CURRICULUM VITAE

Jean Claude Ndayishimiye

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Google Scholar: https://scholar.google.ca/citations?user=IcaeiK8AAAAJ&hl=en&oi=ao

FIELDS OF EXPERTISE

Sustainability, Green Technology, and Climate Change Mitigation: Proficient in the principles of sustainability and renewable energy and adept at developing innovative technologies and practices to mitigate climate change and reduce environmental impact. Skilled in implementing adaptation and resilience strategies, particularly in the fields of water services, including WASH (Water, Sanitation, and Hygiene), irrigation, water treatment plants, hydropower generation, and water resource management

Environmental Science and Conservation: Deep understanding of the scientific principles underlying environmental issues, such as aquatic ecosystem changes, climate change, and biodiversity loss. Experienced in implementing conservation strategies with a strong emphasis on adaptation and resilience

Environmental Policy, Law, and Climate Change Governance: Expertise in formulating and implementing policies and laws related to environmental issues, including climate change, at various levels (local, national, and international). Proficient in incorporating monitoring, evaluation, and results-oriented approaches, with a focus on water resource management and sustainability

Environmental Health, Safety, and Climate Resilience: Skilled in developing and implementing policies and practices aimed at protecting public health and safety, particularly in the domains of air, soil, and water quality. Experienced in hazardous waste management and occupational safety, with a strong focus on climate resilience and adaptation measures in water-related contexts

Environmental Education, Outreach, and Climate Communication: Proficient in educating the public about environmental issues, including aquatic ecosystem changes, climate change, and biodiversity loss, and fostering awareness, engagement, and action through effective communication strategies. Experienced in emphasizing adaptation and resilience initiatives, particularly in the field of water services and resource management

EDUCATION

Doctor of Philosophy in Environmental Sciences, September 2020
University of Chinese Academy of Sciences, Beijing, People's Republic of China
Dissertation title: "*Tracking Environmental Change using Testate Amoeba Community across Different Timescales*"
Advisor: Professor Jun Yang
Committee: Profs. Changzhou Yan, Xin Yu, Jun Yang, Haifeng Gu, Jinsheng Chen, and Feng Zhao

Master of Philosophy in Applied Geology, August 2015
Annamalai University, Chidambaram, Tamil Nadu, India
Dissertation: "*Environmental Magnetism: Pichavaram Mangrove Ecosystem*"
Advisor: Professor T. Ramkumar
Master of Arts in Environmental Economics, May 2014
Annamalai University, Chidambaram, Tamil Nadu, India
Bachelor of Science in Civil Engineering, January 2012
National University of Rwanda, Huye, Southern Province, Rwanda

ACADEMIC AND PROFESSIONAL POSITIONS

November 2023 to Present, **Senior lecturer**, Shenzhen MSU-BIT University, Shenzhen, China

Lectured postgraduate students on the ecology of novel ecosystems, practical biology, and eukaryotic microbiology. Supervised postgraduate students in the fields of microbial ecology, artificial intelligence for microbial analysis, analytical chemistry, and green technologies

February 2021 to November 2023, **Postdoctoral fellow**, Shenzhen MSU-BIT University, Shenzhen, China

Lectured postgraduate students on the ecology of novel ecosystems, practical biology, and biology of testate amoebae. Supervised postgraduate students in the fields of microbial ecology, artificial intelligence for microbial analysis, analytical chemistry, and green technologies

June 2014 to Present **Fundraising and international affairs coordinator**, National Non–Governmental Organization (Save the Rwandan Environment and Biodiversity), Muhanga, Rwanda

Crafted fundraising strategies to boost the organisation's financial backing and resource procurement for its projects on the Rwandan environment and biodiversity conservation. Cultivated donor relationships by maintaining positive connections between the organisation and its donors. Managed grant applications and reports, ensuring adherence to guidelines, deadlines, and reporting requirements

January 2011 to July 2012, **Graduate assistant**, National University of Rwanda, Huye, Rwanda

Assisted professors in civil engineering in conducting research and delivering courses and assignments in the fields of geotechnical engineering, quantity survey, and architecture. Supported civil engineering students with their experimental report preparations as designated by the professors

November 2010 to April 2011, **Drinking water supply intern**, Entreprise Générale des Constructions, Kigali, Rwanda

Contributed administratively to the operation of PEPAPS, a joint project involving the Ministry of Infrastructure in Rwanda (MINIFRA), the Belgian Technical Cooperation (BTC), and the European Union (EU), with the overall goal of providing potable water and sanitation services in the Southern Province of Rwanda. Contributed to the design and construction of one water treatment plant and the development of 628 km of drinking water supply infrastructure in the Southern Province of Rwanda, with the objective of providing services to approximately 298,246 people

LEADERSHIP AND SERVICE HIGHLIGHTS

August 2022, **Founder**, Rwanda Geoscientists Society, a professional organization that brings together individuals who are interested in and work in the field of geoscience in

Rwanda. RGS encompasses a broad range of scientific disciplines, including geology, geophysics, hydrology, meteorology, and environmental science.

