CV: Musa Manga, PhD

1. Name: MUSA MANGA
2. Profession: Assistant Professor Tenure-Track/ Water, Sanitation, and Environmental Engineer
3. Contact Address: Department of Environmental Sciences and Engineering,
Gillings School of Global Public Health, University of North Carolina at Chapel Hill,
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7. Education

2020- 2022	**Carolina Faculty Diversity Postdoctoral Research Associate,** Department of Environmental Sciences and Engineering, University of North Carolina at Chapel Hill (UNC), USA
2017- 2020	Postdoctoral Research Associate, *The WATER INSTITUTE at UNC*, Department of Environmental Sciences and Engineering, University of North Carolina at Chapel Hill (UNC), USA
2013- 2017	Ph.D. in Civil Engineering **(Majoring in Public Health Engineering)**, School of Civil Engineering, University of Leeds, UK
2010- 2011	Master of Engineering Science **(Distinction)** in Environmental Engineering and Project Management, University of Leeds, UK
2006- 2009	BSc (Hons) Construction Management **(First Class Degree),** Makerere University, Kampala, Uganda
2001- 2003	Ordinary National Diploma in Architectural Design and Draughtsmanship **(Credit Diploma)**, Uganda Technical College, Uganda

8. Employment History

- From 2022 – To date

Employer: *Department of Environmental Sciences and Engineering, Gillings School of Global Public Health, University of North Carolina at Chapel Hill.*
Position Held: Assistant Professor Tenure-Track

- From 2020 – 2022

Employer: *Department of Environmental Sciences and Engineering, Gillings School of Global Public Health, University of North Carolina at Chapel Hill.*
Position Held: Carolina Faculty Diversity Post-Doctoral Research Associate

- From 2017 – 2020

Employer: *The WATER INSTITUTE at UNC, Department of Environmental Sciences and Engineering, Gillings School of Global Public Health, University of North Carolina at Chapel Hill.*
Position Held: Post-Doctoral Research Associate

- From 2018 – 2022

Employer: *Department of Construction Economics and Management, School of the Built Environment, (College of Engineering, Design Art & Technology) Makerere University.*
Position Held: **Adjunct** Lecturer in Sanitation and Environmental Engineering

- From 2013 – 2017

Employer: *Institute of Public Health and Environmental Engineering (iPHEE), School of Civil Engineering, University of Leeds, Leeds, United Kingdom*
Position Held: Doctoral Researcher. Advisor: - Professor Barbara Evans

- From 2012 – 2018

Employer: *Department of Construction Economics and Management, School of the Built Environment, (College of Engineering, Design Art & Technology) Makerere University.*
Position Held: Lecturer in Sanitation and Environmental Engineering

- From 2012 – 2017

Employer: *Air Water Earth (AWE) Ltd, Civil and Environmental Engineering Consultants*
Position Held: Water, Sanitation, and Environmental Engineer

- From 2010 – 2012

Employer: *Institute of Public Health and Environmental Engineering (iPHEE), School of Civil Engineering, University of Leeds, Leeds, United Kingdom*
Position Held: Research Assistant

- From 2007 to 2011

Employer: *M&E Associates Ltd, Consulting Engineers*
Position Held: Assistant Sanitation and Environmental Engineer

- From 2005 to 2007

Employer: *Petrocity (U) Enterprise Ltd*
Position Held: Technical/ Construction Manager

- From 2003- 2004

Employer: *Gepoka Associates Ltd, Architects & Consulting Engineers*
Position Held: Architectural Assistant

9. Honors and Awards

9a. Honors and Awards

- 2023: 2023 Global Engineering & Resilience Outstanding Professional Award. Mortenson Center in Global Engineering & Resilience, Boulder, Colorado, USA. https://www.colorado.edu/center/mortenson/2023-global-engineering-resilience-award-winners.

- 2022 – 2023: Teaching Innovation Awards. Gillings School of Global Public Health, University of North Carolina at Chapel Hill, North Carolina, USA. https://sph.unc.edu/sph-news/gillings-school-honors-8-faculty-members-for-teaching-innovation/

- 2020 – 2022: Carolina Postdoctoral Program for Faculty Diversity Fellowship (CPPFD) from University of North Carolina at Chapel Hill for Carolina Postdoctoral Research Associate in the Department of Environmental Sciences and Engineering, Gillings School of Global Public Health, UNC. https://research.unc.edu/2020/08/11/carolina-postdoctoral-program-for-faculty-diversity-announces-2020-cohort/

- 2015 – 2016: Leeds International Research Scholarship (LIRS) from University of Leeds for Doctorial (Ph.D.) studies in Civil Engineering, University of Leeds, UK. **Round 3**

- 2014 – 2015: Leeds International Research Scholarship (LIRS) from University of Leeds for Doctorial (Ph.D.) studies in Civil Engineering, University of Leeds, UK. **Round 2**

- 2013 – 2014: Leeds International Research Scholarship (LIRS) from University of Leeds for Doctorial (Ph.D.) studies in Civil Engineering, University of Leeds, UK. **Round 1**

- 2011: Prize of Best Student (1/23), MSc (Eng) Environmental Engineering and Project Management (2010 – 2011), School of Civil Engineering, University of Leeds, UK.

- 2010 - 2011: AGA KHAN FOUNDATION International Scholarship for MSc. Environmental Engineering and Project Management at the University of Leeds, UK.

- 2001-2003: National Scholarship from the Government of Uganda for the ordinary diploma in Architectural Design and Draughtsmanship.

9b. Honors of Student Mentees

Amy Kryston, Graduate Education Advancement Board (GEAB) Impact Award, UNC Grdauate School, 2023

Amy Kryston, Inaugural environmental justice graduate research award, UNC Institute for the Environment, 2021-2022

10. Membership in Professional Societies

2023 – Present: Member- Association of Environmental Engineering and Science Professors (AEESP)

2013 – Present: NEMA- Registered & Certified Environmental Impact Assessment (EIA) Practitioner

2013 – Present: Member, Uganda Association of Impact Assessment Practitioners (UAIA)

2012 – Present: Member, Chartered Institution of Water and Environmental Management (CIWEM)

11. Bibliography

11.A. Published Books, Book Chapters, and Edited Volumes (++Indicates Senior Author; * Indicates Advisee).

11.A1 Books

No Data

11.A2. Refereed Book Chapters and Edited Volumes

1. **Manga, M.,** Semiyaga, S., *Lebu,S., Nakagiri,A., Niwagaba, B.C., Salzberg, A., *Muoghalu, C., **(Accepted 2024)**. Bioprocessing of organic municipal solid waste for biomethane and biohydrogen production. In *Material and Energy Recovery from Solid Waste for Circular Economy*. CRC Press Taylor & Francis Group, Florida, USA. https://doi.org/10.1201/9781003364467-9

2. *Lebu, S., *Muoghalu, C., Salzberg, A., Semiyaga, S., Niwagaba, B. C., **Manga, M++. (Accepted 2024)**. Evaluation of social *acceptance* and market for human excreta-derived products. In *Material and Energy Recovery from Solid Waste for Circular Economy*. CRC Press Taylor & Francis Group, Florida, USA.

3. Semiyaga, S., Nakagiri, A., Niwagaba, C.B. and **Manga, M++.**, 2022. Application of Anaerobic Digestion in Decentralized Faecal Sludge Treatment Plants. In *Anaerobic Biodigesters for Human Waste Treatment* (pp. 263-281). Springer, Singapore. https://doi.org/10.1007/978-981-19-4921-0_14

4. Semiyaga, S., Acheng, P.O., Wesonga, R., Matovu, M.J., **Manga, M++.** (2023). E-Plastic Waste Use as Coarse-Aggregate in Concrete. In: Jawaid, M., Khan, A. (eds) *Conversion of Electronic Waste in to Sustainable Products* (pp. 143-178). Sustainable Materials and Technology. Springer, Singapore. https://doi.org/10.1007/978-981-19-6541-8_6

11.A3. Unpublished Books

1. Manga, M., 2017. The feasibility of co-composting as an upscale treatment method for faecal sludge in urban Africa. PhD Thesis, School of Civil Engineering, University of Leeds, United Kingdom. http://etheses.whiterose.ac.uk/16997/

2. **Manga, M.,** 2011. Assessment of Lifecycle Costs for Low-cost Sanitation Technologies in the Informal Settlement areas of Soweto (Johannesburg): Focusing on Simplified Sewerage System. MSc. Environmental Engineering and Project Management thesis, University of Leeds, United Kingdom.

3. **Manga, M.,** 2009. Investigation of the Most Appropriate Concrete Mix Design Method for the Local Construction Materials in Kampala. BSc. Dissertation, Faculty of Technology (College of Engineering Design Art and Technology), Makerere University, Uganda.

11.B. Refereed Publications and Submitted Articles

11.B1. Refereed Papers/ Articles – In Review

1. *Beardsley, R., *Lebu, S., Anthonj, C., **Manga, M++,** Child feces disposal practices in low-to-middle income countries: a 34 country study analysis that includes humanitarian settings. Science of the Total Environment. Manuscript ID: STOTEN-D-23-26005

2. *Gyimah, R., *Lebu, S., Owusu-Frimpong, I., Ngasala, M. T., Fisher, M., Semiyaga, S., Salzberg, A., **Manga, M++.,** Septic System and Impacts on Groundwater Contamination: A Systematic Review. Science of the Total Environment. Manuscript ID: STOTEN-D-23-08792.

3. *Muoghalu, C., *Lebu, S., Bongomin, F., Ochaya, S., Salzberg, A., **Manga, M++.** Prevalence, Influencing Factors and Intervention Strategies for Soil Transmitted Helminths amongst Preschool -

and School - Aged Children in India: A systematic review and meta-analysis. BMC Journal of Infectious Diseases of Poverty. Manuscript ID: IDOP-D-23-00057.

