



Via Branze 43, Aula seminari, 4°Piano

Monday 23 March 2026, 16:00-17:00

Seminar in hybrid mode

<https://meet.google.com/bud-vejy-qza>

16:00 Welcome Addresses, Prof. Roberto Ranzi

Prof. GREGORY DE COSTA, PhD, Open Polytechnic, New Zealand

*Climate change impacts on water resources, saline intrusion  
on coastal aquifers and adaptation measures*



**Università  
di Brescia**

Dipartimento di Ingegneria Civile, Architettura,  
Territorio, Ambiente e di Matematica

***Dr. Gregory Shahane De Costa***  
*Principal of the Academic Board in Engineering  
Open Polytechnic New Zealand*

## C U R R I C U L U M V I T A E

**NATIONALITY:** New Zealand

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### **1. Engineering Qualifications**

1994 Ph.D., Doctor of Engineering (Hydraulics & Hydrology), University of Hiroshima, Japan.  
1991 M.Sc., Master of Science (Environmental Engineering), University of Hiroshima, Japan.  
1987 B.Sc. (Civil Engineering) Honours, University of Moratuwa, Sri Lanka.

### **2. Management Qualifications**

1997 M.BA., Master of Business Administration (M.BA), University of Colombo, Sri Lanka.

### **3. Distance education Study**

1998 Course on Distance Education, 10 weeks, Open University of United Kingdom, (OUUK).

### **4. Professional Development**

2017 Visiting Professor, Kyoto University and Kansai University, Japan (Sep / Oct)  
2015 Visiting Professor, Kyoto University and Kansai University, Japan (April / May)  
2013 Visiting Professor, Kyoto University, Japan (April / May)  
2011 Visiting Professor, Kansai University, Japan (Sep / Oct)  
2009 Visiting Professor, Kyoto University, Japan (March)  
2004 Research Fellowship, Kyoto University, Japan (April to June)  
2002 Research Fellowship, Open Polytechnic of New Zealand, (February to July)  
1999 Research Fellowship, Kyoto University, Japan (June to September)  
1997 Advanced River Flow Forecasting, University College Galway, Ireland, (April to June)

### **5. Peer Esteem**

- a. Invited Speaker for the 7th Conference on Advancements in Civil Engineering, Chittagong University Bangladesh, 2024
- b. Invited as Keynote Speaker for the 2020 Chinese Hydraulic Engineering Association annual congress.
- b. Invited to present a report at conference of China Institute of Water Resources and Hydro Power Research and Chinese Hydraulic Engineering Society – May 2019.
- c. Invited as guest speaker to present paper at the 15<sup>th</sup> International Conference on Computational Civil Engineering, in Romania, May 2019.
- d. Invited as keynote speaker at the International Conference on Civil Engineering and Applications, Sri Lanka July 2019.
- e. Presiding over the 2019 IAHR APD exco meeting in Panama, September 2019
- f. Member of International Scientific Panel, for 6<sup>th</sup> International seminar on Advancement of Water Resources management in a global challenge, November 2019
- g. Reviewer of many papers for esteemed international journals.

### **6. Special Awards**

2024 Distinguished member, International Association for Hydro Environmental Research -Asia Pacific Division  
2009-24 Fellowships & invitations to universities round the world as Visiting Professor, invited speaker or Keynote speaker.  
2009 JSPS fellowship to perform joint research in Japan.  
2005 The Open Polytechnic of New Zealand research excellence award.



- 2004 JSPS fellowship to perform joint research in Japan.
- 2002 Research fellowship by the Open Polytechnic of New Zealand.
- 1999 Japanese Government fellowship to perform joint research.
- 1998 Recognized by the city of Hiroshima, Japan as an overseas partner.
- 1998 British Government fellowship for training in Distance Education Research.
- 1997 Irish Government fellowship for a workshop on Advance River Flow Forecasting.
- 1988 Japanese Government Monbusho Scholarship for postgraduate education.

