

Mehmet Ümit Taner

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Rotterdam, The Netherlands

Education

- 2017 **Ph.D. in Water Resources Engineering, University of Massachusetts Amherst**
Dissertation Title: *Decision Analytical Methods in Robust Water Infrastructure Design under Climate Change*. Advisor: Casey Brown
- 2007 **M.S. in Environmental Technology, Bogazici University**
- 2004 **B.S. in Environmental Engineering, Yildiz Technical University**

Professional Experience

- 12/2018 **Researcher/Advisor, Deltares, Delft, The Netherlands**
Present
- 06/2017 **Postdoctoral researcher, University of Massachusetts Amherst, MA, USA**
11/2018 Investigated robust adaptation to climate change for a diverse range of water resources systems in North America, South Asia and Africa
- 09/2011 **Graduate Research Assistant, University of Massachusetts, Amherst, MA, USA**
05/2017 Developed vulnerability-based planning frameworks for long-term water infrastructure planning under climate and demographic uncertainty
- 09/2009 **ORISE Fellow, U.S. Environmental Protection Agency, Washington DC, USA**
10/2010 Assessed potential impacts of climate change on water quality and aquatic ecosystems using linked watershed, hydrothermal and water quality models
- 04/2008 **Researcher, TUBITAK Marmara Research Center, Gebze, Turkey**
06/2009 Evaluated land-use management and watershed protection strategies for an urban drinking water reserve in the city of Sakarya, Turkey
- 09/2006 **Project Assistant, Bogazici University, Istanbul, Turkey**
05/2008 Developed a system dynamics model of material flow accounting in Turkey to investigate the relationship between socioeconomic development and sustainability
- 01/2005 **Environmental Engineer, Bilecik, Turkey**
01/2006 Conducted engineering design of a central wastewater treatment plant serving to multiple industrial sectors and more than fifty facilities
- 09/2002 **Project Assistant, Yildiz Technical University, Istanbul, Turkey**
05/2005
- 03/2004 **Sales Engineer, ACT Inc., Istanbul, Turkey**
12/2004 Marketed and provided sales support for compact physical and biological wastewater treatment systems
- 2018 **Consultant, Cloudwater LLC, Amherst, MA, USA**
2017 Performed climate risk analysis of Nenskra hydropower scheme in Georgia
2017 Performed climate risk analysis of St. Croix watershed in USA and Canada

- Consultant**, The World Bank, Washington DC, USA
- 2016 Delivered a two-day workshop in Katmandu, Nepal to twelve engineers on climate risk management in the hydropower sector and the World Bank Decision Tree Framework
- 2014 Lead a three-day climate change adaptation workshop in Niamey, Niger which involved 20+ government officials, stakeholder representatives and technical experts

Teaching Experience

- 2018 **Co-instructor**, *University of Massachusetts, Amherst, MA, USA*
(Spring) CEE 597U: Climate Risk Assessment and Management for Water Resources
- 2017 - **Research mentor**, *University of Massachusetts, Amherst, MA, USA*
2018 Mentored an undergraduate summer intern and a graduate-level student
- 2006 **Teaching assistant**, *Bogazici University, Istanbul, Turkey*
(Fall) ESC 595: Dynamics of Socio-ecological Systems

Grants and Fellowships

- 2009 ORISE fellowship for conducting research at United States federal government agencies
- 2007 EU-JRC travel Grand for the "Knowledge Assessment Methodologies" summer school
- 2006 HydroEurope grand for European Flood Risk Management and Resilience School
- 2005 Erasmus grand for exchange student semester at Brandenburg TU Cottbus, Germany

Peer-reviewed Journal Articles

- Taner M.Ü., Ray P., Brown, C. (2019). "Incorporating multidimensional probabilistic information into robustness-based water systems planning." *Water Resources Research* 55. <https://doi.org/10.1029/2018WR022909>
- Ray, P., Taner M.Ü., Schlef K., Wi S., Khan H., Freeman S., Brown C. (2018). "Growth of the Decision Tree: Advances in Bottom-Up Climate Change Risk Management" *Journal of American Water Resources Association* 1-18. <https://doi.org/10.1111/1752-1688.12701>
- Taner M.Ü., Ray P., Brown, C. (2017). "Robustness-based Hydropower Infrastructure Design under Climate Change." *Climate Risk Assessment* (18), 34-50.
- Ghile YB, Taner M.Ü., Brown C., Grijzen J.G. (2013). "Bottom-up climate risk assessment of infrastructure investments in the Niger River Basin." *Climatic Change* 122(1-2), 97-110.
- Taner M.Ü., Üstun B., Erdinçler A. (2011). "A simple tool for the assessment of water quality in polluted lagoon systems: A case study for Küçükçekmece Lagoon, Turkey." *Ecological Indicators* 11(2), 749-756.
- Taner M. Ü., Carleton J.N., Wellman M. (2011). "Integrated climate change projections on a North American Lake." *Ecological Modelling* (222), 3380-3393. <https://doi.org/10.1016/j.ecolmodel.2011.07.015>
- Taner M.Ü., Brown, C., Solak S. "Identifying belief-dominated Water Infrastructure Planning Pathways in the Niger River Basin under Deep Climate Uncertainty." (prepared for submission to *Water Resources Research*).
- Taner M.Ü., Ray P., Brown C. "Probability-Weighted Data Mining for Risk Assessment in Water Systems Planning." (prepared for submission to *Environmental Modelling and Software*).