4. *Sprouse, L., *Lebu, S., *Nguyen, J., Muoghalu, C., Semiyaga, S., **Manga, M++.** Informal settlement development, characteristics, and reliance on shared sanitation: a critical review. Journal of World Development. Manuscript ID: WD-29679

5. *Sprouse, L., *Lebu, S., *Nguyen, J., *Muoghalu, C., *Uwase, A., *Guo, J., Baldwin-SoRelle, C., Anthonj, C., Simiyu, N. S., **Manga, M++**. Shared sanitation in urban informal settlements: a systematic review and meta-analysis. Journal of npj Clean Water. Manuscript ID

6. Niwagaba, B. C., Batte, A., Majara, D., Katukiza, A., Mukisa, A., Semiyaga, S., **Manga, M.,** Pomi, R. Characterising faecal sludge in onsite sanitation containments to improve design parameters in informal settlements of Kampala City, Uganda. Journal of Discover Environment. Manuscript ID: a6a49598-073f-4d44-ab48-ceeeb0ec473c

7. **Manga, M.,** Muoghalu, C., Kaboggoza, H., Lebu, S., Sprouse, L., Belhique G. A., Yasan, S., Chandana, N., Semiyaga, S. Biochar modification for removal of inorganic and organic contaminants from industrial effluent. In *Catalytic Applications of Biochar for Environmental Remediation: A Sustainable Approach Towards Carbon Neutrality*. American Chemical Society (ACS).

8. Semiyaga, S., Kulabako, N., R., Niwagaba, B., C., *Muoghalu, C., **Manga, M++.** Biochars for the Removal of Toxic Gaseous Contaminants: State-of-the-Art and Future Directions. *In Biochars for Environmental Remediation: Principles, Applications, and Prospects*. Elsevier Book.

9. *Muoghalu, C., Semiyaga, S., *Kaboggoza, H., *Yasan, S., *Palmer, G., *Lui, C., Chandana, N., **Manga, M.,** Biochar Application for the Removal of Heavy Metals and Organic Pollutants from Soil. In *Catalytic Applications of Biochar for Environmental Remediation: A Sustainable Approach Towards Carbon Neutrality*. American Chemical Society (ACS).

10. Semiyaga, S., Kulabako, N. R., *Muoghalu, C., *Lebu, S., Niwagaba, B. C., **Manga, M++.** Application of engineered biochar for domestic wastewater treatment (submitted). In *Catalytic Applications of Biochar for Environmental Remediation: A Sustainable Approach Towards Carbon Neutrality*. American Chemical Society (ACS).

11. **Manga, M,** Kaboggoza, C. H., Semiyaga, S., Sprouse, L., Guo, J., Gentles, A., Banga, Y., Lebu, S., Muoghalu, C. Biochar for remediation of petroleum hydrocarbons in solid matrices. (submitted). In *Biochars for Environmental Remediation: Principles, Applications, and Prospects*. Elsevier Book.

11.B2. Refereed Papers/ Articles – Published (++Indicates Senior Author; * Indicates Advisee)

1. *Beardsley, R., *Lebu, S., Anthonj, C., **Manga, M++. (Accepted)** Child feces disposal practices in low-to-middle income countries: a 34 country study analysis that includes humanitarian settings. Science of the Total Environment. Manuscript ID: STOTEN-D-23-26005

2. Chandana, N., and **Manga, M++ (Accepted 2024)** Challenges to achieve safely managed sanitation: A critical review on sanitation technologies evolution in India and paradigm shift required. Journal of Water, Sanitation and Hygiene for Development.

3. *Kryston, A., Woods, C.G. and **Manga, M++.** 2024. Social barriers to safe sanitation access among housed populations in the United States: A systematic review. International Journal of Hygiene and Environmental Health, 257, p.114326. https://doi.org/10.1016/j.ijheh.2024.114326

4. Cheng, S., Ye, Z., Li, X., **Manga, M.,** Dorea, C., Chen, Z., Li, Z., Ma, X., Mang, H.-P., & Li, T. (2024). Constructing a toilet standard system for the toilet revolution in China. Journal of Water, Sanitation and Hygiene for Development. https://doi.org/10.2166/washdev.2024.083

5. **Manga, M++** and *Muoghalu C. 2024. Greenhouse gas emissions from on-site sanitation systems: A systematic review and meta-analysis of emission rates, formation pathways and influencing factors. Journal of Environmental Management. p.120736. https://doi.org/10.1016/j.jenvman.2024.120736

6. *Kaboggoza, C., H., *Muoghalu, C., *Sprouse L., and **Manga, M++** . 2024. Hydrochar composites for healthcare wastewater treatment: A review of synthesis approaches, mechanisms, and influencing factors. Journal of Water Process Engineering, p.105222. https://doi.org/10.1016/j.jwpe.2024.105222

7. *Lebu, S., *Gyimah, R., Nandoya, E., Brown, J., Salzberg, A. and **Manga, M++.** 2024. Assessment of sanitation infrastructure resilience to extreme rainfall and flooding: Evidence from an informal settlement in Kenya. Journal of Environmental Management, 354, p.120264. https://doi.org/10.1016/j.jenvman.2024.120264

8. *Ainomugisha, S., Matovu, M. and **Manga, M++.** 2024. Application of green agro-based nanoparticles in cement-based construction materials: A systematic review. Journal of Building Engineering, p.108955. https://doi.org/10.1016/j.jobe.2024.108955

9. Najib L. Bateganya, *Beardsley, R., *Lebu, S., Atim, J., Kente, S., L., Lahai, F., Madeira, M., M., Mulenga, C. O., **Manga, M++.** 2023 Shifting from traditional infrastructure planning to a collaborative approach: Lessons from the Freetown sanitation master plan. Journal of Water, Sanitation and Hygiene for Development. https://doi.org/10.2166/washdev.2023.171

10. *Lebu, S., Kibone, W., *Muoghalo, C., Ochaya, S., Salzberg, A, Bongomin, F., **Manga, M++.** 2023 Soil-transmitted helminths: A critical review of the impact of co-infections and implication for control and elimination. PLOS Neglected Tropic Diseases,17 (18): e0011496. https://doi.org/10.1371/journal.pntd.0011496

11. **Manga, M.,** Aragón-Briceño, C., Boutikos, P., Semiyaga, S., Olabinjo, O., & Muoghalu, C. C. 2023. Biochar and Its Potential Application for the Improvement of the Anaerobic Digestion Process: A Critical Review. Energies, 16(10), 4051. https://doi.org/10.3390/en16104051

12. *VerKuilen, A., *Sprouse, L., *Beardsley, R., *Lebu, S., Salzberg, A., & **Manga, M.** 2023. Effectiveness of the Swachh Bharat Mission and barriers to ending open defecation in India: a systematic review [Systematic Review]. Frontiers in Environmental Science, 11. https://doi.org/10.3389/fenvs.2023.1141825

13. **Manga, M.,** *Muoghalu, C., Acheng, P., 2023. Inactivation of Faecal Pathogens During faecal Sludge Composting: A systematic Review. Environmental Technology Reviews, 12(1), 150-174. https://doi.org/10.1080/21622515.2023.2182719

14. *Conaway, K., *Lebu, S., Heilferty, K., Salzberg, A., and **Manga, M++**. 2023. On-site sanitation system emptying practices and influential factors in Asian low- and middle-income countries: A

systematic Review. Hygiene and Environmental Health Advances, 6, 100050. https://doi.org/10.1016/j.heha.2023.100050

15. *Muoghalu, C., Semiyaga, S., and **Manga, M++.**, 2023. Faecal sludge emptying in sub-Saharan Africa, South and Southeast Asia: A systematic review of emptying technology choices, challenges, and improvement initiatives. Frontiers in Environmental Science, 11, p.158. https://doi.org/10.3389/fenvs.2023.1097716

16. *Muoghalu, C., *Owusu, A., Nakagiri, A., Semiyaga, S., *Labu, S., and Iorhemen, O.T., **Manga, M++.,** 2023. Biochar as a novel technology for treatment of onsite domestic wastewater: A critical review. Frontiers in Environmental Science, 11, p.202. https://doi.org/10.3389/fenvs.2023.1095920

17. *Tokwaro, R., Semiyaga, S., Niwagaba, B.C., Nakagiri, A., Sempewo, I, J., *Moughalu, C., and **Manga, M++.,** 2023. Application of black soldier fly larvae in decentralized treatment of faecal sludge from pit latrines in informal settlements in Kampala City. Frontiers in Environmental Science, 11, p.138. https://doi.org/10.3389/fenvs.2023.1118635

18. **Manga, M.,** *Muoghalu, C., Camargo-Valero, M.A. and Evans, B.E., 2023. Effect of Turning Frequency on the Survival of Fecal Indicator Microorganisms during Aerobic Composting of Fecal Sludge with Sawdust. International Journal of Environmental Research and Public Health, 20(3), p.2668. https://doi.org/10.3390/ijerph20032668

19. *Wesonga, R., Kasedde, H., Kibwami, N., & **Manga, M++.,** 2023. A Comparative Analysis of Thermal Performance, Annual Energy Use, and Life Cycle Costs of Low-cost Houses Made with Mud Bricks and Earthbag Wall Systems in Sub-Saharan Africa. Energy and Built Environment, 4(1), 13-24. https://doi.org/10.1016/j.enbenv.2021.06.001

