedures." *Journal of Hydraulic Engineering*, ASCE, Vol. 134, No.11, pp. 1547-1558
- Sattar A.M.**, and Chaudhry M. (2008). "Leak Detection in Pipelines by Frequency Response." *Journal of Hydraulic Research*, Inter. Assoc. for Hydraulic Research, IAHR, Vol. 46, No.1 (Extra Issue), pp. 138-151.
- Sattar A.M.**, Chaudhry M., and Kassem A. (2008). "Partial Blockage Detection in Pipelines by Frequency Response." *Journal of Hydraulic Engineering*, ASCE, Vol. 134, No.1, pp. 76-89.
- Kassem A., **Sattar A.M.**, and Chaudhry M. (2008). "Standard protocol for comparing culvert hydraulic modeling software: HEC-RAS and HY-8 application." *Journal of the Transportation Research Board*, No. 1984, Transportation Research Board of the National Academies, Washington, D.C., 2006, pp. 123-134.
- Kassem A., **Sattar A.M.**, and Chaudhry M. (2006). "Standard protocol for comparing culvert hydraulic modeling software: HEC-RAS and HY-8 application." *TRB 85th Annual Meeting CD-ROM*. Transportation Research Board of the National Academies, Washington, D.C, January 2006.
- Kassem A., **Sattar A.M.**, and Chaudhry M. (2005). "Development of standard protocol for evaluating hydrologic and hydraulic engineering software models." *Report of NCHRP Project 20-07(146)*. TRB, Washington D.C., December 2005.
- Sattar A.M.** (2006). "Leak and Blockage Detection in Pipelines." PhD Dissertation to be submitted to the Department of Civil and Environmental Engineering, University of South Carolina on December 2006.

Eldegwi A., **Sattar A.M.**, Abdel Gawad S. and Abdel Gawad S. (2003). "A new technique for the estimation of BOD/DO from un-monitored/non-point sources of pollution." *Journal of Engineering and Application Science*. April 2003.

**Sattar A.M.** (2003). "Estimation of BOD/DO variation within Bahr Hadous Catchment in the Eastern Delta of Egypt using water quality monitoring data" Masters Thesis submitted to the Faculty of Engineering, Cairo University.

***Peer-Reviewed Conferences***

## ANNEX 1: CONSULTANCY WORK EXPERIENCE IN ENGINEERING

### Infrastructure Projects

Project Name	From To	Project Description	Client	Position in Project	Project Value (million EGP)
Design of Water Supply Network to P&G Production Facilities, 6 <sup>th</sup> of October, Egypt	2010	Detailed <u>Hydraulic Design</u> for water supply and distribution networks in P&G production facilities on 35 Feddans. Work included design of Master Plan for year 2030. Work included preparation of complete tender documents including design drawings, specifications & Bills of Quantities.	Procter & Gambel, Egypt	Project Manager & Hydraulic Designer	1
Infrastructure Study (water & wastewater) for Maspero (Downtown Cairo) Project, Egypt	2010	<u>Study</u> and <u>preliminary design</u> of infrastructure networks for 300 feddans (water & wastewater) for development and new Master Plan for Maspero project in downtown Cairo.	General Authority for Urban Planning & Development (GOPP)	Project Manager & Hydraulic Designer for water & wastewater networks	180
Improving Water Supply & Sewerage for Tanga City, Tanzania	2009-2010	Detailed Hydraulic Design for Tanga WWTP with capacity of 88,000m <sup>3</sup> /day. WWTP work included aeration tank, flash mixer, Clarifier, Aqua Zur filters, treated water reservoir & all interconnecting piping. WWTP work included inlet and grit chamber, anaerobic, aerobic, & maturation ponds, chlorine dosing stations and lifting stations & all interconnecting pipes, chambers, and weirs.	TANGA Urban Water Supply & Sewerage Authority, Tanga, Tanzania	WTP & WWTP Designer	>500
Master Plan for Infrastructure (water & wastewater) for 10 <sup>th</sup> of Ramadan City, Egypt	2009-2010	Complete <u>Master Plan</u> for water & wastewater networks in 10 <sup>th</sup> of Ramadan Strategic City (95,000 Feddans, 2.1million inhabitants and more than Billion EGP Industrial investments). Work included current assessment of existing situation of networks and treatment works, sit visits, data collection and analysis, demographic studies and establishing Master Plan for water and wastewater to target year 2032 including networks, treatment plants and lifting stations. Work included working with ADL (US Partner) for Master Plan preparation. Work included design of future stages of city WWTP	General Authority for Urban Planning & Development (GOPP)	WTP & WWTP Designer	5