Book Chapters

- Groves D., Mao Z., Liden R., Strzepek M.K. et al. (2015). "Adaptation to Climate Change in Project Design". In R. Cervigni, R. Liden, J. E. Neumann, & K. E. Strzepek (Eds.), *Enhancing the Climate Resilience of Africa's Infrastructure: The Power and Water Sectors* (pp. 131-160). Washington, DC: The World Bank.
- Grijzen J. G., Brown C., Tarhule A., Ghile Y.B., Taner M.Ü. et al. (2013). "Climate Risk Assessment for Water Resources Development in the Niger River Basin Part I: Context and Climate Projections". In Tarhule A. (Ed.), *Climate Variability Regional and Thematic Patterns* (pp. 37-56). London, UK: InTech Inc.

Grijzen J. G., Brown C., Tarhule A., Ghile Y.B., Taner M.Ü. et al. (2013). "Climate Risk Assessment for Water Resources Development in the Niger River Basin Part II: Runoff Elasticity and Probabilistic Analysis". In Tarhule A. (Eds), *Climate Variability Regional and Thematic Patterns* (pp. 37-56). London, UK: InTech Inc.

Conference Proceedings

- Taner, M.Ü., Sungwook Wi, and Brown C., 2017. "Holistic uncertainty analysis in river basin modeling for climate vulnerability assessment." In Proceedings of the American Geophysical Union 2017 Fall Meeting, New Orleans, LA.
- Taner, M.Ü., Ray P., Brown, C. 2017. Decision Tree Growth: Trunk and Limbs. In Annual Workshop for Decision Making under Deep Uncertainty, Oxford, UK.
- Ray P., Brown C., Taner M.U, Wi S., Yang E., Bonzanigo L., Garcia L., Rodriguez D., Karki P. 2017. "Operationalizing Water Resources Planning Using Bottom-up Vulnerability Assessment Frameworks: Improvements to the World Bank's Decision Tree for Confronting Climate (and other) Uncertainties in Water Resources Investments." In AWRA Specialty Conference on Climate Change Adaptation Washington, DC, 26 June 2017
- Taner, M.Ü., Ray, P., and Brown, C., 2017. Bayesian Networks Decision Scaling (BNDS) for robustness-based participatory water systems planning. In World Environmental & Water Resources Congress, Austin, TX.
- Taner M.U, Alexander B., Brown C. "Improving Natural Resources Management Decisions under Climate Uncertainty". In the Northeast Climate Science Center Regional Science Meeting May 15 - 17, 2017
- Ray, P., Taner, M.Ü., and Brown, C., 2016. Lessons learned from applications of a decision tree for confronting climate change uncertainty - the short term and the long term. In American Geophysical Union, Fall Meeting 2016, San Francisco, CA.
- Taner, M.Ü., Yang, E., and Brown, C., 2015. "A vulnerability-based optimization framework for staged adaptation planning in river basins." In World Environmental & Water Resources Congress 2015, Austin, TX.
- Ray, P., Bonzanigo, L., Taner, M.Ü., Wi, S., Yang, Y.C.E., Brown, C. (2015). "Lessons learned from applications of a climate change decision tree to water system projects in Kenya and Nepal." In Proceedings of the American Geophysical Union 2015 Fall Meeting, San Francisco, CA, 14-18 December
- Taner, M.Ü., Ray, P., and Brown, C., 2015. "Ex post decision analysis for water supply system design under climate uncertainty." In Proceedings of the European Geophysical Union General Assembly, Vienna, Austria.
- Ray, P., Taner, M.Ü., and Brown, C., 2014. "Downscaled GCMs and a weather generator - capacity effects for a hydro plant in Malawi." In Proceedings of the Water Systems, Science, and Society Under Global Change: UCOWR / NIWR / CUAHSI, Tufts University, Medford, MA.
- Taner, M.Ü., Lownsbey, K., and Brown, C., 2013. "A two-stage climate adaptation framework for improving irrigation planning in the Niger River Basin." In American Geophysical Union, Fall Meeting, San Francisco, CA.
- Lownsbey, K., Taner, M.Ü., and Brown, C., 2013. "Development of seasonal forecasting of Upper Niger River streamflow." American Geophysical Union Chapman Conference: Seasonal to Interannual Hydroclimate Forecasts and Water Management (Poster)
- Taner, M.Ü., Lownsbey, K., and Brown, C., 2012. "The Niger Inner Delta: Modeling complex hydrology with simplified systems." In the 3rd Annual Tufts University Water: Systems, Science, and Society (WSSS) Symposium, Boston, Massachusetts.
- Grijzen, J., Brown, C., Tarhule, A., Ghile, Y., and Taner, M.Ü., 2012. "Climate risk assessment for water resources development in the Niger River Basin." In Predictions for Hydrology, Ecology, and Water Resources Management (HydroPredict) 2012, Vienna, Austria.
- Taner M.Ü., Wellman M., Carleton J., 2010. "Potential impacts of climate change on the structure and function of aquatic ecosystems: preliminary results on Onondaga Lake, NY." In US EPA, Integrated Modeling and Analysis to Support the Management and Restoration of Large Aquatic Ecosystems Symposium. Jan 20-21, 2010, Washington DC (Poster)
- Taner M.Ü., Üstun B., Erdinciler A., 2007. "Perspectives for development of a Watershed Sustainability Index (WSI)". In 3rd Int. Conf. of Env. Science and Technology, Houston, TX
- Senduran C., Taner M.Ü., Üstun B., 2007. "Hydrodynamic structure and sediment transport: choosing an appropriate model". In 3rd Int. Conf. of Env. Science and Technology, Houston, TX