20. Capone, D., Barker, T., Cumming, O., Flemister, A., Geason, R., Kim, E., Knee, J., Linden, Y., **Manga, M.,** Meldrum, M. and Nala, R., 2022. Persistent Ascaris Transmission Is Possible in Urban Areas Even Where Sanitation Coverage Is High. Environmental Science & Technology. 56(22), 15969-15980. https://doi.org/10.1021/acs.est.2c04667

21. **Manga, M.**, Kolsky, P., Rosenboom, J.W., Ramalingam, S., Sriramajayam, L., Bartram, J., and Stewart, J. 2022. Public health performance of sanitation technologies in Tamil Nadu, India: Initial perspectives based on E. coli release. International Journal of Hygiene and Environmental Health. 243, p113987. https://doi.org/10.1016/j.ijheh.2022.113987

22. **Manga, M.,** Evans, B.E., Ngasala, T.M. and Camargo-Valero, M.A., 2022. Recycling of Faecal Sludge: Nitrogen, Carbon and Organic Matter Transformation during Co-Composting of Faecal Sludge with Different Bulking Agents. *International Journal of Environmental Research and Public Health*, *19*(17), p.10592. https://doi.org/10.3390/ijerph191710592

23. *Sprouse, L., *Liles, A., Cronk, R., Bauza, V., Tidwell, J.B. and **Manga, M. ++**. 2022. Interventions to address unsafe child feces disposal practices in the Asia-Pacific region: a systematic review. H2Open Journal, 5(4), pp.583-602. https://doi.org/10.2166/h2oj.2022.137

24. **Manga, M.,** Okeny, L.O., Ngobi, T.G., Pamela, A.O., Namakula, H., Kyaterekera, E., Nansubuga, I., and Kibwami, N., (2022). Impacts of storage tanks under the indirect cold water supply system on household water quality: a case of Wakiso District, Uganda. Water Supply. 22(3), pp.3072-3085. https://doi.org/10.2166/ws.2021.411

25. Bongomin, F., Ekeng, B.E., Kibone, W., Nsenga, L., Olum, R., Itam-Eyo, A., Kuate, M.P.N., Pebolo, F.P., Davies6, A.A., **Manga, M.** and Ocansey, B., 2022. Invasive Fungal Diseases in Africa: A Critical Literature Review. Journal of Fungi, 8(12), p.1236. https://doi.org/10.3390/jof8121236

26. *Beardsley R, Cronk R., Tracy W., Fleming L., Ng'ambi M., Tidwell, J.B, **Manga, M++.**, (2021) Factors associated with safe child feces disposal: evidence across Ethiopia, India, and Zambia. International Journal of Hygiene and Environmental Health, 237, pp. 113832. https://doi.org/10.1016/j.ijheh.2021.113832.

27. **Manga, M.,** Camargo-Valero, M.A., Anthonj, C., and Evans, B.E. 2021. Fate of faecal pathogen indicators during faecal sludge composting with different bulking agents in tropical climate. International Journal of Hygiene and Environmental Health. 232, p113670. https://doi.org/10.1016/j.ijheh.2020.113670

28. **Manga, M.,** Ngobi, T.G., Okeny, L., Acheng, P., Namakula, H., Kyaterekera, E., Nansubuga, I. and Kibwami, N., (2021). The effect of household storage tanks/vessels and user practices on the quality of water: a systematic review of literature. Environmental Systems Research, 10(1), pp.1-26. https://doi.org/10.1186/s40068-021-00221-9

29. Anthonj, C., Setty, K.S., Ezbakhe, F., **Manga, M.,** Hoeser, C. 2020. A systematic review of water, sanitation, hygiene and environmental health among Roma communities in Europe: Situation analysis, cultural context, and obstacles to improvement. International Journal of Hygiene and Environmental Health. 226. https://doi.org/10.1016/j.ijheh.2020.113506

30. **Manga, M.,** J. Bartram, Evans, B., 2020. Economic Cost Analysis of Low-Cost Sanitation Technology Options in Informal Settlement areas (Case Study: Soweto, Johannesburg). International Journal of Hygiene and Environmental Health. 223 (1) pp. 289-298. https://doi.org/10.1016/j.ijheh.2019.06.012.

31. **Manga, M.,** Evans B., Camargo-Valero, M. A., 2019. Inactivation of Viable *Ascaris* eggs during Fecal Sludge Co-composting with Chicken Feathers and Market waste. Desalination and Water Treatment. 163 (2019), pp.347-357. https//doi.org/10.5004/dwt.2019.24494.

32. Fleming, L., Anthonj, C., Thakkar, M.B., Tikoisuva, W.M., **Manga, M.,** Howard, G., Shields, K.F., Kelly, E., Overmars, M., and Bartram, J., 2019. Urban and rural sanitation in the Solomon Islands: How resilient are these to extreme weather events? Science of The Total Environment. 683, pp.331-340. https://doi.org/10.1016/j.scitotenv.2019.05.253

33. **Manga, M.,** Evans B., Camargo-Valero, M. A., Horan, N., 2016. *Effect of filter media thickness on the performance of sand drying beds used for fecal sludge management.* Water Science and Technology Journal- IWA publishing. 74(12) pp. 2795-2806. https://doi.org/10.2166/wst.2016.451

34. *Acheng, P.O.Kibwami, N.Mukasa, T.J., Odongkara, B.B., *Birungi, R., *Semanda, J. and **Manga, M++.** 2022. Building information modelling adoption in Uganda's construction industry. International Journal of Construction Management. pp.1-24. https://doi.org/10.1080/15623599.2022.2047278

35. *Wesonga, R., *Kaweesi, R., *Acheng, P.O., Kibwami, N. and **Manga, M++.,** 2022. Evaluation of the Education and Training of Valuation Surveyors in Uganda. *Journal of African Real Estate Research*, 7(1), pp.78-94. https://doi.org/10.15641/jarer.v7i1.1141

36. Kibwami, N., Wesonga, R., **Manga, M.** and Mukasa, T., 2021. Strategies for Improving Quantity Surveyors' Education Training in Uganda. International Education Studies, 14(2), pp.33-43. https://doi.org/10.5539/ies.v14n2p33

37. *Namakula, B., S. Matsiliza S. H. P. Chikafalimani., **Manga. M++,** Kibwami, N., 2022. The Impact of Contracts Administration on the Performance of Road Construction Projects in Uganda: A Literature Gap. Academic Journal of Interdisciplinary Studies. 11(6)184. https://doi.org/10.36941/ajis-2022-0160

11.B3. Refereed Conference Papers/ Articles – Published

1. **Manga, M.,** Evans B., Camargo-Valero, M. A., Horan, N., 2016. Nitrogen evolution during co-composting of fecal sludge with chicken feathers. In the 13th IWA Specialized Conference on Small Water and Wastewater Systems (SWWS) and the 5th IWA Specialised Conference on Resources-Oriented Sanitation (ROS) 14 – 16th September 2016, Athens, Greece. Online:http://uest.ntua.gr/swws/proceedings/pdf/SWWS2016_Manga_et_al_2016_Nitrogen_Manuscript.pdf
2. **Manga, M.,** Evans B., Camargo-Valero, M. A., Horan, N., 2016. The fate of Helminth eggs during the co-composting of faecal sludge with chicken feathers and market waste. In the 13th IWA Specialized Conference on Small Water and Wastewater Systems (SWWS) and 5th IWA Specialised Conference on Resources-Oriented Sanitation (ROS) 14 – 16th September 2016, Athens, Greece. Online: http://uest.ntua.gr/swws/proceedings/pdf/SWWS2016_Manga_etal_2016_Helminth_eggs_Manuscript_ORAL_PRESENTATION.pdf
3. Ngobi, T G, **Manga, M,** Kibwami, N and Tutesigensi, A (2021) Construction Occupational Safety and Health Incident Reporting, Recording, Monitoring and Management in Uganda. In: Scott, L and Neilson, C J (Eds.), Proceedings 37th Annual ARCOM Conference, 6-7 September 2021, UK, Association of Researchers in Construction Management, 269-278. https://ris.utwente.nl/ws/portalfiles/portal/276670119/2021_Indexed_Papers.pdf#page=269

11.B4. Refereed Papers/ Articles/ Manuscripts – Under Preparation (++Indicates Senior Author; * Indicates Advisee)

1. Muoghalu, C., Lui, C., Lebu, S., Niwagaba, C., Semiyaga, S., **Manga, M++.** Antibiotic resistant bacteria (ARB) and genes (ARGs) in wastewater treatment plants: A critical review on influencing factors, mechanisms and efficiency of treatment processes. Targeting the Journal of Science of the Total Environment: An International Journal.
2. **Manga, M.,** Muoghalu, C**.** From Sludge to Resource: Geotextiles for Efficient Dewatering and Sustainable Utilization of Faecal Sludge. Targeting the Journal of Environmental Management: An International Journal.
3. Lebu, S., Sprouse, L., Akudago, A. J., Rosenberg, R., Twinomucunguzi R.B. F, Lugali, Y., Semiyaga, S., and **Manga, M.** A science-policy-practice dialogue to reflect on shared sanitation access where household toilets are not feasible. To be submitted to PLOS Water – UNC Water and Health Conference Special Issue
4. Muoghalu C., Kabbogoza, H., and **Manga, M++.** Biochar-based column filtration system for septic tank effluent: removal efficiency, configuration and mechanisms. Target journal: Environmental Sciences and Technology.
5. **Manga, M.,** Kolsky, P., Rosenboom, J.W., Muoghalu C., Lebu, S., Lauren, S., Semiyaga, S., Niwagaba, C., Tembo, J., Bartram, J., and Stewart, J. Assessing the Effectiveness of Sanitation Technologies in Intercepting Pathogen Release into the Urban Environment: Insights from Sub-Saharan Africa. Targeting the Journal of Science of the Total Environment: An International Journal.

