

EDWIN KIMUTAI KANDA

P.O BOX 190, KAKAMEGA, 50100, KENYA

CELL PHONE: +254724 505 317, +254751 592 129

E-MAIL: kandaedwin@gmail.com / ekanda@mmust.ac.ke

INTRODUCTION

I am a Civil Engineer by profession with over 15 years' experience in both academia and private practice. I have worked in the university set up doing research and teaching in the area of Water and Environmental Engineering, construction engineering and Management and Technical Education and Training. I have also participated in various seminars, workshops and conferences nationally and internationally in the area of Water, Sanitation and Hygiene (WASH), climate change, agricultural water management and climate smart agriculture among others. In addition, I have provided consultancy services in Civil and Environmental Engineering, monitoring and evaluation (M&E), contract administration and Project Management. I have participated in various water projects and programmes in communities in arid and semi-arid parts of Kenya and in resource conflict areas such as Elgeyo-Marakwet, Baringo, Meru and Laikipia. My Research interests are on water and environmental engineering with special focus on climate change, water-related health research, project M & E, Water – energy – food (WEF) nexus, emerging contaminants such as pharmaceuticals and personal care products.

EXPERTISE

- Water engineering
- Sanitation and Hygiene
- Hydrological modelling
- Project Monitoring and Evaluation
- GIS and Remote Sensing
- Data analysis using, SPSS, GenStat, R and Python

ACADEMIC QUALIFICATIONS

Year	Institution	Degree
2024	University of New Mexico, USA	Postdoctoral Fellowship (Global Health)
2019	University of KwaZulu – Natal, SOUTH AFRICA	PhD (Engineering)
2016	Jomo Kenyatta University of Agriculture and Technology, KENYA	MSc Project Management
2014	Moi University, KENYA	MSc Water Engineering
2008	Masinde Muliro University of Science and Technology, KENYA	BSc Civil and Structural Engineering

LANGUAGE PROFICIENCY

Language	Reading	Speaking	Writing
English	Excellent	Excellent	Excellent
Swahili	Excellent	Excellent	Excellent
Kalenjin	Excellent	Excellent	Excellent

UNIVERSITY EXPERIENCE

Dates	Position	Institution
November 2023 – Date	Senior Lecturer	Masinde Muliro University of Science and Technology
Aug 2019 – October 2023	Lecturer	Masinde Muliro University of Science and Technology
August 2014 – July 2019	Assistant Lecturer	Masinde Muliro University of Science and Technology
August 2009 – July 2014	Graduate Assistant	Masinde Muliro University of Science and Technology
May 2014 – Dec 2015	Adjunct Lecturer	Dedan Kimathi University of Technology

INDUSTRY EXPERIENCE

1. Feasibility and Design of Water Supply Project in Mumias East Kakamega County.

Role: Assistant Engineer

The main components were design of water distribution lines to Bumini, shianda market and police line, Shitoto Secondary School and Khabakaya Secondary School.

Period: July – October 2023

2. Chebkube/Chebwek water supply project

Role: Assistant Engineer.

The project components were

- New intake
- Raw water water rising main
- 100 Cubic meter masonry tank which acts a chlorine dosing tank
- 8 km Distribution lines.

Period: January – June 2023

3. Community Water and Sanitation Project in Vihiga County

The project cost is financed by the Rotary club Albuquerque, New Mexico, USA. This project involved design and supervision of water and sanitation project to serve a community in Emau location, Hamisi sub-county.

Period: Jan – July 2022

4. Kaberwa-Kapsokwany-Maeni-Chesamis-kamkuywa Water project (Phase I).

Role: Assistant Engineer

The main project components included

- Intake rehabilitation
- Construction of 2 No. new CFU
- 4 No. storage masonry tanks
- 14 km Distribution line

Period: July – Dec 2021

5. Musembe Water Dam project

Role: Assistant Resident engineer

The main components of the project were

- Installation of pontoon intake and associated works
- Containerized water treatment unit
- Pump house
- Pump sizing
- Rising main and main conveyance

- Distribution system

Period: Aug 2019 – December 2020

6. MMUST Engineering and TVET Complex

Role: Assistant Engineer

The project entailed supervision of construction of MMUST Engineering and TVET complex. This is a five-storey complex which will house the departments in the school of engineering and Built Environment, and the TVET Institute. It consists of laboratories, lecture halls and office space. The project is financed by the Government of Kenya. I was attached to this project as an assistant engineer involved with supervision of construction works for first floor slab and ground floor columns and assist the engineer in contract management.