June 2018, **Founder**, Center for Earth and Natural Resource Sciences, a comprehensive and multi-disciplinary research center engaged in fundamental and applied research on the environment, understanding earth processes and natural hazards, resource science, and innovative technologies and instruments for the control and remediation of water, soil, air, and solid waste pollution

June 2012, **Founder,** Institution of Engineers Rwanda, a professional organization that represents and supports engineers, with the aim of promoting excellence, professionalism, and innovation in engineering in Rwanda.

RESEARCH INTERESTS

Primary interests: Climate change, Environmental science, Soil and water remediation, Ecology, Protistology

Additional interests: Global change, Microbial biogeochemistry, Restoration ecology, Natural and anthropogenic hazards

PUBLICATIONS

Scholarly articles

Nyirabuhoro P[#], **Ndayishimiye JC.**[#] 2024. Innovating for a climate-resilient world: renewable energy and sustainable technologies. In: Doon RA (Ed.), *Transitioning to Climate Action*; MDPI: Basel, Switzerland. DOI:10.3390/books978-3-03897-875-6

Habumugisha T, Zhang Z, **Ndayishimiye JC**, Nkinahamira F, Uwizewe C, Cyubahiro E, Rehman A, Yan C, Zhang X. 2023. Qualitative and quantitative analysis of accumulation and biodistribution of polystyrene nanoplastics in zebrafish (*Danio rerio*) via artificial freshwater. ***Environmental Science: Nano***. 10: 2141–2156. DOI: 10.1039/D3EN00017F

Ndayishimiye JC, Mazei Y, Babeshko K, Tsyganov AN, Bobrov A, Mazei N, Smirnov A, Ren K, Abdullah Al M, Chen H, Wang W, Saldaev D, Ivanovskii A, Nyirabuhoro P, Yang J. 2022. Stochastic and deterministic processes shaping the testate amoeba communities across different biotopes of urban parks in Moscow and Xiamen cities. ***Urban Ecosystems***. 26: 617–628. DOI: 10.1007/s11252-022-01306-8

Gao X[#], Wang W[#], **Ndayishimiye JC[#]**, Govaert L, Chen H, Jeppesen E, Xue Y, Yu X, Yang J. 2022. Invasive and toxic cyanobacteria regulate allochthonous resource use and community niche width of reservoir zooplankton. ***Freshwater Biology***. 67: 1344−1356. DOI: 10.1111/fwb.13921

Ndayishimiye JC, Nyirabuhoro P, Lin T, Zhang G, Zhang W, Mazei Y, Ganjidoust H, Yang J. 2020. Decade-scale change in testate amoebae community primarily driven by anthropogenic disturbance than natural change in a large subtropical reservoir. ***Science of the Total Environment***. 78: fiab036. DOI: 10.1016/j.scitotenv.2021.147026

Ndayishimiye JC[#], Nyirabuhoro P[#], Wang W, Mazei Y, Yang J. 2020. Morphology of testate amoeba *Difflugia australis* (Playfair, 1918) Gautier-Lièvre et Thomas, 1958 from a subtropical reservoir (southeast China). ***Zootaxa***. 4890: 097–108**.** DOI: 10.11646/zootaxa.4890.1.5

Ndayishimiye JC, Nyirabuhoro P, Wang Q, Yang X, Yang J. 2020. Effects of natural and anthropogenic changes on testate amoebae communities in an alpine lake over the past 2500 years. ***Science of the Total Environment***. 721: 137684. DOI: 10.1016/j.scitotenv.2020.137684

Ndayishimiye JC, Ju L, Li H, Yang X, Liu Z, Yang J*. 2019. Temperature transfer functions based on freshwater testate amoebae from China. ***European Journal of Protistology***. 69: 152–164. DOI: 10.1016/j.ejop.2019.03.003

Zhong Y, Ivanovskii A, **Ndayishimiye JC**, Tsyganov AN, Babeshko K, Saldaev D, Mazei Y. 2022. Distribution of soil microbes in urban parks: an effect of under-tree crown and hillside position on testate amoeba assemblages in subtropics (Shenzhen, China). ***Land***. 11: 2250. DOI: 10.3390/land11122250