6. *Lebu, S., *Sprouse, L., Akudago, A. J., Anthonj, C., and **Manga, M.,** (Manuscript under preparation). Reclassification of shared sanitation facilities to inform national and global monitoring practices. Target journal: The LANCET Global Health.

7. **Manga, M.,** Evans B., Camargo-Valero, M. A., Horan, N., (Manuscript under preparation). *Occurrence, growth, and suppression of pathogens during the co-composting of faecal sludge with different organic waste types*. To be submitted to the International Journal of Waste Management.

8. **Manga, M.,** Evans B., Camargo-Valero, M. A., Horan, N., (Manuscript under preparation). *Chemical and biological changes during co-composting of dewatered faecal sludge with different organic wastes, and evaluation of compost maturity.* Targeting the Journal of Science of the Total Environment: An International Journal.

9. **Manga, M.,** Evans B., Camargo-Valero, M. A., Horan, N., (Manuscript under preparation). *Recycling of faecal sludge: Nitrogen, carbon, and organic matter transformation during Co-Composting of faecal sludge with different organic solid waste.* Targeting the Journal of Agriculture, Ecosystems, and Environmental: An International Journal.

10. Beardsley, R., Sprouse, L., Lebu, S., Anthonj, C., and **Manga, M.** Prevalence and determinants of shared sanitation use in low-to-middle income countries: analysis of Demographic Health Survey Data from 32 countries. To be submitted to PLOS Water .

11.C. Presentations and Published Abstracts

11.C1. Keynote Addresses and Plenary Discussions

1. **Manga, M.,** Marshall, A., and Greene, G., 2023. Impact Makers: Bringing hope to the world water crisis. National Christian Foundation (NCF) safe water webinar. Invited 13 April 2023.

2. Kanathigoda,T., Tunhuma, F., **Manga, M.,** Bateganya, N., 2021. Water and Sanitation aspects in Africa. The UNC Water and Health: Where Science Meets Policy 2021, 4 - 8th October 2021, The Water Institute at University of North Carolina, Chapel Hill, North Carolina, USA. Late Early Show for Africa.

3. **Manga, M.,** Mbegeure, M., Muximpua O. D., Bateganya, N., 2021. Financing sanitation improvement in low income communities; some experiences, challenges and opportunities. The 8th Africa Water Week (AWW8) and the 6th AfricaSan Conference. African Water and Sanitation (AFSA) Week 2021, 22nd – 26th November 2021. The Council of African Ministers Responsible for Water (AMCOW) and the African Union Commission. https://africawatersanitationweek.pathable.eu/meetings/virtual/2WLoupM84pNjTA4tq

4. **Manga, M.,** Berendes, D., and Lukooya B. N., 2019 Protecting the Urban Environment from Fecal Contamination. Webinar on the WaSH Policy Research Digest Issue#13. Invited 18 November 2019.

11.C2. Invited Conference and Workshop Presentations

1. **Manga, M.,** 2023. From An architect to a "Sh*t Doctor" to Save Lives. In the 2023 Colorado WASH Hybrid Symposium. 9th – 10th March 2023, Boulder, Colorado, USA.

2. **Manga, M.,** 2023. Application of pathogen flow tools for sanitation decision making. Makerere University, Ministry of Water and Environment and Kampala City Council Authority (KCC), Stakeholders Pathogen flow workshop. 18th January 2023, Kampala, Uganda

3. **Manga, M.,** 2023. Community pathogen hazards tool for evidence-based sanitation decision making. Training, Research, and Networking for Development (TREND), Stakeholder engagement workshop. 10th January 2023, Accra, Ghana.

4. **Manga, M., and** Stewart, J., 2022. How can we use pathogen flow approach to prioritize sanitation decision and/or investiment? Evidence from Tamil Nadu, India. Bill & Melinda Gates Foundation Headquarters, Pathogen Flow Workshop 23rd – 25th May 2022, Seatle, USA.

5. **Manga, M.,** 2020. Lifecycle costs and population density as key considerations for sanitation technology selection – Evidence from Soweto. In the World Water Week at home 2020, 25th August 2020, SIWI. The theme "Sewers for Resilient Sanitation in the 21st Century". https://www.worldwaterweek.org/event/9131-sewers-for-resilient-sanitation-in-the-21st-century.

6. **Manga, M.,** B. Evans, Bartram, J., Kolsky, P., Stewart, J., 2019. Septic tanks are not septic tanks in Tamil Nadul, India. The 2019 Bill & Melinda Gates Foundation, WaSH MEDS convening 27th October – 1st November 2019, Siem Reap, Cambodia.

7. **Manga, M.,** Stewart, J., Medina, B., Andy, P., Bartram, J., Kolsky, P., 2018. The *flow and fate of sanitation related pathogens in the environment.* The 2018 Bill & Melinda Gates Foundation, WaSH MEDS convening 23rd September – 28th October 2018, Dakar, Senegal.

8. **Manga, M.,** Stewart, J., Medina, B., Andy, P., Bartram, J., Kolsky, P., 2017. The proof of concept of estimates of the unsafe return of human excreta to the environment. The 2017 Bill & Melinda Gates Foundation, WaSH MEDS convening 5th – 10th November 2017, Patna, Bihar, India.

9. Mitchell, C., Kolsky, P., Boisson, S., Evans, B., Moe, C., Medlicott, K., **Manga, M.,** Hawkins, P., Willetts, J., Kome, A., Norman, G., 2017. *Pathogen flows: Applying public health principles to urban sanitation.* In the World Water Week 2017, 27th August – 2nd September 2017, SIWI, Stockholm, Sweden. The theme "Water and Waste: Reduce and Reuse". https://programme.worldwaterweek.org/Event/6652-pathogen-flows-applying-public-health-principles-to-urban-sanitation

10. **Manga, M.,** Evans B., Camargo-Valero, M. A., Horan, N., 2014. *Can co-composting be a viable way of inactivating pathogens and recovering nutrients from faecal sludge?* In the 15th Sanitation Community of practice (SanCop) event conference proceeding, 4th November 2014, Leeds, UK. Meeting theme "Fecal Sludge Management, Wastewater Treatment, and Reuse – SWOT Analysis of Technological Solutions". https://www.susana.org/en/news-and-events/sanitation-events/past-event-pages/details/177

11. **Manga, M.,** Beltran, E., Zambesi, L, and Evans, B. 2011. *Financial assessment tool for urban sanitation in Soweto, Johannesburg.* Presented at the 8th Community of Sanitation Practice Meeting, 16th May 2011, Leeds, UK. Meeting theme "Urban Sanitation Planning: how to think about Scale from the Start".

11.C3. Conference and Workshop Presentations

1. **Manga, M.,** *Muoghalu, C., Semiyaga, S., *Labu, S., 2023. Biochar as a novel technology for treatment of onsite domestic wastewater: A critical review. The UNC Water and Health: Where Science Meets Policy 2023, 23 - 27th October 2023, The Water Institute at University of North Carolina, Chapel Hill, North Carolina, USA. The theme "Sanitation".

2. Semiyaga, S., Niwagaba, B.C., Nakagiri, A., Sempewo, I, J., *Moughalu, C., and **Manga, M++.** Black solider fly larvae for treatment of faecal sludge from pit latrines in informal settlements. The UNC Water and Health: Where Science Meets Policy 2023, 23 - 27th October 2023, The Water Institute at University of North Carolina, Chapel Hill, North Carolina, USA. The theme "Sanitation".

3. *Kryston, A., Woods, C., and **Manga, M.** 2023. Barrier to safe sanitation access among housed populations in the United States: Asystematic review. The UNC Water and Health: Where Science Meets Policy 2023, 23 - 27th October 2023, The Water Institute at University of North Carolina, Chapel Hill, North Carolina, USA. The theme "Sanitation".

4. **Manga, M.,** *Lebu, S., *Sprouse, L., Akudago, A. J., Rosenberg, R., Twinomucunguzi R.B. F, Lugali, Y., and Semiyaga, S. 2023. Shared Sanitation as a means of access to sustainable sanitation in urban informal settlements. The UNC Water and Health: Where Science Meets Policy 2023, 23 - 27th October 2023, The Water Institute at University of North Carolina, Chapel Hill, North Carolina, USA. The Side Event theme "Sanitation access".

5. *Lebu, S., *Gyimah, R., Nandoya, E., Brown, J., Salzberg, A., **Manga, M++.** A novel index for assessing the resilience of sanitation infrastructure to extreme rainfall and flooding. The UNC Water and Health: Where Science Meets Policy 2023, 23 - 27th October 2023, The Water Institute at University of North Carolina, Chapel Hill, North Carolina, USA. The theme "Water Scarcity and Security".

6. *Lauren, S., *Lebu, S., and **Manga, M.** 2023. Shared sanitation in informal settlements: a systematic review, meta-analysis, and primer for global monitoring standards. The UNC Water and Health: Where Science Meets Policy 2023, 23 - 27th October 2023, The Water Institute at University of North Carolina, Chapel Hill, North Carolina, USA. The theme "Sanitation".

7. **Manga, M.,** Sugantha P., Niladra C., 2023. Inclusive sanitation: Challenges in service delivery to urban poor. The UNC Water and Health: Where Science Meets Policy 2023, 23 - 27th October 2023, The Water Institute at University of North Carolina, Chapel Hill, North Carolina, USA. The theme "Sanitation".

8. *Kryston, A., Woods, C., and **Manga, M.**, 2022. On-site sanitation in North Carolina: Challenges associated with inequity and climate change. The 2022 NC Clean AIRE BREATHE Conference: "Health, Equity, and the Climate Crisis in North Carolina. Thursday 7th April 2022, Catawba College, Salisbury, North Carolina.

