

# Catherine Rwamba Githuku

**Address:** P.O. Box 735 - 00517, Uhuru Gardens, Nairobi

**Present Position:** Lecturer  
Department of Civil Engineering  
School of Engineering & Technology

**Employer:** Kenyatta University

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**Experience:** September 2010 to Date  
Lecturer

School of Engineering –  
Kenyatta University

6<sup>th</sup> Nov 2018 – to Date  
Chairperson

Department of Civil  
Engineering Kenyatta  
University

Jan 2012 to Oct 2014  
Chairperson

Department of Civil  
Engineering – Kenyatta  
University

Jan 2015 to Date  
PhD Student/Lecturer

Department of Civil  
Engineering – Tshwane  
University of Technology

- Successfully defended Thesis and waiting to graduate in May 2020

- Lecturing in Engineering Mathematics, Environmental Pollution & Management, Structural Mechanics, Structural Analysis & Design, Material Science, Hydraulics, Hydraulic Structures, Soil Mechanics, Geotechnical Engineering, Foundation Engineering and Sanitary Microbiology.
- Developing teaching materials;
- Supervising and guiding 5<sup>th</sup> year students on project work;
- Curricula Development & Review;
- Assessing students - Setting, Moderating, Administering and Marking Coursework, Labwork, Projectwork & Examinations;
- Carrying out research in relevant lecturing fields.
- Spearheaded the development of the following curriculum for **Kenyatta University**:
  - Bachelor of Science – Civil Engineering;
  - Bachelor of Education in Technical and Vocational Education (Engineering Options) and in particular, Construction Technology;
  - Bachelor of Science - Petroleum Engineering;
  - Bachelor of Science - Aerospace and Aeronautical Engineering.

**Currently:**

- Spearheading the development of PhD and MSc Civil Engineering curricula for the Department of Civil Engineering, Kenyatta University.
- Spearheading the development of BSc Civil Engineering curricula for the University of Embu.
- Involved in mentoring primary and high school and university students by giving motivational talks.

**2009 to Date**

A member of Board of Management, Kangaru Girls School where I am a member of School Infrastructure Committee, Strategic Planning Committee and Academic Excellence Committee

**November 2018**

Participated in development of Occupational Standards for, and validating of Diploma in Water Engineering and Diploma in Sanitation Engineering Curricular for Kenya Water Institute as a Lead Expert, in line with TVET-CDACC requirements.

**2008 to 2014**

Documentalist and Trainer for GIZ Training Courses and Managing Directors and CEO Workshops

**Courses Trained and Documented:**

- Non Revenue Water (NRW)
- Commercial & Customer Orientation (CCO)
- Water Integrity (WI)
- Wastewater Management and Sanitation
- Sustainable Major Water Infrastructure Development (SWID)
  - Environmental Management Plans
  - Social and Economic Aspects, Benefit Sharing and Options Assessment

**September 2010 to October 2014**  
**Part Time Lecturer**

**JKUAT**

Departments of:

- Civil Engineering,
- Construction Management,
- Biomechanical and Environmental Engineering and
- Architecture

- Lecturing in Structural Mechanics, Structural Analysis & Design, Material Science and Hydraulics, Microbiology and Soil Mechanics.

**14<sup>th</sup> January 1987 to September 2010**

**Kenya Water Institute**

**Lecturer:**

- Lecturing in Engineering Mathematics, Environmental Pollution & Health, Structural Mechanics, Analysis & Design, Soil Mechanics, Physics and Computer Applications;
- Developing teaching materials;
- Curricula Development & Review;
- Setting, Moderating, Administering and Marking Coursework & Examinations;
- Carrying out research in relevant lecturing fields.

**Principal Lecturer at Kenya Water Institute, having the following additional tasks:**

- Heading the Department of Water Management and Information Technology;
- Planning Courses within the department;
- Curricula Development & Review within and outside the department. These include among others: Certificate & Diploma Courses in Water Engineering and Irrigation Engineering.
- Implementing Training courses for the department;
- Coordinate field practical (industrial attachments) training;
- Evaluation of training programmes;
- Budgeting for course programmes and related activities;
- Sensitizing staff and students on Gender Issues and HIV/AIDS;
- Guiding and Counseling Staff and Students.

**1<sup>st</sup> March 1985 – 13<sup>th</sup> January 1987**

**Ministry of Water Resources**

Assistant Engineer - Planning and Design Section. Involved in design of Karai Water Supply in Kiambu and Karingani Water Project in Chuka.