Project Name	From To	Project Description	Client	Position in Project	Project Value (million EGP)
Water Main, Mahmoudia WTP	2010	Hydraulic <u>Design</u> of main water carrier (DN 1000) from Mahmoudia WTP (1,000lit/s). Work included water hammer protection, necessary valve chambers and connection to new water network.	Arab Contractors, O.A.O., Egypt	Project Manager & Hydraulic Designer for Water carrier and WH protection	1.5
Re-Design Mahmoudia water Network, Behera Governorate, Egypt	2010	<u>Hydraulic Design</u> for parts of water network in Mahmoudia city, serving 350,000Capita. Design work included pipe networks, air & wash valves, water way passages, and elevated tanks (5,000m3).	Arab Contractors, O.A.O., Egypt	Project Manager & Hydraulic Designer for networks, elevated tanks and valves	5
Hydraulic Model for Monitoring performance efficiency of IWWTP, Ismailia, Egypt	2009	Development of a model based on Fuzzy Logic for assessing the performance of the IWWTP and monitoring usual operation procedure.	IWWTP, Egypt	WWTP Expert	--
Design & preparation of Tender documents for High Priority Projects for water & wastewater for Qena Governorate, Egypt	2009	<u>Detailed design</u> for high priority projects for water & wastewater networks and treatment works for Qena governorate. Work included preparation of complete tender documents including design drawings, specifications & Bills of Quantities.	HCWW (Holding Company for Water & Wastewater)	Hydraulic Designer for network and treatment plants rehabilitation and upgrade works	>50
Design & Hydraulic Modeling of Irrigation Water Carrier Lines to Lands at Intake 16, Gaber ElSabah Canal, Sinai, Egypt	2009	<u>Detailed Hydraulic Design</u> for Irrigation Water carrier lines (2 lines 1200mm and 2 lines 1400mm) to more than 1,000 Feddans at intake 16, Gaber El Sabah Canal in North Sinai. Work included hydraulic design, and hydraulic balance of intake pumping station and carrier lines, wash and air valves, 4 underground passages for pipes.	Ministry of Water Resources & Irrigation (MWRI)	Hydraulic Designer for carrier lines and pumping station	>100
Design & preparation of Tender documents for connecting 120 Compact Treatment units on water networks in Qena Governorate, Egypt	2008	Detailed <u>hydraulic design</u> for existing water networks in 120 villages in Qena Governorates, and connecting 120 Water Treatment Compact Units (capacity 60lit/s each) on these networks. Work included preparation of complete tender documents including design drawings, specifications & Bills of Quantities.	HCWW (Holding Company for Water & Wastewater)	Hydraulic Designer for connections of compact units to networks	120
Master Plan for Infrastructure (Water and Wastewater) for Qena Governorate, Egypt	2007-2009	Complete <u>Master Plan</u> for water & wastewater networks in Qena. Work included current assessment of existing situation of networks and treatment works, sit visits, data collection and analysis, demographic studies and establishing Master Plan for water and wastewater to target	HCWW (Holding Company for Water & Wastewater)	Hydraulic Designer for water and wastewater networks and treatment plants & demographic analyst	>100