Period: Nov 2023 to Date

7. Busia County Export Processing Zone Flagship project

Role: Assistant Engineer

This proposed project entails construction of warehouse sheds and civil works (3 No.), office block, main gate and powerhouse, bituminous roads and parking and drainage works, borehole drilling and steel water tower, septic tank and ablution block. I was involved in supervision of substructure works for main gate and construction of RC frame and masonry walling for the main gate and office block and assisting the engineer in contract management.

Period: Nov 2023 – Date

8. Daraja Mungu (Kiptoror) Bridge Project

Role: Graduate Engineer

As a Graduate Engineer, I was involved in the following in conducting hydraulic and hydrological studies, design of bridge elements (Foundation, abutments and the deck) and supervision of construction of foundation of the bridge to ensure adherence to design specifications with special reference to workmanship, material quality and construction methods as well as overall project management.

Period: Jan – Apr 2009

9. Improvement of Kapcherop – Chebororwa Road (May – July 2009)

Role: Technical Supervisor

This project involved improving the condition of the road by laying the base on an existing road surface and adding a gravel layer as surfacing. As the technical supervisor, I was involved in supervision of laying of base material, earthwork activities and installation of culverts.

Period: May – July 2009

PROFESSIONAL BODIES

- Engineers' Board of Kenya (EBK) – Graduate Engineer (B15663)
- Institution of Engineers of Kenya (IEK) – Graduate Member (G.13458)
- International Association of Hydrological Sciences – Member
- Young African Water Professionals (division of International Commission on Irrigation and Drainage) – Country Co-ordinator
- African Water Parliament – Member

MEMBERSHIP IN UNIVERSITY WIDE BOARDS AND COMMITTEES

- 1) Webometrics Publication Committee – 2022 – Present

- 2) Board of Postgraduate Studies - 2021 – Present
- 3) Webometrics Champions Committee – 2021 – Present
- 4) Project Implementation Committee MMUST Solar Project – February – August 2023

DEPARTMENTAL AND SCHOOL RESPONSIBILITIES

- 1) Departmental Research Co-ordinator – 2022 – Present
- 2) Departmental Examination Co-ordinator – 2014 – 2016 & 2019 – 2022
- 3) Departmental Projects Co-ordinator – 2014 – 2015
- 4) Co-ordinator TVET Programmes - 2013 – 2014

UNIVERSITY RESPONSIBILITIES

- 1) Acting Director, Directorate of International Relations and Academic Linkages (DIAL) – March – April 2024

