

TIMOTHY O. RANDHIR

Professor (Full) of Watersheds/Water, Ecohydrology, Complex Systems, Ecol. Econ, Sustainability

Department of Environmental Conservation

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Faculty Profile: <http://eco.umass.edu/people/faculty/randhir-timothy-o/>

Twitter: [@timrandhir](https://twitter.com/timrandhir); [LinkedIn.com/in/timothy-randhir-68901389/](https://www.linkedin.com/in/timothy-randhir-68901389/)



Web-based Decision Support: Econwaters.com

Sample Talk: <https://www.youtube.com/watch?v=su15PSRTRoc>



https://www.researchgate.net/profile/Timothy_Randhir



http://scholar.google.com/citations?user=3_JsdOIAAAA&hl=en



<https://umass.academia.edu/TimothyRandhir>



<https://publons.com/researcher/2873454/timothy-o-randhir/>



<http://orcid.org/0000-0002-1084-9716>



<https://www.growkudos.com/profiles/154891>

EXPERTISE

Watershed science, water quality, ecohydrology, climatic change, sustainability, ecological economics, systems ecology, mathematical programming, complex systems, Uncertainty, machine learning, simulation and optimization, G.I.S., spatial analysis, institutional economics, multicriteria decision making, natural resources policy, agricultural economics, land use, international trade and development, energy economics, common-pool resources, mechanism design, and environmental science/policy.

EDUCATION

Ph.D. (1995) Purdue University, West Lafayette, IN, U.S.A.

Dissertation: "Agriculture and water quality: Modeling N.P.S. pollution under geographic state dynamics and bio-physical simulation" – awarded "Outstanding Ph.D. Dissertation" by the agricultural economics department.

Keywords: Watershed systems, natural resources conservation policy, regional planning, water resources protection, spatial dynamic programming, watershed management, ecosystem modeling, Geographic Information Systems (G.I.S.), multi-attribute decision-making, nonpoint source pollution.

M.S. (1988) Agricultural Economics, Tamil Nadu Agricultural University, Coimbatore, India.

Thesis: Optimum crop planning under production risk at varying water supply situations – A case of the Maduranthakam tank of Chengalpattu district.

B.S. (1982) Faculty of Agricultural Sciences, Annamalai University, India.

PROFESSIONAL EXPERIENCE

Sept 2015 – Current: Full Professor

Sept 2007 – Aug 2015: Associate Professor (Tenured in 2007)

Sept 1997 – Oct 2007: Assistant Professor

Dept. of Environmental Conservation, Univ. of Massachusetts, Amherst, MA 01003.

The tenure track position started in September 2002.

Faculty Affiliations:

Director, Massachusetts Water Resources Research Center.

Adjunct Professor, UMass Department of Resource Economics.

Adjunct Professor, Springfield Technical Community College, Springfield, MA.

Faculty Affiliate, Intercampus Graduate School in Marine Sciences and Technology.
Faculty Affiliate, UMass Extension.

Appointment: *Research, Teaching, and Service*

- Research areas: spatial optimization, natural resource economics, watershed science, hydrology, nonpoint source pollution, biodiversity, urbanization, community science, sustainable development, G.I.S., multicriteria decision-making, ecological economics, global warming, incentive design, common-pool resources, information technology, and systems modeling.
- Teaching: Watershed Science & Management, Watershed Management (Online), Ecological Economics and Sustainability, Ecosystem Modeling and Simulation, Advanced Watershed Management, Water Resources Management & Policy, Water Resources, Blue Gold, and World Water Wars.
Developed and coordinated the Graduate Program in Water, Watersheds, and Wetlands concentration.
- Service: Training and outreach to agencies and communities throughout the Commonwealth of Massachusetts and New England, MA Director of S.N.E. Chapter of SWCS, Editor of two environmental journals, developed participatory planning methods for landscape resources, involvement in national and international professional activities, Provost's Task Force on graduate admissions, UMass Faculty Senate Computer & Electronic Communications Committee, Ombuds Academic Honesty Board and chair of the department computer committee.

Sept 95 - Aug 97: **Natural Resource Economist (Post-Doctoral position)**

Dept. of Agricultural Economics, Purdue University.

- Post-doctoral investigator and modeler in a \$2 million USDA-CSREES project (SDSS-Spatial Decision Support System) at Purdue Univ., Texas A&M Univ., and Univ. of Illinois.
- The project develops a spatial, participatory, multiobjective, dynamic optimization system to create cost-effective and efficient soil and water conservation decisions.
- Other research conducted: global warming, international agricultural trade, watershed economics and policy, ecosystem-based planning and strategies, conservation issues in developing economies, water quality policies, and management of common property resources.

Aug 91 - Dec 95 **Graduate Research Assistant**

Dept. of Agricultural Economics, Purdue University.

Completed two research projects (for USGS and USDA) and a Ph.D. thesis.

Sept 88 - July 91 **Assistant Professor**

Dept. of Agricultural Economics, Tamil Nadu Agricultural University.

Teaching (40%), Research (40%), and Extension (20%).

Taught undergraduate courses and completed several projects on water allocation, village economics, cropping systems, and farm management as a Principal Investigator.

Professional Memberships

Soil and Water Conservation Society (SWCS)

American Association for Advancement of Science (AAAS)

International Association for the Study of Common Property Resources (IASC)

American Geophysical Union (AGU)

American Water Resource Association (AWRA)

International Society for Ecological Economics (ISEE)

American Agricultural Economists Association (AAEA)

American Economic Association (A.E.A.)

International Collaborations

Victoria University, **Australia**; University of Botswana, **Botswana**; University of Sao Paulo, **Brazil**; Federal University of Sao Carlos, Sorocaba, **Brazil**; University of South China, Hengyang, **China**; East China Normal University, Shanghai, **China**; Yunnan Academy of Economics, Kunming, **China**; Zhejiang Agricultural & Forestry University in China; Nanjing Forestry University, **China**; Suzhou University of Science and Technology, **China**; Nueva Granada Military University, Bogota, **Colombia**; National University of Colombia, Bogota, **Colombia**; Tamil Nadu Agriculture University, Coimbatore, **India**; Tamil Nadu Veterinary and Animal Sciences University, **India**; Bharathiar University, Coimbatore, **India**; Stella Maris College, **India**; National Academy of Ag. Research Management, Hyderabad, **India**; Indian Council of Agricultural Research, New Delhi, **India**; Islamic Azad University, Maybod, **Iran**; University of Tehran, **Iran**; Shahid Beheshti University, Tehran, **Iran**; Tarbiat Modares University, **Iran**; Islamic Azad University, Maybod, **Iran**; University of Tehran, **Iran**; Narxoz University, **Kazakhstan**; Wildlife Conservation Society, **Myanmar**; University of Bergen, **Norway**; Istanbul University, **Turkey**; Cankiri Karatekin University, Cankiri, **Turkey**; Suleyman Demirel University, Isparta, **Turkey**; Wildlife Conservation Society, Kampala, **Uganda**.

Fulbright Scholars Trained: Honduras, Pakistan, Cote d'Ivoire, Colombia, Myanmar, Pakistan, Ecuador, Eswatini, and Indonesia.

AWARDS AND HONORS:

Awards:

2022-23 **STRIDE Fellow** – Strategies and Tactics for Recruiting to Improve Diversity and Excellence (2022-23)-University of Massachusetts.
 2018 **PEP Fellow** - Public Engagement Project - University of Massachusetts.
 2017 **Innovate@ Fellow** - University of Massachusetts.
 2017-18 **TIDE Fellow** – Teaching for Inclusiveness, Diversity, and Equity- University of Massachusetts.
 2017-18 **Kahn Faculty Fellow** Kahn Institute, Smith College on Destroy then Restore: Transforming our Lands and Waters.
 2014 - **Sustainability Curriculum Initiative Fellow**- University of Massachusetts.
 2003-04 - **Lilly Teaching Fellow**, University of Massachusetts.
Chancellor's Award for Outstanding Community Service (1999), University of Massachusetts.
1998-99 Service-Learning Fellow in Teaching awarded by Provost's Special Committee.
 1997 **Berg Fellow** of the Soil and Water Conservation Society.
 Outstanding Ph.D. Thesis Award (1995), Purdue University, Dept. of Ag. Economics.
 Nominated for Distinguished Teacher Award (UMass, 2004, 2008, 2011, 2014, 2015, 2016, 2022)
 Nominated for Best Reviewer (SWCS, 1997)
 Nominated by Department for Outstanding Ph.D. Thesis (National competition of the American Agricultural Economics Association, 1995).

Merit Scholarship:

National Merit Scholar, India (1982).
 Merit Scholar, Tamil Nadu Ag. Univ., India (1986).

Medals: Pachaiyappa's Gold Medalist, India (1980).

Academic Honors:

Outstanding Ph.D. Thesis (1995) and nominated for AAEA Competition (1995).
 Honor rank in M.S. Program (1988)
 Honor rank in B.S. Program (1986)
 Rotary award for the first rank in Secondary School Leaving Examination (1980).

Training:

Computational Hydraulics I.N.C. Course on "Stormwater Modeling with SWMM, PCSWMM, and GIS." Feb 21-23, 2000.

NCAR Fellowship to participate in "An Institute of the Economics of the Climatic Resource" 5-7 June 1995, National Center for Atmospheric Research, Boulder, Colorado.