Project Name	From To	Project Description	Client	Position in Project	Project Value (million EGP)
		year 2050 including networks, treatment plants and lifting stations, and preparing tender packages for all works.			
Design for Infrastructure for BWARI District, Abuja, Nigeria	2008-2009	Complete Engineering <u>design</u> and preparing <u>workshop drawings</u> for infrastructure networks (water, wastewater, & rain drainage networks) for BWARI Satellite Towns with an area of 1,800 Feddans. Work included design of complete water conveyance network with elevated tanks, underground storage tanks, and booster stations. Wastewater network design included complete collection piping, manholes, and wastewater treatment plant. Rain drainage network design included channels, culverts, bridges, and side drainage channels.	Arab Contractors O.A.O. Nigeria Ltd.	Project Manager & Hydraulic Designer for Water & Wastewater Networks and Rain Drainage Collection systems	>300
Hydraulic Balance of OTV Water Treatment Plant, 10 <sup>th</sup> of Ramadan, Egypt	2007	Hydraulic Balance study for OTV water treatment plant and service areas of city and preliminary design of connection of DN 1400 to feed El Shourook City. Work included site visits, data collection, hydraulic analysis for treatment plant and main carrier lines.	Construction Authority for Potable Water & Wastewater	Hydraulic Designer	--
Recreational Lake & Irrigation Networks- El Worood Compound, 6 <sup>th</sup> Of October, Egypt	2003	Complete <u>design</u> and <u>construction supervision</u> for recreational lake 3,000m <sup>2</sup> , with 5 mechanical dancing fountains with 6 weirs and 4,000m <sup>3</sup> storage body for irrigation. Work included irrigation network feeding green areas in compound and all interconnection piping between lake and irrigation network, 10 pumps with capacity 80m <sup>3</sup> /hr, connecting valves and fittings, & pump room.	Egyptian Arab Company for Development	Project Manager & Hydraulic Designer for Lake and irrigation Network	2

## Environmental Projects

<b>Project Name</b>	<b>From To</b>	<b>Project Description</b>	<b>Client</b>	<b>Position in Project</b>	<b>Project Value (million EGP)</b>
EDD for New Makro New Commercial Wholesalers, Maadi, Egypt	2009	Performing <u>Environmental Due Diligence Assessment</u> for the proposed location for Makro Wholesalers Project. Assessment included site visits, data collection, and analysis of risks in potential site and proposal of mitigation measures.	Makro, Egypt	Project Manager & Designer for EDD report and associated mitigation measures.	30
EDD for New Makro New Commercial Wholesalers, Nasr City, Egypt	2009	Performing <u>Environmental Due Diligence Assessment</u> for the proposed location for Makro Wholesalers Project. Assessment included site visits, data collection, and analysis of risks in potential site and proposal of mitigation measures.	Makro, Egypt	Project Manager & Designer for EDD report and associated mitigation measures.	30
EIA for Desalination Plant, Beer Asaal Touristic Village, Hurghada, Egypt	2004	Performing <u>Environmental Impact Assessment Study</u> for RO Plant effluent and adjacent coral reefs. Study included field measurements, hydraulic calculation and design of dilution & effluent systems and mitigation alternatives.	Ridge Wood Company, Egypt	Project Manager & Hydraulic Designer for effluent & dilution system.	2
EIA for Desalination Plant, Cattract Touristic Village, Marsa Allam, Egypt	2005	Performing <u>Environmental Impact Assessment Study</u> for RO Plant effluent and adjacent groundwater wells. Study included field measurements, hydraulic calculation and design of dilution & effluent systems and mitigation alternatives.	Ridge Wood Company, Egypt	Project Manager & Hydraulic Designer for effluent & dilution system.	3

## ANNEX 2: REFERENCES

- 1. Sameh Abdel gawad**  
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- 2. Reda El Damak**  
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Head of Center of Water Projects and Studies,  
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Giza, Egypt  
Tel: 0122189842  
e-mail: [redadamak@yahoo.com](mailto:redadamak@yahoo.com)
  
- 3. Chaudhry, M. Hanif**  
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- 4. Imran, Jasim**  
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**5. Meadows, Michael E.**

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**6. Dickerson, John R.**

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Fax number: (803) 777-0670  
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**7. Khan, Jamil**

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