

CURRICULUM VITAE

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PROFILE SUMMARY

Dr. Santosh R. Ghimire is President and Chief Executive Officer (CEO) of Global Sustainability and Life Cycle Consultant (GSLC Consultant) LLC (www.gslcconsultant.com/). He is also an Adjunct Assistant Professor in the Department of Environmental Science and Technology of University of Maryland, College Park (USA). He recently completed a research project on sustainability assessment of stormwater management practices, rainwater harvesting, and agricultural sustainability sponsored by the U.S. Environmental Protection Agency (EPA). Previously, he completed an Oak Ridge Institute for Science and Education postdoctoral Fellowship at the EPA, and postdoctoral and part-time faculty (Instructor) appointments at the University of Georgia and Michigan Technological University. Dr. Ghimire has over 15 years of professional experience including the doctoral and postdoctoral research, teaching, and consulting. He earned a Ph.D. and M.S. degree in Environmental Engineering and an interdisciplinary Graduate Certificate in Sustainability from Michigan Technological University. He also earned M.Sc. (Statistics) and B.Sc. (Physical Group—Physics, Statistics, and Mathematics) degrees from Tribhuvan University, Nepal. He has contributed to over 45 scholarly publications--articles, presentations, and technical reports covering eco-efficiency and sustainability assessment, life cycle assessment (LCA), life cycle cost assessment, green infrastructure practices such as rainwater harvesting, stormwater low-impact development, sediment scour, hydrologic modeling, and water distribution system modeling. He taught Water Management course at the University of Georgia and Engineering Fundamentals, 24 laboratory sections of Water Distribution and Wastewater Collection System Design, Water Resources Engineering, and introductory Physics at Michigan Technological University. He served as the founder president of a non-profit, non-governmental, humanitarian organization in Nepal. He served as president of the Northeast Georgia Branch of American Society of Civil Engineers (ASCE), and is currently serving on the Environmental and Water Resources Systems Committee of ASCE.

ACADEMIC HISTORY

- 2008 **Ph.D.**, Environmental Engineering, Michigan Technological University, Houghton, MI USA
Dissertation: "The Effect of Demand, Tank Parameters, and Pumping Station on Energy Use in Municipal Drinking Water Distribution Systems"
- 2007 **Graduate Certificate in Sustainability**, Michigan Technological University
- 2005 **M.S.**, Environmental Engineering, Michigan Technological University
Thesis: "A Heuristic Method to Enhance Drinking Water Distribution System Security through Optimal Water Quality Sensor Location"
- 1994 **M.Sc.**, Statistics, Tribhuvan University, Kathmandu, Nepal
- 1992 **B.Sc.**, Physical Group (Physics, Mathematics, Statistics), Tribhuvan University, Nepal.

PROFESSIONAL EXPERIENCE

2017- Present **Founder President and Chief Executive Officer, Global Sustainability and Life Cycle Consultant (GSLC Consultant) LLC, GA USA**

08/2018- Present **Adjunct Assistant Professor, Department of Environmental Science and Technology of University of Maryland, College Park, MD USA**

2017- 2018 **Contractor to the US EPA, Athens, GA USA**

- Developed a research proposal “Sustainability Analysis of Stormwater Management Practices Using Modified Eco-Efficiency Framework”; submitted to the U.S. EPA (successful)
- Designed and managed research project, contract, and grant agreement
- Developed Quality Assurance Project Plan (QAPP) for the project
- Conducted independent research on stormwater green infrastructure design and analysis: rainwater harvesting system at the building- and watershed-scale adapted to North Carolina (NC), Virginia (VA), Washington (DC), and San Francisco (CA)
- Designed air conditioning condensate harvesting system at the building-scale adapted to DC and San Francisco
- Compiled life cycle inventory data for these systems and conducted life cycle assessment
- Conducted eco-efficiency and sustainability assessment of innovative crop irrigation practices by integrating economic, environmental, and social indicators
- Prepared two manuscripts, and delivered two oral presentations and a poster to scientific audiences at international conferences in the U.S.

