

CURRICULUM VITAE

Personal Details

Dr Eng. Fidelis Ndambuki Kilonzo, PhD, PE, MIEK, MEIK

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BioSketch

A Senior Lecturer and Executive Dean -School of Engineering and Architecture, Kenyatta University boasts 27 years of experience in Engineering, Education, Environment, and Leadership. He's been a member of the Institution of Engineers of Kenya (IEK's) Policy, Research, and Advocacy committee, a gazetted Washington Accord Assessors by the Engineers Board of Kenya, serves on the board of the Global Tourism Resilience and Crisis Management Centre, Eastern Africa. He is a member of management Board of the Kenya Education Network (KENET) and sits at the steering committee of Stanford's University Byers Center for Biodesign's East Africa Biodesign program. His research focus and interests includes climate change, appropriate environmental Technology transfer, low cost tech-innovations, sustainable food systems, Water and waste management, and hydrological and groundwater modeling.

Education

1. Ph.D Engineering with High Honors (2014)/IHE-Delft, NL/VU Brussels , Belgium

Department of Hydraulic and Hydrology Engineering, Faculty of Engineering, VUB and Faculty of Water Engineering, IHE-Delft

Dissertation "*Assessing the Impacts of Environmental Changes on the Water Resources of the Upper Mara, Lake Victoria Basin*"

2. Msc. Environmental Sanitation with Great Distinction (2005)/Ghent University, Belgium

Faculty of Bioscience Engineering

Dissertation "*Hydrogeochemical Study of the Nairobi Area, Kenya*"

3. Msc Water Resources Management with Distinction (2003)/Lunerburg University, Suderburg Campus, Germany

Faculty of Civil Engineering

Dissertation "*Assessment of the Groundwater Quality For Domestic Purposes: Nairobi Area, Kenya*"

4. Bsc. Agricultural Engineering with Second Class Honors Upper division (1996)/JKUAT, Kenya

Faculty of Biomechanical and Environmental Engineering

Student project "*Salt study and Analysis in Pitcher Irrigation*"

Additional relevant Professional trainings

June 2023 – Feb 2024: International Deans Course Africa- IDC_DIES/Osnabruck University of Applied Sciences/Center for Higher Education, Germany.

Strategic faculty management, financial management, quality assurance, change management, Sustainability and leadership

Sept 2023 – Jan 2024: Social Impact Strategy: Tools for Entrepreneurs and Innovator-

University of Pennsylvania, covered topics include; social entrepreneurship, Impact investing, and social Innovation.

June 2023- Jan 2024: Google Cybersecurity Professional Certificate/Coursera, Gained useful insight in use of programming languages (Python, SQL) in

cybersecurity operations, Linux line- command, security mindset, frame works & Controls, SIEM tools, packet sniffers.

Aug 2023- Jan 2024: Ethical Hacking Essentials/EC-Council – Online

Fundamentals of ethical hacking and penetration testing in cybersecurity

2023: Air Quality Management and Science/Columbia University

2023: Outcome based Education /World Federation of Engineering Organizations (WFEO) Academy

2023: Introduction to Cybersecurity/Cisco Networking Academy, Online

2019: Flood and Drought Hazard Mitigation/UNITAR/IGAD-ICPAC, Nairobi, Kenya

2017: Groundwater Data Collection and Interpretation/UNESCO-IHE, Institute of Water Education in Delft, The Netherlands

2016: Land Cover Mapping and Agriculture Change Assessment/ ECONET-FAO methodology, RCMRCD, Nairobi, Kenya

Professional positions

2022-Current: Executive Dean, School of Engineering and Architecture, and Senior Lecturer, Ecological Engineering, Kenyatta University

Achievements: Steered the Recognition of 4 professional programmes by the Regulatory Authorities (EBK and BORAQs) as well as mentored the students into a Do it yourself (DIY) Culture culminating to the Galactic Solver award to Kenyatta University by the NASA International Space App challenges -2023.

2019-2022: Chair; Biosystems & Agricultural Engineering Department Senior Lecturer, Ecological Engineering and, Kenyatta University, Kenya

Achievements: Led the youngest department in the School of Engineering and Technology to take on a frontrunner role in Innovations and Inventions leading to the award winning achievements from its Students in its short 5 years of existence. These include and not limited to; Head of State commendation (HSC), Royal Academy of Engineering (Leaders in innovation fellowship Award), Vijanaa and Dada Sanitations Award, IKO SAFi Innovation Award, Registered Patents, Incubated projects.

