

## **DR. PETER KURIA NDIBA**

Dept. of Civil and Construction Engineering

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**Nationality:** Kenyan

**Date of Birth** 1964

**Marital Status** Married

### **CURRENT POSITION**

Senior Lecturer, Department of Civil & Construction Engineering, University of Nairobi

### **EDUCATION**

- 2009 PhD in Environmental Engineering, New Jersey Institute of Technology, NJ, USA. Dissertation: "Phosphate and thermal stabilization of heavy metals in dredged sediments"
- 1994 MSc in Civil Engineering, University of Nairobi, Kenya. Thesis: "Performance of crushed coconut shell as coarse media in dual media filters."
- 1987 BSc in Civil Engineering, University of Nairobi, Kenya

### **PROFESSIONAL QUALIFICATIONS**

Registered Engineer, Engineers Registration Board, Kenya (A 1677), 1994

Member, Institution of Engineers of Kenya (M-4339), 2012

### **RESEARCH INTERESTS**

- Heavy metals in water, soils and sediments
- Particulates and heavy metals in motor vehicle emissions
- Water and wastewater treatment
- Anaerobic digestion

### **TEACHING ACTIVITIES**

#### **Department of Civil and Construction Eng., University of Nairobi (1997 - To-Date)**

**Teaching of Undergraduate and postgraduate Courses:** Public Health Engineering, Environmental Science, Fluid Mechanics, Unit Operations and Processes

#### **Thesis Supervision:**

1. **Theuri, Ayub Kariuki** (Reg. No. F56/72232/2008) MSc Thesis: "Sequencing Batch Reactor in Treatment of Slaughterhouse Effluent." Graduated 2014
2. **Auma, Erick Omondi** (Reg. No. F56/65391/2010) MSc. Thesis: "Phytoremediation of Landfill E-Waste Leachate POPs with Water Hyacinth (*E. Crassipes*)." Graduated 2014
3. **Aluoch, Evance Ochieng'** (Reg. No. F56/80871/2012) MSc. Thesis: "Use of Enzymes in Anaerobic Sequencing Batch Reactor (ASBR) Treatment of Slaughterhouse Wastewater." Graduated 2015
4. **Naliaka, Bertha** (Reg. No. F56/64439/2010) MSc. Thesis: "Evaluation of Bone Char Defluoridation of Water Using Adsorption Isotherms and Bed Depth Time (BDST) Model." Graduated 2016
5. **Kilongi, Emily Muthoni** (Reg. No. F56/80293/2012) MSc. Thesis: "Phytoremediation of Heavy Metals in Sewage Sludge by Brassicaceae Family Plants; Turnip, Sunflower and Mustard." Graduated 2017.

6. **Nzamal Victor Vavu** (F56/79504/2012/2012) MSc. Thesis “Application of GIS in Optimization of Solid Waste Collection Route: A Case Study of Runda Estate in Nairobi.’ Graduated 2018.
7. **Muthusi Nicholas Ngui** (F56/8519/2017). MSc. Thesis Runoff Estimation for an Urban Area using SCS-CN Method, Remote Sensing and Geographic Information Systems Approach: A Case study of Mavoko Municipality.” Graduated 2021

### **PhD Thesis Supervision**

1. **Beatrice Katheu Kakoi** PhD Thesis: “Optimization of Pollutants Removal from Industrial Wastewater with Natural Materials by Response Surface Methodology.” Registered at Jomo Kenyatta University of Agriculture and Technology. Graduated 2018.
2. **Erick Omondi Auma** (F80/50557/2016) PhD Research on Topic “Anaerobic Co-Digestion of Water Hyacinth (*E.crassipes*) with Slaughterhouse Waste under Mesophilic Conditions.” University of Nairobi. Graduated 2020

### **Other Responsibilities:**

- Chairman, Technical Committee - Tender Evaluation for Purchase of Equipment for Small Scale Water Extraction on ASALS of Kenya Project, Department of Mechanical Engineering, 2013/14
- School of Engineering Strategic Plan 2008/12 & 2013/18 - Team Member
- Departmental Convener for Performance Contracting - 2015 to 2018
- Acting Chairman, Department of Civil Engineering and Construction Engineering: severally.
- Manager, Mamlaka Hostels, 2018-2020
- Member, Faculty Postgraduate Studies Committee, 2020 to date
- Member, Student Welfare Services Disposal Committee, 2020 to date

