



## **DR. -ENG. PATRICK MWANGI MURIGI**

Dr.-Ing. Civil Eng. (KIT, Germany), MSc., BSc., Civil Engineering (U.O.N), P.E., MIEK,  
Bene Merenti Medalist (Community Service)

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### **PERSONAL INFORMATION**

Language proficiency: Kikuyu, English, Swahili, German

### **EDUCATION BACKGROUND**

#### **KARLSRUHE INSTITUTE OF TECHNOLOGY, GERMANY**

**2011 – 2015** PhD in Civil Engineering

(Thesis: “**Collaborative Decision Support Tools for Water Resources Management. A Scientific Case Study of Nairobi River Catchment**”).

(Award: **Cum Laude**)

#### **UNIVERSITY OF NAIROBI**

**2004 –2008** Master of Science in Civil Engineering

(Thesis: “**Evaluation of Raw Water Coagulation Process for the Masinga-Kitui Water Treatment Plant**”)

**1998 – 2003** Bachelor of Science Civil Engineering

(Award: **Upper Second-Class Honours Degree**)

#### **NJIIRIS HIGH SCHOOL**

**1993 – 1996** Kenya Certificate of Secondary Education (Grade obtained: **A- (Minus)**)

### **AREA OF SPECIALIZATION**

- \* Watershed modelling
- \* Water-Energy-Food Nexus
- \* CAD Designs

## ACHIEVEMENTS & HONOURS

- \* **2019:** Initiated application oriented approach to Computer Aided Engineering Design (CAED) for 2nd Year Biosystems Students: My student and mentee Mr. Jeff Ayako HSC (J25/0584/2018): was recognized for participation in the design of Kenyatta University Tiba Vent (Patent Number KE/U/2020/1401).
- \* **2020:** Mentoring and supervising a group of students who have designed and fabricated a customized mechanical seed planter, with a robotic version of it in progress.
- \* **2020:** Mentoring and supervising a group of female students who have designed a customized hydraulic ram pump to aid water supply in low income rural areas.
- \* **2018** Honoured with **BENE MERENTI MEDAL** during KAAD 60<sup>th</sup> Jubilee Academy in Bonn, Germany; for Community Service as the founder of Society of KASEA (SoK) Student Scholarship Programme in Kenya. Twenty four (24) undergraduate students have benefited from the scholarship program to date.

## RESEARCH INTERESTS

- \* Water-Energy-Food Nexus projects
- \* Water and Environment Modelling: Decision Support Tools for the Resource Management
- \* Flood Control and Drainage Engineering
- \* Analysis and Planning of Water Distribution Networks;

## PUBLICATIONS

Rukwaro R., Kivaa T., Mugwima N, Muthumbi W. and Murigi, P. M., 2018. *Investigation of Building Failures in Kenya for Enhancement of Regulatory Control in the Local Construction Sector (in progress)*.

Murigi, P. M., 2015. *Collaborative Decision Support Tools for Water Resources Management - A Scientific Case Study of Nairobi River Catchment*. Karlsruhe: KIT-Bibliothek.

Murigi, P. M., Nestmann, F. & Klingel, P., 2015. A Methodology to Adaptive Collaborative Decision Support Tools for IWRM in developing countries. *5th International Multidisciplinary Conference on Hydrology and Ecology*. Wien, Österreich: HydroEco2015 (accepted).

Murigi, P. M., Nestmann, F. & Klingel, P., 2012. A review of the status, limitations and needs in water resources management in Kenya. *Interactions of water with energy and materials in urban areas and agriculture in: IWRM Karlsruhe 2012*, pp. 474 - 480.

Murigi, P. M., 2008. *Evaluation of raw water coagulation process for the Masinga-Kitui water treatment plant*. Nairobi: University of Nairobi JKM Library.

## SCHOLARSHIPS AWARDS

- **2011 – 2015 Katholischer Akademischer Ausländer-Dienst (KAAD)**  
Scholarship to pursue doctorate in Civil Engineering at Karlsruhe Institute of Technology (KIT) in Karlsruhe, Germany.