LEADERSHIP AND ADMINISTRATION

- 2022-Current - **Director** of the MA Water Resources Research Center
- 2015-2022 - Eco **Graduate Program Director**: Revamped the program with student-led community efforts, directed more than 100 graduate students each year, enhanced mentoring, streamlined paperwork, prominence to DEIJ efforts, curriculum changes to streamline concentrations, increased diversity by recruiting Spaulding-Smith scholars, increased international dimension through recruitment of Fulbright scholars.
- 2019-current: **President** of the Southern New England Chapter of the Soil and Water Conservation Society with leadership in chairing Board of Directors, strategic direction for the organization, budgeting, community connection, conference management., and team decisions.
- **Chair** of the Working Group on Innovation in Graduate Education, CNS: Led a GPD team and developed a report for innovating graduate programs.
- **PI** of the NSF-GCR (Growing Convergence Research) Project for UMass, coordinating with multiple institutions and international research sites. The project involves leading and mentoring research teams of faculty, students, professionals, farmers, and citizens.
- **PI** of the NSF-IGE (Innovation in Graduate Education) proposal submitted by a team of CNS GPDs in Chemistry, IDGP, Eco, CNS Director of Diversity, OPAS, and CSSR.
- Graduate Concentration **Coordinator** for Water Resources Concentration from 2002 to current: Developed this concentration to high enrolment and recognition in hydrology
- 2015-2017- **Academic Director**/ fellowship coordinator of "Professional Fellows Program- Environmental Sustainability" for 90 international professionals from Peru, Mexico, and Uruguay. Collaboration with I.T.D., South Amherst, and sponsored by the U.S. State Department.
- Interim **Director** of the MA Water Resources Research Center – one year
- Three years of serving as an **Academic Director** of the Professional Fellows Program in Sustainability sponsored by the US Department of State. Mentored young professionals from Mexico, Uruguay, and Peru who were scientists, faculty, engineers, and sustainability leaders.
- **MA Director** of the Southern New England Chapter of the Soil and Water Conservation Society
- **Member** of the ACE-Joint task force on Internationalization (JTFI) of UMass
- **Chair** of the subcommittee in Community Engagement of University Joint Task Force on Internationalization, UMass

RESEARCH

Grants:

(* indicate awards while at UMass- Listed chronologically, recent first).

2023-2027 **DOE-Deploying Solar with Wildlife and Ecosystem Services Benefits (SolWEB)** "Informing Wildlife Conservation Strategies and Best Practice for Solar Facilities" \$1,391,100 PI: Randhir; CoPIs: Figuerra and King.

2022-24 **NSF-GCR (Growing Convergence Research)** "Collaborative Research: Designing a Sustainable Agricultural Production System through Convergence Research Using a Multi-Scale Ecosystems Approach" \$979,720 PI: Randhir; CoPI King.

- 2022-2027 **USDA/NIFA – McIntire-Stennis MAES/CAFE** “Forest Dynamics Under Food-Energy-Water (FEW) Nexus at a Watershed Scale” PI: Randhir
- 2023-2028 **FAPESP-Special Programs -Brazil** “Restoration of native vegetation in the Atlantic Forest through the strategic combination of mandatory measures and voluntary commitments - CCD-EMA” – PI-Paulo Guilherme Molin (Federal University of São Carlos, Brazil), T.O. Randhir – Associate Researcher (international) - \$895,000
- 2022-2027 **FAPESP-GEF-Brazil** –“Decision support for the implementation of payment for ecosystem services projects related to water, carbon, and biodiversity: Paraíba do Sul and Vale do Ribeira” – PI Kaline de Mello (Federal University of São Carlos, Brazil), T.O. Randhir - Associate Researcher (international) - \$190,000
- 2020-22 **MassDEP** "Implementation, Remediation, and Education of Selected Best Management Practices to Minimize the Environmental Impact of Two Equine Operations" \$286,670 PI: Hashemi; CoPI: T.O. Randhir, C. Uricchio.
- 2019-21 **Mass D.C.R.** "Information for Climatic Adaptation and Restoration of Ecosystem Services (I-CARES) for urban and agricultural landscapes of Massachusetts, \$81,900 PI: Randhir
- 2017-2022 **USDA/NIFA – McIntire-Stennis MAES/CAFE** “Spatial and Temporal Management of Forest Cover and Urban Impacts for Water Resources Sustainability” PI: Randhir
- 2017 **UMass Provost Office** Climate Change Resilience, Environmental Justice, and Ecosystem Services (CREE), under Western Mass Sustainable Equity and Engagement Network (SEEN), \$9K. P.I.: Randhir
- 2015-2018 **MassDEP** "Reducing Nonpoint Source Pollution from Two Equine Facilities through Implementation, Remediation, and Education of Selected Best Management Practices" \$253K P.I.: Hashemi, CoPI: S. Herbert, T. Randhir.
- 2013-2015 **USDA-NIFA** "Conference on Climate Uncertainty and Agricultural Water Security" \$202K. P.I.: Rees, CoPI: S. Herbert, C. Nicholson, T. Randhir.
- 2012-2015 ***Mass D.E.P.** "Minimizing Nonpoint Source Pollution from Two Horse Facilities through B.M.P.s" \$338K, P.I.: Hashemi, CoPI: S. Herbert, T. Randhir
- 2011-2012- ***Blackstone River Coalition (MA)** "Compilation of nutrient loading and G.I.S. modeling in the Upper Blackstone Watershed" \$10K, RI: Randhir, CoPI: Paula Rees.
- 2009-2014- ***USDA-Hatch (MAES)**. "Protecting water security in watershed systems: Uncertainty in the decision making" \$10K, P.I.: Randhir
- 2008-2010. **Wildlife Conservation Society**. Graduate student training - Nampindo. \$30K, P.I.: Randhir
- 2007-2010. ***USDA-SARE**. Assessing Pasture Species, Varieties, Blends. \$212K. P.I.: Herbert; CoPI: T. Randhir and others.
- 2007-2009. ***Mass D.A.R. -Ag. Innovation Center**. Integrating Pasture Management on Dairy and Livestock Farms. \$170K. P.I.: Herbert; CoPI: T. Randhir and others.
- 2007-2008. ***Mass D.O.E.** Economic Evaluation of Switchgrass for Biofuel. \$10K PI: Herbert; Co-PI: R. Prostack, and T. Randhir. (May 2007 to April 2008).
- 2006-2008. ***USDA-SARE**: "Effective Cover Crop Seeding dates for Nutrient Recovery" \$85,953 PI: Herbert; Co-PI: A.M. Hashemi and T. Randhir (July 2006 to June 2008).
- 2006-2007 ***Faculty research grant/ Healy endowment grant, UMass**, "Decision Making under Environmental Uncertainty: An Experimental Investigation" (\$15K) P.I.: T. Randhir. Sept 2006 to Aug 2007.
- 2005-2010. **USDA-Hatch (MAES). Multi-state (NE-132)**: "Whole Farm Dairy and Beef Systems to Protect Environmental Quality" \$90,000 PI: Randhir; CoPI: Herbert (Sept 2005 to Aug 2010).
- 2004-2005 ***USDA-Hatch (MAES)**. "Environmental and Economic Impacts of Nutrient Management on Dairy Forage Systems" \$16,000. PI: Randhir; CoPI: Herbert (Sept 2004 to Aug 2005).
- 2003-2005. ***USDA/Forest Service**: "Distance-Education in Forestry" \$98,000, P.I.: Randhir (Aug 2003-June 2005); Co-PIs: McComb and Loomis.
- 2003-2004. ***USDA/Forest Service**. "Urban Forestry Watershed Modeling" \$5,000, P.I.: Randhir (Aug 2003-June 2004).
- 2002-2007. ***USDA-Hatch (MAES)**. Integrated Watershed Management to Protect Water Quality and Ecological Integrity." \$50,000 PI: Randhir. (Sept 2002 to Aug 2007).
- 2000 - 2001. *** M.A. Board of Higher Education**. 2000-2001. "Three Communities Connected by a River: Sustainable Communities through State Curriculum Frameworks." \$48,000; P.I.: Randhir, Co-PI: Burbank. (Sept 2000 to Aug 2001).

- 1999-2000. ***USDA/CSREES.** "Watershed-based Education to Protect Water Resources and Ecosystems" \$80,000. P.I.: Jackson, CoPI: Randhir (Jan 98-Dec 99).
- 1999-2000 ***Board of Higher Education.** "Three Communities Connected by a River: Sustainable Communities through State Curriculum" (\$25,000) P.I.: Randhir, Co-PI: Burbank; (Sept 1999 to Aug 2000).
- 1998-1999: ***EOEA/ Commonwealth of Massachusetts.** "Watershed Initiative - UMASS-EOEA Contract" \$387,000. Principal Investigator (PI): T. O. Randhir, Asst. Professor, Dept. of Natural Resources Conservation. Managed a team of more than 15 undergraduates, five graduate research assistants, and one professional staff. Effectively managed the budget of 10 different sub-projects (Jan 98-Dec 99).
- 1998-1999 ***Board of Higher Education.** "Three Communities Connected by a River and Frameworks: Linking Science and Technology to Schools (\$20,000). P.I.: Randhir, Co-PI: Burbank (Sept 1998 to Aug 1999).
- 1995-1997. **USDA:** "Spatial Decision Support System." \$2 million. Investigators: J.G. Lee, B. Engel, and S. Lovejoy. Participated in writing the proposal as a Ph.D. student. I was later appointed as an investigator and modeler in this multi-institutional and multi-disciplinary project (Jan 1995 to Oct. 1997).

Minor Grants: Influence of Risk on Input Use in South India, 1990 (TNAU [University Grant](#)); Deforestation and Agricultural Productivity in India, 1991(TNAU [University Grant](#)); Contribution of the University to State Development, 1991(TNAU [University Grant](#)); Conjunctive use of Irrigation Water for Crop Production in P.A. River Irrigation System, 1990 ([Indian Council of Agricultural Research Grant](#)).