### **COMMUNITY WORK**

- Commission of Higher Education: - Curriculum Evaluation for ‘BTech in Civil Engineering Degree Programme (2010), ‘BTech in Building Construction Technology’ (January, 2017), BEd in Technology (Civil Engineering) - (June 2017), BSc. in Civil Engineering (July, 2017), BSc in Technology (Civil Engineering) - (Feb 2018), Msc. Civil Engineering (Civil Engineering) - (Feb. 2020). BSc. Civil Engineering (November 2021)
- External Examiner: Moi University, Department of Environmental Health Sciences (2010 - 2014)
- Commission of Higher Education - Quality Audit for Universities in Kenya. Quality Audit of Four Universities. January 23<sup>rd</sup> – February 3<sup>rd</sup> 2017.
- Inter University Council for East Africa (IUCEA) – Team member for developing benchmarks for Engineering Programmes March & July, 2017.
- PAC University – Member of Planning and Development Committee of the Governing Council – June 2017 to date.

### **SELECTED CONSULTANCY WORK**

- **Kapenguria Sewerage System, 2019/2020.** Detailed Designs, Tender Documents and Supervision of Works for Kapenguria and Chepareria Towns 4,000 m<sup>3</sup>/d capacity Sewerage Project. Client: Rift Valley Water Services Board.
- **Ol’Kalou Sewerage Project.** Design Review of Ol’Kalou Sewerage capacity 3,000 m<sup>3</sup>/d. Client: Rift Valley Water Services Board.
- **Kiambu Water Supply, 2014-2016.** Design Review of two water treatment plants on Riara and Kamiti Rivers of capacity 4,000 m<sup>3</sup>/d each. Client: Athi Water Services Board.

- **Kisumu West Wastewater Treatment Works, 2015.** Technical Feasibility Study for 38,358 m<sup>3</sup>/day wastewater treatment works for Kisumu Town Western Sewerage District. Client: Lake Victoria Water Services Board (LVSWSB)
- **Augmentation of Meru Water Supply, 2014/15.** Design of 10,850 m<sup>3</sup>/d Water Treatment Works. Client: Meru Water and Sewerage Services (MEWASS).

## JOURNAL PUBLICATIONS

1. Omondi E.A, Ndiba P.K, Njuru P.G, Abuga D. (2020). Dynamics of microbial communities in co-digestion of water hyacinth (*Eichhornia crassipes*) with ruminal slaughterhouse waste under mesophilic conditions. *Int. J. Water Res. Environ. Eng.*, Vol. 12(4), pp. 81-89.
2. Omondi E.A, Njuru P.G, Ndiba P.K (2019). Anaerobic Co-Digestion of Water Hyacinth (*E. crassipes*) With Ruminant Slaughterhouse Waste for Biogas Production. *Int. Journal of Renewable Energy Development*. 8 (3) 2019: 253-259.
3. Omondi E.A, Ndiba P.K, Njuru P.G (2019). Characterization of water hyacinth (*E. crassipes*) from Lake Victoria and ruminal slaughterhouse waste as co-substrates in biogas production. *SN Applied Sciences* 1, 848-858.
4. Kakoi B, Kaluli J.W, Ndiba P., Thiong'o G (2017). Optimization of Maerua Decumbent bio-coagulant in paint industry wastewater treatment with response surface methodology. *Journal of Cleaner Production*, 164, 1124 – 1134.
5. Kakoi B. Kaluli J.W, Ndiba Peter, Thiong'o G (2016). Removal of Lead (II) from Aqueous Solution using Natural Materials: A Kinetic and Equilibrium Study. *Journal of Sustainable Research in Engineering*, 3 (3), 53 - 62
6. Kakoi B. Kaluli J.W, Ndiba Peter, Thiong'o G (2016). Banana pith as a natural coagulant for polluted river water. *Ecological Engineering*. (95): 699 - 705
7. Kereyu D.D, Oonge Z.I and Ndiba P.K (2014). Application of GIS to Water Quality Management for the City of Nairobi Water Supply. *ICASTOR Journal of Engineering*, 7 (1), 5 - 23.
8. Sandhu N. K., Axe L., Ndiba P. K., and Jahan K. (2013). Metal and Metalloid Concentrations in Domestic and Imported Glass Beads used for Highway Marking. *Environmental Engineering Science*, 30 (7), 387 – 392.
9. Kinney P.L, Gichuru M.G, Volavka-Close N., Ngo N., Ndiba P.K, Law A., Gachanja A., Gaita M.G, Chillrud S.N, Sclar E. (2011). Traffic Impacts on PM<sub>2.5</sub> Air Quality in Nairobi, Kenya. *Environmental Science & Policy*, 14, 369 - 378.
10. Ndiba, P.K and Axe, L (2010). Risk assessment of Metal Leaching into Groundwater from Phosphate and Thermal Treated Sediments. *Journal of Environmental Engineering*, 136 (4), 427- 434.
11. Boonfueng T., Axe, L., Yee, N., Hahn, D., and Ndiba, P. K. (2009). Zn sorption mechanisms onto sheathed *Leptothrix Discophora* and the impact of the nanoparticulate biogenic Mn oxide coating. *Journal of Colloid Interface Science*, 333 (2), 439 - 447.
12. Ndiba P.K and Axe, L. (2009). Sequential extraction of phosphate and thermal treated New York/New Jersey Harbor dredged sediments. *Environmental Engineering Science*, 26 (12), 1755 - 1764.
13. Ndiba P. K. and Axe L. (2009). Metal speciation in phosphate and thermal stabilization of contaminated dredged sediments. American Society of Civil Engineers Geotechnical Special Publication n, 187, 512 - 519.
14. Ndiba P., Axe, L., and Boonfueng, T. (2008). Heavy metal immobilization through phosphate and thermal treatment of dredged sediments. *Environmental Science & Technology*, 42, 920-926.
15. Odira P.M.A and Ndiba, P.K (2007). Performance of crushed coconut shell dual media filter. *Journal of Civil Engineering Research and Practice*, 4 (2), 85- 92.