Munganyinka JP, Habinshuti JB, **Ndayishimiye JC**, Mweene L, Ofori-Sarpong G, Mishra B, Adetunji AR, Tanvar H. 2022. Potential uses of artisanal gold mine tailings, with an emphasis on the role of centrifugal separation technique. ***Sustainability***. 14: 8130. DOI: 10.3390/su14138130

Habumugisha T, Zhang Z, **Ndayishimiye JC**, Nkinahamira F, Kayiranga A, Cyubahiro E, Rehman A, Yan C, Zhang X. 2022. Evaluation and optimization of the influence of silver cluster ions on the MALDI-TOF-MS analysis of polystyrene nanoplastic polymers. ***Analytical Methods***. 14: 763−772. DOI: 10.1039/D1AY02219A

Wang W, Gao X, **Ndayishimiye JC**, Lara E, Lahr DJ, Qian H, Ren K, Chen H, Yang J. 2022. Population and molecular responses to warming in *Netzelia tuberspinifera*–An endemic and sensitive protist from East Asia. ***Science of The Total Environment***. 806: 150897. DOI: 10.1016/j.scitotenv.2021.150897

Cyubahiro E, Luo Z, Kayiranga A, Habumugisha T, Nkinahamira F, **Ndayishimiye JC**, Yan C, Guo J, Wang Z. 2022. Thallium removal by the montmorillonite biochar composite: insights and environmental implications. ***Desalination and Water Treatment***. 253: 177−193. DOI: 10.5004/dwt.2022.28301

Yang Y, Chen H, Al MA, **Ndayishimiye JC**, Yang JR, Isabwe A, Luo A, Yang J. 2022. Urbanization reduces resource use efficiency of phytoplankton community by altering the environment and decreasing biodiversity. ***Journal of Environmental Sciences***. 112: 140–151. DOI: 10.1016/j.jes.2021.05.001

Kayiranga A, Luo Z, **Ndayishimiye JC**, Nkinahamira F, Cyubahiro E, Habumugisha T, Yan C, Guo J, Zhen Z, Tuyishimire A, Izabayo HD. 2021. Insights into thallium adsorption onto the soil, bambo‐derived biochar, and biochar amended soil in Pomelo orchard. ***Biochar***. 3: 315–328. DOI: 10.1007/s42773-021-00095-1

Nyirabuhoro P, Gao XF, **Ndayishimiye JC**, Xiao P, Mo YY, Ganjidoust H, Yang J. 2021. Responses of abundant and rare bacterioplankton to temporal change in a subtropical urban reservoir. ***FEMS Microbiology Ecology***. fiab036. DOI: 10.1093/femsec/fiab036

Simbi CH, Lin J, Yang D, **Ndayishimiye JC**, Liu Y, Li H, Xu L, Ma W. 2020. Decomposition and decoupling analysis of carbon dioxide emissions in African countries during 1984–2014. ***Journal of Environmental Sciences***. 102: 85–98. DOI: 10.1016/j.jes.2020.09.006

Ndayishimiye JC, Nyirabuhoro P. 2015. A study on interdependent and asymmetrical behaviours associated with land use and land cover at Ruhande, Huye, Rwanda. *International Journal of Innovative Research and Development*. 4: 217–222

Ndayishimiye JC, Nyirabuhoro P. 2015. Concepts of Umutara and Imigongo colour-based design in the traditional arts of Rwandans and their applications in interior and fashion technologies. *International Journal of Innovative Research and Development*. 4: 334–341

Nyirabuhoro P, Mugerwa T, Ndikubwimana JD, Munyangyinka JP, **Ndayishimiye JC**, Uwamungu P. 2015. A study on sediments depositional mechanism at Nayakankuppam coast, Tamilnadu, India. *International Journal of Engineering Research and General Science*, 3: 478–492

Conference abstract

Ndayishimiye JC, Mazei Y, Ren K, Tsyganov AN, Smirnov A, Mazei N, Saldaev D, Ivanovskii A, Nyirabuhoro P, Yang J. 2023. Diversity and community assembly of testate amoebae and other microbial eukaryotes in diverse biotopes within urban parks: morphological and metabarcoding perspective. In: Lara (Ed.), E. *10th International Symposium on Testate Amoebae* (pp. 23). Abstract booklet, Royal Botanical Garden-CSIC, Madrid, Spain

