

## CURRICULUM VITAE

**Family name:** CHIRWA  
**First name:** John  
**Middle name:** Mumba  
**Date of birth:** 21 May 1967  
**Passport holder:** Zambian

**Education:**

Institution (Date from – Date to)	Degree(s) or Diploma(s) obtained:
Heriot Watt University, United Kingdom (Sept 2017 – Nov 2020)	Master of Science (MSc) Engineering degree in Energy
George Washington University, Washington, USA (2014 - 2017)	Master Certified Project Manager – The George Washington University Certified Project Manager (GWCPM)
Life International Foundation for Ecology (LIFE), Karlstad, Sweden (2013 - 2014)	Post Graduate Diploma in Energy Efficiency use and planning
Edith Cowan University, Perth, Western Australia (2007 – 2009)	Master of Business Administration (MBA International) degree
City & Guilds Institute of London, London, UK (1997 – 1999)	Graduateship of the City and Guilds Institute of London (GCGI) at the level of a British Bachelors Honours degree
City & Guilds Institute of London, London, UK (Dec 1997)	Licentiate Diploma (LCGI) in Electrical Engineering
City & Guilds Institute of London, London, UK (Dec 1996)	Full Technological Certificate (FTC) in Electrical and Control Systems Engineering
Zambia Air force Technical Training School – Zambia (1990 – 1992)	Advanced Technician Certificate in Instrumentation and Control systems
Kalulushi Secondary School – Zambia (1984 – 1988)	Grade 12 Secondary school Certificate

**Other Training / Courses**

TGOOD, Lusaka, Zambia, 2015	Electrical Training Programme in Applications of Air insulated, Gas Insulated and Hybrid Gas Insulated Switchgear
Trans-Africa Projects (TAP/ESKOM), Johannesburg, South Africa (May/2015)	Engineering Planning, design and construction of overhead lines
Eastern and Southern Africa Management Institute (ESAMI), Mbabane – Eswatini (2015)	Environmental Management
Trans-Africa Projects (TAP/ESKOM), Johannesburg, South Africa (September/2015)	Substation Engineering course: Substation Engineering design; Insulation coordination, Switchgear and transformers design specifications, parameters and operations
DigSilent, Pretoria, South Africa (June 2014)	DigSilent PowerFactory (Power analysis tool) Version15.1 Basic
DigSilent, Pretoria, South Africa (June 2014)	DigSilent PowerFactory (Power analysis tool) Version15.1 Intermediate
Kitwe – IIR South Africa (2014)	Scheduling and Cost control
Administrative College of India (ASCI), Hyderabad, India (July 2013)	Procurement procedures for World Bank Aided Projects
KTH University, Stockholm, Sweden (2013)	Long-range Energy Alternatives Planning (LEAP) software
Espirit Skills Development and Training, Kitwe, Zambia (2012)	Achieving Best Practice Maintenance, Asset Management and Scheduling
Lusaka - Alusani Skills and Training network (2011)	Maintenance and scheduling for improved reliability and uptime
Itron Learning University, Cape Town, South Africa ( 2010)	Prepayment Eclipse Enterprise Edition End User Metering System Training
Northern Technical College (Nortec), Ndola, Zambia (1998)	Programmable Logic Controllers (PLCs) and motor control
Itron Learning University, Cape Town, South Africa ( 1996)	Prepayment electricity metering STS vending system
Kafironda Limited, Mufulira (1995)	Instrumentation/Electrical and Hydraulics, use of annuals, identification of problems and calibration on Bulk Anfo Trucks Part I & II

**Language Skills:** Indicate competence on a scale of A1 to C2<sup>1</sup>

Language	Reading	Speaking	Writing
Bemba, Nyanja and Nsenga (Mother Tongue)	C2	C2	C2
<b>English</b>	<b>C2</b>	<b>C2</b>	<b>C2</b>

**Membership of professional/academic bodies:**

Fellow, Engineering Institution of Zambia (EIZ) – 2021 to present

<sup>1</sup> at least C1 level for understanding, speaking and writing skills according to the Common European Framework of Reference for Languages available at <https://europass.cedefop.europa.eu/en/resources/european-language-levels-cefr>, as demonstrated by a certificate or by past relevant experience.

Member, Engineering Institution of Zambia (EIZ) – 2010 - 2021

Registered Engineer (REng), Engineer's Registration Board of Zambia (EngRB), 2004 – present

Member, the Institution of Engineering and Technology (IET – UK) 1997 – present

Registered, the Engineering Council (UK) 2003 – present

Member, the Commend Community (Community for Energy, Environment and Development) which is an online

Community for energy analysts working for sustainability and the home for LEAP (Long –range Energy Alternatives Planning) System software, 2013 - present

Life Member, the Life International Foundation for Ecology (LIFE) of Sweden – June 2013 – present

Life Member, the Administrative Staff College of India (ASCI) Alumni, 2013 – present