2015-2017 **Part-time Instructor (Course: Pipe Hydraulics; semester: Spring), College of Engineering, The University of Georgia (UGA), Athens, GA, USA**

- Developed Pipe Hydraulics course materials
- Developed a design project on municipal drinking water distribution system
- Taught diverse group of undergraduate students (45)
- Taught scientific theories, concepts, principles, methodologies, and modeling techniques associated with water management: stormwater green infrastructure, hydrologic and hydraulic analyses, municipal drinking water distribution system design and analysis, bridge and culvert flows, open channel flow, type, size, and spacing of inlets
- Supervised students to accomplish their course and design projects on water distribution system

2012- 2017 **Oak Ridge Institute for Science and Education (ORISE) Postdoctoral Research Participant, U.S. Environmental Protection Agency (EPA), Athens, Georgia**

- Developed a research proposal “Eco-Efficiency Analysis of Green Infrastructure Based Watershed Management: A Case Study of Rain Water Harvesting System in the Albemarle-Pamlico basins,” (submitted to the U.S. EPA and Oak Ridge Institute for Science and Education, successful)
- Managed research project, contract, and grant agreement
- Conducted research on stormwater green infrastructure, rainwater harvesting, crop irrigation, life cycle assessment, life cycle cost assessment, water distribution system, eco-efficiency, and sustainability

- Designed domestic and agricultural rainwater harvesting (RWH) system green infrastructure within the Albemarle-Pamlico river basins, NC and VA
- Compiled life cycle inventory data and performed life cycle assessment (LCA) of domestic and agricultural RWH systems, municipal drinking water distribution system, and well water irrigation system
- Developed new methods of holistic impact assessment, eco-efficiency framework, and sustainability assessment that are applicable to green infrastructure practices and other gray infrastructure systems
- Performed LCA of commercial RWH system compared with Washington D.C. drinking water distribution system
- Published five papers and presented the research orally to scientific audiences at four international conferences in the U.S. (OH, OR, TX) and in Osaka, Japan
- Presented two posters to scientific audiences at international conferences in the U.S. (CA, SC)
- Submitted four summary reports describing the research progress to EPA, ORISE

2010-2011 Postdoctoral Research Associate, The University of Georgia

- Designed decentralized versus centralized water distribution systems and performed life cycle cost assessment
- Delivered guest lectures on water distribution system master planning and rainwater harvesting system design
- Assisted a graduate student to develop a model for water distribution system energy use
- Published a paper, and presented research orally at an international conference in the U.S. (FL)

2009-2010 Postdoctoral Research Associate and Instructor, Michigan Technological University

- Instructed Engineering Fundamentals course to 30 students
- Supervised the students and evaluated their performances
- Delivered guest lectures on Course: Stream Restoration, Spring 2010
- Delivered guest lectures on Course: Water Resources Engineering, Fall 2009
- Involved in research projects on energy and greenhouse gas reduction in water distribution systems and water distribution system calibration
- Involved in a research project on stormwater low-impact development (LID)
- Involved in a hydrodynamic experiment investigating the sediment erosion at a hydraulic structure sponsored by the South Florida Water Management District
- Assisted a group of graduate students for energy and greenhouse gas reduction modeling in water distribution systems
- Performed life cycle cost assessment of a RWH system
- Contributed to three papers, and three reports

2005-2008 The National Science Foundation's Integrative Graduate Education and Research Training Associate, Sustainable Futures Institute, Michigan Technological University

- Taught 15 design laboratory sections of the following courses:

- Water Distribution and Wastewater Collection Design: Developed a project on water distribution system design and analysis using EPANET, a project on sewer system layout, sizing, and design using SewerCAD, and taught modeling techniques associated with the course to 30+ students for four years
- Water Resources Engineering: Taught laboratory sections explaining the scientific theories, concepts, principles, and modeling techniques related to Water Resources Engineering to 60 students for two years (Fall 2006 and 2007)
- Supervised the students and evaluated their performances
- Performed research on hydraulic modeling, sensor network design for water quality monitoring, energy use, and water demand in water distribution systems using EPANET2.0 software
- Contributed to seven papers, journals and conferences, and two posters at the international conference in the U.S. (OH, RI, FL, MI)

2002-2005 Research/Teaching Assistant, Michigan Technological University

- Instructed 9 laboratory sections of 20+ students the experiments of physics concepts
 - Spring 2003, College Physics I (recitation)
 - Fall 2002, Physics by Inquiry II Lab
 - Summer 2002, Physics by Inquiry I Lab
 - Spring 2002, Physics by Inquiry II Lab
- Supervised the students and evaluated their performances
- Performed research on sensor network design for water quality monitoring
- Contributed to two papers

RESEARCH EXPERIENCE AND INTERESTS

- Water resources engineering: hydraulics, hydrology, and environmental fluid mechanics
- Adaptation of water infrastructure systems to climate change: innovative green infrastructure
- Eco-efficiency and sustainability assessment of water infrastructure systems
 - Life cycle assessment (LCA) and Life cycle cost assessment
 - Innovative green infrastructure practices (e.g., rainwater harvesting, air-conditioning condensate harvesting)
- Hydraulic structures for water resources management
- Sustainable water distribution systems
 - Water-energy nexus: effect of water demand on energy use
 - Optimal and heuristic design approaches for water quality sensor locations
 - Decentralized versus centralized water distribution systems
 - LCA of water distribution systems compared with rainwater harvesting systems
- Watershed modeling: watershed-scale hydrologic impact assessment and holistic impact assessment
- Collaboration for global sustainability, resilient infrastructure systems, water-energy-food nexus, transportation systems

TEACHING EXPERIENCE (MTU = Michigan Tech; UGA = University of Georgia)

Term	Course Title (Role); University	Credits (Sections)
Spring 2017	Pipe Hydraulics (Instructor); UGA	3 (1)
Spring 2016	Pipe Hydraulics (Instructor); UGA	3 (1)
Spring 2015	Pipe Hydraulics (Instructor); UGA	3 (1)
Spring 2011	Urban Infrastructure Planning and Design, (Guest lectures); UGA	3 (1)
Spring 2010	Stream Restoration (Guest lectures); MTU	3 (1)
Fall 2009	Engineering Fundamentals (Engineering Analysis and Problem Solving) ((Instructor); MTU	3 (1)
Spring 2008	Water Distribution and Wastewater Collection System Design (Teaching Assistant); MTU	3 (2)
Fall 2007	Water Resources Engineering (Teaching Assistant); MTU	3 (3)
Spring 2007	Water Distribution and Wastewater Collection System Design (Teaching Assistant); MTU	3 (3)
Fall 2006	Water Resources Engineering (Teaching Assistant); MTU	3 (2)
Spring 2006	Water Distribution and Wastewater Collection System Design (Teaching Assistant); MTU	3 (3)
Spring 2005	Water Distribution and Wastewater Collection System Design (Teaching Assistant); MTU	3 (2)
Summer 2003	College Physics I (Recitation, Teaching Assistant); MTU	1 (1)
Spring 2003	Physics by Inquiry II Lab (Teaching Assistant); MTU	1 (4)
Fall 2002	Physics by Inquiry I Lab (Teaching Assistant); MTU	1 (2)
Summer 2002	Physics by Inquiry II Lab (Teaching Assistant); MTU	1 (1)
Spring 2002	Physics by Inquiry I Lab (Teaching Assistant); MTU	1 (1)