## **7. Professional Affiliations**

- a. Fellow of IAHR <https://www.iahr.org/index/detail/1051>
- b. Fellow of Engineering New Zealand (FENZ).
- c. Chartered Professional Engineer (C.P. Eng, New Zealand).
- d. Member of International Professional Engineers Register (M.Int P.E.)
- e. Member of the International Association for Hydraulic Research.
- f. Fellow of the Institute of Engineers, Sri Lanka (FIESL) & Chartered Engineer (C.P. Eng, SL)

## **8. Elected Leadership Positions**

- 2019 - 2022 President, of the Executive Council of the International Association for Hydraulic Research – Asia Pacific Division
- 2014 – 2018 Vice President of the Executive Council of the International Association for Hydraulic Research – Asia Pacific Division

## **9. Publications**

I have over 70 research publications in local as well as International Journals, conference presentations and publication in its proceedings. I have a paper published in the Journal of Hydrology New Zealand. In addition, I have authored and published 5 books.

A google search of "Dr Shahane De Costa" "A/ Prof Gregory De Costa" will reveal some of my work.

### **Publication of Books**

*I have authored the following.*

1. Textbook on - Water Resources Engineering (Hydrology & Water Supply).
2. Textbook on - Quantitative Techniques for Decision Making.
3. Booklet on - Human Resource Management in a nutshell.
4. Booklet on - Operations Management in a nutshell.
5. Textbook (in the Sinhala Language) on Water Resources Engineering.

I am a Co-editor of a book entitled Water Projects and Technologies in Asia, A historical Perspective. <http://www.routledge.com/9781032120386>, a Taylor and Francis Publication.

## **10. Career Profile**

### **A. Open Polytechnic of New Zealand**

2019 Apr to Date - **Principal of the Academic Board in Engineering**



**B. Unitec Institute of Technology**

2016 to 2017 **Academic Leader New Zealand Diploma in Engineering (NZDE) (Civil) and Associate Professor, 2015 to 2016 Associate Professor, 2013 to 2014 Senior Lecturer**

**C. International Research Project**

2005 April to 2006 March & 2006 September to 2016 – **Project Leader**

I was a Project Leader, leading an international team from Universities and research organizations in Australia (USQ), Japan, India (IIT), Sri Lanka, Pakistan and New Zealand to conduct research on Climate change, sea level rise, Salinity intrusion and resulting impacts mitigation. I organized a major International Conference in Sri Lanka which had over 300 delegates from over 41 countries.

**D. Open Polytechnic of New Zealand**

2010 to Feb 2013 **Associate Professor and in Charge of Civil Engineering program**  
2007 June to 2010 **Associate Professor, Open Polytechnic of New Zealand**

**E. Open University of Sri Lanka**

**Associate Professor, 1999 to 2001 Senior Lecturer, 1996 to 1999**

**Research Publications**

- I. Kinematic Routing Model Using The Weighted Residual Method and its Application to a Sri Lankan Catchment, Proceedings of the 25th Congress of the International Association for Hydraulic Research, Vol.6, pp. 41-48, 1993.
- II. Estimation of Water Holding Capacity in a Hillside, **Journal of the Japan Society of Hydraulics and Water Resources**, Vol.6, No.1, pp.36-46, 1993.
- III. A Study on The Application of The Weighted Residual Method, Proceedings of the 88th Annual Conference of the Institute of Engineers Sri Lanka, pp. 152-160, Oct. 1994.
- IV. Network System Modelling and The Optimum Routing Procedure, **Journal of The Institute of Engineers Sri Lanka**, Vol.23, No. I, pp.13-18, 1995.
- V. Runoff Characteristics of a Catchment in the south-western part of Sri Lanka, Proceedings of the 26th Congress of the International Association for Hydraulic Research, Vol.1, pp.609-610, 1995.
- VI. Response Characteristics of the Kaluganga and the Lumped System Model for Flood Forecasting, **Journal of The Institute of Engineers Sri Lanka**, Vol. -23, No 2, pp.37-45, Dec. 1995.
- VII. A Study on the Parameters of the Muskingum - Cunje Model for Flood Routing, **Journal of the Institute of Engineers Sri Lanka**, Vol.24, No.1, pp.56-62, June 1996.
- VIII. A Study on the Incorporation of the Effects of Vegetation in Runoff Simulation, Proceedings of the 90th Annual Conference of the Institute of Engineers Sri Lanka, pp.166-170, 1996.
- IX. Network System Modelling Incorporating the Weighted Residual Method and its Applications, Proceedings of the International Conference on Urban Engineering in Asian Cities for the 21st Century, Vol.2, pp.224-230, 1996.
- X. Characteristics of Soil Water Flow Processes, Proceedings of the 27th Congress of the International Association for Hydraulic Research, Vol.3, pp.439-445, 1997.