Life Member, the Golden Key International Honor Society (Asia-Pacific Region) validated by the Edith Cowan University in recognition of excellence displayed in MBA degree results which were among the top 15% graduates across the Australian Universities in 2009. The Golden Key International Honor Society seeks to establish a network among Academic backgrounds and reinforce the students' contacts with academic staff

Life Member, the Edith Cowan University (Western Australia) Advantage Alumni, 2009 - present

Life Member, the Heriot-Watt University Alumni (Watt Club), 2020 - present

Member of the national steering committee for the formulation of the Zambian national metering code and other Metering standards, 2004 (formerly)

**Other skills:** Excellent communication skills, Computer literate (Word, Excel, PowerPoint, MS Project, etc.)

**Present position:** Senior Project Manager for the World Bank and European Investment Bank (EIB) financed ZESCO's Lusaka Transmission and Distribution Rehabilitation Project (LTDRP) since May 2013

**Years within the firm:** 19years in ZESCO Limited

**Key qualifications:**

- Mr John Mumba Chirwa holds an **MSc (Engineering) degree in Energy**, a **Master's degree in Business Administration** (MBA International), a **Graduateship of the City and Guilds Institute (GCGI – at the level of a British Honours Bachelor's degree) in Electrical Engineering**, **Masters Certification in Project Management**, an **Advanced Diploma in Energy Efficiency Use and Planning**, **Licentiate Diploma (LCGI) and Full Technological Certificate (FTC) in Electrical Engineering as well as an Advanced Aircraft Technician Certificate in Instrumentation and Control systems**. Mr Chirwa is an **Electrical Engineer and Energy Expert**, a **Certified Project Manager (Transmission and Distribution Power systems)**, **Energy Metering, Instrumentation and Control systems with over 19years of experience in the electric power/energy sector infrastructure** in Zambia involved with installations, operations/maintenance and Project Management on 132kV, 33kV, 11kV and 0.4kV systems in key areas of power distribution design and analysis. Also has 8years experience in industrial **process specialization in instrumentation and control in the oil pipeline and chemical industry**.
- He has excellent knowledge in the formulation and implementation of the Environmental Impact Assessment (EIA), Resettlement and Compensation Action Plan (RCAP) and a SHEQ compliant site-specific Environment and Social Management Plans (ESMP) in high urban land use contestation project areas
- He has excellent knowledge of **Project Management** gained through education and technical responsibilities from **design, planning, specification, procurement, scheduling, implementation and quality control** of the Projects. He has been Chief Engineer Projects and Site Manager for 21 Contract sites in Lusaka Zambia.
- He supervised various Engineering Procurement and Construction (EPC) works for Transmission and Distribution network expansion, **reinforcement and rehabilitation projects** related to Lusaka City projects financed through cooperating partners such as **World Bank, European Investment Bank** and ZESCO Limited in Zambia itself.
- He supervised various Engineering Procurement and Construction (EPC) works for Distribution Grid extension, **reinforcement and as well as last mile connection projects** nationwide through cooperating partners such as **World Bank and the European Union**.
- He rolled out and supervised the national-wide Distribution loss reduction project in Zambia under ZESCO Limited
- He supervised the National Electricity Energy Prepayment Metering System Project financed by the Development Bank of South Africa (DBSA) and ZESCO Limited in Zambia
- He is well vested with the Environmental and Social Impact Assessment (ESIA) processes, Resettlement and Compensation Action Plans (RCAP), the Environmental and Social Management Plan (ESMP) and other sustainability issues.
- He has **extensive experience in procurement support** using the Zambian Law, the **World Bank and the European Investment Bank (EIB) procurement guidelines**, for goods and services procedures **involving tender formulation**, evaluation of technical and commercial bids and contract negotiations with prospective engineering consultants and contractors for major projects. He is well vested in stakeholder engagement on projects including senior Government officials; environmental safeguards regulators, urban and rural local Governments; regulators, contractors, suppliers and customer categories to ensure an all-inclusive approach in the provision of reliable, safe and quality electricity services.