LEADERSHIP AND PROFESSIONAL AFFILIATION**Awards and Certifications**

- U.S. Environmental Protection Agency's (EPA) Contract Award, 7/2017-12/2018
- EPA's FY 2016 Scientific and Technological Achievement Awards (STAA), Level II Award, in recognition to an article published in the *Environmental Science and Technology*, selected among 130 publications EPA-wide
- ORISE Postdoctoral Research Participant, EPA, 2012-2017
- Graduate Scholar, Sustainable Futures Institute (IGERT Associate), Michigan Tech, 2005-2008
- People's Choice Award, Sustainable Futures Institute Poster Session, Michigan Tech, 2007
- Engineer-In-Training (E.I.T.) Michigan, 2007

Leadership, Professional Affiliation, and Community Service

- Member, American Association for the Advancement of Science (AAAS), present
- Member, American Society of Civil Engineers (ASCE), present

- Past-president, Northeast Georgia Branch of ASCE, 2017-present
- President, Northeast Georgia Branch of ASCE, 2016-2017
- Committee Member, Environmental and Water Resources Systems (EWRS), ASCE, present
- Judge, International Environmental Youth Symposium 2015 Student Poster Competition, Organized by the USEPA - Region 4, October 1-2, 2015
- Session Chair: Environmental Sustainability & Environmental Management: Freshwater Oceans and Seas, the Third Annual Asian Conference on Sustainability Energy and the Environment (ACSEE), Osaka, Japan June 6-9, 2013
- Judge, Student Poster Session, The Association of Environmental Engineering and Science Professors (AEESP), Florida 2011
- Moderator, Network Hydraulics II, Environmental Water Resources Institute Congress (EWRI), Rhode Island 2010
- Co-Organizer, Michigan Tech Sustainable Futures Institute Colloquium, 2008
- Co-Organizer, Michigan Tech Environmental Engineering Graduate Seminar, 2007
- Outstanding Volunteer, BHK-Child Development Center, Houghton MI, 2007-2008
- Member, Michigan Tech Child Care Board, Houghton, MI, 2006–2007
- Team Leader, Project Identification Committee, Engineers Without Borders (EWB)-Michigan Tech Student Chapter, 2005-2006
- Entrepreneurism
 - Founder/President, Social Technology and Activities Research (STAR) Center, Nepal, (1994-2001): Established a non-profit, non-governmental, humanitarian organization to help underprivileged population to uplift their economic, social, health and sanitation conditions in Nepal
 - Founder/President and Chief Executive Officer, Global Sustainability and Life Cycle Consultant (GSLC Consultant) LLC, Athens, GA USA (2017-present)
- Manuscript Reviewer:
 - i. *Environmental Science and Technology*
 - ii. *Journal of Water Resources Planning and Management*
 - iii. *Journal of Pipeline Systems - Engineering and Practice*
 - iv. *Water Management Journal*
 - v. *Urban Water Journal*
 - vi. *Agronomy for Sustainable Development*
 - vii. *Water Science and Technology: Water Supply*
 - viii. *Journal of the American Water Resources Association*
 - ix. *Hydrological Research Letters*
 - x. *Journal of Cleaner Production*

MODELING SKILLS

Water Resource System modeling: EPANET2.0, WaterCAD, SewerCAD, Hydrologic Engineering Centers River Analysis System (HEC-RAS) and Hydrologic Modeling System (HEC-HMS), Soil and Water Assessment Tool (SWAT)

Sustainability modeling: OpenLCA, SimaPro, Economic Input-Output Life Cycle Assessment (EIO-LCA), and Life Cycle Cost Assessment

Other tools: Data Envelopment Analysis (DEA) and Geographic Information System (GIS)