Ndayishimiye JC, Mazei Y, Babeshko K, Tsyganov AN, Bobrov A, Mazei N, Saldaev D, Ivanovskii A, Nyirabuhoro P, Ren K, Abdullah Al M, Chen H, Wang W, Yang J. 2021. Multi-habitat testate amoeba in temperate and subtropical urban parks. In: Mitchell EAD. (Ed.), *2021 International Symposium on Testate Amoebae – ISTA 9 ¾* (pp. 24). Program & book of abstracts, University of Neuchâtel, Neuchâtel, Switzerland

Scholarly article for scientific development

Ndayishimiye JC. 2023. *Difflugia australis* (Playfair, 1917) Gauthier-Lièvre et Thomas, 1958. Encyclopedia. https://encyclopedia.pub/image/detail/23

DISTINGUISHED LECTURESHIPS

August 2022, **Guest lecturer**, *An Introduction to Effective Data Analysis Techniques Using Open-Source Tools*, University of Rwanda, Kigali, Rwanda

July 2021, **Guest lecturer**, *Open-Source GIS Applications and Best Practices*, The Center for Earth and Natural Resource Sciences, Kigali, Rwanda

December 2020, **Guest lecturer**, *R Programming for Ecological Data Analysis: An Introduction to Statistical Analysis and Visualization*, The Center for Earth and Natural Resource Sciences, Kigali, Rwanda

AWARDS, GRANTS, AND FELLOWSHIPS

January 2024–December 2025, Co-principal Investigator, **Research grant**, *Spatial Distribution of Soil Biodiversity in Watersheds and Flood Control Reservoirs in Shenzhen City*, Innovative Youth Talent Project of the Provincial Department of Education, Total amount: 100,000 RMB

January 2023–December 2023, Principal investigator, **Research grant**, *Prevalence of Testate Amoebae in the Urban Environment: Do Distinct Ecological Niches Exert Similar Pressure on the Microbial Community?* National Natural Science Foundation of China, Grant number: 32250410317, Total amount: 200,000 RMB

September 2015–August 2018, **University of Chinese Academy of Sciences Scholarship**, a fully funded scholarship for a doctorate program awarded by the University of Chinese Academy of Sciences

September 2012–August 2014, **Rwanda Education Board Scholarship**, a fully funded scholarship for postgraduate studies awarded by the Ministry of Education of Rwanda

January 2006–November 2010, **Student Financing Agency Scholarship**, a fully funded scholarship for undergraduate studies awarded by the Ministry of Education of Rwanda

September 2020, **2020 Excellent International Student**, an award given to outstanding international students who have excelled academically and contributed to the community by the University of Chinese Academy of Sciences

PROFESSIONAL ACTIVITIES AND AFFILIATIONS

April 2024, **Peer reviewer**, Water, Land
March 2024, **Peer reviewer**, Water, Land
February 2024, **Peer reviewer**, Water, Sustainability
January 2024, **Peer reviewer**, Heliyon, Sustainability
December 2023, **Peer reviewer**, Heliyon
November 2023–Present, **Member**, Global Land Programme
November 2023, **Peer reviewer**, Sustainability
October 2023, **Peer reviewer**, Sensors
August 2023, **Peer reviewer**, Remote Sensing
July 2023, **Peer reviewer**, Sustainability
June 2023, **Peer reviewer**, Sustainability, Water
May 2023, **Peer reviewer**, Sustainability
April 2023, **Peer reviewer**, Land
March 2023, **Peer reviewer**, Minerals, Remote Sensing
February 2023, **Peer reviewer**, Sustainability
January 2023, **Peer reviewer**, Life
December 2022, **Peer reviewer**, Sustainability
December 2022, **Organizing and Scientific Committee**, First Joint Workshop, Peatland ecology, carbon cycle and climate change
November 2022, **Peer reviewer**, Remote Sensing
October 2022, **Peer reviewer**, Sustainability
October 2022, **Organizing and Scientific Committee**, Second Joint Workshop, Urban microbiome: structure, function, management
September 2022, **Peer reviewer**, Minerals
September 2022, **Peer reviewer**, Sustainability
August 2022–Present, **Member**, Rwanda Geoscientists Society
January 2018–Present, **Member**, International Society of Testate Amoeba Researchers
June 2012–Present, **Member**, The Institution of Engineers Rwanda

