

Curriculum Vitae

Abubakarr S Mansaray (Abu), Oklahoma State University, 139 Agricultural Hall, Stillwater, OK 74078.
Email: abu.mansaray@okstate.edu, Cell: (405) 714-3566; Office: (405) 744-7093

Introduction

Dr. Abubakarr Sidique Mansaray (Abu) has more than 15 years of experience in research, teaching, and outreach/extension with a demonstrated history of working in the higher education industry, the private sector, and consulting services with governmental and intergovernmental agencies. His work primarily advances best practice to enhance sustainable water resource use through his expertise in Environmental Science, WASH, Remote Sensing, GIS, Modeling, and Climate Change. Abu has an outstanding record of leadership in team building, team management, stakeholder engagement, project planning, project implementation, and human and institutional capacity building. He has worked with diverse communities and partners in the implementation of programs and projects locally, nationally, and internationally, particularly in North America and the Global South. Below are specific accomplishments that manifest Abu's competencies.

Professional Preparation

1. **Doctor of Philosophy (Ph.D.)** in Environmental Science, Oklahoma State University, USA, 2018.
 - Received training in Stormwater Management, Ecohydrology, Hydrogeology for Environmental Managers, GIS, Remote Sensing, Applied Water Resource Statistics, Limnology, and Environmental Law & Policy.
 - Dissertation was on remote sensing of water quality in the Southcentral USA.
2. **Master of Science (M.S.)** in Environmental Science, University of Idaho, USA, 2010.
 - Received training in Natural Resource Policy, Soil-Water Dynamics, Limnology, Environmental Toxicology, Soil Biology, Soil Biochemistry, Instrumental Analysis, and Sampling-Analysis of Environmental Contaminants.
 - Thesis was on the fate of heavy metals and metalloids in a floodplain in northern Idaho.
3. **Master of Science (M.Sc.)** in Environmental Chemistry, Njala University College, University of Sierra Leone, 2004.
 - Received training in Reaction Kinetics & Energetics, Equilibrium Systems, Spectroscopy, Instrumental Analysis, Photochemistry, and the Nature of Macro-molecules.
 - Thesis was on water quality in bottled and sachet drinking water in Sierra Leone.
4. **Bachelor of Science (B.Sc.)** with Honors in Environmental Science, Njala University College, University of Sierra Leone, 2002.
 - Received training in a wide range of courses in Chemistry, Biology, Physics, Mathematics, and Statistics.
 - Undergraduate project was on the agricultural potential of decomposed wastes in a landfill in Freetown Sierra Leone.

Teaching and Mentoring Experience

2020-present: Graduate Faculty, Environmental Science Graduate Program, Oklahoma State University
2005-2015: Lecturer II, Chemistry Department and Institute of Environmental Management and Quality Control (EMQC), Njala University, Sierra Leone.

- Taught courses in the following:

Course Title	Number	Level	University	Year(s)
Watershed Modeling	ENVR 5200 ¹	Graduate	Oklahoma State	Spring 2023
Remote Sensing of the Env.	ENVR 5200 ¹	Graduate	Oklahoma State	Spring 2023
Env. Sampling & Analysis	EVR3113	Undergraduate	Oklahoma State	Spring 2021
Remote Sensing of the Env.	ENVR 5200 ¹	Graduate	Oklahoma State	Fall 2021
General Chemistry	CHEM 101	Undergraduate	Njala University	2005-2008; 2012-2015
Basic Organic Chemistry	CHEM 211	Undergraduate	Njala University	2005-2008
Intro. Inorganic Chemistry	CHEM 221	Undergraduate	Njala University	2005-2008
Introductory Soil Chemistry	CHEM 212	Undergraduate	Njala University	2005-2008
Organic Reaction Mechanism	CHEM 311	Undergraduate	Njala University	2005-2008
Biological Chemistry	Chem 301	Undergraduate	Njala University	2005-2008
Water Quality Management	EMQC 331	Undergraduate	Njala University	2005-2008; 2012-2015
Limnology	FISH 321	Undergraduate	Njala University	2012-2015
Bioinorganic Chemistry	CHEM 421	Undergraduate	Njala University	2005-2008; 2012-2015
Waste Management	CHEM 431	Undergraduate	Njala University	2005-2008; 20012-2015
Pollution Chemistry	CHEM 441	Undergraduate	Njala University	2005-2008; 2012-2015
Water Chemistry	CHEM 312	Undergraduate	Njala University	2005-2008; 2012-2015
Env. Impact Assessment	EMQC 551	Graduate	Njala University	2012-2015
Waste Management	CHEM 531	Graduate	Njala University	2012-2015
Water Pollution Management	EMQC 532	Graduate	Njala University	2012-2015