**Other Experiences**

- Recruitment of Trainees and Trainers at Kenya Water Institute;
- Setting and Moderating Examinations for Kenya National Examinations Council (Engineering Mathematics and Structural Design);
- Training Retirees under the Early Retirement Programme in the Civil Service;
- Curricular development for Diploma and Certificate courses at Kenya Water Institute – Diploma in Water Engineering, Diploma in Water Technology, Certificate in Water Engineering, Certificate in Water technology & Water Operators Curricula;
- Developing Marketing tools for the Institute;
- Training on Water Management and Tariff setting for Karura Water Project – Kiambu;
- Organizing for and Training on Billing and Revenue Collection for Project Archie – Ahero – August 2005;

- Preparation of a Business Plan for Karanjee Community Water Project – Kiambu for Plan Kenya Central/ Nyanza Programme Area – 2004;
- Training on Water Tariff setting and Cost regulation for Consumer Information network – 2003;
- Training on Non Revenue Water and Customer Care Orientation;
- Auditing for ISO Management Systems.

**Education**

**2015 to Date:**  
 Doctor of Engineering – Civil Engineering

**Tshwane University of  
 Technology, Pretoria,  
 South Africa**

**Doctorate Research Thesis entitled “USE OF CONSTRUCTED WETLANDS TO MITIGATE HEAVY METAL POLLUTION”**

**2005 – 2007:**  
 Master of Science in Environmental  
 Engineering and Management

**Jomo Kenyatta University  
 of Agriculture &  
 Technology, Kenya**

**MSc. Research Project/Thesis entitled “ASSESSMENT OF THE ENVIRONMENTAL RISKS OF UNTREATED WASTEWATER IN URBAN AND PERI URBAN AGRICULTURE: A CASE STUDY OF NAIROBI IN KENYA”**

**1981–1984:**  
 Bachelor of Engineering (Civil) – 1985

**McGill University  
 (Montreal – Canada)**

**Courses Attended**

GIZ-DAAD International Alumni Summer School “Water and Sanitation for the Urban Poor – Natural Hazards, Climate Change, Governance and Human Rights  
**04 December to 17 December 2011**

**Nairobi/Kenya**

Urban Management Tools for Climate Change  
**11<sup>th</sup> May to 3<sup>rd</sup> June, 2010**

**Institute for Housing &  
 Urban Development  
 Studies (IHS) of Erasmus  
 University, Rotterdam in  
 The Netherlands**

Wastewater Treatment Technologies  
 (Membrane Technologies):  
**3<sup>rd</sup> to 13<sup>th</sup> August, 2009**

**Jomo Kenyatta University  
 of Agriculture &  
 Technology**

Computer Training in Microsoft Project:  
**November 1999**

**Amarco Kenya Limited**

Management of Technical and Vocational  
Education and Training Institutions:  
**5<sup>th</sup> January – 29<sup>th</sup> April 1998**

**DSE Mannheim -  
Germany**

Leak Management:  
**29<sup>th</sup> April – 2<sup>nd</sup> May 1997**

**Africa Water Network**

Microsoft Windows, Word, Excel, Access and  
Powerpoint:  
**8<sup>th</sup> – 21<sup>st</sup> April 1997**

**Amarco Kenya Limited**

Total Quality Management:  
**1<sup>st</sup> – 4<sup>th</sup> April 1997**

**Modern Management  
Institute**

Project Monitoring and Evaluation:  
**18<sup>th</sup> – 22<sup>nd</sup> November 1996**

**Kenya Institute of  
Administration**

Community Development:  
**5<sup>th</sup> – 9<sup>th</sup> August 1996**

**Jomo Kenyatta University  
College of Agriculture  
and Technology**

Inter – Personal Management Development  
Skills for Senior Women Managers in the Public  
Sector:  
**26<sup>th</sup> – 30<sup>th</sup> April 1993**

**Directorate of Personnel  
Management/  
Kenya Institute of  
Administration**

Water, Health and Environment  
**November 1991**

**Kenya Water Institute**

Water Supply, Sanitation, Urban Infrastructure  
and Rural Development Workshop:  
**19<sup>th</sup> – 23<sup>rd</sup> August 1991**

**UNEP**

Municipal Waste Management in Developing  
Countries:  
**May 1991**

**Kenya Water Institute**

Collection, Presentation and Interpretation of  
Groundwater Data:  
**19<sup>th</sup> October – 6<sup>th</sup> November 1987**

**TNO-DGV Institute of  
Applied Geoscience**

International Course on Water Resources  
Engineering:  
**15<sup>th</sup> June – 11<sup>th</sup> September 1987**

