

## Short CV

**Dr. Rezaul K. Chowdhury**

**Assistant Professor | Water Resources**

Department of Civil and Environmental Engineering

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### EDUCATION

1. **PhD in Civil Engineering/Water Resources** (2011): School of Natural and Built Environments, University of South Australia. Thesis: Assessment of Observed Rainfall Variability and its Implications for WSUD in Australia (Supervisor: Professor Simon Beecham).
2. **MSc in Water Resources Development** (2005): Institute of Water and Flood Management, Bangladesh University of Engineering and Technology. Thesis: Planning for Integrated Stormwater Drainage Management of the Lower Part of Malnichara in Sylhet City.
3. **BSc (Hons) in Civil and Environmental Engineering** (2002), Department of Civil and Environmental Engineering, ShahJalal University of Science and Technology, Bangladesh.

### RESEARCH INTEREST

Urban Water Management, Water Sensitive Urban Design (WSUD), Climate Change, Hydrologic Modeling, and Engineering Education.

### TEACHING INTEREST

Fluid Mechanics, Introduction to Environmental Engineering, Environmental Impact Assessment, Engineering Economy, Water Resources, Hydrology.

### PROFESSIONAL EXPERIENCE

1. **Assistant Professor** (February 2012 – Now): Department of Civil and Environmental Engineering, College of Engineering, United Arab Emirates University, Al Ain, PO Box 15551, UAE.
2. **Research Fellow, Level B** (February 2011 – January 2012): Centre for Water Management and Reuse, School of Natural and Built Environments, University of South Australia, Mawson Lakes, South Australia 5095, Australia.
3. **Research Projects Scientist, Level 4.3** (July 2009 – January 2011): Urban Water Systems Engineering Group, CSIRO Land and Water, ESP Building, Dutton Park, Queensland, Australia.
4. **PhD Scholar, Casual Lecturer and Tutor** (May 2007 – June 2009): Centre for Water Management and Reuse, School of Natural and Built Environments, University of South Australia, Mawson Lakes, South Australia 5095, Australia.
5. **Lecturer** (February 2004 – April 2007): Department of Civil and Environmental Engineering, School of Applied Sciences and Technology, ShahJalal University of Engineering and Technology, Sylhet 3114, Bangladesh.

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## RESEARCH PROJECTS/GRANTS

- [1] **Principal Investigator PI** (2013-2015) Assessment of Decentralized Greywater Harvesting and Reuse Opportunity in Al Ain (Co-Is: Dr Walid El-Shorbagy and Dr. Mwafag Ghanma), National Research Foundation (NRF) Grant Round 3, Total Fund AED 258,400 (excluding salaries of PI and Co-PIs).
- [2] **Principal Investigator PI** (2014-2015) Sewer Network Problems Associated with Urban Water Management Practices, SEED-CE-2014 Research Grant 2014, UAEU, Total fund AED 30,000 (excluding salary of PI).
- [3] **Co-Investigator Co-I** (2014-2016) Assessment of Climate Change Impacts on Groundwater Recharge in Abu Dhabi Emirate (PI: Dr. Mohamad Mostafa Mohamed, Co-I: Dr. Ahmed Murad), UAEU Center Based Research Grant, Total fund AED 470,000 (excluding salaries of PI and Co-Is).
- [4] **Principal Investigator PI** (Summer 2014) Carbon Footprint and GHG Emissions of Small Business Sectors in the Al Ain City, SURE Grant 2014 (31N170), UAEU, Total Fund AED 43000 (including stipend of PI and Research Students).
- [5] **Principal Investigator PI** (2013-2014) Reuse of Greywater for Amenity Plantations Using Permeable Pavement with Underlying Reservoir, SEED Research Grant 2013, UAEU, Total fund AED 24,820 (excluding salary of PI).
- [6] **Investigator** (2011 - 2014), Development of an Agreed Set of Climate Scenarios for South Australia (project leader: Professor Simon Beecham), project partners: UniSA, Uni Adelaide, Flinders Uni, CSIRO, SARDI and Department of Water, South Australia; project funded by: Goyder Institute for Water Research; total fund: AU\$ 6.8 million (currently involved as an External Investigator)
- [7] **Investigator** (2011-2011), Development of Interim WSUD Target for Greater Adelaide Region, (team leader: Mr David Pezzaniti), project partners: UniSA, Flinders Uni and CSIRO; project funded by: Goyder Institute for Water Research; total fund: AU\$ 190, 000.
- [8] **Investigator / Project Scientist** (2009-2010), South East Queensland Stormwater Harvesting and Reuse Project (project leader: A/Prof Ted Gardner), project partners: CSIRO, Griffith Uni, Uni Queensland; funded by: Urban Water Security Research Alliance in Brisbane; total fund over 4 years AU\$ 7 million.

