

TIMOTHY O. RANDHIR

Professor and Graduate Program Director

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Twitter: [@timrandhir](https://twitter.com/timrandhir)

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Web-based Decision Support: [Ecowaters.com](http://ecowaters.com)

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



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



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



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



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



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<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 biophysical 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 Maduranthakam tank of Chengalpattu district

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

PROFESSIONAL EXPERIENCE

Sept 2015 – Current: Professor and Graduate Program Director

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:

Intercampus Graduate School in Marine Sciences and Technology

UMass Extension

Adjunct Professor, UMass Department of Resource Economics

Adjunct Professor, Springfield Technical Community College, Springfield MA

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) of 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

Istanbul University, **Turkey**; University of Sao Paolo, **Brazil**; Federal University of Sao Carlos, Sorocaba, **Brazil**; Nueva Granada Military University, Bogota, **Colombia**; National University of Colombia, Bogota, **Colombia**; Narxoz University, **Kazakhstan**; Cankiri Karatekin University, Cankiri, **Turkey**; 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**; Wildlife Conservation Society, Kampala, **Uganda**; Suleyman Demirel University, Isparta, **Turkey**; University of Bergen, **Norway**; Islamic Azad University, Maybod, **Iran**; University of Tehran, **Iran**; Shahid Beheshti University, Tehran, **Iran**; Tarbiat Modares University, **Iran**; University of Botswana, **Botswana**; Victoria University, **Australia**; Islamic Azad University, Maybod, **Iran**; University of Tehran, **Iran**; 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**.

AWARDS AND HONORS:

Awards:

Public Engagement Project Fellow (2018) University of Massachusetts
 Innovate@ Fellow (2017) University of Massachusetts
 TIDE Ambassador (2017-18) University of Massachusetts
 Faculty Fellow (2017-18) Kahn Institute, Smith College on Destroy then Restore: Transforming our Lands and Waters
 Sustainability Curriculum Initiative Fellow (2014) University of Massachusetts
 Lilly Teaching Fellow (2003-04), University of Massachusetts.
 Chancellor's Award for Outstanding Community Service (1999), University of Massachusetts
 Service-Learning Fellow in Teaching (1998-99) awarded by Provost's Special Committee
 Berg Fellow (1997) 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), Nominated for Best Reviewer (SWCS, 1997), and 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 AAEEA 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 G.I.S." 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

- **Chair** of the Working Group on Innovation in Graduate Education, CNS: Led a GPD team and developed a report for innovating graduate programs
- I am serving as **PI** of the NSF-GCR (Growing Convergence Research) Project, coordinating with multiple institutions and international research sites. The project involves leading and mentoring research teams of faculty, students, professionals, farmers, and citizens.
- I am serving as **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.
- Eco Graduate Program **Director** from 2015 to 2022: Revamped the program with student-led community efforts, prominence to DEIJ efforts, curriculum changes to streamline concentrations, Increased diversity by recruiting Spaulding-Smith scholars, increased international dimension through recruitment of Fulbright scholars.
- Graduate Concentration **Coordinator** for Water Resources Concentration from 2002 to current: Developed this concentration to high enrolment and recognition in hydrology
- 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.
- **President** of the Southern New England Chapter of the Soil and Water Conservation Society
- **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 JTFI, UMass

RESEARCH

Grants:

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

- 2022-27 **NSF-GCR** "Collaborative Research: Designing a Sustainable Agricultural Production System through Convergence Research Using a Multi-Scale Ecosystems Approach" \$979,720 PI: Randhir; CoPI King.
- 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 **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, Co-PI: 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 (M.A.)** "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; *indicates visiting scholar at Prof. Randhir's lab; ‡indicates international research collaborator)

SUMMARY: *Refereed Journal Articles (107); Books (1); Book Chapters (7); Refereed full papers in proceedings (4); Peer-reviewed selected/conference papers (80); non-refereed conference papers (4); Other publications (11); and several working papers in development or in 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:

- 107 M.E. Banihabib, S. Mozaffari, 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. Accepted in ***Water and Environment Journal***.
- 106 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>
- 105 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. Accepted in ***Environmental Monitoring and Assessment***, <https://doi.org/10.1007/s10661-022-09854-4>
- 104 Mady[†] 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>
- 103 Malmir, M., S. Javadi[‡], A. Moridi[‡], T.O. Randhir, M. Saatsaz, 2022. Integrated groundwater management using a comprehensive conceptual framework, ***Journal of Hydrology***, <https://doi.org/10.1016/j.jhydrol.2021.127363>
- 102 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>
- 101 Banihabib[‡], M.E., P. Mousavi-Mirkalaei, A. Roozbahani, 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>
- 100 Baker[†], 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>
- 99 Nada, R.S., A.E. Ashmawi, E. Mady[†], 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>
- 98 Mendez-Morales[‡], A., R. Ochoa-Urrego, and T.O. Randhir. 2021. Measuring the quality of patents among Latin-American universities, Accepted ***Studies in Higher Education***. <https://doi.org/10.1080/03075079.2021.2020749>
- 97 Rossi[‡], 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>

- 96 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>
- 95 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>
- 94 Mirzaie[†], 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>
- 93 Norvanchig[†], J., and T.O. Randhir. 2021. Simulation of Ecohydrological processes influencing water supplies in the Tuul River Watershed of Mongolia. *Journal of Hydroinformatics*. <https://doi.org/10.2166/hydro.2021.056>
- 92 Ghafoori-Kharanagh, S., M.E. Banihabib[‡], S. Javadi[‡], and T.O. Randhir. 2021. Participatory Water-Food-Energy Nexus Approach for Evaluation and Design of Groundwater Governance. *Water Resources Management*. <https://doi.org/10.1007/s11269-021-02894-4>
- 91 Zhang^{*‡}, C., D. Tan, N. Yua, X. Yina, and T.O. Randhir. 2021. Value creation mechanism through carbon assets for the sustainability of the automobile sector. *Sustainable Development*. <https://doi.org/10.1016/j.jconhyd.2021.103893>
- 90 Moghaddam, H.K., M. E. Banihabib[‡], S. Javadi[‡], and T.O. Randhir. 2021. A Framework for the Assessment of Qualitative and Quantitative Sustainable Development of Groundwater system. *Sustainable Development*. <https://doi.org/10.1002/sd.2205>
- 89 Mohammadi, A., M. Banihabib[‡], H. Yousefi, H. Pouraram, and T.O. Randhir. 2021. Critique and review of desirable and present food baskets of Iranian society using the water and food nexus approach. *Iranian Journal of Ecohydrology*, 8(2), 599-609. <https://doi.org/10.22059/ije.2021.325479.1517>
- 88 Mohammadi, A., M. Banihabib[‡], S. Javadi[‡], H. Yousefi, H. Pouraram, and T.O. Randhir. 2021. Evaluating the desirability of a vegan food basket in terms of environmental dimensions and comparing it to Iranian society's common food basket. *Journal of Water and Irrigation Management*. <https://doi.org/10.1016/j.jconhyd.2021.103893>
- 87 Vargas-de la Mora[‡], A. M.A. Castillo-Santiago, T.O. Randhir, M.C. Hernández-Moreno, M.J. Cach-Pérez, and V. Camacho-Valdéz. Know to Improve: Factors that influence the transition towards silvopastoral systems in the Chiapas coast. *Tropical and Subtropical Agroecosystems*, 24(3):1-16. <https://www.revista.ccba.uady.mx/ojs/index.php/TSA/article/view/3689/1679>.
- 86 Jamali[‡], A.A., R. Tabatabaee, and T.O. Randhir. 2021. Ecotourism and socioeconomic strategies for Khansar River watershed of Iran. *Environment Development and Sustainability*. <https://doi.org/10.1007/s10668-021-01334-y>
- 85 Paulding[‡], C., and T.O. Randhir. 2021. An Ecohydrological Assessment of Potential Impacts of Climate Change on the Herpetofauna, *Sustainability and Climate Change*. 14(1):22-34. <https://doi.org/10.1089/scc.2020.0027>
- 84 Sun^{*‡}, X., W. Liu, S. Li, P. Chen, M. Cao, T.O. Randhir, and Y. Zhang. 2020. Species richness patterns of waterbirds overwintering on the Jiangsu coast for coastal reclamation. *Ocean & Coastal Management*, p.105488. <https://doi.org/10.1016/j.ocecoaman.2020.105488>
- 83 Yurtseven^{*‡}, I., and T.O. Randhir. 2020. Multivariate assessment of spatial and temporal variations in irrigation water quality in Lake Uluabat watershed of Turkey. *Environmental Monitoring & Assessment*, 192, 793. <https://doi.org/10.1007/s10661-020-08723-2>
- 82 Maleki[‡], M.S., M.E. Banihabib[‡], and T.O. Randhir. 2020. SWAT-S: A SWAT-salinity module for watershed-scale modeling of natural salinity. *Environmental Modelling and Software*. <https://doi.org/10.1016/j.envsoft.2020.104906>