Publications:

(†indicates Prof. Randhir's graduate student/advisee; *indicates visiting scholar at Prof. Randhir's lab; ‡indicates international research collaborator)

SUMMARY: *Refereed Journal Articles (125); Books (1); Book Chapters (7); Refereed full papers in proceedings (4); Peer-reviewed selected/conference papers (80); non-refereed conference papers (4); Other publications (1); and several working papers in development or review.*

Books:

Randhir, T.O. 2006. ***Watershed Management: Issues and Approaches.*** International Water Association (IWA) Publishing, London, UK. (168 Pages) <https://doi.org/10.2166/9781780402338>

Refereed Journal Articles:

- 125 Asmarat†, B., and T.O. Randhir. 2024. Modeling the Impacts of Oil Palm Plantations on Water Quantity and Quality in the Kais River Watershed of Indonesia, Accepted in ***Science of the Total Environment.***
- 124 Randhir, T.O., K.B. Klostermant. 2024. Modeling landscape influence on stream baseflows for watershed Conservation. ***Land.*** 13(3): 324; <https://doi.org/10.3390/land13030324>
- 123 Mambat†, H.S., and T.O. Randhir, 2023. Exploring temperature and precipitation changes under future climate change scenarios for black and white rhinoceros populations in Southern Africa, ***Biodiversity.*** <https://doi.org/10.1080/14888386.2023.2291133>
- 122 Quinonez†, A.L.C., and T.O. Randhir. 2023. A Sustainability Framework based on Threats, Consequences, and Solutions (TCS) for Managing Watershed Commons. ***PLoS ONE.*** <https://doi.org/10.1371/journal.pone.0295228>
- 121 Randhir, T.O., K. Toffling†, and C. R. Griffin. 2023. Impacts of climate change and variability on the growth potential of global mangrove distribution. ***Sustainable and Resilient Infrastructure.*** <https://doi.org/10.1080/23789689.2023.2253412>
- 120 Naing†, H., T.K. Fuller, P. R. Sievert, T. O. Randhir, S.H.T. Po, S. Htun, and T. Myint. 2023. Dry-season habitat occupancy by ungulate tiger prey in the Hukaung Valley of northern Myanmar. ***Tropical Zoology.*** 36(1-2): 21-35. <https://doi.org/10.4081/tz.2023.124>

- 119 De Mello[‡], K.D., R.H. Taniwaki, D.R. Macedo, C.G. Leal, T.O. Randhir. 2023. Biomonitoring for watershed protection from a multiscale land-use perspective. *Diversity* 15(5): 636. <https://doi.org/10.3390/d15050636>
- 118 Omer, R.B., H.M. Hewait, E. Madyt[†], S.K.M. Yousif, E.A. Gashash, R. Randhir, A.E. Ashmawi, A.M. El-Taher[‡], N.A. Al-Harbi, T.O. Randhir. 2023. Chemical, Anatomical, and Productivity Responses of Cowpea (*Vigna unguiculata* L.) to Integrated Biofertilizer Applications with PGPR, Cyanobacteria, and Yeast, *Sustainability* 15(9): 7599. <https://doi.org/10.3390/su15097599>
- 117 El-Beltagi, H.S., R.S. Nada, E. Madyt[†], A.E. Ashmawi, E.A. Gashash, A.A. Elateeq, A.A. Suliman, N.A. Al-Harbi, S. M. Al-Qahtani, M.M. Zarad, T.O. Randhir. 2023. Effect of Organic and Bio-Fertilization on Fruit Yield, Bioactive Constituents, and Estragole Content in Fennel Fruits. *Agronomy*. 13(5):1189-1209. <https://doi.org/10.3390/agronomy13051189>
- 116 Talib[†], A., T.O. Randhir. 2023. Long-term effects of Land-use Change on Water Resources in Urbanizing Watersheds. *PLOS Water*. <https://doi.org/10.1371/journal.pwat.0000083>
- 115 Sorkhabi[‡], O.M., J. Asgari., T.O. Randhir. 2023. Monitoring Groundwater Storage based on Satellite Gravimetry and Deep Learning. *Natural Resources Research*. <https://doi.org/10.1007/s11053-023-10185-5>
- 114 Alnefaie, R.M., S.A. EL-Sayed, A.A. Ramadan, A.I. Elmezien, A.M. El-Taher[‡], T.O. Randhir, and A. Bondok. 2023. Physiological and Anatomical Responses of Faba Bean Plants Infected with Chocolate Spot Disease to Chemical Inducers. *Life* 13, no. 2 (Jan. 31): 392. <http://dx.doi.org/10.3390/life13020392>.
- 113 Ahmed M. El-Taher[‡], A.M., H. A. Elzilal, H. S. Abd El-Raouf, E. Madyt[†], K. S. Alshallash, R. M. Alnefaie, E.M. Mahdy, O.G. Ragab, E.A. Emam, I.A. Alaraidh, T.O. Randhir, M.F.M. Ibrahim. 2023. Characterization of some Cichorium taxa grown under Mediterranean climate using morphological traits and molecular markers, *Plants*. <https://doi.org/10.3390/plants12020388>
- 112 Hatamkhani, A., A. Moridi[‡], T.O. Randhir, 2023. Sustainable planning of multipurpose hydropower reservoirs with environmental impacts in a simulation–optimization framework. *Hydrology Research*. nh2022084. <https://doi.org/10.2166/nh.2022.084>
- 111 Ahmad^{‡†}, T.M., M.S. Haider, T.O. Randhir, S.R. Ahmad. 2023. Spatial Analysis of Factors influencing Bacterial Leaf Blight in Rice Production. *Brazilian Journal of Biology*. <https://doi.org/10.1590/1519-6984.264249>
- 110 Maleki[‡], M.S., M.E. Banihabib[‡], and T.O. Randhir. 2022. An integrated framework for simultaneously modeling primary and secondary salinity at a watershed scale. *Journal of Hydrology*. <https://doi.org/10.1016/j.jhydrol.2022.128171>
- 109 Moghaddam, H.K., S. Javadi[‡], T.O. Randhir, and N. Kavehkar. 2022. A Multi-Indicator, Non-Cooperative Game Model to Resolve Conflicts for Aquifer Restoration. *Water Resources Management*. <https://doi.org/10.1007/s11269-022-03310-1>
- 108 Mozaffari, S., S. Javadi[‡], H.K. Moghaddam, and T.O. Randhir. 2022. Development of the SVR-PSO Simulation-Optimization Model for the Assessment of a Novel Groundwater Quality Index. *Water and Environment Journal*. <https://doi.org/10.1111/wej.12801>
- 107 Mozaffari S., S. Javadi[‡], H.K. Moghaddam, and T.O. Randhir. 2022. Forecasting groundwater levels using a hybrid of support vector regression and particle swarm optimization. *Water Resources Management*. <https://doi.org/10.1007/s11269-022-03118-z>
- 106 Mello[‡], K. D., R.A. Valente[‡], M.P. Ribeiro, and T.O. Randhir, 2022. Effects of forest cover pattern on water quality of low-order streams in an agricultural landscape in the Pirapora river basin. *Environmental Monitoring and Assessment*, <https://doi.org/10.1007/s10661-022-09854-4>
- 105 Madyt[†] E., S.D. Ibrahim, R. Randhir, A.F. Abd El-Hakim, T.O. Randhir. 2022. Genetic variation among pumpkin landraces based on seed qualities and molecular markers. *Molecular Biology Reports*. <https://doi.org/10.1007/s11033-022-07233-3>
- 104 Nada, R.S., A.E. Ashmawi, E. Madyt[†], T.O. Randhir, and A.A. Elateeq. 2022. Effect of Organic Manure and Plant Growth Promoting Microbes on Yield, Quality and Essential Oil Constituents of Fennel Bulb (*Foeniculum vulgare* Mill.). *Journal of Ecological Engineering*. 23(5), 149-164. <https://doi.org/10.12911/22998993/147252>

- 103 Helaly, A.A., E. Mady†, E.A. Salem, and T.O. Randhir. 2022. Stimulatory Effects of Growth-Promoting Bacteria on Growth, Nutritional Composition, and Yield of Kale Plants. *Journal of Plant Nutrition*. <https://doi.org/10.1080/01904167.2022.2046084>
- 102 Mousavi-Mirkalaei, P., A. Roozbahani, Banihabib‡, M.E., and T.O. Randhir. 2022. Forecasting Urban Water using Bayesian Networks and Gene Expression Programming. *Earth Science Informatics*. <https://doi.org/10.1007/s12145-021-00733-z>
- 101 Bakert†, J., T.O. Randhir. 2022. Climate change impacts on nitrogen and phosphorus loading in New England watersheds. *Journal of Nature and Spatial Sciences (JONASS)*. 2(1):1-14. <https://doi.org/10.30495/JONASS.2022.1946924.1020>
- 100 Malmir, M., S. Javadi‡, A. Moridi‡, T.O. Randhir, M. Saatsaz, 2021. Integrated groundwater management using a comprehensive conceptual framework, *Journal of Hydrology*, <https://doi.org/10.1016/j.jhydrol.2021.127363>
- 99 Mendez-Morales‡, A., R. Ochoa-Urrego, and T.O. Randhir. 2021. Measuring the quality of patents among Latin-American universities, *Studies in Higher Education*. <https://doi.org/10.1080/03075079.2021.2020749>
- 98 Rosst, E., and T.O. Randhir. 2021. Effects of Climate and Land Use Changes on Water Quantity and Quality of Coastal Watersheds of Narragansett Bay. *Science of the Total Environment*. <https://doi.org/10.1016/j.scitotenv.2021.151082>
- 97 Maleki‡, M.S., M.E. Banihabib‡, and T.O. Randhir. 2021. SWAT-SF: A flexible SWAT-based model for watershed-scale water and soil salinity modeling. *Journal of Contaminant Hydrology*. <https://doi.org/10.1016/j.jconhyd.2021.103893>
- 96 Jamali‡, A.A., R.G. Kalhajah, T.O. Randhir, and S. He. 2021. Modeling relationship between land surface temperature anomaly and environmental factors using Google Earth Engine and Giovanni. *Journal of Environmental Management*. 302, 113970. <https://doi.org/10.1016/j.jenvman.2021.113970>
- 95 Mirzaief, N., M.E. Banihabib‡, S.M.H. Shahdany, and T.O. Randhir. 2021. Fuzzy particle swarm optimization for conjunctive use of groundwater and reclaimed wastewater under Uncertainty. *Agricultural Water Management*. 256(1): <https://doi.org/10.1016/j.agwat.2021.107116>
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Book Chapters:

1. Vargas-de la Mora‡, V. Camacho-Valdéz, T.O. Randhir, M.C. Hernández-Moreno, and M.J. Cach-Pérez. 2021. Agroforestry technologies (TAF) in livestock: a strategy for adaptation to climate change in coastal territories, IN *Agroforestry technologies for adaptation and mitigation to climate change - options and perspectives*, Publisher: University of Colima, Mexico.
2. Randhir, T.O. 2019. Globalization, Local Commons, and the Multiscale Ecosystem Framework (M.E.F.), Invited chapter, Hudson, B., J. Rosenbloom, and D. Cole. *Routledge Handbook of the Study of the Commons*, 1st Edition. Routledge Taylor and Francis Group, Abington, U.K.
3. Randhir, T.O., and A.G. Hawes†. 2010. Ecology and Poverty in Watershed Management. Invited chapter, DeClerck, F., J.C. Ingram, and C.R. Del Rio. *Integrating Ecology into Poverty Alleviation and International Development Efforts: a practical guide*. Springer Verlag Publication.
4. Randhir, T.O., P. Ekness†, and O. Tsvetkova†. 2010. Climatic change impacts on hydrologic dynamics of watershed systems. In Jeremy C. Vaughn. *Watershed: Management, Restoration, and Environmental Impact*. Nova Science Publishers, U.S.A.
5. Randhir, T.O. 2003. Land Use Planning. In: *Water: Science and Issues*, ed. E. Julius Dasch. New York: Macmillan Reference, U.S.A. Pages: 7-11.
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7. Randhir, T.O., and S. R. Subramanian. 1999. Hill Agriculture Development: Environmental Issues. In: Kainth, G.S. *Developing Hill Agriculture*. (Ed.). Vedams Press, Delhi, India.