## SELECTED RESEARCH PUBLICATIONS

### 2014:

1. **Chowdhury, R. K.**, El-Shorbagy, W., Ghanma, M. and El-Ashkar, A. (2014) Quantitative Assessment of Residential Water End Uses and Greywater Generation in the City of Al Ain, Water Science and Technology: Water Supply, doi:10.2166/ws.2014.090.
2. Rashid, M. M., Beecham, S. and **Chowdhury, R. K.** (2014, in-press) Statistical characteristics of rainfall in the Onkaparinga catchment in South Australia, Journal of Water and Climate Change, accepted on 14 September 2014.
3. Chowdhury, R. K., Beecham, S., Boland, J. and Piantadosi, J. (2014) Understanding south Australian rainfall trends and step changes, International Journal of Climatology, DOI: 10.1002/joc.3982.
4. Beecham, S., Rashid, M. M. and **Chowdhury, R. K.** (2014) Statistical downscaling of multi-site daily rainfall in a south Australian catchment using a Generalized Linear Model, International Journal of Climatology, DOI: 10.1002/joc.3933
5. **Chowdhury, R. K.** and Eslamian, S. (2014) Climate change and hydrologic modeling, in Eslamian, S. (ed) Handbook of Engineering Hydrology: Modeling, Climate Change and Variability (Vol 2), Chapter 5, pp 71-86, ISBN 978-1-

4665-5246-3, CRC Press, Taylor & Francis Group (<http://www.crcpress.com/product/isbn/9781466552463>).

6. **Chowdhury, R. K.** and Eslamian, S. (2014) Statistical parameters used for assessing hydrological regime, in Eslamian, S. (ed) Handbook of Engineering Hydrology: Modeling, Climate Change and Variability (Vol 2), Chapter 26, pp 539-553, ISBN 978-1-4665-5246-3, CRC Press, Taylor & Francis Group (<http://www.crcpress.com/product/isbn/9781466552463>).
7. **Chowdhury, R. K.** (2014) Quantitative and Qualitative Assessment of Greywater for Water Demand Management in Al Ain, 13th IAHR/IWA International Conference on Urban Drainage, 7-12 September 2014, Kuching, Malaysia.
8. Rashid, M. M., Beecham, S. and **Chowdhury, R. K.** (2014) Selection of Predictors for Statistical Downscaling using Wavelet Techniques, 13th IAHR/IWA International Conference on Urban Drainage, 7-12 September 2014, Kuching, Malaysia.
9. Rashid, M. M., Beecham, S. and **Chowdhury, R. K.** (2014) Influence of Climate Drivers on Variability and Trends in Seasonal Rainfall in the Onkaparinga Catchment in South Australia: A Wavelet Approach, 13th IAHR/IWA International Conference on Urban Drainage, 7-12 September 2014, Kuching, Malaysia.
10. Sherif, M., **Chowdhury, R.**, and Shetty, A. (2014) Rainfall and Intensity-Duration-Frequency (IDF) Curves in the United Arab Emirates. World Environmental and Water Resources Congress 2014: pp. 2316-2325. doi: 10.1061/9780784413548.231