9. **Manga, M.,** Kolsky, P., Stewart, J., 2021. *How well do sanitation technologies intercept release of pathogens to the environment? Envidence from Tamil Nadu, India.* The UNC Water and Health: Where Science Meets Policy 2021, 4 - 8th October 2021, The Water Institute at University of North Carolina, Chapel Hill, North Carolina, USA. The Side Event theme "Understanding pathogen flows associated with the sanitation practices in the urban communities".

10. **Manga, M.,** Kolsky, P., Ramalingam, S., Sriramajayam, L., Wankhade, K., Bartram, J., Stewart, J., (2021). *Physical and microbiological comparison of sanitation technologies in Tamil Nadu, India.* In the Sixth International Faecal Sludge Management (FSM6 Virtual) Conference 2021 Proceedings, 31st May – 4th June 2021, Faecal Sludge Management Alliance, Jakarta, Indonesia. The theme "Health, Safety and Hygiene". https://abs.fsm6.org/absview?id=NzM=

11. Anthonj, C., Setty, K., Ezbakhe, F., **Manga, M.** and Höser, C., 2020, *Water, Sanitation and Hygiene among Roma Communities in Europe: Situation Analysis, Cultural Context and Obstacles to Improvement.* In: Annual conference of the Working Group on Medical Geography and Geographical Health Research 2020: "The world during and after the COVID-19 pandemic". 6th October 2020. University of Twente, Enschede, Netherlands: https://wp.med-geo.de/wp-content/uploads/2020/10/akmedgeo2020_anthonj_2020_wash.pdf

12. **Manga, M.,** Bartram, J., Kolsky, P., Stewart, J., 2020. *Materialization of the pathogen release concept - application of field data on sanitation technologies in India.* The UNC Water and Health:

Where Science Meets Policy 2020, 26th -28th October 2020, The Water Institute at University of North Carolina, Chapel Hill, North Carolina, USA. The theme "Sanitation".

13. **Manga, M.,** Bartram, J., Kolsky, P., Stewart, J., 2019. *Unveiling pathogen hazards associated with sanitation technologies in Tamil Nadu.* The UNC Water and Health: Where Science Meets Policy 2019, 7th -11th October 2019, The Water Institute at University of North Carolina, Chapel Hill, North Carolina, USA. The theme "Fecal Contamination".

14. **Manga, M.,** Camargo-Valero, M. A., Evans B., 2019. Fate of viable Ascaris eggs during fecal sludge co-composting with chicken feathers and market waste*.* The UNC Water Microbiology 2019, 14th – 16th May 2019, The Water Institute at University of North Carolina, Chapel Hill, North Carolina, USA. The theme "Management & Treatment".

15. Kyaterekera, E., **Manga, M.,** 2019. *Influence of* bulking *agent on the inactivation efficiency of Ascaris eggs.* The UNC Water Microbiology 2019, 14th – 16th May 2019, The Water Institute at University of North Carolina, Chapel Hill, North Carolina, USA. The theme "Management & Treatment".

16. **Manga, M.,** Stewart, J., Bartram, J., Kolsky, P., 2018. *Estimates of unsafe return of human excreta to the environment.* The UNC Water and Health: Where Science Meets Policy 2018, 29th October - 2nd November 2018, The Water Institute at University of North Carolina, Chapel Hill, North Carolina, USA. The Side Event theme "Understanding the flow and fate of sanitation related pathogens".

17. Kolsky, P., **Manga, M.,** Stewart, J., Bartram, J., 2017. *Potential of pathogen hazard tracking for sanitation planning.* The UNC Water and Health: Where Science Meets Policy 2017, 16th 20th October 2017, The Water Institute at University of North Carolina, Chapel Hill, North Carolina, USA.

18. **Manga, M.,** Camargo-Valero, M. A., Evans B., 2017. *Can bulking agent types influence Ascaris eggs inactivation efficiency during faecal sludge treatment via co-composting?* The UNC Water and Health: Where Science Meets Policy 2018, 16th – 20th October 2017, The Water Institute at University of North Carolina, Chapel Hill, North Carolina, USA. The theme "Treatment".

19. **Manga, M.,** Evans B., Camargo-Valero, M. A., Horan, N., 2016. *Helminth eggs inactivation during Co-composting of faecal sludge with bulking agents.* In the 17th International Water Association, Young Water Professionals UK Annual Conference 2016 Proceedings, 30th March – 1st April 2016, Norwich, UK. The theme "People, Planet, Profit; thinking different for a sustainable water industry".

20. **Manga, M.,** Evans B., Camargo-Valero, M. A., Horan, N., 2016. *Enhancing pathogen inactivation using faecal sludge co-composting with chicken feathers.* Presented at WASH Futures Conference 2016, 16th – 20 May 2016, Brisbane, Australia. Conference theme "Pathways to universal and sustained water, sanitation, and hygiene".

21. **Manga, M.,** Evans B., Camargo-Valero, M. A., Horan, N., 2015. *Influence of filter media thickness on sand drying beds performance: nutrients and pathogen inactivation.* In: proceeding of the 5th PGR Conference, *9-10th September 2015*, Leeds, United Kingdom.

22. **Manga, M.,** Evans B., Camargo-Valero, M. A., Horan, N., 2014. *Can co-composting be a feasible upscale method of treating fecal sludge in Urban Africa?* In: proceeding of the 4th PGR Conference, *9-10th September 2014*, Leeds, United Kingdom.

11.C4. Invited Seminar Presentations

1. **Manga, M.,** 2023, Water and Sanitation: Hardware, Software and Systems for Change. Gillings School of Global Public Health, University of North Carolina at Chapel Hill, Invited Guest Lecture/ talk in PUBH 711: Critical Issues in Global Health, 10th October, 2023.

2. **Manga, M.,** 2023, *Water, Sanitation and Hygiene and Public Health Issues*. University of North Carolina at Chapel Hill, Invited Guest Lecture/ talk in Department of History, 27th March, 2023.
3. **Manga, M.,** 2022, *Water and Sanitation: Technical, Social, Economical and Public Health Issues*. University of Delaware, Invited Guest Lecture/ talk in CIEG465: Global Sustainable Engineering, 28th November, 2022.
4. **Manga, M.,** 2022, *Water and sanitation: engineering, economics, and public health issue*. Gillings School of Global Public Health, University of North Carolina at Chapel Hill, Invited Guest Lecture/ talk in PUBH 711: Critical Issues in Global Health, 13th October, 2022.
5. **Manga, M.,** 2022, *Why water, sanitation and hygiene (WASH) matters to public health*. UNC Club, University of North Carolina at Chapel Hill, Invited Guest Lecture/ talk, 11th October, 2022.
6. **Manga, M.,** 2022, *Equity in Access to Sanitation: Sanitation Financing*. Department of Environmental Finance Center, UNC School of Government, University of North Carolina at Chapel Hill, Invited Guest Lecture/ talk, 28th February, 2022.
7. **Manga, M.,** 2021, *Pathogen releases associated with sanitation technologies in Tamil Nadu*. ENVR 40: In-house Seminar Series, Department of Environmental Science and Engineering, Gillings School of Global Public Health, University of North Carolina at Chapel Hill, Seminar 10th February, 2021.
8. **Manga, M.,** 2019, *Solid wastes in pit latrines: drivers and challenges of faecal sludge management in informal settlements*. Kampala City Council, Invited seminar, 22nd October 2019.
9. **Manga, M.,** 2019, *Public health hazards associated with sanitation technologies in Tamil Nadu, Indian*. Institute for Human Settlements (IIHS), Chennai, India, Chennai, India, 10th September 2019,
10. **Manga, M.,** 2018, *Unsafe returns of human waste to the environment in Tamil, Nadu. The India WaSH team*, the Bill and Melinda Gates Foundation India, Taj Mansingh Hotel, Delhi, India, 1st August 2018.
11. **Manga, M.,** 2016, *Fate of pathogen indicators during co-composting of faecal sludge with organic waste.* The Water Institute Lunch Seminar, Department of Environmental Science and Engineering, Gillings School of Global Public Health, University of North Carolina at Chapel Hill, Invited Seminar, McGavran-Greenberg 2301, 2nd September 2016.
12. **Manga, M.,** 2014, *Treatment of faecal sludge in Urban Africa using sand drying beds: enhancing pollutants removal.* National Water and Sewerage Corporation (NWSC) and Ministry of Water and Environment, Kampala, Uganda. Invited Seminar, 16th March 2016.