- XI A Study on Water Management of an Irrigation Scheme in Sri Lanka, Proceedings of the 27<sup>th</sup> Congress of International Association for Hydraulic Research, Vol.1, pp.899-904, 1997.
- XII A study on the water supply system of a Sri Lankan town, Proceedings of the International Conference on Large Scale Water Resource Development in Developing Countries, pp. 38-44, 1997.
- XIII Hydrological aspects related to disaster management, Proceedings of the workshop on role of R & D institutions in natural disaster management, pp. 17.1-17.5, 1998.
- XIV A study on the temporal variation of ground water in the Nilwala Basin, Proceedings of the 11<sup>th</sup> Congress of the Asia Pacific Division of the International association for Hydraulic Research, pp. 159 - 164, 1998.
- XV Lumping scale of watersheds in relation to runoff phenomenon, **Journal of the Institute of Engineers**, Vol.24, No.1, pp.37-43, 1999.
- XVI A study on interception process and its hydrological impact, National Conference on status and future direction of water research in Sri Lanka, F1 - 9, 1998.
- XVII Ground water variation of a catchment in Sri Lanka, Proceedings of the 54<sup>th</sup> Annual Session of the Sri Lanka Association for Advancement of Science, pp. 141 - 142, 1998.
- XVIII A study on the interception process and its hydrological impact, Proceedings of the 28<sup>th</sup> Congress of International Association for Hydraulic Research, Paper on CD, pp.194, 1999.
- XIX Application of river flow forecasting models on the Nilwala River, Journal of the Institute of Engineers Sri Lanka, Vol.30, No.3, pp.66-75, 1999.
- XX Solid waste generation and its storage, **Journal of the Institute of Engineers Sri Lanka**, Vol.30, No.3, pp.34-41, 1999.
- XXI Water Consumption patterns in schools of the Trincomalee District of Sri Lanka, Proceedings of the 55<sup>th</sup> Annual Session of the Sri Lanka Association for the Advancement of Science, pp. 107 - 108, 1999.
- XXII Hydrology related disasters and its mitigation in Sri Lanka, Proceedings of the International Conference on Disaster Management and Co-operative networking in South Asia, pp. 488-492, 1999.
- XXIII Managing water for agriculture in the emerging millennium, Proceedings of The National conference on engineering in the emerging millennium, 2000.
- XXIV Incorporation of the interception process to the kinematic flood routing model and the weighted residual method, Proceedings of the 12<sup>th</sup> Congress of the Asia Pacific Division of the International association for Hydraulic Research, pp. 1037 - 1043, 2000.
- XXV Resource allocation for solid waste collection and transportation in semi residential areas (Part 1), **Journal of the Institute of Engineers**, Vol.34, No.2, pp.30-40, 2001.
- XXVI Resource allocation for solid waste collection and transportation in semi residential areas (Part 2), **Journal of the Institute of Engineers**, Vol.34, No.2, pp.41-52, 2001.
- XXVII The mechanism of deposition of heavy minerals on the beach by wave action - A Sri Lankan case, Proceedings of the 29<sup>th</sup> Congress of the International Association for Hydraulic Research, Theme E, pp.217-223, 2001.
- XXVIII Study on the manpower requirements in water supply projects - A case of towns east of Colombo, Proceedings of the 29<sup>th</sup> Congress of the International Association for Hydraulic Research, Theme A, pp.313-318, 2001.
- XXIX A Study on Salinity Intrusion: Case of the Waiwhetu Aquifer, Wellington, New Zealand, **The Open Polytechnic of New Zealand working papers**, 2-02, 2002.
- XXX A study on Engineering Education in the distance mode - A case of the Civil Engineering Department, Open University of Sri Lanka, **Journal of the Institute of Engineers**, 2002.
- XXXI Comparative study on Salinity intrusion - case of the Waiwhetu aquifer, Wellington and the Bunderberg aquifer, Australia. Proceedings of the 30<sup>th</sup> Congress of the International Association for Hydraulic Research, Theme B, pp.565-572, 2003.