SEMINARS, WORKSHOPS, CONFERENCES AND PUBLICATIONS

Publications in Refereed Journals

- 1) Hudson Makhanu, Said Fwamba, **Edwin Kanda** , Micah Mukolwe, Alexander Khaemba ,Kevin Odhiambo (2023). Development of Water Quality Index for Groundwater Sources in Kanduyi Sub County, Western, Kenya. *Harbin Gongcheng Daxue Xuebao/Journal of Harbin Engineering University* 44(11): 363-370
- 2) Collins A. Siganga, Basil T. Iro Ong'or, Edwin K. Kanda (2023). Water quality index for assessment and mapping of groundwater quality in Webuye municipality, Kenya. *Journal of Harbin Engineering University* 44(11): 1239- 1247
- 3) **Kanda, E. K.**, Lusweti, E., & Odhiambo, K. O. (2023). Water– energy–food nexus in Kenya: A review of policy interventions. *World Water Policy*, 9(4) 823–836. <https://doi.org/10.1002/wwp2.12147>
- 4) Kimaiyo, J. J., Mati, B. M., Sang, J. K., & **Kanda, E. K.** (2023). Assessment of drought trends in the Upper Ewaso Ng'iro River Basin using the SPI and SPEI. *Water Practice and Technology*, 18(8), 1863-1879.
- 5) Elizabeth Lusweti; **Edwin Kimutai Kanda**; Joy Obando and Mary Makokha (2022). Effects of oil exploration on surface water quality- a review. *Water Practice and Technology* 17(10): 2171-2185. <https://doi.org/10.2166/wpt.2022.104>
- 6) **Edwin Kimutai Kanda** and Valery Osimbo Lutta (2022). The status and challenges of a modern irrigation system in Kenya: A systematic review. *Irrigation and Drainage* 71(S1): 27-38. <https://doi.org/10.1002/ird.2700>
- 7) Kevin O. Odhiambo, Basil T. Iro Ong'or and **Edwin K. Kanda** (2022). Assessment of 4th Australian water balance model. *Journal of Water Supply: Research and Technology-Aqua* 71(2): 345-354. <https://doi.org/10.2166/aqua.2022.153>
- 8) Kevin O. Odhiambo, Basil T. Iro Ong'or and **Edwin K. Kanda** (2022). Determination of irrigation water requirement of tomato crop in Rachuonyo North sub catchment of Western Kenya using CROPWAT model. *East African Agricultural and Forestry Journal* 86 (1-2): 40-48.
- 9) Ali Asadi, Alireza Moghaddam Nia, Bahram Bakhtiari Enayat, Hossein Alilou, Ebrahim Ahmadisharaf, **Edwin Kimutai Kanda**, Emmanuel Chessum Kipkorir (2021). An integrated approach for prioritization of river water quality sampling points using modified Sanders, analytic network process, and hydrodynamic modeling. *Environmental Monitoring and Assessment* 193(8): 1-15. <https://doi.org/10.1007/s10661-021-09272-y>
- 10) Tinashe Lindel Dirwai, **Edwin Kimutai Kanda**, Aidan Senzanje, Toyin Isiaka Busari (2021). Water resource management: IWRM strategies for improved water management. A systematic

- review of case studies of East, West and Southern Africa. *PLoS ONE* 16(5): e0236903. <https://doi.org/10.1371/journal.pone.0236903>
- 11) Kevin O. Odhiambo, Basil T. Iro Ong'or and **Edwin K. Kanda** (2021). Optimization of rainwater harvesting system design for smallholder irrigation farmers in Kenya: a review. *Journal of Water Supply: Research and Technology-Aqua*. 70 (4): 483–492. <https://doi.org/10.2166/aqua.2021.087>
 - 12) T.L. Dirwai, T. Mabhaudhi, **E.K. Kanda** and A. Senzanje (2021). Moisture irrigation technology development, adoption and future prospects: A systematic scoping review. *Heliyon* 7. <https://doi.org/10.1016/j.heliyon.2021.e06213>
 - 13) **Edwin Kimutai Kanda**, Aidan Senzanje and Tafadzwanashe Mabhaudhi (2021). Calibration and validation of the AquaCrop model for full and deficit irrigated cowpea (*Vigna unguiculata* (L.) Walp.). *Physics and Chemistry of the Earth* 124. <https://doi.org/10.1016/j.pce.2020.102941>
 - 14) **Edwin Kimutai Kanda**, Aidan Senzanje and Tafadzwanashe Mabhaudhi (2020). Modelling soil water distribution under Moisture irrigation for cowpea (*Vigna unguiculata* (L.) Walp.) *Crop. Irrigation and Drainage* 69(5): 1116-1132. <https://doi.org/10.1002/ird.2505>
 - 15) **Edwin Kimutai Kanda**, Aidan Senzanje, Tafadzwanashe Mabhaudhi and Shadrack Chisenga Mubanga (2020). Nutritional yield and nutritional water productivity of cowpea (*Vigna unguiculata* L. Walp) under varying irrigation water regimes. *Water SA* 46(3): 410-418. <https://doi.org/10.17159/wsa/2020.v46.i3.8651>
 - 16) **Edwin Kimutai Kanda**, Wenquan Niu, Tafadzwanashe Mabhaudhi and Aidan Senzanje (2020). Moisture Irrigation Technology: A Review. *Agricultural Research* 9 (2): 139-147 <https://doi.org/10.1007/s40003-019-00448-0>
 - 17) **Edwin Kimutai Kanda**, Aidan Senzanje and Tafadzwanashe Mabhaudhi (2020). Effect of moisture and subsurface drip irrigation on cowpea (*Vigna unguiculata* (L.) Walp) production in South Africa. *Water SA* 46(2): 197-204. <https://doi.org/10.17159/wsa/2020.v46.i2.8234>
 - 18) **Edwin Kimutai Kanda**, Aidan Senzanje and Tafadzwanashe Mabhaudhi (2020). Soil water dynamics under moisture irrigation. *Physics and Chemistry of the Earth* 115: 1-8. <https://doi.org/10.1016/j.pce.2020.102836>
 - 19) **Edwin Kimutai Kanda**, Tafadzwanashe Mabhaudhi and Aidan Senzanje (2018). Hydraulic and clogging characteristics of moisture irrigation as influenced by water quality. *Journal of Water Supply: Research and Technology – AQUA*, 67(5): 438 – 446. <https://doi.org/10.2166/aqua.2018.166>
 - 20) **Kanda, E.K.**, T. Mabhaudhi and A. Senzanje (2018). Coupling hydrological and crop models for improved agricultural water management – A review. *Bulg. J. Agric. Sci.*, 24 (3): 380–390.
 - 21) **Edwin K. Kanda**, James Odiero, Valery O. Lutta, Basil I.T. Ong'or (2018). Challenges Facing Small and Medium Water Service Providers in Kenya: A Case of Amatsi Water Services Company, Vihiga County. *Journal of the Civil Engineering Forum*, 4(1): 19-26.
 - 22) Cleophas Mutoro, Karen Asinza, **Edwin K. Kanda** and Abraham Malenya (2017). Effect of Contractor Capacity and Monitoring and Evaluation on Completion of Water Projects among Water Services Boards in Kenya *International Journal of Research in Management, Science & Technology* 5 (1): 163 – 167.
 - 23) **Edwin K. Kanda**, Emmanuel C. Kipkorir and Job R. Kosgei (2017). Modelling of nitrates in River Nzoia using MIKE 11. *Water Practice & Technology* 12(1): 217 – 223. <https://doi.org/10.2166/wpt.2017.026>
 - 24) Karen Asinza, **Edwin K. Kanda**, Yusuf Muchelule, Shadrack Mbithi (2016). Influence of Financial Capacity and Monitoring on Project Quality of Housing Construction in Nakuru County, Kenya. *International Journal of Research in Management, Science & Technology* 4(3): 38 – 43.