Other Trainings: EPA's annual mandatory and optional trainings

PUBLICATIONS

Peer-Reviewed Journal

1. **Ghimire, S.R.** and Johnston, J.M. (2017). “A modified eco-efficiency framework and methodology for advancing the state of practice of sustainability analysis as applied to green infrastructure.” *Integrated Environmental Assessment and Management*, 9999 (9999), 1-11. <http://onlinelibrary.wiley.com/doi/10.1002/ieam.1928/full>.
2. **Ghimire, S. R.**, Johnston, J.M., Ingwersen, W. W., and Sojka, S. (2017). “Life cycle assessment of a commercial rainwater harvesting system compared with a municipal water supply system,” *Journal of Cleaner Production*, 151 (2017), 74-86. <https://doi.org/10.1016/j.jclepro.2017.02.025>.
3. **Ghimire, S.R.** and Johnston, J. M. (2017). “Holistic Impact Assessment and Cost Savings of Rainwater Harvesting at the Watershed Scale,” *Elementa: Science of the Anthropocene*, 5:9, DOI: <http://doi.org/10.1525/elementa.135>.
4. Champagne, T.M., Barlock, R.R., **Ghimire, S.R.**, Barkdoll, B.D., Gonzalez-Castro, J.A., Deaton, L. (2016). “Scour Reduction by Air Injection Downstream of Stilling Basins: Optimal Configuration Determination by Experimentation,” *Journal of Irrigation and Drainage Engineering*, 04016067.
5. Barkdoll, B.D., Kantor, C.M., Wesseldyke, E.S., and **Ghimire, S. R.** (2016). “Stormwater Low-Impact Development: A Call to Arms for Hydraulic Engineers,” *Journal of Hydraulic Engineering*, 142(8).
6. Barkdoll, B.D., Murray, K.; Sherrin, A., O'Neill, J., and **Ghimire, S. R.** (2015). “Effective-Power-Rank Algorithm for Energy and Greenhouse Gas Reduction in Water Distribution Systems Through Pipe Enhancement” *Journal of Water Resources Planning and Management*, 142(1).
7. **Ghimire, S. R.**, Johnston, J.M., Ingwersen, W. W., and Hawkins, T. R. (2014). “Life Cycle Assessment of Domestic and Agricultural Rainwater Harvesting Systems.” *Environmental Science & Technology*, 48(7), 4069-4077. **Winner of the EPA’s FY 2016 Scientific and Technological Achievement Awards (STAA), Level II Award.**
8. **Ghimire, S.R.** and Johnston, J. M. (2013). “Impacts of domestic and agricultural rainwater harvesting systems on watershed hydrology: A case study in the Albemarle-Pamlico river basins (USA),” *Ecohydrology & Hydrobiology*, 13(2), 159–171.
9. **Ghimire, S.R.**, Watkins, D.W., and Li, K. (2012). “Life Cycle Cost Assessment of a Rain Water Harvesting System for Toilet Flushing,” *Water Science & Technology: Water Supply*, 12(3), 309-320.
10. Ostfeld, A., Salomons, E., Ormsbee, L., Uber, J., Bros, C., Kalungi, P., Burd, R., Boguslawski, Z., Belrain, T., Kang, D., Lansley, K., Hailiang, S., McBean, E., Wu, Z., Walski, T., Alvisi, S., Franchini, M., Johnson, J., **Ghimire, S.**, Barkdoll, B., Koppel, T., Vassiljev, A., Kim, J., Chung, G., Yoo, D., Diao, K., Zhou, Y., Li, J., Liu, Z., Chang, K., Gao, J., Qu, S., Yuan, Y., Prasad, T., Laucelli, D., Vamvakeridou Lyroudia, L., Kapelan, Z., Savic, D., Berardi, L., Barbaro, G., Giustolisi, O., Asadzadeh, M., Tolson, B., and McKillop, R. (2012). “The Battle of the Water Calibration Networks (BWCN),” *Journal of Water Resources Planning and Management*, 138(5), 523-532.
11. **Ghimire, S.R.** and Barkdoll, B. D. (2010). “Sensitivity analysis of municipal drinking water distribution system energy use to system properties,” *Urban Water Journal*, 7 (4), 217-232.