**Specific experience in the region:**

Country	Date from - Date to
Zambia	1993 - 2021

**Professional experience:**

Date from-Date to	Location	Company & reference person <sup>2</sup> (name & contact details)	Position	Description
Februray 2022 to date (Full time)	Lusaka, Zambia	<p><b>ZESCO LIMITED</b></p> <p>Mr Justin Loongo Managing Director – ZESCO Ltd Cell: +260 965555137 E-mail: <a href="mailto:jloongo@zesco.co.zm">jloongo@zesco.co.zm</a></p> <p>Mr Victor Mapani Retired ZESCO Lusaka Division Manager Cell: +260 965555137 E-mail: <a href="mailto:v.ben.mapani@live.co.uk">v.ben.mapani@live.co.uk</a></p> <p>Mr. Francis Namakanda Director Planning &amp; Projects ZESCO Limited Lusaka Zambia Cell: +260-966-586981 Email: <a href="mailto:ysichalwe@zesco.co.zm">ysichalwe@zesco.co.zm</a></p> <p>Mr. Gyavira M Bwala Retired Director Planning &amp; Projects ZESCO Limited Lusaka Zambia Cell: +260-966-586981 Email: <a href="mailto:gmbwalya@zesco.co.zm">gmbwalya@zesco.co.zm</a></p> <p>Mr. Joseph Kapika Senior Energy Specialist The World Bank Group Energy &amp; Extractives 442 Roderick’s Road. Lynwood Pretoria, Gauteng 0081 South Africa Tel: +27 12 742 3153 Mobile: +27 733 214 793 Mobile: +1 202 415 3062 Email: <a href="mailto:jkapika@worldbank.org">jkapika@worldbank.org</a></p>	<p>Senior Project Manager for the - Lusaka Transmission &amp; Distribution Project (LTDRP) portfolio comprising of;</p> <ul style="list-style-type: none"> <li>• Transmission &amp; Distribution Project (LTDRP)</li> <li>• LTDRP Last Mile Project</li> <li>• Electricity Services Access Project (ESAP)</li> <li>• &amp; National Energy Advancement &amp; Transformation (NEAT)</li> </ul>	<p><b>World Bank, European Investment Bank and ZESCO Limited financed: EPC project coordination of design, procurement, construction/installation and commissioning of nine (9) substations, nineteen (19) 11kV switching stations, 150km of 132kV overhead lines, 47km of 33kV distribution lines and about 205km length of 33kV and 11kV underground cables in the Lusaka City. The project is valued at US\$271million.</b></p> <p>The project involves the refurbishment of the main transmission network in and around Lusaka and the associated distribution networks to cater for the 20-year demand forecast on an N-1 basis. The aim is to increase the capacity and improve the reliability of the electricity network for all consumers throughout the project area. I was involved in the preparation of both the World Bank and EIB component project appraisal and negotiations, formulation of the Project Implementation Manual (PIM), project Environmental and Social Impact Assessment (ESIA), drafting of the project Environmental and Social Management Plans (ESMPs), drafting of the Resettlement and Compensation Action Plans (RCAPs) as well as drafting the project procurement Plan (PP).</p> <p>My principal accountabilities involve;</p> <p>Managing the World Bank/EIB aided <b>Lusaka Transmission &amp; Distribution Project (LTDRP), Electricity Supply Access Project (ESAP), Increased Access to Electricity Supply project (IAES), the European Union (EU) funded LTDRP Last Mile Project</b> and the <b>National Energy Advancement &amp; Transformation (NEAT)</b></p> <p><b>As Acting Project Manager reporting to the Director Distribution, below are the accountabilities.</b></p> <ul style="list-style-type: none"> <li>• Execution of the project components</li> <li>• Project management</li> <li>• Review of all Designs and recommendations for approval</li> <li>• Construction work planning, budgeting, management and works inspection</li> <li>• Ensuring that assessment of property within the project areas and right of way and compensation of owners thereof has been assessed or duly discharged before commencement of any designated works</li> <li>• Ensuring availability of materials and resources for the efficient and smooth execution of the project component</li> <li>• Coordination and execution of components, outage management and management of safety issues</li> <li>• Monitoring and inspecting the physical quality of works implemented</li> <li>• Monitoring the construction works ensuring that the consultants and contractors demonstrate through the contracts, adequate works performance</li> <li>• Ensuring Project staff training and development</li> <li>• General administration and facilities management</li> <li>• Preparing weekly, monthly and incidental reports</li> </ul> <p>Making presentations at institutions and any other national or international regarding the project with prior permission from the Director</p>

<sup>2</sup> The Contracting Authority reserves the right to contact the reference persons.