Peer-Reviewed, Selected/ Conference Abstracts:

1. Arias, R.N. and T.O. Randhir. Perception, value, and governance of ecosystem services in Ecuador. 77th **SWCS Annual Conference**, Denver, CO, 31 July to 3 Aug 2022.
2. Mady, E. and T.O. Randhir. Climate-smart practices for increasing resilience of rural and urban landuses at a watershed scale. 77th **SWCS Annual Conference**, Denver, CO, 31 July to 3 Aug 2022.
3. Paulding, C. and Randhir, T.O. 2021. An Ecohydrological Assessment of Potential Impacts of Climate Change on Herpetofaunal Habitat in the Connecticut River Watershed. 76th **SWCS Annual Conference**, Virtual Conference, 26-28 July 2021.
4. Randhir, T.O. 2020. Conservation policy across multiple scales during uncertain times. Keynote presented at the **2020 Global symposium on Commons Without Borders**. October 5, 2020.
5. Randhir, T.O. 2019 Ecohydrologic modeling in G.I.S. of water resources and land use to predict future impacts on water quality, Brazilian Symposium on Remote Sensing, Santos, Brazil, April 14-17.
6. Zarama-Alvarado, S., and T.O. Randhir. 2019. Water Conflicts: Challenges of Transition to Environmental Peace in Colombia, XVII Biennial IASC Conference "In Defense of the Commons: Challenges, Innovation, and Action," July 1-5, Lima, Peru.
7. Liu*, Y., and T.O. Randhir. 2019. Relationship between Urbanization, Grain Production and the Environment in the Main Grain Producing Region of China, 2019 *American Association of Geographers* Annual Meeting, April 3-7, Washington, DC.

8. Norvanchigt, J., and T.O. Randhir. 2018. Modeling sustainability of water resources in Tuul River watershed in Mongolia, The 2018 **International SWAT Conference**, January 8-12, Chennai, India.
9. Mello, K.*, T. O. Randhir, R. de Oliveira Avena Valenta, and C. A. Vettorazzi, 2015 Impacts of Forest Cover on Water Quality in Agricultural Watersheds of São Paulo, Brazil, 2015 **AWRA Annual Water Resources Conference**. Nov 16-19, Denver, CO.
10. Galindo†, L., and T. O. Randhir, 2015. Local governance of common-pool resources in developing countries. Bi-annual Conference of the **Canada and United States Societies for Ecological Economics**, October 1-4, 2015. Vancouver, Canada.
11. Pamukçu*, Pınar, T. O. Randhir, Yusuf Serengil, 2015. A Hydrological Evaluation of Forest Fragmentation along Urban-Rural Transition using SWAT Model, **IUFRO** Research Group 7.01 "Impacts of Air Pollution and Climate Change on Forest Ecosystems" - "Global Challenges of Air Pollution and Climate Change to Forests," Nice, France; 06/2015.
12. Caiping*, Z. T.O. Randhir. 2015. Carbon Performance Evaluation Method from Resource Value Flow Analysis Perspective, 2015 **International Conference on Energy and Environment Engineering** (E.I.), 2015,4.
13. Roy, A.H., S.F. Jane, J.T. Finn, P.D. Hazelton, T.O. Randhir, and T.A. Richards. 2015. Linking streamflow, habitat, and biotic integrity in the Sudbury River, Sudbury, Assabet, and Concord Wild and Scenic River Stewardship Council, United States.
14. Roy, A.H., S. F. Jane, J.T. Finn, P. D. Hazelton, T. O. Randhir, and T. A. Richards. 2015. Linkages between streamflow, habitat, and biotic assemblages in an urbanized large river, Annual Meeting of the **Society for Freshwater Science**, 17-21 May 2015, Milwaukee, WI.
15. Jane, S.F., J.T. Finn, T.O. Randhir, A.H. Roy, 2015. Linkages between flow, habitat, and biotic integrity: a case study of the urbanized Sudbury River, The 39th Annual Meeting of the **New England Association of Environmental Biologists**, March 18 - 20, 2015, Bartlett, NH.
16. Randhir, T.O. 2014. Integrated ecohydrologic research for watershed resilience to land use and climate change. Keynote address at **Watershed Management conference** held at Cankiri Karatekin University, Turkey. September 10 to 12.
17. Zhang*, L., and T.O. Randhir. 2014. **UCOWR-NIWR-CUAHSI Conference**, Water Systems, Science, and Society Under Global Change, Medford, Massachusetts, 18th-20th June 2014
18. Zhang*, L., and T.O. Randhir. 2014. Urban Green Rainwater Infrastructure in Growing Metropolitan Region of China, **Conference on Green Infrastructure and Water Management** in Growing Metropolitan Areas, Tampa, Florida, 14 – 16 January 2014.
19. Talib†, A and Randhir. 2014. Land Use Land Cover Impacts on Water Quantity and Quality in Watershed Systems, **SWCS** Annual Conference, Lombard, Illinois, 27-30 July 2014.
20. Tsvetkovat, O., and T.O. Randhir. 2014. Modeling climatic and hydrologic Uncertainty, 2014 **Northeastern Natural History Conference**, Springfield, Massachusetts, 7 - 9 April 2014.
21. Sabogal†, J. and T.O. Randhir. 2014. Hydroelectric Facilities Environmental Cost and Benefits on Water Cycle, Social Systems and Ecosystems, **UCOWR-NIWR-CUAHSI** Conference, Water Systems, Science, and Society Under Global Change, Medford, Massachusetts, 18th-20th June 2014
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24. Eknes†, P., and T.O. Randhir. 2014. Continental-Scale Impacts of Climate on runoff. The **Northeast Natural History Conference**, Springfield Massachusetts, MA, 7-9April, 2014.
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26. Zhang*, L., and T.O. Randhir. 2014. Integrated Watershed Management to Sustain Urbanizing Panlong River Basin, **Summer Specialty Conference Integrated Water Resources Management**, Reno, NV, June30-July2, 2014.

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28. Zhang*, L., and T.O. Randhir. 2014. Conservation Strategies for Climate Change Adaptation in Yunnan Province of China, *SWCS Annual Conference*, Lombard, IL, 27-30 July 2014.
29. Erol*, A and T.O. Randhir. 2012. Effects of Land Use on Nutrient Loading in Lake Egirdir Watershed. IUFRO WG 7.01.08 Conference: Forest-Water Interactions with respect to Air Pollution and Climate Change, Kahramanmaras-Turkey 2012.
30. Randhir, T.O., and P. Coffin. 2012. Blackstone River Watershed: water quality. South New England *Soil and Water Conservation Society* Summer conference, Grafton, MA. August 9, 2013.
31. Randhir, T.O. 2012, Climatic Change and Socioeconomic systems – *Symposium* presentation. Aug 8, 2012. Tamil Nadu Agricultural University, Coimbatore, India.
32. Randhir, T.O. 2012. Climatic Change impacts on Socioeconomic systems – Keynote address, *National Symposium* presentation. Aug 16, 2012. Bharathiar University, Coimbatore, India.
33. Randhir, T.O. 2012. Climatic Change and S.E.S. systems – Symposium presentation. Aug 16, 2012. *Madras Institute of Development Studies*, Chennai, India.
34. Randhir, T.O. 2012. Adaptation to Climatic Change: Systems, Resilience, and Decision Making, Keynote Address to Conference on "Toward a new climate agreement 2012-2020 or Death of Kyoto protocol" May 23, 2012, at *National University of Colombia*, Bogota, Colombia.
35. Nampindo†, S., and Randhir, O.T., 2012. Landscape modeling of land use, land cover, and climate change effects on the Congo watershed ecosystems: developing a decision support system for P.E.S. initiatives. *NASA/JPL/Kent Institute of Space Science Summer Program*, Pasadena California August 6-10, 2012.
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37. Eknes†, P., and T.O. Randhir. 2012. Land use pattern and stream flows in urbanizing watersheds. Paper presented at 2012 *Soil and Water Conservation Society* Annual Meeting, Fort Worth, TX, July 22-25.
38. Galindo†, L., and T.O. Randhir. 2012. Adaptive management of ecosystem services in Orinoco Watershed: A regional Assessment, Paper presented at 2012 *Soil and Water Conservation Society* Annual Meeting, Fort Worth, TX, July 22-25.
39. Randhir, T.O., S.J. Herbert, M. Hashemi, and A. Farsad. Online Crop Decision Support for Nitrogen Recovery through Cover Crops. Paper presented at *2011 Annual Meeting of American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America*, Oct 16-19, San Antonio, TX.
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42. Randhir, T.O. and O. Tsvetkovat. 2011. Soil and water conservation under climatic stress in selected watersheds in Russia, Paper presented at 2011 *Soil and Water Conservation Society* Annual Meeting, Washington, DC., July 18-19.
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46. Farsad A., T.O. Randhir, S. Herbert, M. Hashemi. 2010. Using a spatial model for estimating the critical planting date for rye cover crop in Massachusetts. *NEBCSA* Conference, Cornell University, NY, June 27-29, 2010