#### 2013:

1. **Chowdhury, R. K.** and Beecham, S. (2013) Influence of SOI, DMI and Niño3.4 on South Australian Rainfall, Stochastic Environmental Research and Risk Assessment, Springer, DOI: 10.1007/s00477-013-0726-x.
2. **Chowdhury, R. K.** and Beecham, S. (2013) Characterisation of Rainfall Spells for Urban Water Management, International Journal of Climatology, Royal Meteorological Society, Wiley, **33**(4): 959-967.
3. Ashbolt, S., Aryal, S., Petrone, K., McIntosh, B. S., Maheepala, S., **Chowdhury, R.** and Gardner, T. (2013) Can Stormwater Harvesting Restore Pre-development Flows in Urban Catchments in South East Queensland? Water Science and Technology 67(2): 446-451 (doi:10.2166/wst.2012.582).
4. McIntosh, B.S., Aryal, S., Ashbolt, S., Sheldon, F., Maheepala, S., Gardner, T., **Chowdhury, R.**, Gardiner, R., Hartcher, M., Pagendam, D., Hodgson, G., Hodgen, M. and Pelzer, L. (2013). *Urbanisation and Stormwater Management in South East Queensland – Synthesis and Recommendations*. Urban Water Security Research Alliance Technical Report No. 106. CSIRO, Australia <http://www.urbanwateralliance.org.au/publications/UWSRA-tr106.pdf>
5. El-Shorbagy, W. and **Chowdhury, R. K.** (Eds.) (2013) *Water Treatment*, ISBN 978-953-51-0928-0, Published by InTech, Total Chapters 15, Number of Pages 380, DOI: 10.5772/2883; Available at: <http://www.intechopen.com/books/water-treatment>
6. **Chowdhury, R. K.** and El-Shorbagy, W. (2013) Informatics, Logistics and Governance in Water Treatment Processes, Chapter 1 In *Water Treatment*, El-Shorbagy, W. and Chowdhury, R. K. (Ed.), ISBN: 978-953-51-0928-0, InTech, pp 3 - 12, DOI: 10.5772/54386. Available at: <http://www.intechopen.com/books/water-treatment/informatics-logistics-and-governance-in-water-treatment-processes>
7. **Chowdhury, R. K.** (2013) Water Sensitive Urban Design (WSUD) – A Measure of Climate Change Adaptation, 21<sup>st</sup> Joint GCC-Japan Environmental Symposium, Japan Cooperation Centre, Petroleum (JCCP), 4-6 February 2013, Doha, Qatar, pp 1-13 (invited speaker, non-refereed)