Date from-Date to	Location	Company & reference person <sup>2</sup> (name & contact details)	Position	Description
		<p>Ms Paola Bressestti Senior Energy Specialist The World Bank Group Energy &amp; Extractives 442 Roderick's Road. Lynwood Pretoria, Gauteng 0081 South Africa Tel: +27 12 742 3153 Mobile: +27 733 214 793 Mobile: +1 202 415 3062 Email: <a href="mailto:jkapika@worldbank.org">jkapika@worldbank.org</a></p>		
<p>May 2013 to February 2022 (Full time)</p>	<p>Lusaka, Zambia</p>	<p><b>ZESCO LIMITED</b> Mr. Yona Sichalwe Director of Distribution ZESCO Limited Lusaka Zambia Cell: +260-966-586981 Email: <a href="mailto:ysichalwe@zesco.co.zm">ysichalwe@zesco.co.zm</a></p> <p>Mr. Joseph Kapika Senior Energy Specialist The World Bank Group Energy &amp; Extractives 442 Roderick's Road. Lynwood Pretoria, Gauteng 0081 South Africa Tel: +27 12 742 3153 Mobile: +27 733 214 793 Mobile: +1 202 415 3062 Email: <a href="mailto:jkapika@worldbank.org">jkapika@worldbank.org</a></p>	<p>Chief Engineer Projects, Site Project Manager Lusaka Transmission &amp; Distribution Project (LTDRP)</p>	<p><b>World Bank, European Investment Bank and ZESCO Limited financed: EPC project coordination of design, procurement, construction/installation and commissioning of nine (9) substations, nineteen (19) 11kV switching stations, 150km of 132kV overhead lines, 47km of 33kV distribution lines and about 205km length of 33kV and 11kV underground cables in the Lusaka City. The project is valued at US\$271million.</b></p> <p>The project involves the refurbishment of the main transmission network in and around Lusaka and the associated distribution networks to cater for the 20-year demand forecast on an N-1 basis. The aim is to increase the capacity and improve the reliability of the electricity network for all consumers throughout the project area. I was involved in the preparation of both the World Bank and EIB component project appraisal and negotiations, formulation of the Project Implementation Manual (PIM), project Environmental and Social Impact Assessment (ESIA), drafting of the project Environmental and Social Management Plans (ESMPs), drafting of the Resettlement and Compensation Action Plans (RCAPs) as well as drafting the project procurement Plan (PP).</p> <p>My principal accountabilities involve;</p> <p>Planning and specification analysis in order to provide clear, trackable and coordinated interpretation of the design/drawings for construction. Conduct quality control activities in accordance with instructions, inspection programs, using specified control measuring and testing equipment. Performing document control functions in accordance with on-site policy and procedures. Providing technical engineering information to employees and subcontractors to ensure that the project complies with all engineering standards, codes, specifications and design. Attending project meetings as required. Researching and recommending solutions to design documents problems, including conflicts, interferences and errors/omissions. Participating in the continuous updating and accurate generation of as-built documents, assist with the research and preparation of field change requests to resolve design issues. Overseeing the project schedule to ensure that tasks are completed timeously for overall adherence to the budget and schedule timelines. selecting tools and materials, making safety inspections, environmental/social impact management and ensuring construction and site safety. Implemented the Inspection and Testing Protocol (ITP) forms for quality of works checks on the project.</p> <p>Other responsibilities include, acting from time to time, in place of the Project Manager of the <b>LTDRP</b>, the World Bank aided <b>Electricity Supply Access Project</b> (ESAP), the World Bank funded <b>Increased Access to Electricity Supply</b> project (IAES) and the European Union (EU) funded <b>Last Mile Project</b>.</p> <p><b>As Acting Project Manager reporting to the Director Distribution, below are the accountabilities.</b></p> <ul style="list-style-type: none"> <li>• Execution of the project components</li> <li>• Project management</li> <li>• Review of all Designs and recommendations for approval</li> </ul>