12. Ostfeld, A., Uber, J., Salomons, E., Berry, J., Hart, W., Phillips, C., Watson, J., Dorini, G., Jonkergouw, P., Kapelan, Z., di Pierro, F., Khu, S., Savic, D., Eliades, D., Polycarpou, M., **Ghimire, S.**, Barkdoll, B., Gueli, R., Huang, J., McBean, E., James, W., Krause, A., Leskovec, J., Isovitsch, S., Xu, J., Guestrin, C., VanBriesen, J., Small, M., Fischbeck, P., Preis, A., Propato, M., Piller, O., Trachtman, G., Wu, Z., and Walski, T. (2008). "The Battle of the Water Sensor Networks (BWSN): A Design Challenge for Engineers and Algorithms," *Journal of Water Resources Planning and Management*, 134 (6), 556-568.

Manuscripts Under Review

1. **Ghimire, S.R.** and Johnston, J. M. (under review). "Sustainability Assessment of Agricultural Rainwater Harvesting: Evaluation of Innovative Crop Types and Irrigation Practices," *PLOS ONE*.
2. **Ghimire, S.R.**, Johnston, J. M., Garland, J., Edelen, A., Ma, C., and Jahne, M. (under review). "Life Cycle Assessment of a Rainwater Harvesting System Compared with an AC Condensate Harvesting System in Different US Climates," *Resources, Conservation and Recycling*, Special Issue on Sustainable Water Management for Eco-industrial Parks.

Conference Papers and Oral Presentation (* indicates the presenter)

1. ***Ghimire, S.R.** and Johnston, J. M. (2017). "Holistic blue water use and life cycle cost savings of domestic and agricultural rainwater harvesting at the watershed scale in the Southeast US," The Annual Georgia Environmental Conference, Jekyll Island, Georgia, USA, August 23-25, 2017.
2. ***Ghimire, S. R.**, Johnston, J.M., and Ingwersen, W. W. (2017). "Life Cycle Impacts of a Commercial Rainwater Harvesting System and Sustainability Analysis Using a Modified Eco-Efficiency Framework," Peer-reviewed Abstract, The 17th Annual Meeting of the American Ecological Engineering Society, Athens, GA, May 23-25, 2017.
3. ***Ghimire, S. R.**, Johnston, J.M., Ingwersen, W. W., and Sojka, S. (2015). "Life Cycle Assessment of a Commercial Rainwater Harvesting System," American Rainwater Catchment Systems Association (ARCSA) 2015 Annual Conference, Long Beach, California, Nov. 9-12, 2015.
4. ***Ghimire, S.R.** and Johnston, J. M. (2015). "Traditional Knowledge of Rainwater Harvesting Compared to Five Modern Case Studies," Proceedings of the *World Environmental & Water Resources Congress*, Austin, TX, USA, May 17-21, 2015.
5. ***Ghimire, S.R.** and Johnston, J. M. (2013). "Eco-Efficiency of Watershed Management using Green Infrastructure," *The Third Annual Asian Conference on Sustainability, Energy and the Environment (ACSEE)*, Osaka, Japan, June 6-9, 2013.
6. ***Ghimire, S.R.** and Johnston, J. M. (2012). "Eco-Efficiency Analysis of Green Infrastructure Based Watershed Management: A Case Study of Rainwater Harvesting in the Albemarle-Pamlico Basins," *EcoSummit 2012*, Columbus, OH, USA, Sep. 30 - Oct. 5, 2012.
7. ***Ghimire, S.R.** (2010). "Relationship between Pump Horsepower and Energy Usage in Municipal Water Networks," Proceedings of the *World Environmental & Water Resources Congress (EWRI)*, Providence, Rhode Island, USA, May 16-20, 2010.
8. ***Ghimire, S.R.** and Li, K. (2011). "Cost Evaluation of Decentralized vs. Centralized Water Distribution System Configuration," Peer-reviewed Abstract, the *Association of*

Environmental Engineering and Science Professors (AEESP) Conference, Tampa, FL, USA, July 10-12, 2011.