## 2012:

8. Beecham, S. and **Chowdhury, R.** (2012) Effects of Changing Rainfall Patterns on WSUD in Australia, Proceedings of the ICE - Water Management **165**(5): 285-298.
9. **Chowdhury, R.**, Gardner, T., Gardiner, R., Hartcher, M., Aryal, S., Ashbolt, S., Petrone, K., Tonks, M., Ferguson, B., Maheepala, S. and McIntosh, B.S. (2012). *South East Queensland Catchment Modelling for Stormwater Harvesting Research: Instrumentation and Hydrological Model Calibration and Validation*. Urban Water Security Research Alliance Technical Report No. 83., CSIRO, Australia.  
Available at: <http://www.urbanwateralliance.org.au/publications/UWSRA-tr83.pdf>
10. **Chowdhury, R.**, Gardner, T., Gardiner, R., Hartcher, M., Aryal, S., Ashbolt, S., Petrone, K., Tonks, M., Ferguson, B., Maheepala, S. and McIntosh, B.S. (2012). *South East Queensland Catchment Modelling for Stormwater Harvesting Research: Instrumentation and Hydrological Model Calibration and Validation*. Urban Water Security Research Alliance Technical Report No. 83., CSIRO, Australia.  
Available at <http://www.urbanwateralliance.org.au/publications/UWSRA-tr83.pdf>
11. **Chowdhury, R. K.** and Beecham, S. (2012) Suitability of a Transitional Probability Matrix Model for Catchment Scale Rainfall Projections, 9th International Workshop on Precipitation in Urban Areas: Urban Challenges in Rainfall Analysis, 6-9 December 2012, St. Moritz, Switzerland, p233-239.
12. **Chowdhury, R. K.** and Beecham, S. (2012) Teleconnectivity of Climate Indices and Their Spatial Temporal Influence on South Australian Rainfall Processes, 9th International Workshop on Precipitation in Urban Areas: Urban Challenges in Rainfall Analysis, 6-9 December 2012, St. Moritz, Switzerland, p240-244.
13. Rashid, M. M., Beecham, S. and **Chowdhury, R. K.** (2012) Multisite Spatial-Temporal Rainfall Analysis in the Onkaparinga Catchment using A Generalized Linear Model, 9th International Workshop on Precipitation in Urban Areas: Urban Challenges in Rainfall Analysis, 6-9 December 2012, St. Moritz, Switzerland, p106-110.
14. **Chowdhury, R.** and Beecham, S. (2012) South Australian Rainfall – Trends and Climate Drivers, Water and Climate: Policy Implementation Challenges: Practical Responses to Climate Change National Conference 2012, 1-3 May, National Convention Centre, Canberra, organized by Engineers Australia.
15. **Chowdhury, R.** and Beecham, S. (2012) Climate Change Impacts on the Hydrology of Aldgate and Inverbrakie Creeks, Water and Climate: Policy Implementation Challenges: Practical Responses to Climate Change National Conference 2012, 1-3 May, National Convention Centre, Canberra, organized by Engineers Australia

## 2011:

16. McIntosh, B.S., Hodgen, M., Laredo, L., Wolf, L., Gardner, T., **Chowdhury, R.**, Maheepala, S. (2011) A GIS Approach for Identifying the Location and Attributes of Land Parcels for Stormwater Harvesting and Reuse in Greenfield Urban Development, In Begbie, D. K. and Wakem, S. L. (eds) Science Forum and Stakeholder Engagement: Building Linkages, Collaboration and Science Quality, Urban Water Security Research Alliance, 14-15 September, Brisbane. Pp 41-46.
17. Ashbolt, S., McIntosh, B.S., Gardiner, R., **Chowdhury, R.**, Gardner, T., Aryal, S., Maheepala, S., Sheldon, F. (2011) Assessing the Effectiveness of SEQ Frequent Flow Management Objectives Against a Range of Urbanisation Extents for Tingalpa Creek, In Begbie, D. K. and Wakem, S. L. (eds) Science Forum and Stakeholder Engagement: Building Linkages, Collaboration and Science Quality, Urban Water Security Research Alliance, 14-15 September, Brisbane. pp 47-52.
18. **Chowdhury, R.** and Beecham, S. (2011). Performance Criteria for Multi-Sourced Urban Water Systems, 12<sup>nd</sup> International Conference on Urban Drainage, Porto Alegre/Brazil, 10-15 September 2011.

19. **Chowdhury, R.**, Gardner, T., Laredo, L., McIntosh, B. S., Maheepala, S. and Beecham, S. (2011). Biophysical Rules for Stormwater Harvesting in South East Queensland, Proceedings of the Stormwater Industry Association Queensland State Conference 2011, Gold Coast, May 2011.
20. **Chowdhury, R.** and Beecham, S. (2011). Stormwater Drainage Design under Climate Change and Variability Conditions, accepted for 34<sup>th</sup> IAHR World Water Congress and Hydrology and Water Resources Symposium 2011, June 2011, Brisbane, Australia.
21. Goyder Institute for Water Research (2011). *Interim Water Sensitive Urban Design Targets for Greater Adelaide*, Goyder Institute for Water Research, Technical Report Series No. 11/7.