Date from-Date to	Location	Company & reference person <sup>2</sup> (name & contact details)	Position	Description
				<ul style="list-style-type: none"> <li>• Construction work planning, budgeting, management and works inspection</li> <li>• Ensuring that assessment of property within the project areas and right of way and compensation of owners thereof has been assessed or duly discharged before commencement of any designated works</li> <li>• Ensuring availability of materials and resources for the efficient and smooth execution of the project component</li> <li>• Coordination and execution of components, outage management and management of safety issues</li> <li>• Monitoring and inspecting the physical quality of works implemented</li> <li>• Monitoring the construction works ensuring that the consultants and contractors demonstrate through the contracts, adequate works performance</li> <li>• Ensuring Project staff training and development</li> <li>• General administration and facilities management</li> <li>• Preparing weekly, monthly and incidental reports</li> <li>• Making presentations at institutions and any other national or international regarding the project with prior permission from the Director</li> </ul>
Dec 2017 to Sept 2019 (Full time)	Lusaka, Zambia	<p><b>ZESCO LIMITED</b> Mr. Yona Sichelwe Director of Distribution ZESCO Limited Lusaka Zambia Cell: +260-966-586981 E-mail: <a href="mailto:ysichelwe@zesco.co.zm">ysichelwe@zesco.co.zm</a></p> <p>Mr Kiragu Mugwe Energy Sector Engineer Regional Representation for East Africa European Investment Bank Dunhill Towers 115, Waiyaki way Westlands Nairobi, Kenya Tel: +254 20 2735260/1 Tel: +254 20 2713278 Email: <a href="mailto:k.mugwe@eib.org">k.mugwe@eib.org</a></p>	Chief Engineer, Site Project Manager Lusaka Transmission & Distribution Project (LTDRP)	<p><b>EIB – ZESCO Financed (USD3.3m): EPC Design, Construction supervision for the installation, testing and commissioning of the 15km 33kV underground cables in the Lusaka City as follows;</b></p> <p>Undertook underground cable route selection, route surveys, formulation and implementation of the Environmental Impact Assessment (EIA), Resettlement and Compensation Action Plan (RCAP) and a SHEQ compliant site-specific Environment and Social Management Plans (ESMP) in a high urban land use contestation project area. Participating in project design and planning criteria, reviewing and approval of technical specifications, bill of quantities (BOQ), design drawings and procurement for compliance with ZESCO requirements; Single line diagrams, electrical equipment location drawings, plan drawings, schematic wiring diagrams, etc. Examined and interpreted Engineering drawings.</p> <p>Carried out construction/trenching supervision inclusive of managing, expediting and supporting contractor's request for information, document and material submittals and schedules. Provided assistance in testing and commissioning of the facilities at site. Prepared the schedule of defects for contractor to rectify during the defect's liability period. Coordinated training of technical employees as part of capacity building. The scope of works was as follows;</p> <ul style="list-style-type: none"> <li>• Upgraded, undertook Site acceptance Tests (SAT) and commissioned the existing 3km, 1 x 33kV 240mm<sup>2</sup> Aluminium (24MVA) underground cable between Kafue Road and Bird Cage replaced with 240mm<sup>2</sup> Copper (31MVA) underground cable complete with optic fibre</li> <li>• Upgraded, undertook Site acceptance Tests (SAT) and commissioned the existing 3km, 1 x 33kV 240mm<sup>2</sup> Copper (31MVA) underground cable between Woodlands and UTH and replaced with 240mm<sup>2</sup> Copper (31MVA) underground cable complete with optic fibre</li> <li>• Upgraded, undertook Site acceptance Tests (SAT) and commissioned of the existing 4km, 1 x 33kV 95mm<sup>2</sup> PILC (12MVA) underground cable between Water Works and Bird Cage and replaced with 240mm<sup>2</sup> Copper (31MVA) underground cable complete with optic fibre</li> </ul>
Apr 2018 to Dec 18 2020 (Full time)	Lusaka, Zambia	<p><b>ZESCO LIMITED</b> Mr. Yona Sichelwe Director of Distribution ZESCO Limited Lusaka Zambia Cell: +260-966-586981 E-mail: <a href="mailto:ysichelwe@zesco.co.zm">ysichelwe@zesco.co.zm</a></p>	Chief Engineer Projects, Site Project Manager Lusaka Transmission & Distribution Project (LTDRP)	<p><b>World Bank – ZESCO Financed (USD4.6): EPC Design, Construction supervision for the demolition of existing 132kV Lusaka West to Roma substation single circuit overhead line and construction installation, testing and commissioning of the 132kV Lusaka West to Roma substation double circuit overhead line in the Lusaka City as follows;</b></p> <ul style="list-style-type: none"> <li>• Undertook overhead line route selection, route surveys, formulation and implementation of the Environmental Impact Assessment (EIA), Resettlement and Compensation Action Plan (RCAP) in a high urban land use contestation project area</li> <li>• Participated in tower spotting, line profiling, soil selection, geotechnical studies, foundations, pole erection, pole earthing system, line and OPGW stringing and commissioning</li> <li>• Implemented the SHEQ compliant site-specific Environment and Social Management Plans (ESMP) at site</li> </ul>