12. Academic Responsibilities

12.A1. Teaching Record

Semester and Academic Year	Course Number	Course Title	Students
Spring 2024	ENVR 698	Senior Capstone in Global Public Health Engineering	05
Fall 2023	ENVR 582	Sanitation for Development (Lead Instructor)	21
Fall 2022	ENVR 582	Sanitation for Development (Lead Instructor)	19
Fall 2021	ENVR 582	Sanitation for Development (Lead Instructor)	23
Fall 2020	ENVR 582	Sanitation for Development (Lead Instructor)	17

Semester and Academic Year	Course Number	Course Title	Students
Semester II**, 2019/20	CIV 7125	Sanitation systems and services	36
Semester I*, 2019/20	CIV 7129	Sanitation technology I	39
Semester II**, 2018/19	CIV 7274	Sanitation technology II	37
Semester I*, 2018/19	CIV 7126	Sanitation and public health	35
Semester II**, 2017/18	TCW 6204	Advanced Water and Wastewater Treatment	30
Semester II**, 2017/18	CIV 7261	Solid waste management	38
Semester I*, 2017/18	CIV 7129	Sanitation technology I	39
Semester I*, 2017/18	TCW 6102	Introduction to Environmental Impact Assessment	30
Semester II**, 2016/17	TCW 6204	Advanced Water and Wastewater Treatment	35
Semester II**, 2016/17	CIV 6204	Advanced environmental management and control	33
Semester I*, 2016/17	CIV 6101	Advanced Construction Technology I	15
Semester I*, 2016/17	CMG 8105	Principles of construction design	18
Semester II**, 2015/16	TEC 7200	Research methods	50
Semester II**, 2015/16	TCC 6202	Advanced Construction Technology II	26
Semester I*, 2015/16	TCC 6101	Advanced Construction Technology I	29
Semester I*, 2015/16	CIV 7102	Advance environmental studies	46
Semester II**, 2014/15	QUS 2202	Building Services	74
Semester II**, 2014/15	CE 4206	Environmental Quality Management	95
Semester I*, 2014/15	CE 4101	Environmental Engineering II	87
Semester I*, 2014/15	CMG 3101	Construction Technology III	60
Semester II**, 2013/14	QUS 2202	Building Services	70
Semester II**, 2013/14	CE 3203	Environmental Engineering I	109
Semester I*, 2013/14	CE 4101	Environmental Engineering II	92
Semester I*, 2013/14	CMG 3101	Construction Technology III	63
Semester II**, 2012/13	QUS 2202	Building Services	62
Semester II**, 2012/13	CE 3203	Environmental Engineering I	98
Semester I*, 2012/13	CE 4101	Environmental Engineering II	101
Semester I*, 2012/13	CMG 3101	Construction Technology III	50
Semester II**, 2011/12	QUS 2202	Building Services	68
Semester II**, 2011/12	CE 3203	Environmental Engineering I	96

*Semester One (August to December) in Uganda is the same as Fall Semester in the USA

**Semester Two (February to May) in Uganda is the same as Spring Semester in the USA

12.B. Student Guidance, Advising, or Mentoring

12.B1. PhD. Students

12.B1a. Current ESE Doctoral Graduate Student Supervision-Primary Advisor

1. **Lauren Sprouse (PhD.)** 2023-present
   Primary advisor. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC. Primary advisor: Musa Manga
2. **Chimdi Muoghalu (PhD.)** 2022-present
   Primary advisor. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC. Primary advisor: Musa Manga

12.B1b. Current Doctoral Graduate Student Supervision - Committee Member Positions

1. **Sarah Lebu (PhD.)** 2022-present
   Primary advisor. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC. Co-Advisors: Aaron Salberg and Joe Brown
2. **Olivia August Harmon (PhD.)** 2023-present
   Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC. Primary Advisor: Professor Joe Brown
3. **Connor LaMontagne (PhD.)** 2023-present
   Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC. Primary Advisor: Professor Jill Stewart
4. **Erin Mira Kowalsky (PhD.)** 2023-present
   Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC. Primary Advisor: Professor Joe Brown
5. **Yarrow Linden (PhD.)** 2023-present
   Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC. Primary Advisor: Professor Joe Brown
6. **Zahra Al Hamdani (PhD.)** 2022-present
   Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC. Primary Advisor: Professor Courtney Woods

12.B2. MSc. Students

12.B2a. Graduated MS students (Selected)

1. Zachary Michael Hirsch (MS, 2023) - Title “Two-way Option Contracts for Facilitation Water Ree-allocation during Drought”. Department of Environmental Sciences and Engineering, University of North Carolina at Chapel Hill — 2021-2023
2. Katharine Conaway (MSEE, 2022) - Title “Unsafe Release of Fecal Sludge and *E. coli* During Emptying and Transport”. Department of Environmental Sciences and Engineering, University of North Carolina at Chapel Hill — 2020-2022
3. Beverly Medina (MS, 2019) - Title “The role of septic tanks in reducing the unsafe return of excreta to the environment: A targeted literature review and case study”. Department of Environmental Sciences and Engineering, University of North Carolina at Chapel Hill — 2017-2019

4. Okeny Ojom Lawrence (MSc, 2019) – Title "Investigating the effect of water storage facilities onto the water quality". Makerere University	2018-2019
5. Ngobi Timothy Gideon (MSc, 2019) – Title "Exploring the use of a web-based ICT system in reporting, recording, monitoring and managing occupational safety and health incidents in uganda's construction industry". Makerere University	2018-2019
6. Natalie Hairston, MPH (non-thesis), Department of Environmental Sciences and Engineering, Gillings School of Global Public Health, University of North Carolina at Chapel Hill	2021 - 2023
7. Shaffer Madison, MPH (non-thesis), Department of Environmental Sciences and Engineering, Gillings School of Global Public Health, University of North Carolina at Chapel Hill	2021 - 2023
8. Tiana Washington, MPH (non-thesis), Department of Environmental Sciences and Engineering, Gillings School of Global Public Health, University of North Carolina at Chapel Hill	2021 - 2023
9. Tiana Washington, MPH (non-thesis), Department of Environmental Sciences and Engineering, Gillings School of Global Public Health, University of North Carolina at Chapel Hill	2021 - 2023
10. Rachel Beardsley, MPH (non-thesis), Department of Environmental Sciences and Engineering, Gillings School of Global Public Health, University of North Carolina at Chapel Hill	2021 - 2023
11. Amy Kryston, MPH (non-thesis), Department of Environmental Sciences and Engineering, Gillings School of Global Public Health, University of North Carolina at Chapel Hill	2021 - 2023
12. Anna Verkuilen, MPH (non-thesis), Department of Environmental Sciences and Engineering, Gillings School of Global Public Health, University of North Carolina at Chapel Hill	2021 - 2023
13. Samantha Shapiro, MPH (non-thesis), Department of Environmental Sciences and Engineering, Gillings School of Global Public Health, University of North Carolina at Chapel Hill	2021 - 2023

12.B2b. In Process MS. MSc. MSPH, and MPH Students

Fall 2023 – Present: Jiahui Guo, MSc (thesis), University of North Carolina at Chapel Hill: Role: - Faculty Advisor/ Research Supervisor

Fall 2023 – Present: Grant Plamer, MSPH (thesis), University of North Carolina at Chapel Hill: Role: - Faculty Advisor/ Research Supervisor

Fall 2023 – Present: Herbert Kaboggoza, MSc (thesis), University of North Carolina at Chapel Hill: Role: - Faculty Advisor/ Research Supervisor

Fall 2023 – Present: Kenneth Kabagambe, MPH, University of North Carolina at Chapel Hill: Role: - Faculty Advisor/ Research Supervisor

Spring 2023 – Present: Chenchen Liu, MSc (thesis), University of North Carolina at Chapel Hill: Role: - Faculty Advisor/ Research Supervisor

Spring 2023 – Prensent: Anuskha Banarjee, MPH Global Health, University of North Carolina at Chapel Hill : Role: - Faculty Advisor

Fall 2022 – Present: Andromede Umase, MPH, University of North Carolina at Chapel Hill : Role: - Faculty Advisor/ Research Supervisor

Fall 2022 – Present: John Shuh-sko, MPH, University of North Carolina at Chapel Hill : Role: - Faculty Advisor

B3. Undergraduate Students

B3a. BSc. Students (Selected)

1.	Rachel Beardsley (Undergraduate, 2020) - Title "Factors associated with safe child disposal: evidence across Ethiopia, India and Zambia". Department of Public Policy, University of North Carolina at Chapel Hill.	2019-2020
2.	Nakamoga Husnaa (BSc, 2019) - Title "Assessing the effects of construction and maintenance practices on water quality in indirect domestic water supply systems." Makerere University	2018-2019
3.	Baliddawa Angel Samuella (BSc, 2018) - Title "The assessment of the performance of Lubigi sewage treatment plant and its effect on receiving water streams." Makerere University.	2017-2018
4.	Mwebesa Nina Shatsi (BSc, 2018) Project title was "Investigating the economic viability of various locally available bulking agents on the performance of faecal sludge briquettes". Makerere University.	2017-2018
5.	Owino Shelah Ruth (BSc, 2018) - Title "Investigating the effectiveness of waste plastic as a binder in plastic-sand roofing tiles."	2017-2018
6.	Nassaka Swafiyah (BSc,2018) – Title "Determining accessibility to sanitation facilities in health centre III facilities in Kampala district."	2017-2018
7.	Baingana Allan (BSc, 2017) – Project Title was "The impact of greywater on the performance of a septic tank." Makerere University.	2016-2017
8.	Kavuma Andrew (BSc, 2016) – Title "An investigative study to assess the effectiveness of waste stabilisation ponds in Mbarara District". Makerere University.	2015-2016
9.	Namugenyi Patience (BSc, 2016) – Title "The effect of improper design of septic tanks on construction costs." Makerere University.	2015-2016
10.	Semakula Kato Issa (BSc, 2016) – Title "Investigative study to assess the effect of oily and soapy water on the biological processes in the septic tank". Makerere University	2015-2016

B3b. In Process BSc. Students

2021 – Alka Manoj, BSPH Environmental Health Sciences, University of North Carolina at Chapel Hill. Role: - Research Supervisor

2021 – Vanshika Chintakunta, BS Biology, University of North Carolina at Chapel Hill. Role: - Research Supervisor

2023 – Safiye Berra Yasan, BS Biology, University of North Carolina at Chapel Hill. Role: - Research Supervisor

2023 – Jackquenline Tu-uyen Nguyen, BS Biology, University of North Carolina at Chapel Hill. Role: - Research Supervisor

2023 – Anais Belgique Gentles, BS Chemistry, University of North Carolina at Chapel Hill. Role: - Research Supervisor

2023 – Yashraj Singh Banga, BS Neuroscience, University of North Carolina at Chapel Hill. Role: - Research Supervisor