2008-2018: Senior Lecturer/Lecturer/Tutorial fellow, and examination coordinator, Civil Engineering Department, Kenyatta University, Kenya

Achievements: - Worked and rose through the ranks as Tutorial Fellow (PhD student) through Lecturer to Senior Lecturer

- Taught, supervised and mentored engineering students at both undergraduate and graduate level
- Undertook applied research and published articles in peer-reviewed journals, book and book chapters and presented findings in conferences, symposia and workshops
- Mentees have won innovations Awards, registered patents as well as secured fellowships, scholarship and teaching assistantship at Universities in the USA (University of Florida, Iowa state, North Carolina state University, Texas A-M), the Netherlands (IHE Delft), Algeria (Pauwes), Turkey (Erciyes University),

Italy (Politecnico di Milano), and Israel (the Technion, Hebrew University).

2006-2008: Environment/Compliance Officer – National Environment Management Authority (NEMA-Kenya)

Achievements:- Participated as core team in the development of tools for the operationalization of the Water Quality regulations, 2006 and the Waste Management Regulations of 2006
- Inspected facilities for compliance and Enforced EMCA, 1999

Key Competencies Environmental Engineering & Technology, Environmental management, Water, Environment and Sanitation (WES), Engineering Education, Policy and Advocacy, Information Security.

Research footprint <https://scholar.google.com/citations?hl=en&user=FNnB3JsAAAAJ>
<https://orcid.org/0000-0002-8461-3482>

Relevant Articles in refereed journals

1. **Fidelis N. Kilonzo**, L.J.Kibet Data Test and Pre-Treatment for Hydrological Modelling and Applications - Journal of Engineering in Agriculture and the Environment (JEAE), VOLUME 8. NO 1. 2022
2. Halidini Sarakikya, Peter Mashingo, **Fidelis Kilonzo**, Design and Computational Fluid Dynamics Modelling for a Municipal Solid Waste Incineration Process, Open Journal of Fluid Dynamics, 2021, 11, 177-191
3. **Fidelis N. Kilonzo**, Winnie M. K., Joyce W. K., Juliana K., Daniel K., Catherine M., and Scholastica M., (2020) Wastewater Reuse For Urban And Peri-Urban Agriculture: Why It's Not Happening Soon? Journal of Engineering in Agriculture and the Environment (JEAE), Volume 6. No 2 pg .32-40
4. Sarakikya, H., **Kilonzo, F.**, Gumbe, L, Kiplagat, J., (2020) Prediction Of Temperature And Flue Gases For The Incineration Process Using Mathematical Modeling And Computer Simulation, Journal of Engineering in Agriculture and the Environment (JEAE), Volume 6. No 2 pg .1-11.
5. Tadesse A., **F. Kilonzo**, A. van Griensven, and W. Bauwens, (2017) Evaluation and application of alternative rainfall data sources for forcing hydrologic models in the Mara Basin, Hydrology Research.
6. **Kilonzo F.**, F. O. Masese, A. Van Griensven, W. Bauwens, J. Obando, and P. N.L. Lens, (2014). Spatial-temporal variability in water quality and macro-invertebrate assemblages in the upper Mara river basin, Kenya, Physics and Chemistry of the Earth, 67-69,93-104.
7. Van Griensven A., P. Ndomba, S. Yalew, and **F. Kilonzo**, (2012) Critical review of the application of SWAT in the upper Nile Basin countries. Hydrol. Earth Syst. Sci, 16, 3371-3381
8. **Kilonzo F.**, U. Mutwiwa, S. Mutua, and M. Waweru, (2012). Evaluating the use of Constructed Wetland in the Treatment of Tannery Wastewater, Kenya Science, Technology and Innovation Journal.
9. **Kilonzo F.**, A. Van Griensven and W. Bauwens, (2012) Distributed validation of hydrological model using field and remotely sensed data in Sepplet et al., (eds): Managing resources of a limited planet: pathways and visions under uncertainty, Sixth Biennial meeting, Leipzig Germany, International Environmental Modelling and Software Society (iEMSs).

10. Coetsiers, M., **F. Kilonzo**, and K. Walraevens; (2008). Hydrochemistry and source for high Fluoride in groundwater of the Nairobi area, Kenya, Hydrological Sciences (IAHS) 53(6) pg 1230-1240

Relevant Books and Book Chapters

1. **Kilonzo, F.N.**, 2014. Assessing the Impacts of Environmental Changes on the Water Resources of the Upper Mara, Lake Victoria Basin, CRC Press/Balkema, ISBN 9781138026384
2. Daniel Kyalo Willy, **Fidelis Kilonzo** and Juliana Kiio, (2020) Who Cares? Consumer Attitudes and Purchase Decisions on Peri-Urban Agricultural Commodities in the Absence of Information Asymmetry. Cambridge Scholars Publishing, ISBN (10): 1-5275-5583-6 ISBN (13): 978-1-5275-5583-9.
3. Kiio Juliana, **Kilonzo Fidelis**, Kyalo Daniel, Muui Catherine and Mathenge Scholastica (2020) Potential for Wastewater Re-Use in Urban and Peri-Urban Agriculture to Mitigate Household Food Insecurity in Nairobi, Kenya. Cambridge Scholars Publishing, ISBN (10): 1-5275-5583-6 ISBN (13): 978-1-5275-5583-9.

