

## **AMITHIRIGALA WIDHANELAGE JAYAWARDENA**

### **Current Positions**

- Adjunct Professor, Department of Civil Engineering, The University of Hong Kong, Hong Kong SAR.
- Visiting Professor, Chu Hai College of Higher Education, Hong Kong (2018 - present)

### **Previous positions**

- Guest Professor (2013-2018), Beijing Normal University, Beijing, China
- Adjunct Professor, Vellore Institute of Technology (VIT University), India (2017-2019)
- Technical Advisor, Research and Development Centre, Nippon Koei Co. Ltd (Consulting Engineers), Tsukuba, Ibaragi, Japan (2013-2014)
- Visiting Professor, Hohai University, Nanjing, China (2013-2015)
- Research and Training Advisor, International Centre for Water Hazard and Risk Management under the auspices of UNESCO, Public Works Research Institute, Tsukuba, Japan, and, concurrently a Professor, National Graduate Institute for Policy Studies, Tokyo, Japan (2007-2012)
- Honorary Professor, Department of Statistics and Actuarial Sciences, The University of Hong Kong, Hong Kong (2008-2011)
- Lecturer, Senior Lecturer, Department of Civil Engineering, The University of Hong Kong
- Senior Engineer, Howard Humphrey & Sons, Consulting Engineers, UK
- Research Assistant and Post-doc, King's College University of London, UK
- Irrigation Engineer, Irrigation Department, Sri Lanka

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### **Academic Qualifications**

B.Sc (Eng) Hons (Ceylon; now University of Peradeniya, Sri Lanka; 1963); M.Eng (Univ. of Tokyo; 1969); M.S (Univ. of California at Berkeley; 1971); Ph.D.(Univ. of London; 1976).

### **Professional affiliations**

- Fellow of the Hong Kong Institution of Engineers (FHKIE)
- Life Member of the American Society of Civil Engineers
- Fellow of the UK Institution of Civil Engineers (FICE) and Chartered Engineer, Council of Engineering Institutions, UK, (C.Eng) in the past

### **Higher degree supervision**

- Successfully supervised 8 Ph.D. and over 90 M. Phil and M.Sc (Eng) students

## Awards

- Visiting International Fellow - Environmental and Water Resources Institute (EWRI), American Society of Civil Engineers (2002)
- International Award, Japan Society of Hydrology and Water Resources (2013)
- Invitational Fellowship, Japan Society for the Promotion of Science, JSPS (2018)

## Publications

- Over 200 publications including two recently published books, 3 book chapters, several edited books, keynote and invited lectures, journal papers, conference papers, seminar/workshop presentations with over 2660 SCI citations and over 21,900 reads as of June 8, 2021

## International academic involvements

Ph. D. external examiner at the Division of Engineering and Mathematical Sciences, The University of Adelaide, Australia (August, 1997); Department of Civil Engineering, The National University of Singapore, Singapore (July 1998); Department of Geophysics, Andhra University, Visakhapatnam, India (April 2005); Department of Statistics and Actuarial Sciences, The University of Hong Kong, Hong Kong (2011).

- Guest Professor, Beijing Normal University (2013- 2018)
- Visiting Professor, Hohai University, Nanjing, China (2013-2015)
- University Associate, Curtin University, Australia (2011-2015)
- External Reviewer for the degree programme of B.Sc. in Marine and Freshwater Sciences, Faculty of Fisheries and Marine Science and Technology, University of Ruhuna, Sri Lanka (2015 - )
- Honorary Professor, Department of Statistics and Actuarial Sciences, The University of Hong Kong, Hong Kong (2008-2011)
- Visiting Professor, College of Water Sciences, Beijing Normal University, Beijing, China (November 5-17, 2006)
- Visiting Professor, Department of Hydraulic Engineering, Tsinghua University, Beijing, China (December 3-10, 2005; September 2013; June 2014; October 2014: September 2015)
- Invited Research Fellow, United Nations University, Tokyo, Japan (August 3-30, 2003)
- External Ph. D. Supervisor, College of Water Resources and Environment, Hohai University, China (2001- 2003).
- Invited Research Fellow, Institute of Industrial Science, University of Tokyo, Japan (1989/90)
- Visiting Lecturer, University of Peradeniya, Sri Lanka (1980)
- Visiting Lecturer and Examiner for the M.Sc.course in Water Resources Engineering, University of Moratuwa, Sri Lanka ,(1980)
- Visiting Scholar, Department of Civil Engineering, King's College, University of London (1983)

- Fellow attached to the Division of Water Resources Engineering, Asian Institute of Technology, Bangkok, Thailand (1978)
- Reviewer of Hong Kong Research Grant Council research grant applications
- Member, Engineering Panel, Hong Kong Research Grants Council, University Grants Committee, Hong Kong SAR, China (September 2004 - June 2006)

### **Research Interests:**

The broad area of research interest is Hydrology and Water Resources. Specific research topics (past and present) include the following:

- Distributed catchment modelling using finite elements
- Dispersion in open channel flows
- Moisture transport through partially saturated porous media
- Secondary flows in curved channels
- Stochastic analysis of rainfall data
- Chaotic dynamics of hydrometeorological time series
- Moving finite elements for convective dominant transport problems
- Artificial neural networks and Genetic algorithms in Hydrology
- Interill sediment delivery and rainfall kinetic energy
- Xinanjiang model, its modifications, and GIS
- Basin scale hydrology coupled with atmospheric processes
- Red tide prediction
- Fuzzy logic systems
- Support vector machines
- Climate change

### **UNESCO/IHP/IAHS/IUGG/UNEP related**

- Carried out a UNESCO project on "Strengthening curricula in Environmental Engineering" (1986). Reports submitted to UNESCO:
  - Time Series Analysis: A practical introduction and its application to environmental data analysis, February, 1986, pp 102
  - Dispersion prediction in open channel flow, February, 1986, pp 51
- Member, International Association of Hydrological Sciences
- Member of the International Association of Hydrological Sciences (IAHS) Panel responsible for selecting the 2003 Tison Award
- Panel member, Nomination group for the International Commission on Water Resources Systems (1994/95).
- Member, UNESCO-IHP Regional Steering Committee for Southeast Asia and the Pacific (1995).
- Member of the Commission on Geophysical Risk and Sustainability, International Union of Geodesy and Geophysics (IUGG). (2000 – )
- Member, UNESCO Expert Panel to visit the Peoples Democratic Republic of Korea on a UN Science Mission (July 2000)

- Member, International Panel to evaluate UNESCO's contribution to World Water Assessment Programme (2007). Report submitted to UNESCO
  - Miguel A. Medina, Jr., Jayawardena, A. W., Ilonze, L. H. C., Zeil, P., and Xia, Jun (2007): *Evaluation of UNESCO's Contribution to the World Water Assessment Programme (WWAP)*, Report submitted to Internal Oversight Service Evaluation Section, UNESCO, IOS/EVS/PI/76, October 2007, pp 150.  
[http://www.unesco.org/water/wwap/news/index.shtml#wwap\\_evaluation](http://www.unesco.org/water/wwap/news/index.shtml#wwap_evaluation)
- Peer reviewer for the UNEP Assessment report on the Water Impacts of Atmospheric Brown Clouds, United Nations Environment Programme (January 2008)
- Member, Expert Group on Indicators, monitoring and databases, United Nations World Water Development Report No. 3 (WWDR3), UN World Water Assessment Programme (2009).
- Contributor, Chapter 12: Evolving hazards and emerging opportunities, United Nations World Water Development Report No. 3 (WWDR3), UN World Water Assessment Programme (2009), pp 211-225.
- Editor, Catalogue of Rivers for Southeast Asia and the Pacific - A UNESCO-IHP Publication (volumes I, II, and III)
- Invited Lecturer at the Spring School on Fluid Mechanics and Geophysics of Environmental Hazards held at the Institute of Mathematical Sciences of the National University of Singapore (April 19 - May 2, 2009)
- Visited Sri Lanka on a UNESCO-ICHARM mission to investigate the causes of January 2011 flooding in the north-east and recommend follow-up actions (January 20-28, 2011)
- Invited Lecturer at the training course on 'Flood Management' for Sri Lankan Engineers, jointly organized by UNESCO, Indian Institute of Science and the Divecha Centre for Climate Change held at the Indian Institute of Science, Bangalore, India (July 10-24, 2011)
- Expert Reviewer of the First Order Draft of Working Group II, Inter-Governmental Panel on Climate Change (IPCC) Fifth Assessment Report (July - August, 2012)

### **Conference organization/involvements**

- Secretary, Organizing Committee of the Seventh International Symposium on River Sedimentation held in Hong Kong during December 16-18, 1998.
- Secretary, Organizing Committee of the Second International Symposium on Environmental Hydraulics held in Hong Kong during December 16-18, 1998.
- Vice Chairman, Local Organizing Committee of the 4<sup>th</sup> International Symposium on Environmental Hydraulics and the 14<sup>th</sup> Congress of Asia and Pacific Division International Association of Hydraulics Engineering and Research, held in Hong Kong, China, December 15-18, 2004.
- Member of the International Scientific/Technical/Advisory/Steering Committees of
  - International Conference on Water Resources and Environment Research - Towards the 21<sup>st</sup> Century, held in Kyoto, Japan, October 1996.
  - Second International Conference on Water Resources and Environment Research held in Brisbane, Australia, 6-8 July 1999.
  - Civil and Environmental Engineering Conference - New Frontiers and Challenges, held in Bangkok, Thailand, 8-12 November 1999.