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49. Mazzarino†, M., and T.O. Randhir. 2008. Hydrologic Effects of Climate Change in a Tropical, Glaciated Watershed in Peru. ***American Water Resources Association*** Proceeding. 2008 at New Orleans, LA.
50. Sekart, I., and T.O. Randhir. 2008. Efficiency of Small-Scale Storage Networks in India, ***American Water Resources Association*** Proceeding. 2008 at New Orleans, LA.
51. Randhir, T.O. 2008. "Effect of Climate Change in New England" in session "Adapting to Climate Change," ***Southern New England American Planning Association*** Conference, September 5, Providence, RI.
52. Randhir, T.O. 2008. "Effect of climate change in Connecticut River Watershed." Workshop on "Climate Change in the Northeast: Preparing for the Future Workshop," ***U.S. Fish and Wildlife Service, National Park Service, U.S. Geological Survey, and Minerals Management Service, U.S. Department of Agriculture's Forest Service, Department of Commerce's National Oceanic and Atmospheric Administration, Six New England states and New York, Workshop*** – Regional Workshop CD proceedings. June 3 to 5, at Amherst, MA.
53. Herbert, S., M. Hashemi, S. Weis and T.O. Randhir. 2007. Managing Cover Crops for Maximum Nitrogen Recovery Following Corn. 2007 ***Annual Meeting of American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America***, Nov 4-8, New Orleans, LA.
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55. Eknes†, P., and T.O. Randhir. 2007. Economic value of riparian ecosystem attributes in an urban setting ***Soil and Water Conservation Society***, Annual Conference, July 21 to 25 at Tampa, FL.
56. Tsvetkovat, O., and T.O. Randhir Predicting 2007. Land Use Change and Water Quality Impacts. ***Soil and Water Conservation Society***. Annual Conference, July 21 to 25 at Tampa, FL.
57. Eknes†, P., and T.O. Randhir. 2005. Understanding Watersheds: Using water movement on-campus to investigate our natural surroundings. ***National Science Teachers Association*** – 2005 Annual Meeting Proceeding. Hartford, CT.
58. Marshall†, E., and T.O. Randhir. 2004. Mitigation of Climate Change Impacts on Water Balance at Varying Scales. ***American Water Resources Association Proceeding***. 2004.
59. Eknes†, P., and T.O. Randhir. 2004. Interaction between Riparian Systems and Stream Water Quality. ***American Water Resources Association Proceeding***. 2004.
60. Brouillette-Jacobson†, D., and T.O. Randhir. 2004. Sustainable Use of Water Supplies in Cape Code: Modeling and Policy Implications. ***American Water Resources Association Proceeding***. 2004.
61. Eknes†, P., and T.O. Randhir. 2003. Landuse Effects and Habitat Functions of Riparian Ecosystems. ***American Water Resources Association Proceeding***. 2003.
62. Marshall†, E. and T.O. Randhir. 2003. Impact of Global Warming on Water Quality in the Connecticut River Watershed. ***American Water Resources Association Proceeding***. 2003.
63. Shrivert, D. T.O. Randhir, and E. Marshall†, 2003. Watershed Classification for Prioritizing Habitat Restoration. ***AWRA International Congress*** on Watershed Management for Water Supply Systems. June 29 – July 2, New York.
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65. Randhir, T.O., C. Genge., and S. Buckley. 2002. "Watershed Approach to Clean Water in Developing Countries: An Application in Honduras." ***American Water Resources Association Proceeding***.
66. Randhir, T.O. 2002. "Integrated Watershed Modeling for Sustainability Planning." ***American Water Resources Association Proceeding***.
67. Randhir, T.O 2001. "Coastal Watershed Conservation to protect Narragansett Bay." ***Journal of Soil and Water Conservation***.
68. Randhir, T.O. 2001. Watershed Approach to Mitigate the Effects of Hurricanes: A Case Study of Hurricane Mitch in Honduras." ***Journal of Soil and Water Conservation***.

69. Randhir, T.O. 2001. "Protecting Potential Water Supplies in Coastal watershed: The Case of Taunton Watershed." *Journal of Soil and Water Conservation*.
70. Randhir, T.O. S. Love†, and K. Norwood†. 2000. "Combining Species and Landscape Assessment to Evaluate Watershed Ecosystems" *Journal of Soil and Water Conservation*.
71. Randhir, T.O. 2000. Multiobjective Planning to Promote Community-based Watershed Conservation." *Journal of Soil and Water Conservation*.
72. Randhir, T.O., E. Keeler†, and K. Norwood†. 2000. Watershed Imperviousness as an Indicator of Water Quality." *Journal of Soil and Water Conservation*.
73. Randhir, T. O., and D. Goodwin. 1998. "Assessing Land Use Changes at a Watershed Level Using G.I.S." *Journal of Soil and Water Conservation*, 52(2): 169.
74. Randhir, T. O., and J. G. Lee. 1998. "Effect of Water Quality Standards on Agriculture." *Journal of Soil and Water Conservation*, 52(2): 157.
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77. Randhir, T. O., and J. G. Lee. 1997. "Designing Spatial Incentives to Manage Agricultural Nonpoint Source Pollution." *American Journal of Agricultural Economics*, 79(5): 1721.
78. Jacque. A., and T. O. Randhir. 1997. "Multi-Crop Farming Systems in Developing Countries: Technological Interactions and Policy Implications." *American Journal of Agricultural Economics*, 79(5): 1727.
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80. Randhir, T. O., B. Engel, and J. G. Lee. "A Distributed Parameter/G.I.S. approach to Agricultural Pollution." Abstract. *American Journal of Agricultural Economics*. 77(5), January 1996: 1358.
81. Randhir, T. O., and J. G. Lee. 1996. "Trading Cropping Rights in Erodible Lands under Conservation Reserve Program." Abstract. *American Journal of Agricultural Economics*. 77(5), January: 1371.
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83. Randhir, T. O., and J. G. Lee. 1994. "Institutional Solutions to Resource Degradation in Developing Countries." Abstract. *American Journal of Agricultural Economics*, 76(5) December: 1262-1263.
84. Loehman, E. T., and T. O. Randhir. 1992. "Resource Degradation and Income Inequality: Effects of Externalities in a Dynamic Setting." selected paper at *International Association for the study of Common Property Resources Meetings*. Sept. Washington. DC., 1992.
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Non-refereed Conference Papers:

1. Randhir, T.O., J. G. Lee, B. A. Engel, H. Manguerra, J. Frankenberger, and A. Spacie. 1997. "Ecosystem-based Least-Cost Planning in watersheds: A Spatial Optimization Approach." paper presented at the SWCS conference on "Investigating Ecosystem Dynamics at a Watershed Level." at Athens, Georgia, April 13-16.
2. Randhir, T.O, J. G. Lee, B. Engel, and S. Lovejoy. 1997. "Improving Water Quality through Watershed Planning: A Spatial Optimization Model." Paper presented at the ESEI Environmental Symposium, Purdue University, West Lafayette, IN 47907.

3. Randhir, T. O., and J. G. Lee. 1994. "Combining Economic and Biophysical Models in Farming Systems Research." Paper presented at Workshop on "Applied Research and Education in Sustainable Agriculture: What Have We Learned?" April 11-12, Indianapolis, Indiana, U.S.A.
4. Lee, J. G., T. O. Randhir, and S. B. Lovejoy. 1993. "Nitrate and Pesticide Levels in Indiana Rural Domestic Wells." Paper presented at First Purdue University Environmental workshop, Aug. 20, Purdue Univ., West Lafayette, IN, U.S.A.

Other Technical Publications:

1. Randhir, T.O. 2017. Climate Change Resilience, Environmental Justice, and Ecosystem Services (CREE), Report submitted as part of the Center for Racial Justice and Urban Affairs (CRJUA) Project, University of Massachusetts, Amherst.
2. Jane, S. F., A. H. Roy, P. D. Hazelton, T. A. Richards, J. T. Finn, and T. O. Randhir. 2016. Establishing links between streamflow and ecological integrity in the Sudbury River. U.S. Department of Interior, Fish and Wildlife Service, Cooperator Science Series FWS/CSS-122-2016, Washington, D.C.
3. Randhir, T.O. 2004. (Ed.) Watershed Conservation 2004 Proceedings, Sept. 17th University of Massachusetts, Amherst. 2004.
4. Randhir, T.O. 2002. (Ed.) Watershed Conservation 2002 Proceedings, Sept. 20th University of Massachusetts, Amherst. 2002.
5. Randhir, T.O. 2000. (Ed.) Watershed Conservation 2000 Proceedings. June 2. The University of Massachusetts. 2000.
6. Randhir, T.O., 2000. Sustainable Watershed Planning in Blackstone River Watershed. Technical Report to EOEAWatershed Initiative. 2000.
7. Randhir, T.O. 1999. Ware River Watershed Land Acquisition Model. Technical Report to MDC. 1999.
8. Randhir, T. O., and J. G. Lee. 1993. "Hybrid Criterion Optimization under Dynamic Simulation of Non-point Source Pollution." Technical report, the Fiscal year 1992-1993. Indiana Water Resources Research Center. Purdue University. West Lafayette, IN, U.S.A. (1993): 1-16.
9. Randhir, T. O., J. G. Lee, and Ronald Lacewell. 1994. "Effect of Agricultural Practices on Surface Water Quality." Technical Report of Research Project funded by the United States Geological Survey.
10. Randhir, T. O., 1991. "Influence of Risk on Farm Decisions concerning Input Use in Tankfed Zone of Chengaianna District, South India." Staff Report. No. R1. Agecon.364. Department of Ag. Econ., Tamil Nadu Ag. Univ., Coimbatore, India.
11. Ramasamy, C., and T. O. Randhir. 1991. "Agricultural Growth in Tamil Nadu- Contribution by Tamil Nadu Ag. Univ.," Staff Report, Tamil Nadu Ag. Univ., Coimbatore. India.
12. Randhir, T. O., R. Venkataraman, and N. Ajjan. 1989. Farm Management: Practical Manual (Undergraduate Teaching Manual of AGECE 402).