- 81 Zhang[‡], C., N. Yua, X. Yina, and T.O. Randhir. 2020. Environmental performance evaluation of enterprises using internal resource loss and external environmental damage costs, *Journal of Environmental Planning and Management*, <https://doi.org/10.1080/09640568.2020.1802238>
- 80 Dowlatabadi, N.K., M.E. Banihabib[‡], A. Roozbahani, and T.O. Randhir. 2020. Enhanced GMCR model for resolving conflicts in a transboundary wetland, *Science of the Total Environment*, 744. <https://doi.org/10.1016/j.scitotenv.2020.140816>
- 79 Mello[‡], K.D., R.H. Taniwaki, F. R. D. Paula, R.A. Valente[‡], T.O. Randhir, D.R. Macedo, C.G. Lea, C.B. Rodrigues, and R.M. Hughes. 2020. Multiscale land use impacts on water quality: assessment, planning, and future perspectives in Brazil, *Journal of Environmental Management*. 270, p.110879. <https://doi.org/10.1016/j.jenvman.2020.110879>
- 78 Xie, B., M. Liu[‡], T.O. Randhir, Y. Yi, and X. Hu. 2020. Is the Biological Assets Measured by Historical Cost Value-related? *Custos E Agronegocio*. 16(1):122-150 <http://www.custoseagronegocioonline.com.br/numero1v16/OK%20%20assets.pdf>
- 77 Mamba[‡], H.S., Randhir, T.O., and Fuller, T.K., 2020. Community attitudes and perceptions concerning rhinoceros poaching and conservation: a case study in eSwatini. *African Journal of Wildlife Research*, 50(1), pp.1-7. <http://doi.org/10.3957/056.050.0001>
- 76 Banihabib[‡], M.E., N. Chitsaz, and T.O. Randhir. 2020. Non-compensatory Decision Model for Incorporating the Sustainable Development Criteria in Flood Risk Management Plans. *S.N. Applied Sciences*, 2, 6. <https://doi.org/10.1007/s42452-019-1695-6>.
- 75 Zhang[‡], C., K. Song, H. Wang, and T.O. Randhir. 2019. Carbon budget management in the civil aviation industry using an interactive control perspective, *International Journal of Sustainable Transportation*, <https://doi.org/10.1080/15568318.2019.1679923>
- 74 Sun[‡], X, Y. Zhang, Y. Shen, T.O. Randhir, and M. Cao. 2019. Exploring ecosystem services and scenario simulation in the headwaters of Qiantang River Watershed of China. *Environmental Science and Pollution Research*. 26(34):34905-34923 <https://DOI:10.1007/s11356-019-06483-2>
- 73 Randhir, T.O., and J.H. Axelson[†]. 2019. Water use and conservation preferences among households in an urbanizing gradient. *Water Conservation Science and Engineering*, <https://doi.org/10.1007/s41101-019-00074-5>
- 72 Tsvetkova[†], O., and T.O. Randhir. 2019. Spatial and temporal Uncertainty in climatic impacts on watershed systems, *Science of The Total Environment*, 687: 618-633. <https://doi.org/10.1016/j.scitotenv.2019.06.141>
- 71 Mello[‡], K. D., R. A. Valente[‡], T.O. Randhir, and C.A. Vettorazzi[‡]. 2018. Impacts of tropical forest cover on water quality in agricultural watersheds in southeastern Brazil. *Ecological Indicators*. 93: 1293-1301. <https://doi.org/10.1016/j.ecolind.2018.06.030>
- 70 Mello[‡], K. D., R. A. Valente[‡], T.O. Randhir, A.C.A.D. Santos, and C.A. Vettorazzi[‡]. 2018. Effects of land use and land cover on water quality of low-order streams in Southeastern Brazil: Watershed versus riparian zone, *CATENA*, 167: 130–138. <https://doi.org/10.1016/j.catena.2018.04.027>
- 69 Quinonez[†], A.L.C., T. K. Fuller., and T.O. Randhir. 2018. A review of otter distribution modeling: Approach, scale, and metrics. *IUCN Otter Species Group Bulletin*. 35(2): 97-127. http://www.otterspecialistgroup.org/Bulletin/Volume35/Quinonez_et_al_2018.html
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27. 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.
28. 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.
29. Randhir, T.O. 2012, Climatic Change and Socioeconomic systems – **Symposium** presentation. Aug 8, 2012. Tamil Nadu Agricultural University, Coimbatore, India.
30. Randhir, T.O. 2012. Climatic Change impacts on Socioeconomic systems – Keynote address, **National Symposium** presentation. Aug 16, 2012. Bharathiar University, Coimbatore, India.
31. Randhir, T.O. 2012. Climatic Change and S.E.S. systems – Symposium presentation. Aug 16, 2012. **Madras Institute of Development Studies**, Chennai, India.
32. 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.
33. 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.
34. Tofflin†, K., and T.O. Randhir. 2012. Conservation of Mangrove ecosystems: Global assessment of climatic impacts, Paper presented at 2012 **Soil and Water Conservation Society** Annual Meeting, Fort Worth, TX, July 22-25.
35. Eknesst, 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.
36. 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.
37. 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.
38. Nampindo†, S., and Randhir O.T. 2011. Land use and climate change effects on watershed commons in the Albertine Rift Valley of Africa. The 66th International Annual Conference titled "Conservation Science and Policy: Global Perspectives and Applications" Washington DC. July 17-20, 2011.

