

# **CURRICULUM VITAE**

**DOREEN WANJIRU IRUNGU**

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## **PERSONAL DETAILS**

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Date of birth:	13 <sup>th</sup> august 1982
Gender:	Female
Nationality:	Kenyan
Marital status:	Married
Religion:	Christian
I.D. Number:	22730405

## **EDUCATION BACKGROUND**

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2016: Institute of Energy and Environmental Technology, Jomo Kenyatta University of Agriculture and Technology.

- M.Sc. Energy Technology

Thesis Title: Simulation of the future electricity demand and supply in Kenya using the Long Range Energy Alternative Planning System (LEAP).

2007: Department of Mechanical Engineering, Jomo Kenyatta University of Agriculture and technology

- B.Sc. Mechanical Engineering (Second Class Honours – Upper Division)

Final Year Project: Performance testing of a diesel engine running on bio-diesel fuel blends

2000: Kahuhia Girls' High School

Grade Attained: 

- Kenya Certificate of Secondary Education

 A-(minus) 87 points

## **PROFESSIONAL TRAININGS**

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November 2017 (2weeks) Training of Trainers (TOT) course on Solar PV Grid-tied and hybrid systems.

- Overview of hybrid and grid-tied system components.
- Design codes and standards for grid-tied and hybrid systems.
- Installation, testing and commissioning of the grid-tied and hybrid system.
- Maintenance and trouble shooting of the systems.

Nov – Dec 2016 (5weeks) Training of Trainers on Small Hydro Power (SHP) Development in EAC

- Overview on SHP Technologies (Electro-mechanical), Site Selection, Field Measurements and civil works.
- Project Planning and Implementation
- Operation and Maintenance of SHPs
- Case Studies on SHP

August 2016 (2weeks) Shiota Method Solar PV Training in JKUAT (Intermediate Course).

- Detailed study/analysis of the Solar PV I-V Curve.
- Design of Solar PV Off-grid and On-grid systems.
- Trouble-shooting of Solar PV systems.

August 2015 (3weeks) Shiota Method Solar PV Training in JKUAT (Basic Course).

- Introduction to Solar PV modules, batteries and charge controller
- Design, installation and maintenance of solar PV systems.

July 2015 (2weeks) UNIDO/HIDA LCET Training Course for Kenyan and Ethiopian National Experts on Ultra-Low Head Micro Hydro Power Technology (ULH-MHP) in Japan

- Basics of Micro Hydropower
- Fundamental knowledge on ULH-MHP
- Case studies of ULH-MHP installations
- ULH-MHP Operation and Maintenance

Apr 2014 – Mar 2015 Renewable Energy Systems for Rural Electrification – Ashikaga Institute of Technology (AIT) Japan.

- Testing and performance characterization of undershot hydro power turbine and reversed pump turbine.
- Design, fabrication and testing of a 3 blade horizontal axis wind turbine
- Fabrication and testing of a 12pole permanent magnet generator.
- Modification and testing of an induction motor as generator.

## **ACADEMIC WORK EXPERIENCE**

### **Jomo Kenyatta University of Agriculture & Technology**

Assistant Lecturer (Mechanical Eng. Department)

November 2016 – To date

- Conduct lectures and practical sessions in the area of renewable energy, thermodynamics, fluid mechanics, power plants and energy management.
- Conduct short course trainings at the Institute of Energy and Environment Technology as a Trainer of Trainees (T.O.T) in Solar PV, Solar Water Heating, Wind Energy and Biomass Energy.
- Support final year Mechanical Engineering students in development and fabrication of the projects as the projects co-ordinator.
- Preparation of the mechanical engineering departmental timetable.
- Organize forums for Mechanical Engineering female student mentorship program.
- Manage the departmental website.

Teaching Assistant (Mechanical Eng. Department)

January 2011 – October 2016

- Assist in Conducting lectures and practical sessions in the area of renewable energy, thermodynamics, fluid mechanics and energy management.
- Conduct short course trainings at the Institute of Energy and Environment Technology as a Trainer of Trainees (T.O.T) in Solar PV, Solar Water Heating and Wind Energy.
- Undertake research work in the area of renewable energy (wind and hydro energy) which involves design and testing of turbines at the Institute of Energy and Environmental Technology (IEET) in collaboration with Ashikaga Institute of Technology (AIT) in Japan.
- Liaise with the industry personnel working on the JICA/JKUAT BRIGHT Project on wind and Hydro sub groups to assist them improve on their designs.
- Offer support to the IEET Department on consultancy assignment such as Low Emission Climate Resilient Development Project (LECRDP).
- Preparation of quarterly budgets, work plans and monitoring reports for the wind sub group under the JICA/JKUAT BRIGHT Project.
- Preparation of quarterly budgets, work plans and monitoring reports for the wind sub group under the JICA/JKUAT BRIGHT Project.
- Assist undergraduate fifth year student in their final year project development.