- **2004 – 2007 Katholischer Akademischer Ausländer-Dienst (KAAD)**  
Scholarship to pursue MSc. Civil Engineering at the University of Nairobi.
- **1992 – 2003 Save the Children Fund** (High School Education at Njiiris High School)

## PROFESSIONAL AFFILIATIONS AND RESPONSIBILITIES

- **EBK** **Professional Engineer A3046** (PE) - registered member with the Engineers Board of Kenya (EBK).
- **IEK** **Corporate Member** of the Institution of Engineers of Kenya (IEK) M3032.
- **SOCIETY OF KASEA (SOK)** **Founder and Coordinator (Program Director)** of the Society of KAAD Association of Scholars from East Africa (Society of KASEA) Scholarship program
- **NATIONAL CONSTRUCTION AUTHORITY, KENYA (NCA)** **Editorial Committee Member** of the National Construction Authority
- **KIT-ALUMNI** **Member** Karlsruhe Institute of Technology Alumni Association
- **FAO** **Member** of community 'Water-Energy-Food NEXUS' discussion group.
- **Kenya Bureau of Standards Technical Committee (TC)** **Member** Water Quality TC 042 and Disaster Management TC/144 and **Observer** Drinking Water TC 021

## PROFESSIONAL AND TRAINING EXPERIENCE

**Sept. 2017 to Date Kenyatta University: School of Engineering and Technology – Department of Agricultural and Biosystems Engineering**

**Title: Lecturer**

As a member of the very dynamic institution of research and higher learning, my roles have been:

- Course facilitation mainly in the Departments of Agricultural and Biosystems and Civil Engineering;
- Chairing the committee on curriculum development and review of undergraduate and postgraduate courses;
- Chairing Committees on Curriculum Review, Research, Innovations, Exhibitions and Outreach and MOUs.
- Member of the committees on Quality Management System (QMS) and accreditation of the new departmental program by the professional institutions;
- Researcher with multidisciplinary teams; and
- Administrative duties – on various occasions appointed as an acting department chairman

**Apr. 2016 to 2018 National Construction Authority (NCA)**

**Title: Editorial Committee Member**

Among the key functions of NCA is to undertake or commission research into any matter connected to the construction industry. My role as a lead researcher has been:

- Peer review of abstracts and papers for presentation in the International Construction Research Conference and Exhibition (ICORCE);
- Develop research proposals and supervise their implementation under the team;
- Research and advice on national building research/scientific policies and strategies;
- Formulate and roll out a peer reviewed National Construction Journal

**Apr. 2015 to Sept 2017 Ministry of Transport, Infrastructure, Housing & Urban Development  
- State Department of Public Works**

**Title: Principal Researcher**

Seconded to Kenya Building Research Centre mandated with facilitation and coordination of research, development and standardization of local building and construction materials at the State departments of Housing and Urban Development. My role as a lead researcher was to:

- develop and evaluate research goals, objectives, variables, methods and instruments in preparation of authentic research proposals;
- develop, formulate, monitor and coordinate implementation of research projects;
- approving research proposals and supervising research projects under the team;
- formulate and advice on national building research/scientific policies and strategies;
- mobilize research resources

**Nov. 2011, to Apr 2014 Karlsruhe Institute of Technology (KIT) Germany – Institute for  
Water and River Basin Management (Section: Water Supply Networks)**

**Title: Wissenschaftliche Mitarbeiter (Research Assistant)**

Reporting to the Head of Section, my main duties were:

- Participation in preparation of the sectional research targets; discussions on research presentations by colleague researchers and general housekeeping to ensure conducive environment for research and training of bachelors and masters students at the department;
- Preparation for conferences and presentation of papers and/or posters on department's platform at the local and international congresses;
- Regular progress reporting on ongoing research and regular publications of the results;
- Pursuing further scientific studies on relevant courses to advance competence and contribution in individual/collective discourse and scientific output;
- Developing research proposal and running research project to completion.

**Feb. 2005, to 2015 Ministry of Public Works (KENYA)**

**April 2011 to April 2015 Title: Engineer I (Academic Leave)**

Pursued German language at Zentrum für Internationale Bildung und Kulturaustausch - Heimvolkshochschule Kreuzberg Bonn and doctoral studies at Karlsruhe Institute of Technology (KIT) in Germany.

**2008 to April 2011 Title: Engineer I (Structural/Civil)**

Reporting to the Superintendent Civil Engineer, my main duties were:

- Site reconnaissance and feasibility studies towards public projects conceptualization
- Design and documentation of Civil Works: The hallmark project designed, documented and supervised to completion includes the New Malindi Law Courts etc.
- Preparation of drawings and Bills of Quantities for the works; Measurement of Civil works done and generation of payments vouchers for contractors, maintenance of records and preparation of completion certificates.
- Active participation and coordination of a project team to ensure smooth flow of various related and/or conflicting project tasks; for effective individual & collective performance of projects to their completion; while specifically supervising Civil works.

**March 2005 to March 2008 Title: Engineer II (Structural/Civil)**

Served as an assistant engineer on practical training; reporting to the Superintendent Civil Engineer.