- Taner M.Ü., Nehme F.M., 2005. "Thresholds for the classification of surface waters in Turkey." In Workshop for the Standards for Human Health and Environment, St. Marienthal, Germany
- Üstun B., Agcioglu A.B., Taner M.Ü., Aytac G.E., Yenal Z., 2004. "The effects of socio-economic structure on the environmental management model of Küçükçekmece Watershed." In the 4th International Conference of Surveying-mining Geology Ecology Management, Varna, Bulgaria

Invited Talks

- Decision Scaling approach to Climate Risk Assessment.* 5th Annual Ontario Climate Symposium, Ontario, Canada (11 June 2018).
- Addressing Uncertainties in Water & Hydropower Projects: The Decision Tree Framework.* An Introductory 2-day Course for Country Office and Client Teams, Kathmandu, Nepal (20-21 September 2016).
- Long-term Water Availability from Mwache Dam, Kenya.* The World Bank, Washington, DC (7 June 2016).
- Decision Tree examples.* Regional Water Resources Planning and Climate Risk Assessment Workshop, Kwale County, Kenya (12 August 2015).
- Decision-scaling: Linking bottom-up vulnerability analysis with climate projections in water resources management.* U.S. Environmental Protection Agency, Atlantic Ecology Division, Narragansett, Rhode Island (29 August 2012).
- Water Resources Management in the US: An introduction to Water Quality Standards Program.* TUBITAK Marmara Research Center, Gebze, Turkey (17 May 2011).
- Modeling the Potential Impacts of Climate change on a Mid-sized Lake in New York.* US Environmental Protection Agency, Office of Water, Washington DC (15 September 2010).

Language Skills

Turkish (native), English (fluent), German (beginner)

Professional Service

- Reviewer for Environmental Modeling and Software* (Elsevier), *Ecological Modeling* (Elsevier), *Journal of Hydrology* (Elsevier), *Water Resources Research* (Wiley)
- Member of the *American Geophysical Union* (AGU), *European Geophysical Union* (EGU), *American Society of Civil Engineers* (ASCE), *Turkish Chamber of Environmental Engineers* (TMMOB-CMO)

Certifications and Trainings

2010	BASINS/HSPF Watershed Modeling, Aqua Terra Inc, Minneapolis, MN
2010	Drinking Water Academy, US EPA, Washington, DC
2010	Clean Water Act - 101, US EPA, Washington, DC
2010	Water Quality Standards Academy, US EPA, Washington, DC
2010	Introduction to ArcGIS 9.3, US EPA, Washington, DC
2009	Knowledge Assessment Methodologies, UNESCO, Novi Sad, Serbia
2009	Wastewater Management for Sustainable Development, TUBITAK-MRC, Turkey
2008	Project Management, Bogazici University, Istanbul, Turkey
2007	ISO 14001:2004, Turkish Chamber of Environmental Engineers, Istanbul, Turkey