Research Experience

2023-present: Research Project Manager, Oklahoma Water Resources Center, Division of Agricultural Science and Natural Resources, Oklahoma State University, Stillwater, OK

- Research
 - Support research groups in the water Center and the Department of Biosystems and Agricultural Engineering to implement research projects, advance water systems research, manuscript preparation, student mentoring, and other duties as assigned.
 - Serve as lead researcher in water quality, remote sensing and GIS of water resources.
 - Support research in hydrology, sustainable agriculture, climate change, and water systems modeling.
- Manuscript preparation
 - Lead or support preparation and submission of manuscripts in water resource science and management.

2018-2023: Research Specialist, Oklahoma Water Resources Center, Division of Agricultural Science and Natural Resources, Oklahoma State University, Stillwater, OK

- Research
 - Served as lead researcher in water quality, remote sensing and GIS of water resources.
 - Supported research in hydrology, sustainable agriculture, climate change, and water systems modeling.
- Manuscript preparation
 - Led preparation and submission of water quality, remote sensing, and GIs manuscripts.
 - Supported preparation and submission of manuscripts in other areas of water resources.

2011-2012: Project Scientist, Cardinal Resources LLC., Pittsburgh PA, USA.

- Led research in the geochemistry of water supply sources and disinfection demand.

¹ Independent Study

- Tasks included filter optimization for fluoride and arsenic removal, pilot testing for design and system upgrade (bed fluidization, disinfection profiling, pump circulation, bench study of environmental contaminants), and source water characterization studies.
- Supported technical services for remediation of contaminated sites and purchase of new sites.
 - Tasks included statistical analysis of contaminant attenuation trends, evaluation of groundwater remediation techniques, technical proposal development, and site visits for environmental assessment.
- Served as scientific lead in sewage treatment designs, groundwater monitoring, data compilation, data analysis, and reporting.