Date from-Date to	Location	Company & reference person <sup>2</sup> (name & contact details)	Position	Description
				<ul style="list-style-type: none"> <li>Developed procedures and demolished the existing 132kV Lusaka West – Roma lattice line</li> <li>Constructed, undertook Site acceptance Tests (SAT) and commissioned the new 20km of 132kV (2 x 200MVA) double circuit, Kingbird conductor with OPGW, Monopole line from Lusaka West to Roma substation</li> </ul>
Oct 2016 to Jul May 2020 (Full time)	Lusaka, Zambia	<p><b>ZESCO LIMITED</b></p> <p>Mr. Yona Sichelwe Director of Distribution ZESCO Limited Lusaka Zambia Cell: +260-966-586981 E-mail: <a href="mailto:ysichelwe@zesco.co.zm">ysichelwe@zesco.co.zm</a></p> <p>Mr. Joseph Kapika Senior Energy Specialist The World Bank Group Energy &amp; Extractives 442 Roderick's Road. Lynwood Pretoria, Gauteng 0081 South Africa Tel: +27 12 742 3153 Mobile: +27 733 214 793 Mobile: +1 202 415 3062 Email: <a href="mailto:jkapika@worldbank.org">jkapika@worldbank.org</a></p>	Chief Engineer Projects, Site Project Manager Lusaka Transmission & Distribution Project (LTDRP)	<p><b>World Bank – ZESCO Financed (USD16.5m): EPC Design, Construction supervision for the installation, testing and commissioning of the of the 132/33/11kV 270MVA Waterworks substation in the Lusaka City as follows;</b></p> <ul style="list-style-type: none"> <li>Undertook substation site selection, formulation and formulation of the Environmental Impact Assessment (EIA), Resettlement and Compensation Action Plan (RCAP) in a high urban land use contestation project areas</li> <li>Undertook topographical survey and Geotechnical studies</li> <li>Implemented the SHEQ compliant site-specific Environment and Social Management Plans (ESMP) at site</li> <li>Implementation of the Environmental and social safeguards at site</li> <li>Designed and tested substation earthing system</li> <li>Constructed, undertook Site acceptance Tests (SAT) and commissioned the the new Water Works 132/33/11kV Substation (3 x 132kV Feeder Bays, 2 x 132/33kV 90MVA transformer bays, 3 x 132/11kV 30MVA transformers Bays), 8 x 33kV outdoor feeder bays, associated switching room with 17 panels (3 x incomers / 2 x sections / 12 x feeder panels), this should be done in the vicinity of the existing Water Works substation</li> <li>Uprated, undertook Site acceptance Tests (SAT) and commissioned the terminal equipment at both ends of the 132kV Leopards Hill to Coventry Overhead line</li> <li>Constructed, undertook Site acceptance Tests (SAT) and commissioned the new 132kV Feeder Bay at Coventry Substation, rearranged the Lusaka West and Leopard Hill feeders to provide space for the future 132kV Jimmy feeder and uprate terminal equipment</li> <li>Constructed, undertook Site acceptance Tests (SAT) and commissioned the 11kV Chilimbulu and St Pauls Switching Stations, typically consisting of 3 x incomer circuit breakers, one bus-section and twelve feeder breakers, and associated 6 x 185mm<sup>2</sup>, 11kV Underground Cable, interconnecting the Switching Stations with Waterworks substation (approximately 5km for each switching station)</li> <li>Undertaking Factory Acceptance Test (FAT) at factories abroad</li> </ul>
Jul 2018 to Feb 2021 (Full time)	Lusaka, Zambia	<p><b>ZESCO LIMITED</b></p> <p>Mr. Yona Sichelwe Director of Distribution ZESCO Limited Lusaka Zambia Cell: +260-966-586981 E-mail: <a href="mailto:ysichelwe@zesco.co.zm">ysichelwe@zesco.co.zm</a></p> <p>Mr Kiragu Mugwe Energy Sector Engineer Regional Representation for East Africa European Investment Bank Dunhill Towers 115, Waiyaki way Westlands Nairobi, Kenya Tel: +254 20 2735260/1 Tel: +254 20 2713278 Email: <a href="mailto:k.mugwe@eib.org">k.mugwe@eib.org</a></p>	Chief Engineer, Projects, Site Project Manager Lusaka Transmission & Distribution Project (LTDRP)	<p><b>EIB – ZESCO Financed (USD3.8m): EPC Design, Construction supervision for the installation, testing and commissioning of the 132kV Lusaka South Multi Facility Economic Zone (LSMFEZ) to new Chawama substation double circuit overhead line in the Lusaka City as follows;</b></p> <ul style="list-style-type: none"> <li>Undertook the overhead line route selection, route surveys, formulation and implementation of the Environmental Impact Assessment (EIA), Resettlement and Compensation Action Plan (RCAP) in a high urban land use contestation project area</li> <li>Undertook tower spotting, line profiling, soil selection, geotechnical studies, foundations, pole erection, stringing, pole earthing system, and commissioning</li> <li>Implemented the SHEQ compliant site-specific Environment and Social Management Plans (ESMP) at site</li> <li>Constructed, undertook Site acceptance Tests (SAT) and commissioned a new 20km 132kV (2 x 200MVA) double circuit, Kingbird conductor with OPGW, Monopole Overhead line from LS MFEZ to Chawama Substation</li> </ul>