- Preparation of the mechanical engineering departmental timetable.
- Organize forums for Mechanical Engineering female student mentorship program.
- Manage the departmental website.

## **PUBLICATIONS**

- Study on Performance of Micro Hydro Turbine Generator converted from Electric Powered Pump *Proceedings of the 10<sup>th</sup> Annual JKUAT Scientific, Technological and Industrialisation conference*, AICAD (Kenya). Nemoto. Y, **Irungu. D.**, Lwin. S., Eliud. K. (2015)
- A study on Performance Characteristics of Wind Turbine made of a Thin Plate *Proceedings of the 14<sup>th</sup> World Wind Energy conference and Exhibition 2015*, ICC (Israel). Nemoto. Y., **Irungu. D.**, Eliud. K., Ushiyama. I. (2015)
- Scenario Analysis of the Future Electricity Sector in Kenya, *Proceedings of the Grand Renewable Energy International Conference*, Tokyo, Big Sight, Tokyo Japan, **Doreen. Irungu**, Njeri. Kahiu, Joseph. Kamau, Stephen. Maranga and Yasuyuki. Nemoto (2014)
- Analysis of Electricity Demand, Supply and Future Prospects in Kenya, *Proceedings of the Grand Renewable Energy International Conference*, Tokyo, Big Sight, Tokyo Japan, **Doreen. Irungu**, Njeri. Kahiu, Joseph. Kamau, Stephen. Maranga and Yasuyuki. Nemoto (2014).
- Kenya Power Sector Development Scenarios – Analysis using Long Range Energy Alternative Planning System, *Proceedings of the 8<sup>th</sup> Annual JKUAT Scientific, Technological and Industrialisation conference*, AICAD (Kenya), **Irungu. D.W.**, Kahiu. S.N., Kamau. J.N. and Maranga. S.M. (2013)
- A Demonstrative Study on Wind Turbine Generators Adapted from Appropriate Technology, *Proceedings of the 8<sup>th</sup> Annual JKUAT Scientific, Technological and Industrialisation conference*, AICAD (Kenya), Y. Nemoto., **D. Irungu.**, S.M.Maranga., R. Kinyua and I. Ushiyama (2013).

## **NON-ACADEMIC WORK EXPERIENCE**

### **United Nations Industrial Development Organization (UNIDO)**

National Consultant

April 2016 – To date

- Participate in the development of the project document for the Capacity Strengthening of Operations and Maintenance with Internet of Things (IoT) Technologies for Olkaria Geothermal Power Plant project.

- Preparation of publications for the Low Carbon Low Emission Clean Energy Technology Program (LCET), Ultra Low Head Micro Hydro Power (ULH-MHP) project in Mwea, Kenya which includes, relevant description for the importance of technology transfer as well as the economic and social impact of project on the community.
- Contribute technical hands-on guided inputs at the hydro project site.
- Provide guidance to Project Management Unit, and stakeholders on various project processes & work plan, pilot site, and local adaptation of the ULH-MHP systems.
- Provide guidance and supervision for designing a productive uses centre connected to the power plant.
- Provided technical inputs into capacity building and localization activities for ULH-MHP technology working together with the KIRDI.
- Provide guidance on monitoring and evaluation of the project to Kenya Industrial Research and Development Institute (KIRDI).
- Provided support in conducting comparative studies of the micro hydro power sector, encompassing emerging ultra low head sub sector.
- Provided support to the LCET Kenya team to ensure effective ULH-MHP project implementation and demonstration.

### **Netherland Development Agency (SNV)**

Short-Term Consultant

September 2018 –June 2019

- Overall coordination of the National Clean Cooking Sector Study to ensure that the reports are delivered on time in-line with the approved work plan.
- Ensured High level of quality control throughout implementation and delivery of the study results including credibility checks on the data collected from the field.
- Undertook continuous desk and field based monitoring in collaboration and on behalf of the Clean Cooking Association of Kenya (CCAK)
- Identified implementation issues or risks that might affect delivery or quality of the assignment and recommended remedial actions.
- Provided regular progress update to CCAK and support partners.
- Facilitated Monthly meetings to discuss and present progress updates.
- Provided critical and analytical review of data and documents from the research organization to assess and ascertain quality and adherence to agreed scope, methodology and deliverables.
- Co-ordinated the National Results Dissemination forum in collaboration with CCAK, support partners and the research organization.