- 25) **Edwin K. Kanda**, Emmanuel C. Kipkorir and Job R. Kosgei (2016). Dissolved oxygen modelling using artificial neural network: a case of River Nzoia, Lake Victoria basin, Kenya. *Journal of Water Security*, 2: 1-6. <http://dx.doi.org/10.15544/jws.2016.004>
- 26) **Edwin K. Kanda**, Yusuf Muchelule, Simon Mamadi, (2016). Factors Influencing Completion of Water Projects in Kakamega County, Kenya. *International Journal of Research in Management, Science & Technology* 4(2): 1-5.
- 27) **Edwin K. Kanda**, Yusuf Muchelule, Simon Mamadi, Douglas Musiega (2016). The Effect of Consultant Related and External Factors on Completion of Water Projects in Kakamega County, Kenya. *International Journal of Civil and Structural Engineering Research* 4(1): 19-25.
- 28) **Edwin K. Kanda**, Job R. Kosgei and Emmanuel C. Kipkorir (2015). Simulation of organic carbon loading using MIKE 11 model: a case of River Nzoia, Kenya. *Water Practice & Technology*,10(2): 298 – 304. <https://doi.org/10.2166/wpt.2015.035>
- 29) **Kanda, E.K**, Taragon, J.K, Waweru, G and Onchiri R (2014). Assessment of pollution status of River Nzoia using physic-Chemical characteristics. *Journal of Science Technology Education and Management* 6 (1&2): 24 – 32.
- 30) **Kanda, E. K**, Taragon, J. K, Waweru S.G.and Kimokoti, S. N (2013).The Water Act 2002 and The Constitution of Kenya 2010: Coherence and Conflicts Towards Implementation. *International Journal of Disaster Management and Risk Reduction* 5 (2): 31 – 40.
- 31) R. O. Onchiri, S.G Waweru and **E.K Kanda**. 2011. Assessment of Water Quality in Kakamega Municipality. *International Journal of Disaster Management and Risk Reduction* 3(3): 51 – 58