2023 – Kate Rodelli, BSPH Environmental Health Sciences, University of North Carolina at Chapel Hill. Role: - Faculty Advisor

2023 – Mercy Lifting Adekola, BSPH Environmental Health Sciences, University of North Carolina at Chapel Hill. Role: - Faculty Advisor

B4. Other Mentoring Activities

12.B4a. MPH Practicum students

2019 – Trey Kanumuambidi, MPH, University of North Carolina at Chapel Hill: Role: - Preceptor

2021 – Lauren Sprouse, MPH, University of North Carolina at Chapel Hill: Role: - Preceptor

2021 – Anna Liles, MPH, University of North Carolina at Chapel Hill: Role: - Preceptor

2022 – Rachel Beardsley, MPH, University of North Carolina at Chapel Hill: Role: - Preceptor

2022 – Amy Kryston, MPH, University of North Carolina at Chapel Hill: Role: - Preceptor

2022 – Anna Verkuilen, MPH, University of North Carolina at Chapel Hill: Role: - Preceptor

2022 – Cheryl Blevins, MPH, University of North Carolina at Chapel Hill: Role: - Preceptor

2022 – 2023 Natalie Hairston, MPH, University of North Carolina at Chapel Hill: Role: - Faculty Advisor

2022 – 2023 Madison Shaffer, MPH, University of North Carolina at Chapel Hill: Role: - Faculty Advisor

2022 – 2023 Tiana Washington, MPH, University of North Carolina at Chapel Hill: Role: - Faculty Advisor

12.B4b. In Process MPH:- Practicum Students

No Data

13. Grants and Contracts

13.A. As Principal Investigator/ Co-Principal Investigator

1. **Title of Project:** Promoting Evidence-Based Investment in Hygiene and Sanitation for Health and Equity (PROMISE) Consortium
   Agency/ Company: Reckitt Global Hygiene Institute
   Total Amount: $750,000
   Role: Principal Investigator at UNC
   My Share: $137,500
   Period of Contract: January 2024 – January 2026

2. **Title of Project:** Estimating Pathogen Hazards from Sanitation Technologies in Africa
   Agency/ Company: Bill Melinda and Gates Foundation
   Total Amount: $753,531
   Role: Principal Investigator
   Period of Contract: October 2023 – September 2025

3. **Title of Project:** Literature Review: Need for Investments in Shared Sanitation Facilities in Informal Settlements.
   Agency/ Company: Habitat for Humanity
   Total Amount: $25,000
   Role: Principal Investigator
   Period of Contract: June 2023 – May 2024

4. **Title of Project:** Bioaugmentation of faecal sludge with probiotics: effect on sludge characteristics, volume reduction and contaminant removal efficiency
   Agency/ Company: Outreach International
   Total Amount: $12,500
   Role: Principal Investigator
   Period of Contract: May 2023 – March 2024

5. **Title of Project:** Feasibility of Biochar as a Low-cost Treatment Method for Household Wastewater in Underserved Communities of North Carolina
   Agency/ Company: North Carolina Biotechnology Center
   Total Amount: $20,000
   Role: Principal Investigator
   Period of Contract: Jan 2023 – April 2024

6. **Title of Project:** Feasibility of Black Soldier Flies and Biochar as Novel Approaches for Treating Swine Wastewater
   Agency/ Company: North Carolina Biotechnology Center
   Total Amount: $20,000
   Role: Principal Investigator
   Period of Contract: Jan 2023 – Dec 2023

7. **Title of Project:** Pathogen Flow Planning Grant
   Agency/ Company: Bill & Melinda Gates Foundation
   Total Amount: $55,000
   Role: Principal Investigator
   Period of Contract: 2022 – 2023

8. **Title of Project:** The Compendium: Consolidation of Envidence-Based Water and Sanitation Solutions in India
   Agency/ Company: KPMG India
   Total Amount: $362,815
   Role: Co-Principal Investigator
   Period of Contract: 2024 – 2026

9. **Title of Project:** Indirect Water Supply System: the Effect of Water Storage Tanks on Household Water Quality
   Agency/ Company: Government of Uganda through Research and Innovation Fund
   Total Amount: $15,000
   Role: Principal Investigator

10. **Title of Project:** Socially accepted evidence-based intervention strategies for reducing solid wastes in Pit latrines in Kampala - Uganda.
    Agency/ Company: Government of Uganda through Research and Innovation Fund
    Total Amount: $30,000
    Role: Co-Principal Investigator

11. **Title of Project:** First Italian Implementation of Sanitation Safety Planning to Water Reuse for Irrigation
    Agency/ Company: Gruppo Cap-Cap Holdings
    Total Amount: $ 87,640
    Role: Co-Principal Investigator
    Period of Contract: 2018-2021

12. **Title of Project:** Improving Access to Sanitation; Child Faeces Management in Underserved Communities
    Agency/ Company: N/A
    Role: Principal Investigator
    Period of Contract: January 2020 – December 2023

13. **Title of Project:** Onsite sanitation systems in North Carolina: Adverse public health outcomes
    Agency/ Company: Inaugural environmental justice graduate research award, UNC Institute for the Environment
    Role: Supervisor / Co-Principal Investigator
    Period of Contract: August 2023 – December 2023

13.B. As Lead Researcher – Contributing to proposal writing

14. **Title of Project:** Phase II: Proof of Concept of Estimates of the Unsafe Return of Human Excreta to the Environment.
    Agency/ Company: Bill & Melinda Gates Foundation
    Total Amount: $687,319
    Role: Lead Researcher
    Period of Contract: 2017 – 2022

15. **Title of Project:** Water, sanitation, and hygiene access amongst marginalized communities in Europe
    Agency/ Company: N/A
    Role: Lead Researcher
    Period of Contract: 2019-2020

16. **Title of Project:** Resilience of Urban and Rural Sanitation Infrastructure to Extreme Weather Events
    Agency/ Company: UNICE, the Australian Department of Foreign Affairs, and Trade, WaterAid and the European Union.
    Role: Lead Researcher
    Period of Contract: 2017-2019

17. **Title of Project:** Optimization of Faecal sludge treatment focusing on Nutrient Recovery and Pathogen Inactivation
    Agency/ Company: University of Leeds
    Role: Lead Researcher
    Period of Contract: 2014 - 2018

18. **Title of Project:** Lifecycle Costing of Low-cost Sanitation Technologies for Decision-making in Informal Settlements.
    Agency/ Company: University of Leeds
    Role: Lead Researcher
    Period of Contract: 2010 - 2019

14. Professional Service

14.A. Institute Contributions

14.A.1. UNC Service and Committee Membership

2024 – Present Member of Gillings Inclusive Excellence (IE) Strategic Plan Task Force, Gillings School of Global Public Health, UNC

2023 – Present Member of Faculty Advisory Council to the Dean, Gillings School of Global Public Health, UNC

2023 – Present Member of the Department of Environmental Sciences and Engineering, Strategic Planning Task Force

2022 – 2023 Member of Search Committee for a New research faculty position within Department of Environmental Sciences and Engineering

14.A2. Institute Committee Service

2017 Chair for the committee that developed the curriculum of the new programme "MSc Construction Engineering and Management" at Ndejje University

2017 – Present External reviewer of MSc thesis – Kyambogo University, Kampala, Uganda

2017 – Present External reviewer of MSc thesis – Ndejje University, Kampala, Uganda

2017 – Present External reviewer of MSc thesis – Makerere University, Kampala, Uganda

14.A3. School Committee Service

2015 – 2017 Coordinator Research and Postgraduate programs at Ndejje University

2019 Chair – Special Examination Committee, Makerere University

2019 Member, MSc. Sanitation Engineering program development committee at Makerere University

14.B. Professional and Honorary Society Memberships

2022 – Present Member, Rural Water Supply Network (RWSN)

2020 – Present Member, The Sanitation Learning Hub: Sanitation and Hygiene for all means leaving no one behind

2020 – Present Member, Faecal Sludge Management Alliance, Safely Managed Faecal Sludge for All

2017 – Present Member, Measurement, Evidence, Dissemination (MEDS) convening team, Bill & Melinda Gates Foundation

2013 – Present Member, Uganda Association of Environmental Impact Assessment Practitioners

2011 – Present Member, Sustainable Sanitation Alliance (SUSANA)

2011 – Present Member, Sanitation Community of practice (SanCop)

14.C. Editorial Board Member for Scientific Journals

2023 – Present Journal of Water, Sanitation and Hygiene for Development

2022 – Present Frontier in Environmental Water Quality

2022 – Present Energies, MDPI (Multidisciplinary Digital Publishing Institute)

2022 – Present PLOS Sustainability and Transformation (Section Head for Air and Water)

14.D. Invited Reviewer for Scientific Journals

1. Environmental Science and Technology
2. Journal: Research and Reports in Tropical Medicine
3. Journal of Earth's Future
4. Environmental Health Insights
5. Environmental Science and Pollution Research
6. International Journal of Environmental Research and Public Health
7. Frontiers in Water
8. Frontiers in Environmental Science
9. International Journal of Hygiene and Environmental Health
10. Journal: Microorganisms
11. Journal: Soil Systems
12. Journal: Environment, Development and Sustainability
13. Journal: Scientific Reports – Nature
14. Journal: Tropical Medicine and Infectious Disease
15. Gates Open Research
16. BMC Public Health
17. International Journal of Environmental Research
18. Journal: Applied Water Science
19. Journal of Engineering, Design and Technology
20. PLos Sustainability and Transformation
21. BMC Women's Health
22. Discover Environment
23. Energy, Ecology and Environment
24. Magnetochemistry
25. Transactions of the Royal Society of Tropical Medicine and Hygiene
26. Water, Sanitation, and Hygiene for Development (WASH Dev)
27. Waste and Biomass Volarization
28. Environmental Monitoring and Assessment
29. Waste Management
30. Environmental Technology and Innovation
31. Desalination and Water Treatment

14.E. Invited Reviewer for International Grant Proposals

1. March 2023 – Organic Waste Portfolio: Recover energy and other resources from organic waste streams (municipal wastewater sludge, food waste, animal manure). **Funder:** The US Department of Energy's Bioenergy Technologies Office (Spring 2023).