39. Randhir, T.O. and A. Erol*. 2011. Conservation strategies to reduce nutrient loading in Lake Eğirdir Watershed of Turkey, Paper presented at 2011 **Soil and Water Conservation Society** Annual Meeting, Washington, DC., July 18-19.
40. Randhir, T.O. and O. Tsvetkova†. 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.
41. Randhir, T.O. and S. Nampindo†. 2011. Land use and climate change effects on watershed commons in the Albertine Rift Valley of Africa, Paper presented at 2011 **Soil and Water Conservation Society** Annual Meeting, Washington, DC., July 18-19.
42. Randhir, T.O, S. J. Herbert, and A. Farsad. 2011. Online Crop Decision Support for Nitrogen Recovery through Cover Crops, 2011 **Land and Sea Grant National Water Conference**, January 30-31, Washington, DC.
43. Farsad A., S. J. Herbert, T.O. Randhir, M. Hashemi. 2010. Optimum Planting Date for Rye Cover Crop: A Spatial Analysis. **SWCS** Annual Conference, St. Louis, MO, July 18-21, 2010.
44. 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
45. Herbert, S., S. Weis, T.O. Randhir, S. Bosworth, R. Gilker, M. Sanderson, K. Kaija, R. Brzozowski, and C. Majewski. 2009. Assessing Pasture Grasses, Legumes and Pasture Blends for Varying Soil Conditions in New England and Pennsylvania: A NE SARE Project. Poster 4th **National Conference on Grazing Lands**, Nevada.
46. Eknes†, P., and T.O. Randhir. 2008. Effect of Spatial Configuration of Watershed Land Use on Hydrology. **American Water Resources Association** Proceeding. 2008 at New Orleans, LA.
47. 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.
48. Sekar†, I., and T.O. Randhir. 2008. Efficiency of Small-Scale Storage Networks in India, **American Water Resources Association** Proceeding. 2008 at New Orleans, LA.
49. 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.
50. 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.
51. 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.
52. Hawes†, A., and T.O. Randhir. 2007. Effects of Watershed Land Use on Aquatic Ecosystems. **Soil and Water Conservation Society**. Annual Conference, July 21 to 25 at Tampa, FL.
53. 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.
54. Tsvetkova†, 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.
55. 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.
56. Marshall†, E., and T.O. Randhir. 2004. Mitigation of Climate Change Impacts on Water Balance at Varying Scales. **American Water Resources Association Proceeding**. 2004.
57. Eknes†, P., and T.O. Randhir. 2004. Interaction between Riparian Systems and Stream Water Quality. **American Water Resources Association Proceeding**. 2004.
58. 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.
59. Eknes†, P., and T.O. Randhir. 2003. Landuse Effects and Habitat Functions of Riparian Ecosystems. **American Water Resources Association Proceeding**. 2003.