Publication in conference proceedings

1. Kipchumba Cherono and **Edwin Kimutai Kanda** (2020). Evaluation of solid waste management practices in Kakamega Municipality. Sustainable Research and Engineering Conference held on 6th – 7th October 2020 in Jomo Kenyatta University of Agriculture and Technology
2. Lutta V.O, **Kanda E.K**, Odiero J., Chebii S.J (2018). Assessment of drinking water quality in distribution system: A case study of Kabarnet Water supply, Baringo County, Kenya. Proceedings of 1st PAIRC, held on June 17th to June 22nd 2018, Kisumu, Kenya: 236 – 242.
3. Waweru S.G and **Kanda E.K** (2012). Municipal Solid waste management in Kenya. A comparison of middle income and slum areas. *Proceedings of the international conference on Disaster Risk Reduction and Conflict Resolution for sustainable Development*, Masinde Muliro University of Science and Technology, Kakamega, Kenya. 185 – 190
4. Onchiri, R.O, **Kanda, E.K** and Mosiria, M.D (2012). Impacts of Wastewater Effluent on Lukoye Stream: Analysis of the performance of Busia treatment plant. *Proceedings of the international conference on Disaster Risk Reduction and Conflict Resolution for sustainable Development*, Masinde Muliro University of Science and Technology, Kakamega, Kenya. Pp.417- 421
5. J. K. Taragon, **E. K. Kanda**, J. R. Kosgei (2012) Potential groundwater contamination by nitrate-nitrogen as influenced by irrigation and fertilizer application rates. *Conference proceedings of 8th international conference* at Moi University, Eldoret, Kenya. 4- 8th September 2012.

Books and Book Chapters

1. Awandu, W., **Kanda, E.K.**, Kimokoti, S.N. (2024). The Water-Energy-Food Nexus in Kenya: Climate Change Impacts and Adaptation Strategies—A Review. In: Behnassi, M., Al-Shaikh, A.A., Gurib-Fakim, A., Barjees Baig, M., Bahir, M. (eds) *The Water, Climate, and Food Nexus*. Springer, Cham. https://doi.org/10.1007/978-3-031-50962-9_4
2. **Kanda, E.K.**, Lusweti, E., Ngugi, F.N., Irungu, J.M., Omondi, B.O. and Waweru, S.G. (2023), "Adoption of Green Building Practices in Kenya: A Case of Kakamega Municipality", Ting, D.S.-

- K. and Stagner, J.A. (Ed.) Pragmatic Engineering and Lifestyle, Emerald Publishing Limited, Bingley, 153-169. <https://doi.org/10.1108/978-1-80262-997-220231008>
3. **Edwin Kimutai Kanda**, Minyade K. Avulala, Emmy Olendo, Micah M. Mukolwe, Willis Awandu, Valery O. Lutta, Basil Ong'or (I), Alex W. Khaemba (2023). Assessment of groundwater quality in Vihiga County, Kenya. In Ting, D and O'Brien, P (Eds.) *Progress in Sustainable Development*. Elsevier Ltd, 249-264. DOI: <https://doi.org/10.1016/B978-0-323-99207-7.00010-5>
 4. Edwin Kimutai Kanda, Aidan Senzanje and Tafadzwanashe Mabhaudhi (2021). Coupling Hydrus 2D/3D and AquaCrop models for simulation of water use in cowpea (*Vigna unguiculata* (L.) Walp). In: Ting D.S.K and Vassel-Be-Hang A. (eds). *Sustaining Tomorrow*. Springer, Cham: 53-63. DOI: https://doi.org/10.1007/978-3-030-64715-5_4
 5. Samuel G. Waweru and **Edwin K. Kanda** (2022). *Research Methods in Engineering*. Olearn Publishers, Nairobi. **ISBN: 978-9914400854**
 6. Edwin K. Kanda (2020): *Structure of a research proposal, thesis and dissertation*. Kipchumba Foundation, Nairobi. **ISBN: 979-8642649886**