Current/ Recent Research projects:

- Climatic change and ecosystem services (Orinoco watershed, Colombia)
- Mobile Crop Decision Support Systems (M.A., NE regional, and National)
- Water-Energy optimization over space and time (Colombia, regional, and global)
- Climate change and Mediterranean watersheds (Turkey)
- Sustainability under climate and land-use change (Narrangasett Bay Watersheds)
- Climate change, land use, and ecosystem services (Albertine Rift, Africa)
- Adaptation to climatic change (Keywest Florida, U.S.A.)
- Water resources, sustainability, and climate change (Continental U.S.)
- Glacial processes and watershed impacts (Ganges, India)
- Water conservation and policy in M.A. communities (Massachusetts, U.S.A.)
- Wetland ecology (Amherst, U.S.A.)

- Tiger poaching behavior (India)
- Invasive species modeling (Northeast U.S.A.)
- Modeling contaminant flows under climate change (SuAsCo Watershed, U.S.A.)
- Coliform contamination and chlorine by-products (Uganda)
- Impact of climatic change uncertainty on watershed systems (Connecticut Watershed, U.S.A.)
- Climatic effects on stormwater (Charles River watershed, U.S.A.)
- Institutional solutions to water resources (Honduras)
- Urbanization in Watersheds (Blackstone Watershed)
- Urban Modeling of Pervious cover (Mill River Watershed, Springfield)
- Watershed impacts of animal feed operations (Middle Connecticut Watershed)
- Internet-based, a watershed information site for Watershed Communities (Comprehensive site for watershed information)
- Watershed education (website with resources for teaching)

Working papers:

Submitted:

1. **Randhir, T.O.**, K. Toffling[†], and C. Griffin. (Submitted). Impacts of climate change and variability on the growth potential of mangrove species: A global assessment, *Climatic Change*.
2. **Randhir, T.O.** (Submitted) Modeling multi-attribute impacts on watershed sediment export: A global assessment for conservation policy, *Earth Surface Processes, and Landforms*.
3. **Randhir, T.O.**, E. Wright[†], and Jack Ahern. (Submitted). Reducing Suburban Phosphorus Runoff using Green Infrastructure: Downscaling from watershed systems to site-specific scales. *Water Resources Research*.
4. **Randhir, T.O.**, K. Klosterman[†], and E. Brabec. (Submitted) Influence of landscape factors on stream base flows and their implications for watershed policy, *Landscape, and Urban Planning*.
5. Sekar[†], I., and **T.O. Randhir**. (Submitted) Resource Use Efficiency and Productivity in Wheat Production Environments in the Indo-Gangetic Plain of India. *NJAS - Wageningen Journal of Life Sciences*
6. Pamukcu*[†], P., N. Erdem; Y. Serengil, **T.O. Randhir**. (Submitted) Assessment of hydrologic risk and land suitability in Riva Creek watershed of Turkey. *Landscape Research*

Working papers:

- Randhir, T.O., and D. Shriver. "Nutrient dynamics related to Manure application in large watershed systems: Spatial and temporal transfers" targeted to *Water Resources Research*.
- Randhir, T.O. Global sediment discharge in watersheds – anthropogenic and climatic impacts, Targeted to *Nature*.
- Randhir T.O., and O. Tsvetkova. Modeling spatial and Temporal dynamics in watershed systems. Targeted to *Water Resources Research*.
- Randhir, T.O. "Sustainable Development in Watershed Ecosystems." Targeted to *Journal of Environmental Economics and Management*. (First Draft)
- Randhir, T.O. "Managing Global Commons: Strategies for Mitigating Externalities" Targeted to *Science*.
- Randhir, T.O., and J. Lee. "Incentive Design to Protect Water Quality." Targeted to *American Journal of Agricultural Economics* (Second Draft Stage)
- Randhir, T.O. "Group decision theory in watershed planning." Targeted to *Water Resources Research*.
- Randhir, T.O. "Mitigating Hurricane Damage through Watershed Conservation." Targeted to *Environmental and Development Economics*.
- Ekness, and Randhir, Sustaining ecohydrologic processes at a continental scale using multiscale assessments, Targeted to *Water Resources Research*.
- Ekness and Randhir, Watershed vulnerability to climatic change: a national assessment of hydrologic impacts. Targeted to *Climatic Change*.

- Randhir and Ekness, National Water Sustainable Policy to protect ecosystem services under climatic stress. Targeted to Journal of the American Water Resources Association
- Ekness and Randhir, Influence of landscape pattern on watershed ecohydrology. Targeted to Ecohydrology.
- Randhir and Ekness, Effect of landuse change on stream ecohydrology. Targeted to Journal of Hydrology.
- Ekness and Randhir, Coastal watershed response to climate and land-use change. Targeted to Water Resources Research.
- Randhir and Ekness, Quantification of the watershed - coastal ocean linkages for conservation Targeted to Ecological Applications
- Tsvetkova and Randhir, Climatic and hydrologic Uncertainty in watershed systems, Targeted to Water Resources Resource.
- Randhir and Tsvetkova, Adaptation to climatic Uncertainty, Targeted to Climatic Change.
- Tsvetkova and Randhir, Hydrology and climatic impacts in Volga watershed, Journal of Hydrology
- Tsvetkova and Randhir, Spatial and temporal Uncertainty in climatic predictions, Targeted to Ecological Modeling.
- Randhir and Tsvetkova, Spatio-temporal dynamics in hydrologic under climatic stress in watersheds, Targeted to Water Research.
- Nampindo and Randhir, Modeling ecosystem services in the Congo Basin, Targeted to Ecological Applications.
- Randhir and Nampindo, Common pool resource use and management in sub-Saharan ecosystems, Targeted to Ecological Economics.
- Randhir and Nampindo, Biodiversity, and climatic adaptation in Albertine Rift; Targeted to Climatic change.

Books

*Randhir, T.O. (In Preparation) *Watershed Science and Management*. (In the contract). Springer-Verlag.

TEACHING EXPERIENCE

G – Graduate; U.G. – Undergraduate (* courses taught at UMass)
(URL: <http://www.ecowaters.com/wscourse/>)

1. *(G/UG) NRC 577 Ecosystem Modeling and Simulation (Fall session of Odd years). Approximately 25 students per semester.
2. *(G/UG) NRC 596 Water Resources Management and Policy (Fall session Even years) Approximately 15 students per semester.
3. *(G) NRC 578 Watershed Science and Management (Spring session - all years). Approximately 20 students per semester.
Recipient of Service Learning fellowship (1998) awarded by Provost's special committee
This graduate-level course is interdisciplinary and combines the theory and practice of watershed science. The main focus is to develop skills in using scientific techniques, computers, field methods, and the Internet to solve environmental problems.
4. *(G) ECO678 Advanced Watershed Science (Spring of Even years) – interdisciplinary, topical course – 10 students.
5. *(G) ECO675 Ecological Economics and Sustainability (Spring of Odd years) – 10 students.
6. *(U.G.) FFYS 191 Sustainability of Water Resources (Fall years) – 19 students/ year.
7. *(U.G.) HONORS 391D Blue Gold and World water wars (Spring and Fall) – 28 students/year.
8. (U.G.) BIO 117 Research Methods in Biology (Summer 2) offered at Springfield Technical Community College, MA – 21 students/year.
10. *(G/UG) W&FCO 597S Coastal Watersheds: Issues and Problem Solving (Spring 2001). One-time offering with more than 25 Students.
Focused on combining science and technology into watershed education offered as an off-campus, field-based course.

6. *(G/UG) W&FCON, FOREST 5970 Watershed Science and Management Online. (Spring). Enrolment 20 Students per semester.
Unique offering as a distance education through multimedia, distributed projects, and threaded discussions.
7. (U.G.) Economics of Farm management (AGEC 401), TNAU, 1988-91.

Others: Invited lectures in Environment and Society (NRC 100), New Student Orientation lectures (2011); Sustainability R.A.P. (2010,2011); Mass Envirothon (2011); Resource Policy (AGEC 616), 1996; Concentration coordinator for professional master's program in watershed management (Also designed the program), Invited lectures in Ecosystem Management at UMASS; Linear Programming (AGEC 601 lab), 1991.

Graduate Advisory Committee:

Current (15):

1. Ana Quinonez (2024 Ph.D.) Watershed ecology and hydrologic modeling
2. Moussa Siri. (2023 Ph.D.) Volta River Watershed – ecohydrology and socioeconomic analysis
3. Emad Mady (2023 Ph.D.) Biodiversity and Metabolic Alterations of Vegetable and Medicinal Plants
4. Rosanna Salazaar (2023 Ph.D.) Traditional Ecological Knowledge systems and indigenous commons in Peru
5. Anastasia Ivanova (2025 Ph.D.) Ecosystem services and public health
6. Jason Roach (2022 Ph.D.) Water Security and Global Conflicts
7. Donald Fonseca (2025 Ph.D.) Coastal Resilience

8. John Slaff (2024 MS) Watershed Restoration Modeling
9. Theint Thandar Bol (2024 MS) Climate Change impacts on Big Cats, Myanmar - Fulbright Scholar
10. Abigale Foster (2024 M.S.) Climate change and wildlife
11. Rachel Mehmel (2021 M.S.) Water management in Cape Cod.
12. Julio Reyes (MS 2023) Watershed modeling in Ecuador - Fulbright Scholar
13. Melissa Langley (MS 2023) Coastal Wetlands
14. Justin Maynard (2023 MS.) Stream Restoration
15. Breeka Goodlander-Smith (MS 2023)

Graduates (Major Advisor)- 41:

1. J. Aguilar (2020 Ph.D.) Energy and environmental economics and policy
2. L. Galindo (2018 Ph.D.) Landscape and watershed ecosystem services.
3. S. Nampindo (2014 Ph.D.) Climate change impacts water resources and biodiversity, ecosystem services; - WCS Beinecke Scholar from Uganda
4. P. Ekness (2013 Ph.D.) Watershed ecosystem dynamics.
5. O. Tsvetskova (2013 Ph.D.) Uncertainty in climate change impacts on watershed systems.
6. I. Sekar (2007 Ph.D.) Agriculture and water quality – economics and policy.