### **Climate &Energy Advisory**

Short-Term Consultant

May 2018 – September 2018

- Support the study on use of biomass energy cookstoves and fuel use in institutions in Kenya as the Lon Range Energy Alternative Program (LEAP) Expert.
- Provided guidance on data collection tool development and establishment of analysis parameters.
- Undertook the comprehensive and detailed data analysis using the LEAP software.

- Assisted in the development of draft report, infographics, policy briefs and final report.

### **Dalbit Petroleum Ltd**

Supply Analyst

November 2009 – December 2010

- Forecast supply and demand of product monthly, document accurate lead time to enable effective re-order levels and provide estimated values of duties, levies, tariffs etc that the projected volumes would generate by month. Ensure that our depots maintain positive product entitlement continuously.
- Issue all formula pricing and final product costs.
- Ensure that the documents required for the import of products are accurately processed on time and that all Customs & Excise entries are paid and released on time. Manage the clearing, warehousing and storage of product imports.
- Monitor delivery plan and vessel voyage the time the vessel loads till it berths and discharge all product so as to track the vessel demurrage charges as per the charter party agreements.
- Process supply agreements and supplier invoices for all the white imports, crude oil invoices.
- Maintain and optimize the inventory control procedures. Account for inventory movement between Kenya Pipeline Company (KPC), Kenya Petroleum Refineries Ltd (KPRL) and any other company designated storage location.

Operations Assistant – Transport

April 2009 – October 2009

- Management of the transport contracts as per ISO 9001:2008 standards and ensure that all transporters are Health Safety Security and Environment (H.S.S.E) Policy compliant.
- Supervise eight depot representatives to ensure that all depot run smoothly and agreed service levels are met.
- Carry out quarterly market survey on the prevailing transport rates.
- Bond Management to ensure that sufficient bond at all time for utilization and ensure issues arising in regards to bonds are resolved promptly.
- Liaise with supply analyst to ensure that product is available at the points of loading in time and the entire documentation ready as far as custom duties are concerned.
- Processing of transporters payment for all affiliates and maintaining their accounts both receivable and payables in liaison with the finance department.

### **Kenya Shell Ltd**

Assistant Fleet Planner

August 2007 – March 2009

- Optimizing use of secondary transport fleet through effective scheduling and co-ordinate fuel deliveries for all customers to ensure that agreed service levels are met.
- Management of countrywide fleet of Lubricant and Liquid petroleum gas (LPG) delivery trucks to ensure optimal utility and efficiency

- Ensure fleet compliance with all company Health Safety Security and Environment (H.S.S.E) policies
- Control annual expenditure of the budgeted \$1.2 M as well as target savings of \$100,000
- Ensuring that all vehicles & driver's data including license validity is updated in the system prior to scheduling any particular vehicles
- Preparing weekly/monthly delivery and vehicles key performance indicators
- Proactively identifying delivery constraints e.g. anticipated long weekends or stocks outs and take initiative in sourcing additional vehicles on casual basis in case of unusual demand.

## **COMPUTER LITERACY**

Office suites: Ms Word, Ms Access, Ms Excel, Ms PowerPoint and Ms Visio  
 Modeling Software: LEAP, MAED, RETScreen, HOMER, ANSYS (Fluent)  
 Programming: C/C++, Lab VIEW, Latex.  
 CAD: AutoCAD

## **OTHER PROFESSIONAL SKILLS**

- Trained on Energy Efficiency for Food Processing Industry – Strathmore University
- Trained on World Class Company best practices: 5s, Focused improvement, Autonomous Maintenance and Visual Assessment. – Nampak Kenya.
- Communication Skills – Kenol/Kobil ltd
- Health Safety Security and Environment on line training – Kenya shell ltd
- Work control Procedures – Mobil Kenya
- ISO 9001 : 2008 Quality Management System Awareness course

## **INTEREST & HOBBIES**

- Participating in marathons
- Hiking
- Swimming
- Reading extensively i.e. journals and motivational books.

## **REFEREES**

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Jomo Kenyatta University of Agriculture and  
Technology  
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