## **OTHER PUBLICATIONS**

1. Ndiba P.K (2021). Mitigating Engineering Profession Regulatory Gaps, *Kenya Policy Briefs*. 2 (2), pp. 73&74

## **CONFERENCE PRESENTATION**

2. Ndiba P.K (2017). Implications of University (Amendment) Act No. 48 of 2016 on Regulation of Engineering Education in Kenya. Institution of Engineers of Kenya (IEK) 5th International Conference, Nairobi. May 10-12 2017
3. Kakoi B. Kaluli J.W, Ndiba P, Thiong'o G (2015). Seasonal Variation of Surface Water Quality in the Nairobi River System. 10<sup>th</sup> JKUAT Scientific, Technological and Industrialization Conference and Exhibitions. 12 – 13<sup>th</sup> November 2015.

## **SEMINARS AND WORKSHOPS**

1. Environmental Management Workshop for Kiambu County (2012): Presentation “*Importance of Sound Effluents Management for Sustainability of Clean Environment.*” Ministry of Nairobi Metropolitan Development. June 29, 2012.
2. Training for County Staff: Presentation on “*Integrated Solid Waste Management through Public-Private Partnerships (PPP)*” at Africa Waste and Environmental Management Centre (AWEMAC). Fairview Hotel Nairobi. 14 -16th May 2014.
3. Development of Sustainable Waste Separation at Source Management Framework. Presentation on ‘*Greening Our Towns Beyond Trees: Focus On Solid Waste Management (Environmental Risks and Threats).*’ Ministry of Land, Housing and Urban Development’ 20th June, 2014.

## **NEWSPAPER ARTICLES**

1. Peter K. Ndiba (2010). “Greening Nairobi beyond Trees.” *The People Daily*, 4004, p6, March 10 2010, Nairobi, Kenya.
2. Peter K. Ndiba (2010). “Easing the Traffic Part of Nairobi Greening.” *The Star*, 818, p15, March 5 2010, Nairobi, Kenya.

## **GRANTS, AWARDS AND RECOGNITIONS**

- 2015 Research Grant of UK£1,000 through UNES Project Consultancy for Research on ‘*Technology and the Future of Work.*’ Practical Action and WIEGO.
- 2012 National Council of Science & Technology (NCST) 5<sup>th</sup> Competitive Research Grant FY 2012-2013, Kshs 3,000,000 for “*Design, Development and Testing of Separate Drive and Delivery Wing Hydraulic Ram for Safe Water Access.*” Collaborators: Eng P.N Karogo (PI, Egerton University), Dr P.K Ndiba (University of Nairobi), Dr D.N Kamau (Egerton University), Eng T.L Muchuma (KIRDI) and Dr J.R Kosgei (Moi University).
- 2010 National Council of Science & Technology (NCST), Science, Technology and Innovation (ST&I) Competitive Grant 2010 of KShs 200,000 for Master’s student, Theuri, Ayub Kariuki’s M.Sc. Research: “*Sequencing Batch Reactor in Treatment of Slaughterhouse Effluent.*”
- 2004 Teaching Assistantship, Dept. of Civil and Environmental Engineering, New Jersey Institute of Technology, Newark, NJ.
- 1989 Graduate Scholarship to study M.Sc. in Environmental Health Engineering, University of Nairobi.
- 1983 Gandhi Smarak Award of Kshs 6,000 for outstanding performance in 1982 A - level examinations.