Date from-Date to	Location	Company & reference person <sup>2</sup> (name & contact details)	Position	Description
Jul 2018 to Feb 2021 (Full time) (Full time)	Lusaka, Zambia	<p><b>ZESCO LIMITED</b></p> <p>Mr. Yona Sichelwe Director of Distribution ZESCO Limited Lusaka Zambia Cell: +260-966-586981 E-mail: <a href="mailto:ysichelwe@zesco.co.zm">ysichelwe@zesco.co.zm</a></p> <p>Mr Kiragu Mugwe Energy Sector Engineer Regional Representation for East Africa European Investment Bank Dunhill Towers 115, Waiyaki way Westlands Nairobi, Kenya Tel: +254 20 2735260/1 Tel: +254 20 2713278 Email: <a href="mailto:k.mugwe@eib.org">k.mugwe@eib.org</a></p>	Chief Engineer Project, Site Project Manager Lusaka Transmission & Distribution Project (LTDRP)	<p><b>EIB – ZESCO Financed (USD1.7m): EPC Design, Construction supervision for the installation, testing and commissioning of the 132kV Chawama to new Chilanga substation single circuit overhead line in the Lusaka City as follows;</b></p> <ul style="list-style-type: none"> <li>Undertook the overhead line route selection, route surveys, formulation and implementation of the Environmental Impact Assessment (EIA), Resettlement and Compensation Action Plan (RCAP) in a high urban land use contestation project areas</li> <li>Participated in tower spotting, line profiling, soil selection, geotechnical studies, foundations, pole erection, stringing, pole earthing system and commissioning</li> <li>Implemented the SHEQ compliant site specific Environment and Social Management Plans (ESMP) at site</li> <li>Constructed, undertook Site acceptance Tests (SAT) and commissioned the 9km new 132kV (1 x 200MVA) single circuit, Kingbird conductor with OPGW, Monopole Overhead line from Chawama to Chilanga substation</li> <li>Decommission existing 33kV Lines from Chilanga to Chawama substation</li> </ul>
Nov 2018 to Apr 2021 (Full time)	Lusaka, Zambia	<p><b>ZESCO LIMITED</b></p> <p>Mr. Yona Sichelwe Director of Distribution ZESCO Limited Lusaka Zambia Cell: +260-966-586981 E-mail: <a href="mailto:ysichelwe@zesco.co.zm">ysichelwe@zesco.co.zm</a></p> <p>Mr Kiragu Mugwe Energy Sector Engineer Regional Representation for East Africa European Investment Bank Dunhill Towers 115, Waiyaki way Westlands Nairobi, Kenya Tel: +254 20 2735260/1 Tel: +254 20 2713278 Email: <a href="mailto:k.mugwe@eib.org">k.mugwe@eib.org</a></p>	Chief Engineer Projects, Site Project Manager Lusaka Transmission & Distribution Project (LTDRP)	<p><b>EIB – ZESCO Financed (USD11.3m): EPC Construction supervision for the installation, testing and commissioning of the of the 90MVA 132/11kV 90MVA Chawama substation in the Lusaka City as follows;</b></p> <ul style="list-style-type: none"> <li>Undertook substation site selection, formulation and implementation of the Environmental Impact Assessment (EIA), Resettlement and Compensation Action Plan (RCAP) in a high urban land use contestation project areas</li> <li>Undertook topographical survey and Geotechnical studies</li> <li>Designed and tested substation earthing system</li> <li>Constructed, undertook Site acceptance Tests (SAT) and commissioned the new Chawama 132/11kV Substation (4 x 132kV Feeder Bays, 3 x 132/11kV 30MVA transformers Bays), associated switching room with 17 panels (3 x incomers / 2 x sections / 12 x feeder panels)</li> <li>Constructed, undertook Site acceptance Tests (SAT) and commissioned the 3 x 132kV feeder bay at LSMFEZ substation</li> <li>Constructed, undertook Site acceptance Tests (SAT) and commissioned the 11kV Makeni and Airstrip Switching Stations, typically consisting of 3 x incomer circuit breakers, one bus-section and twelve feeder breakers, and associated 6 x 185mm<sup>2</sup>, 11kV underground cable, interconnecting the Switching Stations with Chawama Substation (approximately 3km per each switching station)</li> </ul>
Nov 2018 to Aug 2021 (Full time)	Lusaka, Zambia	<p><b>ZESCO LIMITED</b></p> <p>Mr. Yona Sichelwe Director of Distribution ZESCO Limited Lusaka Zambia Cell: +260-966-586981</p>	Chief Engineer Projects, Site Project Manager Lusaka Transmission & Distribution Project (LTDRP)	<p><b>EIB – ZESCO Financed (USD11.8m): EPC Design, Construction supervision for the installation, testing and commissioning of the of the 180MVA 132/33/11kV Chilanga substation in the Lusaka City as follows;</b></p> <ul style="list-style-type: none"> <li>Undertook substation site selection, formulation and implementation of the Environmental Impact Assessment (EIA), Resettlement and Compensation Action Plan (RCAP) in a high urban land use contestation project area</li> <li>Undertook topographical survey and Geotechnical studies</li> </ul>