Relevant Conference papers

1. The Triple Blessings of Competency Based Education, Washington Accord and Artificial Intelligence in Engineering Education in Kenya. 30th IEK International Conference, 14th to 17th November 2023, PrideInn Paradise Beach Resort, Mombasa, Kenya.
2. Rationalising Technology-enabled learning to increase student engagement - The 9th International Annual School of Education and Lifelong Learning Conference, 3rd-4th October 2023 – Co-author
3. End of the traditional engineering professional: Changing face in engineering education, 28th IEK conference, 2021, PrideInn Paradise Beach Resort, Mombasa, Kenya.
4. Paradigm shift in Linking engineering with the roots; Engineering the Food security agenda, 27th IEK International Conference, 24th to 27th November 2020, PrideInn Paradise Beach Resort, Mombasa, Kenya
5. Feeding city population on drying waters, how can we move into the future?" 22nd International conference on Environmental indicators (ICEI2017), 1-5 August 2017, Helsinki, Finland.
6. Food production systems and the farmers' adaptive capacity to Climate Change in the Upper Mara River Basin, Kenya, Lake Victoria Basin Scientific conference, 22-23 Oct, 2012, Entebbe, Uganda.
7. Spatio-temporal variation in water quality of the upper Mara River basin, paper presented at the WaterNet/ Symposium, 31 Oct- 2 Nov, 2012, Johannesburg, South Africa.
8. Selecting a Potential Evapotranspiration method (PET) in the absence of Essential climatic input data, paper presented at the SWAT International Conference 14-17 June, 2011, Toledo, Spain,
9. Improving model predictive capacity in poorly gauged catchments, paper presented at the Lake and Catchment Research Symposium (LARS2011) conference, 14-18 March, 2011, Nairobi, Kenya

Research Grants

1. Co- Investigator - Decision-making platform for increased productivity, predictability, and profitability for composting and black soldier fly production

- for organic waste valorisation in Africa. African Agriculture KTP: 13906 - Innovate UK, Innovation Funding Service – 2024- KES 51.5M (£250,000)
2. Principal Investigator – MedTech Accelerator East Africa program – Bill and Melinda Gates Foundation -2023- KES 170M (\$1.199Mn)
 3. Co- Investigator - Drought Early warning systems, is it time for Kenya to have one? - National Research Fund (NRF-Kenya) – 2017- KES 20m
 4. Principal investigator - Eco-friendly Urban and Peri-Urban Agriculture (UPA) - Kenyatta University VC grant-2016 – KES 2M
 5. Principal Investigator - Improving the research capacity in Kenyatta University- NUFFIC/UNESCO-IHE -2014 - KES 1M
 6. Principal Investigator - Evaluating the use of constructed wetland in the treatment of tannery wastewater - National Council for Science and Technology (NCST) – 1998- KES 1.9m

Membership and activities in professional associations

1. Professional Engineer with Engineers Board of Kenya (EBK)-A3070
 - a. Washington Accord Assessor
 - b. Member of the Independent Curriculum review Taskforce
2. Corporate Member - Institution of Engineers of Kenya (IEK)-M5524
 - a. Chair-Agriculture Subcommittee (2020-2024)
 - b. Member-Policy, Research and Advocacy committee (2020-2024)
3. Member, Management Board –Kenya Education Network (2023 to date)
4. Board member - Global Tourism Resilience and Crisis Management Centre, Eastern Africa (2022 to date)
5. Registered Lead Expert for EIA/EA - Environment Institute of Kenya (EIK) (Reg. 1500)
 - a. Trainer – EIA/EA refresher courses
 - b. Reviewer – EIK conference papers
6. Member - Kenya society of Biological, Environmental and Agricultural Engineers (KeSEBAE- K19062)

Professional honors, awards and fellowships

1. National Fellowship programme (NFP/NUFFIC) – PhD Scholarship, UNESCO-IHE, Delft, The Netherlands 2009-2014
2. Flemish Inter University Council (VLIR) – PhD Scholarship, Vrije Universiteit Brussel (VUB) 2009-2013
3. German Academic Exchange Programme (DAAD) - Msc Scholarship, Luneburg University (FH-Suderburg) 2001-2003

Community service

1. Member - Board of Management (BOM), St Martin Kitwii Secondary School, 2019-2022
2. Staff mentor – Kenyatta university- 2019-to date
3. Member- Parent Association Reps – The Kenya High School -2019-2022

Language proficiency

English C2|Swahili C2| German B2| Dutch B1|Franch A1 –(based on the Common European Framework of Reference (CEFR) for Languages)

Referees

1. Prof Urbanus Mutwiwa
Deputy Commission Secretary- Accreditation

Commission for University Education

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2. Dr. June Madete

Chair – Electrical & Electronics Engineering Department

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