7. Hilal Arslan (2022 M.S.) Forest management in arid watersheds – Turkey Ministry of Education Scholar
8. Hazel Ortiz (2023 M.S.) Climate change and invasive species.
9. Brianthama Asmara (MS 2023) Indigenous communities and watershed resources in Papua - Fulbright Scholar
10. Alexandra Fink (MS 2023) Ocean Acidification impacts on coastal ecosystem
11. Roberto Navarrete (2022 M.S.) Ecological Economics of Mining in Ecuador - Fulbright Scholar
12. Heather Parry (2022 M.S.) Watershed management for water quality
13. S. Traore (2022 M.S.) Integrated Watershed Management in Ivory Coast – Fulbright Scholar
14. A. Ivanova (2020 M.S.) Vegetative cover in climate resilience
15. C. Paulding (2019 M.S.) Species Modeling under Climate influence
16. C. Lynch (2020 M.S.) Stream crossing and people's perceptions
17. M. Roberts (MS 2018) Institutions and water commons
18. I. Cherkas (MS 2018) Resilience in coastal watersheds

19. J. Norvanchig (MS 2018) Integrated water resource modeling in Mongolia- Fulbright Scholar from Mongolia
20. H. Mamba (MS 2018) Rhinoceros conservation- Fulbright Scholar from Swaziland
21. S. Chauhan (MS 2018) Machine learning for watershed hydrologic time series
22. J. Pellegrino (MS 2018) Urban watershed environmental services and justice
23. A. Quinonez (MS 2017) Neotropical otter habitat -Fulbright Scholar from Honduras
24. J. Baker (MS 2017) Climate change influence on nutrients
25. A. Talib (MS 2015) Watershed modeling and climate change – Fulbright Scholar from Pakistan
26. N. Bush (MS 2015) Modeling invasive species.
27. R. Sripal (MS 2014) Tiger conservation and poaching.
28. J. Dudula (MS 2014) Climate change and stormwater.
29. E. Ross (MS 2014): Sustaining Narragansett Bay Watershed System.
30. K. Collins (MS 2013) Instream habitat and landscape changes;
31. J. Hart (MS 2013) Water use policy.
32. K. Toffling (MS 2012) Climatic change impacts on Mangroves.
33. O. Tsvetskova (MS 2007) Spatio-temporal Modeling.
34. Hawes (Smith) (MS 2007) Sediment and aquatic Impacts.
35. E. Marshall (MS 2005) – Global Warming and Watershed Modeling.
36. P. Ekness (MS 2005) – Riparian systems.
37. Debbie Shriver (MS 2004) – Watershed Classification.
38. K. Davis (Schoenberg) (MS 2002) – Neotropical bird habitat.
39. M. Matteo (MS 2002) – urban watersheds.
40. S. Lowe (MS 2001) - Biodiversity in watershed planning.
41. E. Keeler (MS 2000) – Urbanization and water quality.

Member of Advisory committee - 33:

1. Andrew Delsanto (2023 Ph.D. Civil and Environmental Engineering)- Low flow prediction modeling
2. Chinedum Eluwa (2023 Ph.D. Civil and Environmental Engineering) – Uncertainty modeling
3. Onupurba Das (2024 Ph.D. – Resources Economics)- Environmental Economics in India
4. Omid Zankvili (2021 Ph.D. – Environmental Conservation)- Soil Amendments and nutrients
5. Nelson Da Luz (2021 Ph.D. – Civil and Environmental Engineering) -Water and Sanitation Systems
6. Marielos Arlen Marin (2020 Ph.D. – Landscape Architecture Regional Planning) Climate migration
7. Jayesh Paudel (2019 Ph.D. – Resource Economics) Climate change and Ag. water quality
8. Mikaela A. Laverty, (2015 PhD Civil and Env. Eng.) Lake Modeling.
9. Brian Yellen (2015 Ph.D. Geosciences) – Sediment transport
10. Cortni Borgerson (2015 Ph.D. Anthropology) Primate ecology.
11. Malik Marjan (2014 Ph.D. ECo) Wildlife migrations.
12. Dan Clark (2013 Ph.D. Eco) Seagull management for Water quality
13. Sadeghpour (2014 Ph.D. Plant Sciences) Cover crop systems.
14. Supagit Vinitpornswan (2012 Ph.D. ECo) Tiger Ecology.
15. Ali Farzad (2010 Ph.D. Plant Sciences) Cover cropping.
16. Dave Timmins (2010 Ph.D., Res. Econ) Bioenergy economics.
17. Alex Manda (2009 PhD. Geosciences) – Hydrostructural domains.
18. Wulan Pusparini (2014 MS ECO): Sumatran Rhino Conservation
19. Hla Naing (2014 MS ECO): Indonesian tiger conservation
20. Maureen Pollock (2012 MS LARP): Climate Adaptation
21. Colleen Samson (2011 M.S.) surface and groundwater monitoring.
22. Emily Wright (2011 MS LARP) Phosphorus loading in Landscape planning.
23. Kimberley Klosterman (MS 2011 LARP) Baseflows and impervious cover.
24. Sarah Raposa (2011 M LARPS) sustainable city planning.
25. Dennis Luken (2009 M.S. ECo) – Stream crossing.

26. Jenny Allen (2006 M.S.) – Coastal Coliform Contamination,
27. Jim Dedes (2005 Ph.D. UMass-Boston) – Watershed metrics.
28. Joseph Ogradowczyk (2004 Ph.D.) – Nonmarket valuation.
29. Mike Lewis (2003 M.S.) – Stream Daylighting.
30. Bruce Bayne (2002 M.S.)- Wetlands.
31. Matt Donzella (2002 M.S.) – Forest Watersheds.
32. JeanMarie Skalka (2001 MS)- Wetlands.
33. Mike Stoltzfuz (2001 M.S.) – Wetlands.
34. D. Corlett (2001 MS) – Riparian Modeling.
35. Kristy Norwood (1999 M.S.) – GIS.

Students Services:

Undergraduate Research Experience (research experience for eight students a year)

Advising faculty for several undergraduate and graduate students (approximately 30 students per year in Environmental Science and NRC majors).

Faculty advisor to the UMass Chapter of Soil and Water Conservation

Staff mentor for first-generation and low-income students under the HORIZONS Student Support Program of Purdue University (1996).

Visiting Scholars -19

1. Dr. Rassima Salimbaeva, 2022 – Visiting Professor from Norxoz University, Almaty, Kazakhstan
2. Dr. Semih Edis, 2020 – Post-doctoral Scholar from Cankiri University, Turkey.
3. Dr. Ibrahim Yurtseven, 2019 – Assistant Professor of Forest Engineering, Istanbul University, Turkey.
4. Dr. Yumei Liu, 2018 – Vice-Chair and Lecturer, Suzhou University of Science and Technology, China.
5. Dr. Christine Lucas, 2018 – Ecologist and Adjunct Professor, University of Uruguay.
6. Dr. Xiaoping Sun – 2017 –Ph.D. Research, Nanjing Forest University, Nanjing, China. Sponsored by China Scholarship Council
7. Dr. Meijuan Liu – 2017 – Professor (Full), Zhejiang A&F University, Zhejiang, China. Research scholarship by China Scholarship Council
8. Mr. Basit Ali 2017 – Scholar, PMAS-Arid Agriculture University, Rawalpindi, Pakistan – sponsored by Higher Education Commission, Pakistan (H.E.C.)
9. Ms. Lale Caliskan 2016 – Ph.D. Scholar, Ankara University, Ankara, Turkey; sponsored by TUBITAK Scholarship
10. Ms. Li Han 2016 – Ph.D. Scholar, East China Normal University, Shanghai, China. Sponsored by China Scholarship Council
11. Dr. Kaline de Mello 2015 – Ph.D. Scholar, University of Sao Paulo, Brazil.
12. Dr. Roberta Oliveira Aversa Valante 2015, Faculty, University of Sao Paulo, Brazil.
13. Dr. Le Zhang, 2014, Faculty, Yunnan Academy of Economics, China.
14. Dr. Pinar Pamukcu 2014– Scholar, University of Istanbul, Turkey. sponsored by TUBITAK Scholarship
15. Dr. Caiping Zhang 2014 – Faculty, University of South China, China. – Sponsored by China Scholarship Council
16. Ms. Eshika Manchanda 2014, Scholar, Amity University, India.
17. Ms. Richa Sharma 2014, Scholar, Amity University, India.
18. Dr. Ayten Erol 2013– Faculty, Suleyman Demirel University, Turkey – sponsored by TUBITAK Scholarship
19. Dr. Kalybek Abdykadyrov 2012 –Kyrgyz State Technical University, Bishkek, The Kyrgyz Republic. -Fulbright Faculty Scholar

SERVICE

Academic Service:

2022 to Current: Director, Massachusetts Water Resources Research Center, UMass.

2022-2023: Chair, Eco Department Personnel Committee, UMass.
 2015-2022 Graduate Program Director, Department of Env. Conservation, UMass.
 2019 - Chair of the Working Group on Innovation in Graduate Education, CNS, UMass.
 2013-2014 ACE-Joint task force on Internationalization (JTFI) of UMass
 2013-2014 Chair of the subcommittee in Community Engagement of JTFI, UMass
 2009-current: Undergraduate Concentration Coordinator (NRC- Water Resources)
 2009-current: Graduate Concentration Coordinator (Eco-Water, wetlands, and watersheds)
 2003-2020: Faculty Senate Computer & Electronic Communications Committee
 2002 – 2003: Interim Scientific Director, Water Resources Research Center, UMass
 2002 - Provost's Task Force on Graduate Admissions to achieve diversity, UMass
 2000 – Current: Academic Honesty Board, Ombuds Office, UMass
 2000 – 2008: Chair, Computer Committee, Dept. of Natural Resources Conservation.
 1999 - Chair, Ad-hoc outreach-planning committee, Dept. of Natural Res. Conservation.
 2002 – 2006: Member - Minority recruitment committee, Website committee.