## 2010:

22. **Chowdhury, R.** and Beecham, S. (2010). Australian Rainfall Trends and Their Relation to the Southern Oscillation Index (SOI), *Hydrological Processes* **24**(4):504-514.
23. Beecham, S. and **Chowdhury, R.** (2010). Temporal Characteristics and Variability of Point Rainfall: A Statistical and Wavelet Analysis, *International Journal of Climatology* **34**(3): 458-473.
24. Alam, J.B., **Chowdhury, R.**, Reza.,I. (2010). Adsorption Dynamics of Cobalt [Co(II)] on Rubber Granuals, *International Journal of Environment and Waste Management*, 5(1/2):93-103.
25. **Chowdhury, R.**, Hartcher, M., Gardner, T. and Gardiner, R. (2010). Comparison of Different Methods of Catchment Impervious Area Estimation, In Begbie, D. K. and Wakem, S. L. (eds) *Science Forum and Stakeholder Engagement: Building Linkages, Collaboration and Science Quality*, Urban Water Security Research Alliance, 28-29 September, Brisbane, Australia, 62-64.
26. **Chowdhury, R.**, Gardner, T., Gardiner, R., Chong, M. and Tonks, M. (2010). Catchment Hydrologic Modelling for Stormwater Harvesting Study in SEQ: From Instrumentation to Simulation, In Begbie, D. K. and Wakem, S. L. (eds) *Science Forum and Stakeholder Engagement: Building Linkages, Collaboration and Science Quality*, Urban Water Security Research Alliance, 28-29 September, Brisbane, Australia, 65-67.
27. Cook, S., Chong, M., Sharma, A., Gardner, T. and **Chowdhury, R.** (2010). Communal Rainwater Harvesting: Monitoring and Validation, In Begbie, D. K. and Wakem, S. L. (eds) *Science Forum and Stakeholder Engagement: Building Linkages, Collaboration and Science Quality*, Urban Water Security Research Alliance, 28-29 September, Brisbane, Australia, 14-16.
28. Chong, M., Gardner, T., **Chowdhury, R.**, Ort, C., Toze, C., Escher, B., Gardiner, R. and Tonks, M. (2010). Event-Based Stormwater Quality Measurement: Sampling Methodologies for Urban Catchments, In Begbie, D. K. and Wakem, S. L. (eds) *Science Forum and Stakeholder Engagement: Building Linkages, Collaboration and Science Quality*, Urban Water Security Research Alliance, 28-29 September, Brisbane, Australia, 105.
29. Laredo, L., **Chowdhury, R.**, Gardner, T. and Wolf, L. (2010). Spatial Analysis of Stormwater Harvesting Opportunities in SEQ, In Begbie, D. K. and Wakem, S. L. (eds) *Science Forum and Stakeholder Engagement: Building Linkages, Collaboration and Science Quality*, Urban Water Security Research Alliance, 28-29 September, Brisbane, Australia, 107.

## POST-GRADUATE STUDENT SUPERVISION

1. **Associate Supervisor** (2012-2015), PhD Candidate Mr. Md. Mamunur Rashid (UPS scholarship holder), University of South Australia, Research Topic: Spatial Downscaling of Global Climate Model (GCM) Rainfall Projections and Assessment of Uncertainty (Principle Supervisor: Professor Simon Beecham, University of South Australia)

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2. **Principal Supervisor** (2014-), MSc Candidate Mr. Muhammad Rajput Abdul Hameed, UAEU, Topic: Potential of Greywater Reuse and its Effects on Potable Water Demand Management and Downstream Sewer Network.
3. **Principal Supervisor** (2013-), MSc Candidate Mr. Assem El Ashkar, Department of Civil and Environmental Engineering, United Arab Emirates University.