- International Symposium on floods and droughts, Nanjing, China, October 18-21, 1999.
- International Conference on Integrated Water Resources Management for Sustainable Development, December 19-21, 2000, Roorkee, India.
- Second International Symposium, New technologies for urban safety of mega cities, organized by the International Center for Urban Safety Engineering (ICUS), Institute of Industrial Science, University of Tokyo, Japan, October 30-31, 2003.
- International Conference on Pollution in the Metropolitan and Urban environment (POLMET 2003), held in Hong Kong, China, November 3-5, 2003.
- 2<sup>nd</sup> Asia Pacific Association of Hydrology and Water Resources (APHW) Conference held in Singapore, July 5-8, 2004
- International Conference on Coastal Infrastructure Development – Challenges in the 21<sup>st</sup> Century, held in Hong Kong, China, November 22-24, 2004
- International Conference on Sustainable Water Resources Management in the Changing Environment of the Monsoon Region, held in Colombo, Sri Lanka, November 17-19, 2004
- 3<sup>rd</sup> Asia Pacific Association of Hydrology and Water Resources (APHW) Conference held in Bangkok, Thailand, October 16-18, 2006.
- 3<sup>rd</sup> International Symposium on Integrated Water Resources Management, held during September 26-28, 2006 in Ruhr University, Bochum, Germany.
- International conference on climate change impacts and adaptation strategies for Bangladesh, 18-20 February 2009, Dhaka, Bangladesh.
- Member, International Steering Committee, National Conference on Sustainable Water Management, Central University, Jharkhand, India (January 2016).
- Member, Organizing Committee, World Congress on Climate Change, October 24-26, 2016, Valencia, Spain; 3<sup>rd</sup> World Congress on Climate Change and Global Warming, October 16-17, 2017, Dubai, UAE.
- Member, International Scientific Committee, International Conference on Water and Wastewater Management and Modelling, held during January 16-17, 2018, Centre for Water engineering and Management, Central University of Jharkhand, Jharkhand, India.

### **Journal editorships**

- Editor-in-chief, Journal of Agricultural Sciences and Applications (JASA) (2013-vol 2, no. 2)
- Member, Editorial Board, American Journal of Climate Change (2011- present)
- Member, Editorial Board, Open Journal of Modern Hydrology (2013- )
- Member, Editorial Board, Austin Journal of Hydrology (2014 - present)
- Member, Editorial Advisory Board, The Open Civil Engineering Journal (2012- 2017)
- Member, Editorial Board, SciFed Journal of Global Warming (2017 - )
- Member, International Advisory Board, Journal of Hydro-Environment Research (2018 - 2020)

### **Journal review**

- Journal of Hydrology
- Hydrological Processes

- Water Resources Research
- Hydrological Sciences Journal
- Hydrology and Earth System Sciences
- Nordic Hydrology
- Chaos, American Institute of Physics
- Finite elements in Analysis and Design
- Journal of Sound and Vibration
- ASCE Journal of Irrigation and Drainage Engineering
- ASCE Journal of Water Resources, Planning and Management
- ASCE Journal of Hydraulic Engineering
- ASCE Journal of Hydrologic Engineering
- Journal of the American Water Resources Association
- Asian Journal of Environmental Management
- Stochastic Environmental & Risk Assessment
- Journal of Hydroinformatics
- Journal of Hydro-environment Research
- Journal of Flood Risk Management
- Sustainability Science
- Journal of the Korean Society of Civil Engineers
- International Journal of Sediment Research
- Environmental Geotechnics
- Earth Science Review

**Specialist consultancy work undertaken and carried out for**

- UNESCO
- Maunsell Consultants Asia, Hong Kong
- Guangdong Water Conservancy & Hydro Power Engineering Development Co. Ltd., Hong Kong
- Binnie-Maunsell Consultants, Hong Kong
- Mott MacDonald Consultants (Hong Kong ) Ltd.
- Sun-Fook Kong - Dickson Joint Venture
- Woo, Kwan Lee & Company (Solicitors)- Providing expert report on a high court action case
- Raymond Ho & Co. (Solicitors) - Providing expert opinion and report on a litigation case
- Montgomery Watson Harza (MWH), Hong Kong – Review of South East Kowloon Development Drainage Impact Assessment Report
- Wong, Hui & Co., Solicitors, Hong Kong – Providing expert opinion and report on an alleged flooding incident.
- Yip & Partners, Solicitors and Notaries, Hong Kong - Providing expert opinion and report on an industrial accident in a sand quarry
- Expert witness in the matter of the Environmental Impact Assessment Appeal Board and the Sheung Shui to Lok Ma Chau Spur Line Environmental Impact Assessment

(Kowloon Canton Railway Corporation vs. Environmental Protection Department of the Hong Kong SAR Government)

- Drainage Services Department, Hong Kong SAR Government (2012) - Independent Expert reviewer of the Consultants' findings of the project on "Enhancing the Hydrology Practices for Flood Management",
- Member of a project team on 'seepage in buildings' funded by the Central Policy Unit (CPU) of the Hong Kong SAR Government (2014-2015)

### **Community service**

- Volunteer Consultant to Hong Kong Red Cross in the post-tsunami reconstruction programmes (April 2005~)
- Member, Public Affairs Forum, Home Affairs Bureau, Hong Kong SAR Government (March, 2006 – June 2009)

### **Miscellaneous**

- Listed in "Marquis Who's Who in Science and Engineering, 2003, 2005, 2007 editions"
- Listed in "Marquis Who's Who in Asia, 2007 edition"
- Listed in "International Biographical Centre, Cambridge, England, 2004, 2005 editions"

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