Research Profile: <https://scholar.google.com/citations?hl=en&user=gQbPek0AAAAJ>

1. Bockarie A and **Mansaray A**, 2022. *The fate of watersheds in the face of vegetation loss in two river basins in Sierra Leone – a remote sensing approach*. Ready for submission
2. Aseem Singh, Ali Mirchi, Saleh Taghvaeian, **Abubakarr Mansaray**, Phillip D. Alderman, and Daniel Moriasi, 2022. *Analysis of Climatic Trends in Climate Divisions of Oklahoma, U.S.* Under Review - Submitted to the Journal of Theoretical and Applied Climatology
3. Zghibi A, Merzougui A, **Mansaray A**, Mirchi A, Zouhri L, Chekirbane A, Haythem M M, Souissi D, Mabrouk-El-Asmi A, and Boufekane A., 2022. Vulnerability of a Tunisian Coastal Aquifer to Seawater Intrusion: Insights from the GALDIT Model. *Water*, 14(7), 1177; <https://doi.org/10.3390/w14071177>
4. Kayastha P., Dzialowski A.R., Stoodley S.H., Wagner K.L., and **Mansaray A.S.**, 2022. *Effect of Time Window on Satellite and Ground-Based Data for Estimating Chlorophyll-a in Reservoirs*. *Remote Sens*, 14(4), 846; <https://doi.org/10.3390/rs14040846>
5. **Mansaray A**, Barrie A, Kamara I, and Swaray A, 2021. *Citizen Scientists help with rainfall monitoring in data-scarce Sierra Leone*. *Academia letters*. <https://doi.org/10.20935/AL1703>
6. **Mansaray A.S.**, Dzialowski A, Martin M.E, Wagner, K.L, Stoodley S.H, and Gholizadeh H, 2021. Comparing PlanetScope to Landsat-8 and Sentinel-2 for water quality sensing in reservoirs in agricultural watersheds. *Remote Sensing* 13(9), 1847. <https://doi.org/10.3390/rs13091847>
7. Mansaray A.S., Barrie A, Jabati E.B.M., Juanah M.S.E., and Ganda K.J., 2021. *Utilizing Geospatial Tools to Assign Unique Identifiers to Water Bodies in a Low-Income Country*. *Journal of Water Resource and Protection*, 13, 236-253. <https://doi.org/10.4236/jwarp.2021.133014>
8. **Mansaray A.S.**, Aamodt J. and Koroma B.M., 2018. *Water Pollution Laws in Sierra Leone—A Review with Examples from the UK and USA*. *Natural Resources*, 9, 361-388. <https://doi.org/10.4236/nr.2018.911023>
9. **Mansaray A.S.** and Aamodt J., 2017. *The Rights of Nature may improve water and sanitation in Sierra Leone*. *Sierra Leone Journal of Biomedical Research*. Vol 9 (2), pp. 8-12. ISSN 2219-3170 (Online).
10. **Mansaray A.S.**, Borsuah, J.F., Gogra, A.B., Fofana, B.P. and Koroma, B.M., 2017. *The Safety of Water Supplied at Njala University, Njala Campus*. *Natural Resources*, 8, 81-93. <https://doi.org/10.4236/nr.2017.82006>.
11. **Mansaray A.S.**, Kaisam J.P., Bockarie A.S. and Sam H. 2016. *Consumer Preferences for Water Supply at Njala University, Njala Campus in Southern Sierra Leone*. *Natural Resources*, 7, 138-145. <http://dx.doi.org/10.4236/nr.2016.73014>
12. **Mansaray A.S.** and Barrie A., 2016. *Utilization of Landsat Data for Quantifying and Predicting Land Cover Change in the Bumbuna Watershed in Sierra Leone*. **Natural Resources** 7 (9), 495-504. <http://dx.doi.org/10.4236/nr.2016.79042>

13. **Mansaray A.S.**, Massaquoi A.B., Samai I.J. and Koroma B.M., 2015. *Exposure to Dioxins and Furans at the Bormeh Kingtom Dumpsite in the Western Area of Sierra Leone*. Natural Resources, 6, 491-501. <http://dx.doi.org/10.4236/nr.2015.69047>
14. **Mansaray A.S.**, Gogra A.B., Massaquoi A.B.S. and Borsuah J.F., 2015. *The Recharge Potential of Groundwater in the Mokonde Community in Southern Sierra Leone*. Natural Resources, 6, 543-552. <http://dx.doi.org/10.4236/nr.2015.611052>

Outreach & Extension Experience

2018-present: Technical support for water quality extension programs at the Oklahoma Water Resource Center.

- Respond to questions regarding water quality including Harmful Algal Blooms, turbidity, heavy metals, nutrients, and microbial contamination.
- Collaborate in the development of extension materials such as factsheets, short demonstration videos, newsletters, and handouts.
- Work with undergraduate students to conduct water quality screening for homeowners at county education centers in Oklahoma.
- Work with County Extension Agents to facilitate educational meetings with private well owners on water quality in their wells.

2012-2015: Technical consultant from Njala University to support the Bumbuna Watershed Management authority (BWMA) in the environmental and social management of the Bumbuna Hydroelectric Dam in Sierra Leone.

- Led a World Bank funded Water Quality and Fisheries Program for 1 year.
- Led implementation of grant projects for the Ministry of Energy, the Ministry of Water Resources, and Adam Smith International for 2 years (one such project was coordination of the WASH Facility project that was led by Adam Smith International and the Ministry of Water Resources).
- Led community and stakeholder engagements in communities affected by impoundment of the Bumbuna Hydroelectric Dam for two years.