- XXXII Salinity Intrusion, its characteristics and impacts. – Cases in the Asia Pacific Region, Proceedings of the 14th Congress of the International Association for Hydraulic Research – Asia Pacific Division, Vol. 2 pp. 2027 – 2032, 2004.
- XXXIII study on salinity intrusion phenomena & its impact on environment - Proceedings of 31<sup>st</sup> Congress of the International Association for Hydraulic Research, Vol. 1, pp.313-318, 2005.
- XXXIV Towards developing a strategy for managing saltwater intrusion in coastal aquifers, Proceedings of the 15th Congress of the International Association for Hydraulic Research – Asia Pacific Division, Vol. 3 pp. 1547 – 1552, 2006.
- XXXV Strategic management of coastal aquifers subject to salinity intrusion, Proceedings of the 32<sup>nd</sup> Congress of the International Association for Hydraulic Research, Vol. 1, pp.520, Full paper on CD, 2007.
- XXXVI Groundwater behaviour of subsurface area of underground dams, Proceedings of the 16th Congress of the International Association for Hydraulic Research – Asia Pacific Division, Vol. 2 pp. 789 – 795, 2008.
- XXXVII Salinity Intrusion, its Management and Control - Future Scenarios Case of the Waiwhetu Aquifer, Proceedings of the 33<sup>rd</sup> Congress of the International Association for Hydraulic Research, Paper on CD, 2009.
- XXXVIII Management of coastal surface waters subject to seawater intrusion, Proceedings of the 33<sup>rd</sup> Congress of the International Association for Hydraulic Research, Paper on CD, 2009.
- XXXIX Impact of changes in catchment characteristics on artesian water supply of the Waiwhetu aquifer in Lower Hutt Wellington, Proceedings of the 17th Congress of the International Association for Hydraulic Research – Asia Pacific Division, Paper on CD, 2010.
- XXXX A study on Groundwater Quality Changes of the Hautere and Coastal Groundwater Zone in Kapiti Coast, Wellington, New Zealand, Proceedings of the 17th Congress of the International Association for Hydraulic Research – Asia Pacific Division, Paper on CD, 2010.
- XXXXI Global Change and its effects on coastal water resources, Proceedings of the International Conference on Sustainable Built Environment, pp.43-51, 2010
- XXXXII Continuous monitoring of water discharge, temperature, and salinity in tidal spillway using fluvial acoustic tomography, **Journal of Hydrology (NZ)**, Vol. 49 (2), pp. 61-68, 2010.
- XXXXIII Comparative Analysis of Coastal Water Quality, Cases of Wellington New Zealand and Osaka, Japan, Proceedings of the 18th Congress of the International Association for Hydraulic Research – Asia Pacific Division, Paper on CD, 2012.
- XXXXIV Exclusion of Salt Water in low lying Coastal areas – Case Study of the Southern province of Sri Lanka, Proceedings of the 17th Congress of the International Association for Hydraulic Research – Asia Pacific Division, Paper on CD, 2012.
- XXXXV Exploring Changes in Nitrate Contamination in the Coastal and Hautere Zone Aquifers, Wellington, New Zealand Proceedings of the 35th Congress of the International Association for Hydraulic Research, Paper on CD, 2013.
- XXXXVI Assessing the risk of sea level rise and the wave climate of Sri Lanka, Proceedings of the 19<sup>th</sup> Congress of the IAHR APD, Paper on CD 2014
- XXXXVII A study on Water sustainability in Tahiti, Proceedings of the 19th Congress of the IAHR APD, Paper on CD 2014.
- XXXXVIII Drifting conditions of motor vehicles and road configuration during flood, Proceedings of the 19th Congress of the IAHR APD, Paper on CD 2014.
- XXXXIX Supporting undergraduate teaching, Mike by DHI, user group conference, Paper on CD, 2014.
- XXXXX Community involvement, social challenges and day lighting in water management, case of the Ohaku Bay Auckland, Proceedings of the water New Zealand annual conference, Paper