60. 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.
61. Shriver, 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.
62. Randhir, T.O. 2002. "Economic Policies to Address Urban Impacts of Watershed Processes." ***American Water Resources Association Proceeding***.
63. 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***.
64. Randhir, T.O. 2002. "Integrated Watershed Modeling for Sustainability Planning." ***American Water Resources Association Proceeding***.
65. Randhir, T.O. 2001. "Coastal Watershed Conservation to protect Narragansett Bay." ***Journal of Soil and Water Conservation***.
66. 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***.
67. Randhir, T.O. 2001. "Protecting Potential Water Supplies in Coastal watershed: The Case of Taunton Watershed." ***Journal of Soil and Water Conservation***.
68. Randhir, T.O. S. Lowet, and K. Norwood. 2000. "Combining Species and Landscape Assessment to Evaluate Watershed Ecosystems" ***Journal of Soil and Water Conservation***.
69. Randhir, T.O. 2000. Multiobjective Planning to Promote Community-based Watershed Conservation." ***Journal of Soil and Water Conservation***.
70. Randhir, T.O., E. Keeler, and K. Norwood. 2000. Watershed Imperviousness as an Indicator of Water Quality." ***Journal of Soil and Water Conservation***.
71. 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.
72. Randhir, T. O., and J. G. Lee. 1998. "Effect of Water Quality Standards on Agriculture." ***Journal of Soil and Water Conservation***, 52(2): 157.
73. Randhir, T. O., S. Lovejoy, and J. G. Lee. 1998. "Multiobjective Decision-making in Watershed and Landscape Management." ***Journal of Soil and Water Conservation***, 52(2): 172.
74. Randhir, T. O., and T. Hertel. 1997. "Trade Liberalization as a vehicle for Adapting to Global warming." International Agricultural Trade Research Consortium Annual Meeting, Dec 14-16.
75. 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.
76. 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.
77. Randhir, T. O., and J. G. Lee. 1996. "Economic and Environmental Implications of Policies to Reduce Agricultural Nonpoint Source Pollution." Abstract. ***American Journal of Agricultural Economics***. 77(5), January: 1388.
78. 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.
79. 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.
80. Randhir, T. O., and J. G. Lee. 1995. "Multiple Criterion Dynamic Optimization of Agricultural watersheds with nonpoint source pollution." selected paper presented at ***Southern Agricultural Economists Association Annual Meeting*** at New Orleans, U.S.A. 1995.
81. 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.
82. 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.

83. Randhir, T. O., and M. Ravichandran†. 1991. "Economic Analysis of Watershed Management in Anakkatti Region of Coimbatore District through National Perspective." *Indian Journal of Agricultural Economics*, 46 (3) (Aug.-Oct.): 301.

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 EOEA-Watershed 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 AGEC 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. Mozumder, P., **T. O. Randhir**; W. F Vásquez; M. Jerath. (Submitted) Risk Perceptions and Adaptation to Climate Variability: Survey Evidence from Maple Syrup Farmers" *Ecological Economics*.
6. 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*
7. 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&FCON 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 597O 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 (20):

1. A. Quinonez (2022 Ph.D.) Watershed ecology and hydrologic modeling
2. M. Siri. (2023 Ph.D.) Remote Sensing of Carbon flux in Sub-Saharan Africa
3. E. Madi (2022 Ph.D.) Biodiversity and Metabolic Alterations of Vegetable and Medicinal Plants
4. R. Salazaar (2022 Ph.D.) Traditional Ecological Knowledge systems and indigenous commons in Peru
5. A. Ivanova (2025 Ph.D.) Ecosystem services and public health
6. J. Roach (2022 Ph.D.) Water Security and Global Conflicts
7. Donald Fonseca (2025 Ph.D.) T.B.D.
8. J. Maynard (2025 Ph.D.) Stream Restoration
9. J. Slaff (Ph.D. 2023) Watershed Restoration Modeling