9. *Rao, P., Li, K., and **Ghimire, S. R.** (2011). "Cost-energy analysis of optimized water distribution for a theoretical urban setup: A case study," Peer-reviewed Abstract, the *AEESP Conference* Tampa, FL, USA, July 10-12, 2011.
10. Johnson, J., **Ghimire, S. R.**, and *Barkdoll, B. (2010). "Flow-Sequential Sector-Specific Lumped Algorithm for Water Network Calibration," *Proceedings of the 12th annual Water Distribution Systems Analysis Conference*, Tucson, Arizona, USA, Sep. 12-15, 2010.
11. Champagne, T. **Ghimire, S. R.**, *Barkdoll, B., González-Castro, J., and Deaton, L. (2010). "Experiments identifying scour-inducing flow patterns at a gated weir stilling basin," *Proceedings of the 5th International Conference on Scour and Erosion*, San Francisco, California, Nov. 7-10, 2010.
12. **Ghimire, S. R.** and *Barkdoll, B. D. (2009). "Impact of Storage Tanks on Energy Consumption in Municipal Water Distribution Systems," *Proceedings of the World Environmental & Water Resources (EWRI) Congress*, Kansas City, Missouri, USA, May 17-21, 2009.
13. **Ghimire, S. R.** and *Barkdoll, B. (2008). "Effect of Demand on Energy Use in Municipal Water Distribution System," *Proceedings of the EWRI Congress*, Honolulu, Hawaii, USA, May 12-16, 2008.
14. ***Ghimire, S. R.** and Barkdoll, B. (2007). "Incorporating Environmental Impact in Decision Making for Municipal Drinking Water Distribution Systems through Eco-Efficiency Analysis," *Proceedings of the EWRI Congress*, Tampa, FL, USA, May 15-19, 2007.
15. **Ghimire, S. R.** and *Barkdoll, B. (2007). "Issues in Energy Consumption by Municipal Drinking Water Distribution Systems," *Proceedings of the EWRI Congress*, Tampa, FL, USA, May 15-19, 2007.
16. ***Ghimire, S. R.** and Barkdoll, B. (2006). "A Heuristic Method for Water Quality Sensor Location in a Municipal Water Distribution System: Mass-Released Based Approach," *Proceedings of the 8th Annual Water Distribution Systems Analysis (WDSA) Symposium*, Cincinnati, OH, Aug. 27-30, 2006.
17. **Ghimire, S. R.** and *Barkdoll, B. (2006). "A Heuristic Method for Water Quality Sensor Location in a Municipal Water Distribution System: Demand Based Approach," *Proceedings of the 8th Annual WDSA Symposium*, Cincinnati, OH, Aug. 27-30, 2006.
18. **Ghimire, S. R.**, *Barkdoll, B., and Bergstrom, P. (2005). "Network Modeling to Demonstrate Efficacy of Improved Water Quality Monitoring," *Proceedings of the EWRI Congress*, Anchorage, AK, May 15-19, 2005.

Poster Presentations (*indicates the presenter)

1. ***Ghimire, S.R.** and Johnston, J. M. (2018). "Holistic Sustainability Assessment of Agricultural Rainwater Harvesting," The National Council for Science and the Environment (NCSE), Washington, DC, January 23-25, 2018.
2. ***Ghimire, S. R.**, Johnston, J.M., Ingwersen, W. W., and Sojka, S. (2016). "Sensitivity of Pumping Energy on the Life Cycle Impacts of a Commercial Rainwater Harvesting System," the American Center for Life Cycle Assessment (ACLCA) LCA XVI Conference, Charleston, SC, September 27-29, 2016.