**Yugoslavia**

## Publications

- i. C.R. Githuku, J.M. Ndambuki, R.W. Salim, A.A. Badejo. Treatment Potential and Phytoextraction Capacity of *Phragmites australis* in the Removal of Heavy Metals from Constructed Wetlands. *International Journal of Environment and Waste Management*. Accepted
- ii. C. Gyamfi, J. M. Ndambuki, P. Y. Diabene, G. E. Kifanyi, A. Alexander and C. R. Githuku. 2016. Using Gis For Spatial Exploratory Analysis of Borehole Data: A Firsthand Approach Towards Groundwater Development. *Journal of Science and Technology*, Vol. 36, No. 1 (2016), pp 38-48.
- iii. Kaluli JW, Home PG, Githuku C. 2014. The Heavy Metal Content of Crops Irrigated With Untreated Wastewater: A Case Study of Nairobi, Kenya. *Journal of Agriculture, Science and Technology* 16 (2).
- iv. Kaluli JW, Githuku C, Home P, Mwangi BM. 2011. Towards A National Policy on Wastewater Reuse in Kenya. *Journal of Agriculture, Science and Technology* Vol 13, No.1 Pp: 116-125.
- v. Wambua Kaluli, C. Githuku, P. Home and B.M. Mwangi. 2011. Towards a National Policy to Support Wastewater Reuse in Kenya. Article accepted for Publication in the *Journal of Agriculture, Science and Technology* on January 10, 2011.
- vi. Karanja N, Njenga M, Prain G, Kang'ethe E, Kironchi G, Githuku C, Kinyari P, Mutua GK. 2010. Assessment of Environmental And Public Health Hazards in Wastewater Used for Urban Agriculture in Nairobi, Kenya. *Tropical and Subtropical Agroecosystems*, 12 (1), 85-97
- vii. Wambua Kaluli and C.R. Githuku. 2010. Safety issues in the Utilization of Sewage for Agriculture. *Proceedings of the National Workshop on Research in the Water Sector on Informing Policy Formulation*, held at Utalii College, Nairobi, 5<sup>th</sup> May 2010.
- viii. Wambua Kaluli, C. Githuku and Patrick Home. 2009. Towards a National Policy to Support Wastewater Reuse in Kenya. *Mechanical Engineering Annual Seminar*. JKUAT. March 3&4, 2009.
- ix. Kinyari, P.K., Gathanya, J.M. Wambua K., Rwamba C., Njenga, M. M., Karanja, N.K., Kabiru C. Gathuru, G., Munyao P., Githongo, M.W., Kironchi, G., Kang'ethe, E., Muneri, C., Githigia, S., Bebora, L. and Prain, G. Quantifying Heavy Metal Contaminants in River and Sewer Water: Mapping Pollutant Sources and their Environmental Impacts along the Ngong River Basin, Nairobi. Paper Presented at the symposium on Innovations as Key to the Green Revolution in Africa: Exploring the Scientific Facts ARUSHA, TANZANIA 17<sup>th</sup> – 21<sup>st</sup> September 2007. Forthcoming Book Chapter In Andre Bationo, Jeremiah M. Okeyo, Boaz S. Waswa, Paul Mapfumo, Fredah Maina and Job Kihara. (eds). *Innovations as Key to the Green Revolution in Africa: Exploring the Scientific Facts*.
- x. Njenga, M., E. Kang'ethe, N. Karanja, C. Kabiru, P. Munyao, G Kironchi, K. Gathuru, and G. Prain, in collaboration with C. Githuku, P. Kanyari, C. Muneri, M. Githongo, J. Githigia, P. Gildemacher, and P. Kinyae 2007. *Mainstreaming Gender Analysis in the Research Process in International Potato Centre (CIP) Project Report*. UH, CIP, KARI and Funded by PRGA.
- xi. N. Karanja, M. Njenga, G. Prain, P. Munyao, E. Kangethe, G. Kironchi, C. Kabiru, K. Gathuru, C. Muneri, P. Kinyari, C. Githuku, W. Kaluli, J. Gathanya, P. Home, S. Githigia and L. Bebora (2008). *Assessment of Benefits and Risks in Wastewater Reuse for Agriculture in Urban and Peri Urban Areas of Nairobi Including Outputs from the Feedback Workshop*. Project Report. Supported by IDRC.

**Referees**

**Prof. Julius Musyoka Ndambuki**  
**Department of Civil Engineering**  
**Tshwane University of Technology**  
**Private Bag X680**  
**Pretoria 0001**  
**South Africa**

**Prof. Wambua Kaluli**  
**Department of Biomechanical & Environmental Engineering, Jomo Kenyatta**  
**University of Agriculture & Technology (JKUAT)**  
**P.O. Box 62000 – 00200**  
**Nairobi, Kenya**

**Dr. Isabella Njeri Wachira (PhD)**  
**P.O. Box 67174 - 00200**  
**Nairobi, Kenya**  
**Department of Real estate and Construction Management, University of Nairobi**