10. R. Mehmel (2021 M.S.) Water management in Cape Cod.
11. H. Parry (2021 M.S.) Watershed management for water quality
12. H. Arslan (2022 M.S.) Forest management in arid watersheds – Turkey Ministry of Education Scholar
13. S. Traore (2022 M.S.) Integrated Watershed Management in Ivory Coast – Fulbright Scholar
14. R. Navarrete (2022 M.S.) Ecological Economics of Mining in Ecuador - Fulbright Scholar
15. H. Ortiz (2023 M.S.) Climate change and invasive species.
16. B Asmara (MS 2023) Indigenous communities and watershed resources in Papua
17. J. Reyes (MS 2023)
18. M. Langley (MS 2023)
19. A. Fink (MS 2023)
20. B. Goodlander-Smith (MS 2023)

Graduates (Major Advisor)- 34:

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; - W.C.S. 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. A. Ivanova (2020 M.S.) Vegetative cover in climate resilience
8. C. Paulding (2019 M.S.) Species Modeling under Climate influence
9. C. Lynch (2020 M.S.) Stream crossing and people's perceptions
10. M. Roberts (MS 2018) Institutions and water commons
11. I. Cherkas (MS 2018) Resilience in coastal watersheds
12. J. Norvanchig (MS 2018) Integrated water resource modeling in Mongolia- Fulbright Scholar from Mongolia
13. H. Mamba (MS 2018) Rhinoceros conservation- Fulbright Scholar from Swaziland
14. S. Chauhan (MS 2018) Machine learning for watershed hydrologic time series
15. J. Pellegrino (MS 2018) Urban watershed environmental services and justice
16. A. Quinonez (MS 2017) Neotropical otter habitat -Fulbright Scholar from Honduras
17. J. Baker (MS 2017) Climate change influence on nutrients
18. A. Talib (MS 2015) Watershed modeling and climate change – Fulbright Scholar from Pakistan
19. N. Bush (MS 2015) Modeling invasive species;
20. R. Sripal (MS 2014) Tiger conservation and poaching;
21. J. Dudula (MS 2014) Climate change and stormwater;
22. E. Ross (MS 2014): Sustaining Narragansett Bay Watershed System;
23. K. Collins (MS 2013) Instream habitat and landscape changes;
24. J. Hart (MS 2013) Water use policy;
25. K. Toffling (MS 2012) Climatic change impacts on Mangroves;
26. O. Tsvetskova (MS 2007) Spatio-temporal Modeling;
27. Hawes (Smith) (MS 2007) Sediment and aquatic Impacts;
28. E. Marshall (MS 2005) – Global Warming and Watershed Modeling;
29. P. Ekness (MS 2005) – Riparian systems;
30. Debbie Shriver (MS 2004) – Watershed Classification;
31. K. Davis (Schoenberg) (MS 2002) – Neotropical bird habitat;
32. M. Matteo (MS 2002) – urban watersheds;
33. S. Lowe (MS 2001) - Biodiversity in watershed planning;
34. E. Keeler (MS 2000) – Urbanization and water quality;

Member of Advisory committee - 31:

1. Omid Zanvikili (2024 Ph.D. – Environmental Conservation) Soil Amendments and nutrients
2. Marielos Arlen Marin (2020 Ph.D. – Landscape Architecture Regional Planning) Climate migration
3. Jayesh Paudel (2019 Ph.D. – Resource Economics) Climate change and Ag. water quality
4. Mikaela A. Laverty, (2015 PhD Civil and Env. Engg) Lake Modeling.
5. Brian Yellen (2015 Ph.D. Geosciences) – Sediment transport
6. Cortni Borgerson (2015 Ph.D. Anthropology) Primate ecology;
7. Malik Marjan (2014 Ph.D. ECo) Wildlife migrations;
8. Dan Clark (2013 Ph.D. Eco) Seagull management for Water quality
9. Sadeghpour (2014 Ph.D. Plant Sciences) Cover crop systems;

10. Supagit Vinitpornswan (2012 Ph.D. ECo) Tiger Ecology;
11. Ali Farzad (2010 Ph.D. Plant Sciences) Cover cropping;
12. Dave Timmins (2010 Ph.D., Res. Econ) Bioenergy economics;
13. Alex Manda (2009 Ph.D. Geosciences) – Hydrostructural domains,
14. Wulan Pusparini (2014 MS ECO): Sumatran Rhino Conservation
15. Hla Naing (2014 MS ECO): Indonesian tiger conservation
16. Maureen Pollock (2012 MS LARP): Climate Adaptation
17. Colleen Samson (2011 M.S.) surface and groundwater monitoring;
18. Emily Wright (2011 MS LARP) Phosphorus loading in Landscape planning;
19. Kimberley Klosterman (MS 2011 LARP) Baseflows and impervious cover;
20. Sarah Raposa (2011 M LARPS) sustainable city planning;
21. Dennis Luken (2009 M.S. ECo) – Stream crossing;