Scholarly Review/Professional Activity:

Editor:

2022-current – Associate Editor – Frontiers in Water – Water and Critical Zone
 2022-current – Associate Editor – Frontiers in Water – Water Resources Management
 2022-current – Associate Editor – Frontiers in Water – Modeling and Optimization for Decision Support
 2022: Guest Editor – Frontiers in Water - The UN International Day of Forests 2022: Forests and Water
 2022: Guest Editor – Diversity – Biomonitoring of Freshwater Systems
 2022-current – Section Board and Editorial Board - Diversity – Biomonitoring of Freshwater Systems
 2022-current – Academic Editor and Editorial Board -PeerJ Life and Environment
 2020- current – International Editorial Board – Journal of Nature and Spatial Sciences
 2009-2022: Executive Editor – Journal of Earth Science and Climate Change
 2004- Current: Honor Editor-in-Chief, International Journal of Ecological Economics and Statistics
 2016- Editorial Board – Jl. of Env. Research and Technology – Environmental Sciences and Engineering
 2013-2015 Editor – Journal of Computational Environmental Sciences
 2010 – Guest Editor – Northeast Naturalist

Expert Reviews:

2018 – National Accreditation Council of Colombia, Accreditation Panel for National University of Colombia review of Doctoral Program in Economic Sciences
 2017 – National Academy of Science, Engineering, and Medicine – GULF projects
 2016–2018 AAAS- American Assoc. of Advancement of Science Expert Panel for EPscor N.S.F. project.
 2016 - USEPA - Climate Change Effects on Water Quality
 2016 – USEPA – ICLUS model review
 2013: National Science Foundation (N.S.F.) Coastal SEES – Proposal review
 2013 – USDOJ expert review on an environmental ruling in Texas
 2015-Current – Advisory Board Anatolian Jl. of Forest Research
 2013: USEPA expert review on national "Watershed modeling Report."
 2013: AAAS- American Assoc. of Advancement of Science Expert Panel for EPscor N.S.F.
 2012-Current: Expert advisor to several research projects on water and climate in Turkey funded by TUBITAK (N.S.F. counterpart in the country).
 2009-current – Bharathiar University (India) external examiner for Ph.D. (one review per year)
 2008, 2009, 2010 – Tahoe Science Consortium- Peer Review
 2010 – National Science Foundation (N.S.F.) and Regional Climate Prediction using Earth System Models (EaSM) – Proposal review
 2010 – International Foundation for Science (I.F.S.) Peer review.
 2002-2003 UMASS Water Resources Research Center – Chair of Review Panel

2003 USEPA-STAR – Review Panel member
 2000, 2002, 2004 USDA-National Research Initiative - Review Panel Member
 2002 The Netherlands Foundation for Advancement of Tropical Research (WOTRO) – Scholarly Review Panel
 2000- Current: American Water Resources Association Tech. Committees: Hydrology & Watershed Management Committee, International Committee, and the Policy Committee.
 2003- Current reviewer of Water Resources Research
 2000 – Current: reviewer of the Journal of Hydrology
 1999 – Current: reviewer for the Transactions of American Society of Agricultural Engineers
 1998- 2005: M.A. State Technical Advisory Committee of NRCS-USDA.
 1997 – Current: reviewer for Agricultural and Resource Economics Review (2 per year)
 1995- Current: reviewer of the JI. of Soil and Water Conservation. (2 manuscripts/year)
 1996- Current: reviewer for The Journal of the American Water Resources Association, formerly Water Resources Bulletin. (5 to 6 manuscripts every year)
 1999- Current: reviewer for American Journal of Agricultural Economics.
 1997- Current: Member of Professional Activity Committee of American Ag. Econ. Assoc.
 1998- Current: Member of the International Committee of the American Ag. Econ. Assoc.
 1996: American Water Resources Association - Professional Technical Committees:
 (i) Water Policy; (ii) Geographic Information Systems; and (iii) International Issues.
 1989: Three-member Expert Panel appointed by Vice-Chancellor, T.N.A. Univ., to study the "Contribution of the University to State Development."
 1997: Panelist in Berg Colloquium on "The Role of Groups and Organizations in the Policy Making Process" at SWCS 97 Meeting, Toronto.
 Invited panelist for Berg Forum on "National Natural Resource Conservation Issues" (Jan-Feb, 1998) held at Washington, DC.

Community Service:

2022 – Host for one Fellow in “Professional Fellows Program- Economic Empowerment,” Collaboration with I.T.D., South Amherst, and sponsored by the U.S. State Department.
 2015-2017- Academic Director/ fellowship coordinator of "Professional Fellows Program- Environmental Sustainability" for 90 international professionals from Peru, Mexico, and Uruguay. Collaboration with I.T.D., South Amherst, and sponsored by the U.S. State Department.
 2019-Current - President of Southern New England Chapter of Soil and Water Conservation Society.
 2018-2019- President-Elect of Southern New England Chapter of Soil & Water Conservation Society.
 2015-2018 – Vice President and Board Member of the Southern New England Chapter of Soil and Water Conservation Society.
 2011-2015 Massachusetts Director and Board member of Southern New England Chapter of Soil and Water Conservation Society.
 2010 (Sept-Oct): Director of "The Institute of Energy and Environment" to 21 international student leaders from 6 countries. Collaborated with I.T.D., South Amherst, and sponsored by the U.S. State Department.
 2005 – current- UMass delegate to Universities Council of Water Resources (UCOWR)
 2004-2007: Board member, Massachusetts Watershed Coalition, Leominster, MA.

Extension and Outreach Experience:

(* indicates outreach while at UMass).

- * Web decision support – <https://ecowaters.com/>
- *Collaboration in long-term water monitoring research in Turkey (Istanbul University)
- *Research Collaboration with two major universities in Turkey (Istanbul University and Suleyman Demirel University)
- *Collaborating with scientists at two major universities in Colombia (National University of Colombia and Military University of Colombia).

- *Collaborating with scientists at two major universities in India (Tamil Nadu Agricultural University and Bharathiar University).
- * Provided intense training in Energy and Environmental issues (Sept-Oct 2010) to 21 international students from France, Brazil, Indonesia, Russia, Germany, and India in collaboration with I.T.D., Amherst, and sponsored by the U.S. State Department.
- * Provided short training in 2008 on water resources management to International policymakers from Eurasia as a part of the U.S. Department of Commerce's Special American Business Internship Training (SABIT) program - Water Resources Management for Central Asia, Western Eurasia, and the Caucasus. Participants were from Armenia, Georgia, Tajikistan, Turkmenistan, Kazakhstan, Kyrgyzstan, Moldova, Ukraine, and Uzbekistan.
- *Provide watershed information through the web: <https://ecowaters.com/>
- *Serve in a faculty role in the Natural Resources and Environmental Conservation (NREC) Program of the UMass Extension and worked with extension personnel in various outreach activities.
- *Organizer of Watershed Conservation Annual Conference attracts agencies, universities, and citizens through the New England States. Four conferences were conducted (480 attendees from New England region).
- *Conducted several workshops on water quality and watersheds to farmers, K-12 teachers, community leaders, watershed team leaders, and high school students.
- *Directed the Water Resources Research Center, The Environmental Institute during 2002.
- *Developed outreach targeting urbanizing areas through modeling and sustainable planning.
- *Conducted watershed-based environmental extension and outreach in several watersheds throughout Massachusetts.
- *Conducted training in watershed management to Mayors and Professionals from Honduras (areas affected by Hurricane Mitch) in collaboration with I.T.D., Amherst.
- *Conducted training in watershed management to Mayors and environmental scientists from Columbia in partnership with I.T.D., Amherst.
- *Developed programs to connect student learning through community service (service learning and watershed internships) to watersheds in the New England region.
- Developed web-based applications to assist farmers, regional planners, and local and federal decision-makers in the management of least-cost water quality and pollution.
- Participated (presented in two sessions) in a Midwest Extension Workshop in Indianapolis, IN (1995).
- Conducted farmer adoption campaign programs in developing countries.
- Conducted farm-level surveys to identify and collect data on local problems in resource use.

Invited Talks (2012 – sample):

- 2012, Of Water, Wars, and Climate (Fall Orientation lecture), UMass Amherst
- 2012, Stormwater (talk for Envirothon participants), UMass Amherst
- 2012, Phosphorus Modeling in Blackstone River Watershed – November 16 Blackstone Summit, Uxbridge, MA.
- 2012, Adaptation to Climatic Change: Systems, Resilience, and Decision Making, Keynote Address to Conference on "Toward a new climate agreement 2012-2020 or Death of Kyoto protocol" May 23, 2012, at National University of Colombia, Bogota, Colombia.
- 2012, Covercrop decision support systems- Center for Ag – Board of Overseers University of Massachusetts, Amherst, MA.
- 2012, Climatic Change and Socioeconomic systems – Symposium presentation. Aug 8, 2012. Tamil Nadu Agricultural University, Coimbatore, India.
- 2012, Climatic Change impacts on Socioeconomic systems – Keynote address at National Symposium presentation. Aug 16, 2012. Bharathiar University, Coimbatore, India.
- 2012, Climatic Change and S.E.S. systems – Symposium presentation. Aug 16, 2012. Madras Institute of Development Studies, Chennai, India.

COMPUTING EXPERTISE

Web Applications: <https://www.ecowaters.com/>.

Operating Systems: Windows, UNIX, Solaris

Optimization: GAMS

General Equilibrium Modeling: GEMPACK/GTAP, MPS-GE

Econometrics/ statistics: S-PLUS, SYSTAT, S.A.S., LIMDEP, STATA, SHAZAM, R

G.I.S.: GRASS, ArcGIS

Simulation: STELLA, Anylogic, SIMILE, EPIC, GWLF, AGNPS, SWMM, SWAT, BASINS.

Mathematical: Mathematica, Matlab, Mathcad

Internet: Java, A.S.P., JSP, Web server administration, Frontpage

Programming: Java, C++

Mobile programming: Android SDK, iOS XCode.