2. October 2022 – NSF: Environmental Sustainability Program, **Funder:** National Science Foundation.

3. February 2022- Bill & Melinda Gates Foundation – MEDS (BMGF), WaSH Proposals for LMIC Researchers, **Funder:** Bill & Melinda Gates Foundation

4. December 2018- Bill & Melinda Gates Foundation - Grand Challenges Explorations - Round 22, WaSH Proposals https://gcgh.grandchallenges.org/article/grand-challenges-explorations-round-22-grants-awarded **Funder:** Bill & Melinda Gates Foundation

5. December 2019- Lifecycle Cost Analysis of Green Affordable Housing Vs Conventional Housing. **Funder:** University of Rwanda Director of Research and Innovation

14.F. Conference Organizing

1. 2023 - Reviewed and scored selected abstracts submitted to 2023 Water and Health conference "Where Science Meets Policy" sponsored by The Water Institute at University of North Carolina, Chapel Hill, North Carolina, USA.

2. 2022 - Reviewed and scored selected abstracts submitted to 2022 Water and Health conference "Where Science Meets Policy" sponsored by The Water Institute at University of North Carolina, Chapel Hill, North Carolina, USA.

3. 2021 - Reviewed and scored selected abstracts submitted to 2021 Water and Health conference "Where Science Meets Policy" sponsored by The Water Institute at University of North Carolina, Chapel Hill, North Carolina, USA.

4. 2020 - Reviewed and scored selected abstracts submitted to 2020 Water and Health conference "Where Science Meets Policy" sponsored by The Water Institute at University of North Carolina, Chapel Hill, North Carolina, USA.

5. 2019 - Reviewed and scored selected abstracts submitted to 2019 Water and Health conference "Where Science Meets Policy" sponsored by The Water Institute at University of North Carolina, Chapel Hill, North Carolina, USA.

6. 2018 - Reviewed and scored selected abstracts submitted to 2018 Water Microbiology conference sponsored by The Water Institute at University of North Carolina, Chapel Hill, North Carolina, USA.

7. 2018 - Reviewed and scored selected abstracts submitted to 2018 Water and Health conference "Where Science Meets Policy" sponsored by The Water Institute at University of North Carolina, Chapel Hill, North Carolina, USA.

8. 2017 - Reviewed and scored selected abstracts submitted to 2017 Water and Health conference "Where Science Meets Policy" sponsored by The Water Institute at University of North Carolina, Chapel Hill, North Carolina, USA.

15. Selected Professional Practice- Past Assignments

Name of assignment:	*Design of sewage collection network, sewage treatment plant, and water supply system for* Karoli Lwanga Hospital Nyakibale (Rukungiri, Uganda)
Year:	2014 - 2015
Client:	Hospital Nyakibale (Rukungiri, Uganda)
Main project features:	The assignment involved the design of an intra-estate water supply pipe network, sewerage system, and wastewater treatment facility. Stabilization ponds were designed and evaluated against a package treatment plant for cost and technical feasibility.
Position held:	**Team Leader/ Sanitation and Environmental engineer**

Activities performed:	Design of stabilization ponds, sewage collection network, and water supply system. Participated in the technical and economic evaluation of lagoons against a package plant to advise on the best (technically and financially) sewage management option.

Name of assignment:	*Preliminary Technical Evaluation of Masindi and Hoima National Water and Sewerage Corporation (NWSC) Sewerage Treatment Plants*
Year:	2012 – 2013
Location:	Hoima and Masindi District
Client:	Tullow Uganda Operations PTY Ltd
Main project features:	The assignment involved undertaking a preliminary technical evaluation of Masindi and Hoima NWSC Sewerage Treatment Plants before deciding to use them for treatment and disposal of Tullow Uganda Operations PTY Ltd sewage.
Position held:	**Team Leader/ Sanitation and Environmental Engineer**
Activities performed:	Preparation of As-built drawings, Wastewater sampling and analysis, design review (process capability and hydraulic capacity to handle the anticipated additional sewage), and preparation of design reports.

Name of assignment:	*ESIA and RAP Studies for Proposed Muzizi Hydropower Project.*
Year:	2012 – 2013
Location:	Kyenjojo District, Kibaale District
Client:	Uganda Electricity Generation Company Limited
Main project features:	Muzizi HPP dam will be constructed across River Muzizi with one part in Kyenjojo District and another in Kibaale District; the dam will have a height of about 7 meters, and length of 60 meters. Muzizi HPP will impound a reservoir ± 155,000 m³ in volume with a gross head of approximately 455m, a tailrace canal of about 160m, and installed capacity of 40-60 MW.
Position held:	**Water, Sanitation, and Environmental Engineer**
Activities performed:	Managed the ESIS and RAP studies both fieldwork and report development and its quality assurance. The ESIS and RAP study involved several specialists. Led water quality measurement and analysis; soil quality sampling, profiling, and analysis; air quality measurements, noise, and vibration measurements impact identification and assessment and preparation of the ESIS. Analyzed impacts associated with power station operation.

Name of assignment:	*Environmental Audit of Kampala Capital City Authority (KCCA) Landfill at Kiteezi.*
Year:	2013
Location:	Kampala District, Uganda
Client:	*Kampala Capital City Authority (KCCA)*
Main project features:	The assignment involved description of the current physical, biological and socio-cultural conditions for Mpererwe landfill; review of previous Environmental Impact Assessments for the landfill; assessment of landfill compliance with: (i) National Environment Management Authority (NEMA) approval conditions and or applicable national standards and regulations; (ii) International Development Agency (IDA) safeguard policies, especially recommendations of the Environmental Impact Assessment (EIA) and mitigation measures in the Environmental & Social

	Management Plan (ESMP) as well as the World Bank Group Environmental Health & Safety (EHS) guidelines; and (iii) international good practice; assessment of the capacity of the landfill operator in effectively complying with environmental and social requirements for operating the landfill and capacity of KCCA to ensure landfill activities comply with environmental and social requirements; and development of an Environmental Compliance Improvement Plan for Mpererwe Sanitary landfill.
Position held:	**Water, Sanitation, and Environmental Engineer**
Activities performed:	Participated in the environmental and social baseline surveys, stakeholder consultations, assessment of environmental and social impacts, development of mitigation measures, development of environment compliance Improvement plan and compilation of the final ESIA report.

Name of assignment:	*Resettlement Policy Framework and Environmental and Social Management Framework for Kampala Institutional & Infrastructure Development Project (KIIDP).*
Year:	2013
Location:	Kampala District
Client:	Kampala Capital City Authority (KCCA)
Main project features:	The assignment involved development of a Resettlement Policy Framework (RPF) and Environmental and Social Management Framework (ESMF) for the proposed project components under KIIDP II to be implemented by KCCA.
Position held:	**Water, Sanitation, and Environmental Engineer**
Activities performed:	Coordinated project activities, participated in project disclosure and stakeholder consultation, socio-environmental impact analyses, report development.

Name of assignment:	*Design and Construction of Kampala Integrated Environment Management Project (KIEMP)*
Year:	2008 - 2010
Location:	Kampala
Client:	Kampala City Council Local Government
Main project features:	It involved construction of 32 No. water stand posts, 35 No, VIP Toilets, Laying 3Km water mains, 13000 square meters of Drainage channels, and 2km of paved asphalt access roads.
Position held:	**Assistant Sanitation and Environmental Engineer**
Activities performed:	Prepared construction drawings, Construction Supervision, Quantification, and Certification of completed works.

Name of assignment:	*Design review of Tororo Railways Gravity Flow Scheme*
Year:	2009 - 2010
Location:	Tororo District
Client:	Directorate of Water Development (DWD), Ministry of Water and Environment.
Main project features:	Technical designs involved the design of a river intake, water treatment plant with a capacity of 1170m^3/day, 49Km of the pipeline, storage facilities, and Sanitation systems.
Position held:	**Assistant Sanitation and Environmental Engineer**

Activities performed:	Participated in preparation of designs, tender documents, drawings, and site supervision.

Name of assignment:	*Design Review of Mayuge Town Water Supply System*
Year:	2010
Location:	Mayuge
Client:	Directorate of Water Development (DWD), Ministry of Water and Environment.
Main project features:	Prepared a detailed design that involved 2.2Km pumping main, 16Km transmission main, and 14.5Km distribution pipework, storage reservoirs, pumping station.
Position held:	**Assistant Sanitation and Environmental Engineer**
Activities performed:	Construction Supervision, Quantification, and Certification of completed works.

Name of assignment:	*Feasibility Studies, Detailed Designs and Construction Supervision of Butaleja-Busolwe, Tirinyi-Kibuku, Pallisa Town, Katovu, and Lukaya Water Supply Systems*
Year:	2009 - 2010
Location:	Butaleja, Paliisa and Masaka Districts
Client:	Directorate of Water Development (DWD), Ministry of Water and Environment.
Main project features:	It involved the construction of 2km of paved asphalt access roads, 13000 square metres of Drainage channels, 32 No. water stand posts, 35 No, VIP Toilets and Laying 3Km water mains.
Position held:	**Assistant Sanitation and Environmental Engineer**
Activities performed:	Participated in preparation of designs, tender documents, drawings, and site supervision.

Other Information can be supplied on request