Seminars, Workshops and Conferences

April 19 th 2024	EBK Pres-submission conference
February 19 th – 24 th 2024	Crop modelling under Climate Change International Water Management Institute, Accra, Ghana
March 16 th – 19 th 2023	Agricultural Innovation tools training by Virtual Irrigation Academy. University of Pretoria, Future Africa Campus, South Africa.
March 13 th – 15 th 2023	Regional climate Smart Agriculture Policy Dialogue: Transitioning to climate-resilient farming systems in Sub-Saharan Africa. University of Pretoria, Future Africa Campus, South Africa.
January 23 rd – 24 th 2023	International Conference on Water Management and Climate Change , Water and Land Management Institute, Dharwad, Karnataka, India.
March 14 th – 19 th 2022	Summer School on one health and water held at Pwani University, Kilifi County, Kenya
Oct 20 th – 25 th 2019	2 nd Cairo Water Week and 2 nd African Young Water Professionals conference, Cairo Egypt.
Aug 13 th – 15 th 2019	South African Institute of Irrigation Engineers (SABI) Congress held in Durban, South Africa. Paper presented: <i>Moistube irrigation: crop growth, yield and water use efficiency</i>
Nov 23 rd – 30 th 2018	Summer School and International training seminar on “managing waste as a resource” University of KwaZulu – Natal, Durban, South Africa
Nov 13 th – 15 th 2018	South African National Committee on Irrigation and Drainage (SANCID) Symposium held in Mpumalanga, South Africa Paper presented: <i>Effect of soil texture on soil water movement under Moistube irrigation</i>
Sep 17 th – 20 th 2018	South African Institute of Agricultural Engineers (SAIAE) Symposium held in Durban South Africa. Paper presented: <i>Yield response of conpea to varying water regimes under Moistube irrigation</i>
August 12 th – 17 th 2018	International Committee on irrigation and Drainage (ICID) International Conference held in Saskatoon, Saskatchewan, Canada. Paper presented: <i>Simulation of soil water dynamics under Moistube irrigation</i>
August 1 st – 3 rd 2017	South African Institute of Irrigation Engineers (SABI) Congress held in Cape Town, South Africa. Paper presented: <i>Hydraulic and clogging characteristics of Moistube Irrigation</i>

Nov 14 th – 15 th 2016	Training Seminar on Advanced Modelling of Water Flow and Solute Transport in Porous Media with HYDRUS held at Nelson Mandela Metropolitan University, George Campus, George, South Africa
May 15 th – 16 th 2014	Workshop on Faculty of Engineering Curriculum Review held at Masinde Muliro of Science and Technology
April 17 th – 21 th 2014	Workshop on Capacity Development for Farm Management Strategies to Improve Crop-Water Productivity using AquaCrop held in Mekelle University, Mekelle City, Ethiopia
January 23 rd – 24 th 2014	University Training Workshop on Curriculum Development and Review for Public Universities in Kenya: Implementation and Accreditation held at MCU, MMUST in Kakamega, Kenya
August 23 rd – 24 th 2012	KDSA-DAAD conference on the role of County Governments in Water Resources Management in Kenya: Challenges & Opportunities held in Moi University School of Health Sciences; Medical Education Centre Eldoret
June 28 th – 30 th 2012	Masinde Muliro University 4 th Annual international Conference. Paper Presented: <i>Solid Waste Composition: A Pre-Requisite for Better Solid Waste Management in Kenya</i> by J.K Taragon, R.O Onchiri, E.K Kanda , D.C Matasero and S.C Ptiso
May 9 th – 11 th 2012	Institution of Engineers of Kenya (IEK) conference, Nairobi

COMMUNITY SERVICE

1. Chairman, Board of Management, Queen of Peace High School Chesongoch: 2022 – Date
2. Member, Board of Management, Chechan Primary and Junior Secondary School- 2022 –Date

REFEREES

1. Prof. (Eng) Bernadette Sabuni
Dean, School of Engineering and Built Environment
MMUST, P.O Box 190, Kakamega, 50100, Kenya
E-Mail:bsabuni@mmust.ac.ke
2. Prof. (Eng.) Richard O. Onchiri,
Faculty of Engineering and Technology,
Technical University of Mombasa, P.O Box 90420, Mombasa 80100, Kenya,
Tel: +254 724 372 704, E- mail: roocharo@gmail.com
3. Dr. Micah M. Mukolwe
Civil and Structural Engineering Department,
MMUST, P.O Box 190, Kakamega, 50100, Kenya,
Tel: +254 725 564 915, E-Mail: mmukungu@mmust.ac.ke

CERTIFICATION

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience.

Signature:



Date: October 2024