- on CD, 2014.
- XXXXXI Analysis of employability skills for Civil Engineers in New Zealand, Proceedings of the Australasian Engineering Education Annual Conference 2014, pp88
- XXXXXI Changes to water resources resulting from sea level rise and climate change – Case of the Whaiwetu aquifer Wellington Proceedings of the 36th Congress of the International Association for Hydraulic Research, Paper on flash drive, 2015.
- XXXXXII Storm water management and improvement Case of Freemans Bay, Auckland Proceedings of the 36th Congress of the International Association or Hydraulic Research, Paper on flash drive, 2015.
- XXXXXIII Loss of land surface resulting from sea level rise and climate change – Case of the Whaiwetu aquifer Wellington.Proceedings of the 36th Congress of the International Association for Hydraulic Research, Paper on flash drive, 2015.
- XXXXXIV Analysing Rain Garden Efficiency Using Mouse Model, Proceedings of the 20<sup>th</sup> Congress of the International Association or Hydraulic Research APD, Paper on CD 2016.
- XXXXXV Simplified method to forecast loss of land and water table changes due to sea level rise caused by climate change, Proceedings of the 20<sup>th</sup> Congress of the International Association or Hydraulic Research APD, Paper on CD 2016.
- XXXXXVI Simplified model to estimate impact on coastal water resources and loss of shoreline land due to climate change and sea level rise, Proceedings of the 37th Congress of the International Association for Hydraulic Research, On Memory stick, 2017.
- XXXXXVII Diversification of Energy Sources - New Zealand heads towards 90% renewable generation and can reach nearly a 100 percent, Open Polytechnic, Weltec, whiteria Research conference, 2018
- XXXXXVIII Protection of water related eco systems - Cases from New Zealand, Chinese Institute of Hydraulic Society Conference, 2019
- XXXXXIX Effectiveness of Mathematical Modelling in combating impacts of climate change in areas of sparse data, 15<sup>th</sup> Int. Con. On Computational Civil Engineering 2019
- XXXXXX Climate change, sea level rise and its impact on coastal areas, International Conference on Civil Engineering and its applications, 2019
- XXXXXXI Drinking Water in times of disaster – Treating water from upland catchment - a practical Approach, Proceedings of the 38<sup>th</sup> IAHR Congress, 2019.
- XXXXXXII Water in times of disaster – drinking water resilience program in Wellington – New Zealand, Proceedings of the 22<sup>nd</sup> Congress of the International Association or Hydraulic Research APD, 2020.
- XXXXXXiii Hand Pump Wells for Water Resilience – for Civil Defence, Open Polytechnic, Weltec, Whiteria Research conference, 2021.
- XXXXXXIV Climate change, sea level rise and resulting impact on land and water resources, Rangahau Horonuku Hou: New Research Landscapes, 2021 MIT/Unitec Research Symposium, Auckland, New Zealand.
- XXXXXXV Water resilience with Hand Pump Wells: developing country experience and future use in developed countries, Proceedings of the 39<sup>th</sup> Congress of the International Association or Hydraulic Research, 2022.
- XXXXXXVI Disposal of stormwater flows generated by climate change induced heavy rainfall events, Proceedings of the 23<sup>rd</sup> Congress of the International Association for Hydro Environmental Research – Asia Pacific Division, 2022
- XXXXXXVII Experimental study of flow-behaviour of cycle friendly stormwater gratings, Proceedings of the 40th IAHR World Congress (pp. 1539-1546). doi:10.3850/978-90-



833476-1-5\_iahr40wc-p0489-cd, 2023

- XXXXXXXXVIII Water resources management due to climate change impacts. Paper presented at the Asian Civil Engineering Coordinating Council (ACECC) - TC 26, Taipei, Taiwan, 2023.
- XXXXXXXXIX Water heritage of ancient Sri Lanka, Water projects and technologies in Asia: Historical perspectives (pp. 253-262). USA: Taylor and Francis group, 2023.
- XXXXXXX Preventing Contamination of Drinking Water Sources by In-situ Treatment of Sanitary and Kitchen Wastewater. In IAHR APD (Ed.), Proceedings of the 24th IAHR APD Congress (pp. Electronic), 2024.
- XXXXXXXXI Development, and its impact on water resources, cases from New Zealand and Japan. In IAHR APD (Ed.), Proceedings of the 24th IAHR APD Congress (pp. Electronic), 2024.
- XXXXXXXXII Sea level rise and its impact on land and water resources – A case study from Wellington, New Zealand. Paper presented at the Asian Civil Engineering Coordinating Council (ACECC) - TC 26, Engineering New Zealand, Wellington, 2024.