TEACHING AND MENTORING

September 2022–Present, **Thesis advisor**, *Testate Amoeba Community Structured by Trace Elements and Silt related to Urbanization and Headwater Dispersal in a Subtropical Flood Mitigation Reservoir*, Postgraduate student Hu Xiaoying from Shenzhen MSU-BIT University and Lomonosov Moscow State University
September 2022–Present, **Thesis advisor**, *Temporal Dynamics and Assembly Mechanisms of Microbial Communities in Subtropical Ponds*, Postgraduate student Geng Zihan from Shenzhen MSU-BIT University and Lomonosov Moscow State University
September 2022–Present, **Thesis advisor**, *Assembly Mechanisms and Co-occurrence Patterns of Testate Amoeba Communities within Dry and Vegetated Periods of a Subtropical Flood Mitigation Reservoir and its Watershed*, Postgraduate student Zhu Guangcan from Shenzhen MSU-BIT University and Lomonosov Moscow State University
September 2022–December 2023, **Course instructor**, *Ecology of Novel Ecosystems*, Postgraduate students from Shenzhen MSU-BIT University

September 2022–December 2023, **Course instructor**, *Biology of Testate Amoebae*, Postgraduate students from Shenzhen MSU-BIT University

September 2021–June 2023, **Thesis co-advisor**, *Determinants of Bacterial Community Composition in a Subtropical Endorheic Urban Pond*, Postgraduate student Cao Lixi from Shenzhen MSU-BIT University and Lomonosov Moscow State University

September 2021–June 2023, **Thesis advisor**, *Ecology of Testate Amoebae (Arcellinida, Euglyphida) In Subtropical Urban Ponds*, Shenzhen, Postgraduate student Cheng Xinyun from Shenzhen MSU-BIT University and Lomonosov Moscow State University

September 2021–June 2023, **Thesis advisor**, *Artificial Intelligence-Based Morphological Identification and Analysis of Testate Amoebae*, Postgraduate student Zhao Qing from Shenzhen MSU-BIT University and Lomonosov Moscow State University

December 2022, **Invited speaker**, *My UCAS-IUE Experience Before and After Graduation*, Institute of Urban Environment, Chinese Academy of Sciences

April 2022–July 2022, **Course instructor**, *Practical Biology*, Postgraduate students from Shenzhen MSU-BIT University

April 2021–July 2022, **Thesis co-advisor**, *Microspatial Distribution of Soil Testate Amoebae in Shenzhen Urban Parks*, Postgraduate student Zhong Yuantan from Shenzhen MSU-BIT University and Lomonosov Moscow State University

PRACTICAL AND TECHNICAL SKILLS

Practical scientific procedures and techniques: Strong interpersonal skills, including the ability to do field work independently or in a team, and experimental techniques covering sampling and identification of testate amoebae

Programming languages and mathematical packages: Languages for statistical computing and graphics (R); C++

Computer aided design (CAD) and graphics: AutoCAD; ArchiCAD; Artlantis; Adobe Illustrator; Photoshop; Image J; Photo Instrument

Other: QGIS; DIVA-GIS; IBM SPSS; OriginLab; PAST; PRIMER; CANOCO; Ecosim Professional; Gephi

LANGUAGES

English: native proficiency
French: native proficiency
Kinyarwanda: native
Mandarin Chinese: Basic level

VOLUNTEER EXPERIENCE

January 2004–Present, **Economic development initiatives**, Active participant in the *Umuganda Community Service Initiative* in Rwanda, contributing to the improvement of the community through monthly clean-up activities, infrastructure development projects, and other community initiatives. Demonstrated strong teamwork, communication, and leadership skills in coordinating with fellow community members to complete projects

January 2012–July 2012, **Fundraising activities**, Active participant in fundraising activities for the *Agaciro Development Fund*, contributing to the economic development of Rwanda by supporting initiatives aimed at improving the lives of citizens. Utilized excellent communication and fundraising skills to engage potential donors and drive contributions to the fund

September 2016, **Rescue and environmental restoration initiatives**, volunteered in cleaning Xiamen, China, after the devastation of super typhoon Meranti, providing

assistance with debris removal, relief goods distribution, and support for affected families. Collaborated with a team of volunteers to help restore infrastructure and clear public areas, demonstrating a strong commitment to community service and leadership skills

December 2021, **Fundraising activities**, Volunteered for a corporate social responsibility campaign by the Development Bank of Rwanda aimed at contributing to the Government of Rwanda's goal of connecting all households to electricity by 2024. Assisted in the organization of fundraising events to support the project. Collaborated with other volunteers to develop and implement strategies to achieve project goals

REFERENCES

Yuri A Mazei, Ph.D., **Vice-rector for international affairs and professor**
Department of General Ecology and Hydrobiology, M V. Lomonosov Moscow State University
Leninskie Gory 1, 119991, Moscow, Russia, E-mail: yurimazei@mail.ru

Jun Yang, Ph.D., **Professor**
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David M Wilkinson, **Professor**
School of Life Sciences, College of Science, University of Lincoln
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