3. ***Ghimire, S.R.** and Johnston, J. M. (2014). “Watershed-Scale Life Cycle Impacts of Rainwater Harvesting,” the *EWRI Congress*, Portland, Oregon, June 1-5, 2014.
4. ***Ghimire, S. R.** and Barkdoll, B. (2007). “Energy Savings through Water Conservation in Municipal Drinking Water Systems,” *Sustainable Futures Institute, Michigan Technological University*, Houghton MI, 49931, Oct 2007. (**People’s Choice Award Winner**)
5. ***Ghimire, S.R.** and Barkdoll, B. (2008). “Impact of storage tanks on energy consumption in municipal water distribution networks,” *Center for Water and Society, Michigan Technological University*, Houghton MI, 49931, March 24, 2008 and *Research Symposium of Graduate Student Council, Michigan Technological University*, Houghton MI, 49931, March 25-26, 2008.

Technical Reports

1. **Ghimire, S.R.** (2018). Project progress summary, “Sustainability Analysis of Stormwater Management Practices Using Modified Eco-Efficiency Framework,” monthly summary report submitted to the EPA.
2. **Ghimire, S.R.** (2017). “The Participation in the Oak Ridge Institute for Science and Education Research Participation Program at the U.S. Environmental Protection Agency,” Summary Report, submitted to the Oak Ridge Institute for Science and Education, Oak Ridge, TN, USA and the EPA.
3. **Ghimire, S.R.** (2015). “Eco-Efficiency Analysis of Green Infrastructure Based Watershed Management: A Case Study of Rainwater Harvesting System in the Albemarle-Pamlico Basins” A Summary of Research Progress, submitted to the Oak Ridge Institute for Science and Education, Oak Ridge, TN, USA (annual submissions, 2013-2017).
4. **Ghimire, S.R.** and Watkins, D. W. (2010). “Life Cycle Cost Assessment of a Rain Water Harvesting System: A Case Study of General Motors Corporation Lansing-Delta Township (LDT),” submitted to the General Motors Corporation, Lansing-Delta Township, Michigan.
5. Watkins, D. W., **Ghimire, S.R.**, Payment, C., and Barkdoll, B. (2010). “Hydrologic Model for GM Lansing-Delta Township Site,” Submitted to General Motors Corporation, Lansing-Delta Township (LDT), Michigan.
6. Barkdoll, B., Champagne, T., and **Ghimire, S.R.** (2010). “Erosion Reduction by Air Entrainment: Phase III, Task 2 Report,” Submitted to the Operations and Hydro Data Management Division, South Florida Water Management District, West Palm Beach, Florida.
7. Barkdoll, B., Champagne, T., and **Ghimire, S.R.** (2010). “Erosion Reduction by Air Entrainment: Phase III, Task 3 Report,” Submitted to the Operations and Hydro Data Management Division, South Florida Water Management District, West Palm Beach, Florida.
8. **Ghimire, S.R.**, Barkdoll, B. D., Watkins, D. W., and Payment, C. (2009). “Estimation of Flow through an Elliptical Barrel Culvert,” Submitted to General Motors Corporation, Lansing-Delta Township, Michigan.

Technical Research Proposals

1. **Ghimire, S.R.** (2017). “Sustainability Analysis of Stormwater Management Practices Using Modified Eco-Efficiency Framework,” Research Proposal (Successful, Contract

Award \$100,400, 07/2017-12/2018), U.S. Environmental Protection Agency, Office of Research and Development, USA.

2. **Ghimire, S.R.** (2015). "Life Cycle Impacts and Cost Benefits Analysis of Commercial Rainwater Harvesting Systems: Regional Application to Five U.S. Cities," A Research Plan submitted to the EPA (part of Oak Ridge Institute for Science and Education or ORISE Project).
3. **Ghimire, S.R.** (2012). "Eco-Efficiency Analysis of Green Infrastructure Based Watershed Management: A Case Study of Rain Water Harvesting System in the Albemarle-Pamlico basins," A Research Plan submitted to the EPA/ORISE (ORISE Fellowship successfully completed, 2012-2017).