2012-2013: Technical Adviser from Njala University in community based small grant programs funded by the Global Environment Facility (GEF) and managed by the United Nations Development Program (UNDP).

- Led a research and outreach project on the quantification of Persistent Organic Pollutants (POPs) in waste dumpsites in Freetown, Sierra Leone.
- Led a research and outreach program on rainwater harvesting and enhanced aquifer storage in the Mokonde community adjacent to Njala University, Njala campus.

2010-2011: Volunteer Technical Adviser from Njala University, representing TerraGraphics Environmental Engineering Inc. in Zamfara State, Nigeria.

- Trained officers in the Zamfara Ministry of Environment and Solid Minerals, on remediation of Lead (Pb) contaminated sites.
- Supervised environmental remediation in villages affected by Pb contamination.
- Trained local staff on the development of advocacy materials to help integrate the equitable, economic, and ecological criteria for successful emergency response to Pb poisoning.

Grant Writing and Management Experience

2018-present: Serve as one of the primary grant writers for the Oklahoma Water Resource Center.

- Active team member with occasional lead in water research grant development.
 - Building, mobilization, and management of teams with multidisciplinary Principal Investigators (PIs) from various departments at OSU and from other institutions.
 - Development of first draft proposals.

- Management of proposal and budget routing.
- Submission of grant proposals.
- Grant/Project management.
 - Managed Oklahoma's USGS 104b state water research grant program for 2 years.
 - Currently managing and/or supporting the following grant projects:
 - a) A state funded water quality modeling project.
 - b) A state funded project on community well water quality education.
 - c) A USDA funded sustainable agriculture project.
 - d) A USEPA and NRCS funded virtual fencing project to minimize the impacts of grazing on contiguous water bodies (managing the riparian and stream health assessment component).
 - e) An NSF funded international transboundary water research project.
 - f) A USGS 104b funded regenerative agriculture for climate adaptation research
- Selected past and current grant project support
 - a) Evaluating Regenerative Agricultural Practices (RAPs) for mitigating the impacts of flooding in southwest Oklahoma (Awarded) - Name of PIs: Dr. Ali Mirchi, Dr. Abu Mansaray, Dr. Sarah Alian; Awarding Agency: USGS 104b; Performance period: 9/1/2023-8/31/2024; Total amount: \$25,000.00.

Tasks: *Pre-award* – proposal development; *Post-award* – project implementation

- b) Collaborative Research: AccelNet: PEER2PEER International Convergence Research Networks in Transboundary Water Security (Awarded) - Name of PI representing Oklahoma State University: Dr. Ali Mirchi; Awarding Agency: NSF Office of International Science & Engineering; Performance period: 1/1/2022-12/31/2026; Total amount: \$2,000,000; amount awarded to Oklahoma State University: \$300,000.

Tasks: *Pre-award* - Proposal development; *Post-award* – Serving as early career researcher coordinating project implementation in collaboration with colleagues from the University of California Irvine, the National Academies of Science, Engineering, and Medicine, and colleagues from Central Asia, the Middle East, and North Africa.

- c) Virtual fencing to control cattle from polluting nearby streams (Awarded) - Name of PI: Dr. Kevin Wagner; Awarding Agency: USEPA; Performance period: 5/1/2021-4/30/2024; Total amount: \$877,569.00.

Tasks: *Pre-award* - internal review before submission; *Post-award* – quarterly riparian and Stream health Assessment.

- d) The Oklahoma Well Water Screening Program for private homes - Name of PI: Dr. Kevin Wagner; Awarding Agency: Oklahoma Rural Health Association; Performance period: 6/1/2022-5/30/2023; Total amount: \$200,000.00.

Tasks: *Pre-award* – proposal development; *Post-award* - well water screening, preparation of training materials, facilitating community education on well water quality.

- e) Development and Maintenance of the Hydrologic and Water Quality System (OK HAWQS) for Oklahoma (Awarded) - Names of PIs: Dr. Kevin Wagner and Dr. Abu Mansaray; Awarding Agency: Oklahoma Conservation Commission; Performance period: 10/1/2021-12/31/2023; Total amount: \$416,181.00.