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

Students Services:

First-Year Research Experience program (research experience for two students a year)

Advising Faculty for several undergraduate and graduate students (approximately 30 students per year in Environmental Science and N.R.C. majors).

Faculty advisor to 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

1. Semih Edis, 2020 – Post-doctoral Scholar from Cankiri University, Turkey.
2. Ibrahim Yurtseven, 2019 – Assistant Professor of Forest Engineering, Istanbul University, Turkey.
3. Yumei Liu, 2018 – Vice-Chair and Lecturer, Suzhou University of Science and Technology, China.
4. Christine Lucas, 2018 – Ecologist and Adjunct Professor, University of Uruguay.
5. Xiaoping Sun – 2017 –Ph.D. Student, Nanjing Forest University, Nanjing, China. Sponsored by China Scholarship Council
6. Meijuan Liu – 2017 – Professor (Full), Zhejiang A&F University, Zhejiang, China. Research scholarship by China Scholarship Council
7. Basit Ali 2017 – Scholar, PMAS-Arid Agriculture University, Rawalpindi, Pakistan – sponsored by Higher Education Commission, Pakistan (H.E.C.)
8. Lale Caliskan 2016 – Ph.D. Scholar, Ankara University, Ankara, Turkey; sponsored by TUBITAK Scholarship
9. Li Han 2016 – Ph.D. Scholar, East China Normal University, Shanghai, China. Sponsored by China Scholarship Council
10. Kaline de Mello 2015 – Ph.D. Scholar, University of Sao Paulo, Brazil.
11. Roberta Oliveira Aversa Valante 2015, Faculty, University of Sao Paulo, Brazil.
12. Le Zhang, 2014, Faculty, Yunnan Academy of Economics, China.
13. Pinar Pamukcu 2014– Scholar, University of Istanbul, Turkey. sponsored by TUBITAK Scholarship
14. Caiping Zhang 2014 – Faculty, University of South China, China. – Sponsored by China Scholarship Council
15. Eshika Manchanda 2014, Scholar, Amity University, India.

16. Richa Sharma 2014, Scholar, Amity University, India.
 17. Ayten Erol 2013– Faculty, Suleyman Demirel University, Turkey – sponsored by TUBITAK Scholarship
 18. Kalybek Abdykadyrov 2012 –Kyrgyz State Technical University, Bishkek, The Kyrgyz Republic. -Fulbright Faculty Scholar
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SERVICE

Academic Service:

- 2015-current Graduate Program Director, Department of Env. Conservation.
- 2019 - Chair of the Working Group on Innovation in Graduate Education, C.N.S.
- 2013-2014 ACE-Joint task force on Internationalization (JTFI) of UMass
- 2013-2014 Chair of subcommittee in Community Engagement of JTFI, UMass
- 2009-current: Undergraduate Concentration Coordinator (N.R.C.- Water Resources)
- 2009-current: Graduate Concentration Coordinator (Eco-Water, wetlands, and watersheds)
- 2003-Current: 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:

- 2009-Current: Executive Editor – Journal of Earth Science and Climate Change
- 2004- Current: Honors Editor-in-Chief, International Journal of Ecological Economics and Statistics
- 2016- Editorial Board – Journal of Environmental Research and Technology
- 2013-2015 Editor – Journal of Computational Environmental Sciences
- 2010 – Guest Editor – Northeast Naturalist

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 Sciences – 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 JI. 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- Current: 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 J. 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:

- 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 of the Massachusetts Watershed Coalition, Leominster, MA.

Extension and Outreach Experience:

(* indicates outreach while at UMass).

- * Web decision support – <http://aqua1.eco.umass.edu/>
- *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 significant 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: <http://www.ecowaters.com/WIS/> and <http://www.ecowaters.com/wscourse/>.
- * 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 throughout the 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 least-cost water quality and pollution management.
- 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, 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.