Tasks: *Pre-award* – Proposal development (co-PI); *Post-award* - Project Management.

- f) Bumbuna Watershed Water Resource Management Project (Awarded) - Names of PIs: Abdulai Barrie & Abu Mansaray; Program/agency: UK Department for International Development/Adam Smith International; Performance period: 1/1/2013-12/31/2014; Total amount: \$210,000.

Tasks: *Pre-award* – Proposal development; *Post-award* - Project management.

- g) Exposure to Dioxins and Furans at dumpsites in Freetown, Sierra Leone (Awarded) - Name of PI: Abu Mansaray; Program/agency: UNDP/Global Environment Facility (GEF) Small Grans Program (SGP); Performance period: 1/1/2012 -12/31/2013; Total amount: \$35,000.

Tasks: Proposal development and project management.

- h) Groundwater management in the Mokonde community (Awarded) - Names of PIs: Alhaji Brima Gogra and Abu Mansaray; Program/agency: UNDP/Global Environment Facility (GEF) Small Grans Program (SGP); Performance period: 1/1/2012 -12/31/2013; Total amount: \$35,000. Task: Co-PI.

Professional Services

2023: Served as panelist in the NSF AccelNet Roundtable Discussion, Organized by the Toolbox Dialogue Initiative Center, Michigan State University

- Presentation title: Expanding the PEER2PEER Transboundary Water network in the Global South

2023: Served as co-organizer of a side conference at the 2023 UN Water Conference, Organized by the University of Arizona and American Geophysical Union (AGU)

- Theme: Equitable data gathering for water resources in the Global South

2022-2024: Serving as committee chair for Sonika Poudel in the Environmental Science Graduate Program, Oklahoma State University.

- Thesis Title: *Vulnerability of the Kaw Nation Watershed to the impacts of Climate Change.*

2022-2024: Serving as committee member for Pecos McDonald in the Environmental Science Graduate Program, Oklahoma State University.

- Thesis Title: *Near real time detection of aquatic invasive plants in Oklahoma.*

2021-present: Serving as Faculty Advisor for the African Student Organization, Oklahoma State University.

- Direct policies and activities of the organization
- Mentor the student leaders of the organization
- Serve as principal signatory for all university transactions

2020-present: Serving as Faculty Advisor for the Oklahoma Clean Lakes and Watersheds Association (OCLWA) – Oklahoma State University Student Chapter.

- Direct policies and activities of the organization
- Mentor the student leaders of the organization
- Serve as principal signatory for all university transactions

2020-present: Served as Peer Reviewer for manuscripts

- Reviewed for the Journal of Environmental Management (Elsevier), the Journal of Hydrology (Elsevier), the PeerJ journal, Natural Resources.
- Currently a volunteer reviewer for MDPI journals
 - 2022: Reviewed for Sustainability
 - 2022: Reviewed for Remote Sensing

- 2023: Reviewed for Remote Sensing
- 2019-2023:** Conference Organization
- Co-lead in the planning and implementation of the Oklahoma Governor’s Water Conference and Research Symposium (OGWCRS)
 - Co-lead of student poster committee in the Oklahoma Clean Lakes and Watersheds Association (OCLWA)
 - Poster judge: OCLWA conferences, Oklahoma Governor’s Water Conference and Research Symposium (OGWCRS), University Council on Water Resource (UCOWER).
- 2019-2023:** Served as Grant Proposal Reviewer.
- Internal review of the USGS 104b State Water Research Grant (2019-2023)
 - External Reviewer for the USGS 104G National Competitive Water Research Grant (2021)
- 2019-2021:** Successfully served as committee chair for Priya Kayastha’s Graduate Committee in 2021.
- Thesis Title: Effect of Time Window on Satellite and Ground-Based Data for Estimating Chlorophyll-a in Reservoirs (Oklahoma State University).
- 2018-present:** Member, Board of Directors, Oklahoma Clean Lakes and Watersheds Association (OCLWA).
- Serve as voting member in charge of student affairs
 - Leading role in organizing student poster contests.
 - Coordinate the OCLWA University Chapters.
 - Actively participate in organizing annual OCLWA conferences.
- 2018-2020:** Successfully served as committee member in Abubakarr Swaray’s Graduate Committee.
- Thesis Title: *Towards a more sustainable water supply in Freetown, Sierra Leone* (Maastricht University, the Netherlands).
- 2017-2023:** Invited talk: Utilizing Earth Observation systems to map algal pigments in the Grand Lake Watershed, Oklahoma.
- Water Quality Workshop for End Users, NASA Goddard Space Flight Center, Greenbelt, MD, Wednesday, September 27th, 2017.
 - Oklahoma Bar Association, Environmental Law Section, Annual Conference, the Artisan Hotel, Casino, and Spar, Sulfur, Oklahoma, September 29th, 2017.
 - Guest lecture: Agricultural Education, Limnology, Remote Sensing, GIS, Soil Biochemistry (Oklahoma State University).
 - Keynote address, EDI-SL Annual General Meetings.
- 2016-present:** Chairman, Board of Directors, Education and Development Initiative Sierra Leone (EDI-SL), a not-for-profit organization registered in the U.S.
- Direct the vision and mission of the organization.
 - Lead policy development and management for the organization.
 - Serve as chair for the annual general meeting held rotationally in the U.S contiguous states.
- 2015-218:** Vice President (205-2016) and then President (2016-2018), Society for Environmental Scientists, a graduate student organization for Environmental Science Graduate Students at Oklahoma State University.
- Coordinated clean-up activities in the city of Stillwater, parks, lakes, and streams.
 - Led collaboration with the City of Stillwater to install stormwater drain designations.
 - Led the organization to support community education programs on environmental stewardship.
 - Led organization of seminars, invited talks, and training in sustainability and the environment.
- 2016-2018:** Student Board Member, Oklahoma Clean Lakes and Watersheds Association (OCLWA).
- Represented students from Oklahoma institutions of higher learning in the OCLWA Board.
 - Coordinated University Chapters of the OCLWA.
- 2010-present:** Consulting services

- Environmental Impact Assessment (Baseline characterization of the biophysical components of the environment; delineation of mitigation measures; development of Occupational Health and Safety plans; analysis of climate impacts and resilience; report writing, coordination of consulting teams).
- Environmental and Social Audit (report writing; coordination of consulting teams)
- Environmental and Social Management Framework (report writing; coordination of consulting teams)
- Water, Sanitation, and Hygiene (WASH) research and program management (data gathering, coordination of consulting teams, report writing)
- Transboundary water management planning (data gathering, coordination of consulting teams, report writing)
- Forest Landscape Restoration plan & Restoration Opportunity Assessment Methodology (ROAM) (Report writing).

2010-2015: Served as Director of Studies in the Chemistry Department, Njala University.

2009-2022: Conference Abstracts/Presentations/Attendance – OCLWA, OGWCRS, UCOWER, National association of Environmental Professionals (NAEP), National Society of Black Engineers (NASBE), North America Lake management society (NALMS, American Geophysical Union (AGU)

2005-2015: Served as Faculty Advisor for the Served as advisor for 15 undergraduate and 5 graduate (M.S) student research projects (Njala University)

Professional Referees

1. Dr. Kevin L Wagner, Director, Oklahoma Water Resources Center, Division of Agricultural Science and Natural Resources, Oklahoma State University. Email: kevin.wagner@okstate.edu; Phone: (405) 744-5615
2. Dr. Ali Mirchi, Assistant Professor, Biosystems and Agricultural Engineering, Oklahoma State University. Email: amirchi@okstate.edu; Phone: (405) 744-8425
3. Dr. Scott Stoodley, Director, Environmental Science Graduate Program, Oklahoma State University. Email: scott.stoodley@okstate.edu; Phone (405) 744-9229
4. Dr. Margrit von Braun, Co-Founder, TerraGraphics International Foundation (TIFO); Dean and Professor Emerita, University of Idaho. Email: vonbraun@uidaho.edu