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		E-mail: <a href="mailto:ysichalwe@zesco.co.zm">ysichalwe@zesco.co.zm</a>  Mr Kiragu Mugwe Energy Sector Engineer Regional Representation for East Africa European Investment Bank Dunhill Towers 115, Waiyaki way Westlands Nairobi, Kenya Tel: +254 20 2735260/1 Tel: +254 20 2713278 Email: <a href="mailto:k.mugwe@eib.org">k.mugwe@eib.org</a>		<ul style="list-style-type: none"> <li>Designed and tested substation earthing system</li> <li>Constructed, undertook Site acceptance Tests (SAT) and commissioned the new Chilanga 132/33/11kV Substation (2 x 132kV Feeder Bays, 2 x 132/33kV 90MVA transformer bays, 2 x 132/11kV 30MVA transformers Bays), 7 x 33kV outdoor feeder bays, associated switching room with 17 panels (4 x incomers / 3 x sections / 18 x feeder panels)</li> <li>Constructed, undertook Site acceptance Tests (SAT) and commissioned the 11kV Bread City and Lilayi Turn-off Switching Stations, typically consisting of 3 x incomer circuit breakers, one bus-section and twelve feeder breakers, and associated 6 x 185mm<sup>2</sup>, 11kV underground cable, interconnecting the Switching Stations with Chilanga Substation (approximately 3km per each switching station)</li> </ul>
2017 to 2020 (Full time)		<p style="text-align: center;"><b>ZESCO LIMITED</b></p> Mr. Yona Sichalwe Director of Distribution ZESCO Limited Lusaka Zambia Cell: +260-966-586981 Email: <a href="mailto:ysichalwe@zesco.co.zm">ysichalwe@zesco.co.zm</a>  Mr. Joseph Kapika Senior Energy Specialist The World Bank Group Energy & Extractives 442 Roderick's Road. Lynwood Pretoria, Gauteng 0081 South Africa Tel: +27 12 742 3153 Mobile: +27 733 214 793 Mobile: +1 202 415 3062 Email: <a href="mailto:jkapika@worldbank.org">jkapika@worldbank.org</a>	Chief Engineer Projects, Site Project Manager Lusaka Transmission & Distribution Project (LTDRP)	<p><b>World Bank – ZESCO Financed (US3m): EPC Design, Construction supervision installation, testing and commissioning of the of the 330/132/33/kV Lusaka West Substation extension in the Lusaka City as follows;</b></p> <ul style="list-style-type: none"> <li>Undertook topographical survey and Geotechnical studies</li> <li>Designed and tested substation system earthing and linked it to the existing substation earthing system</li> <li>Extended, upgraded, undertook Site acceptance Tests (SAT) and commissioned the 132kV bus bar to double bus bar with bus coupler and construct/re-equip two 132kV Feeder Bay at Lusaka West and equip with Differential protection</li> </ul>
2017 to July 2021 (Full time)	Lusaka, Zambia	<p style="text-align: center;"><b>ZESCO LIMITED</b></p> Mr. Yona Sichalwe Director of Distribution ZESCO Limited Lusaka Zambia Cell: +260-966-586981 E-mail: <a href="mailto:ysichalwe@zesco.co.zm">ysichalwe@zesco.co.zm</a>	Chief Engineer Project, Site Project Manager Lusaka Transmission & Distribution Project (LTDRP)	<p><b>World Bank – ZESCO Financed (USD5m): EPC Design, Construction supervision for the installation, testing and commissioning of the of the 2 x 30MVA 132/11kV Roma Substation extension in the Lusaka City as follows;</b></p> <ul style="list-style-type: none"> <li>Undertook topographical survey and Geotechnical studies</li> <li>Designed the substation earthing system and linked to the existing system</li> <li>Expanded, undertook Site acceptance Tests (SAT) and commissioned the existing Roma 132/33kV substation (currently 2 x 132/33kV, 63MVA transformers) to include 3 x 132/11kV 30MVA substation (6 x 132kV Feeder bays equipped with diff protection, 3 x 132kV transformer bays, associated switching room with 17 panels (3 x incomers / 2 x sections / 2 x feeder panels). Construct two 132kV Feeder bays at Leopards Hill and equip with Differential protection. At Roma install new terminal tower for Roma – Lusaka West 132 kV line</li> </ul>

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		<p>Mr. Joseph Kapika Senior Energy Specialist The World Bank Group Energy &amp; Extractives 442 Roderick's Road. Lynwood Pretoria, Gauteng 0081 South Africa Tel: +27 12 742 3153 Mobile: +27 733 214 793 Mobile: +1 202 415 3062 Email: <a href="mailto:jkapika@worldbank.org">jkapika@worldbank.org</a></p>		<ul style="list-style-type: none"> <li>Constructed, undertook Site acceptance Tests (SAT) and commissioned the 11kV Kabanana, Miracle Life and Zanimuone Switching Stations, typically consisting of 3 x incomer circuit breakers one bus-section and twelve feeder breakers, and associated 6 x 185mm<sup>2</sup>, 11kV underground cable, interconnecting the Switching Stations with Roma Substation (cable length totalling 18km)</li> </ul>
2017 to 2021 (Full time)		<p><b>ZESCO LIMITED</b> Mr. Yona Sichalwe Director of Distribution ZESCO Limited Lusaka Zambia Cell: +260-966-586981 E-mail: <a href="mailto:ysichalwe@zesco.co.zm">ysichalwe@zesco.co.zm</a></p> <p>Mr. Joseph Kapika Senior Energy Specialist The World Bank Group Energy &amp; Extractives 442 Roderick's Road. Lynwood Pretoria, Gauteng 0081 South Africa Tel: +27 12 742 3153 Mobile: +27 733 214 793 Mobile: +1 202 415 3062 Email: <a href="mailto:jkapika@worldbank.org">jkapika@worldbank.org</a></p>	Chief Engineer Project, Site Project Manager Lusaka Transmission & Distribution Project (LTDRP)	<p><b>World Bank – ZESCO Financed (USD6.5m): EPC Design, Construction supervision installation, testing and commissioning of the of the 1 x 250MVA 330/132kV (substation extension) at the 330/132/88kV Leopards Hill Substation in the Lusaka City as follows;</b></p> <p><b>Under construction: 90% complete commissioning ongoing</b></p> <ul style="list-style-type: none"> <li>Undertook topographical survey and Geotechnical studies</li> <li>Designed and tested substation earthing system and linked to the existing substation earthing system</li> <li>Extending the 330kV bus bar at L/Hill Substation</li> <li>Added 1 x 250 MVA transformer 330/132kV and connected it to the 132kV bus bar</li> </ul>
2017 to 2021 (Full time)		<p><b>ZESCO LIMITED</b> Mr. Yona Sichalwe Director of Distribution ZESCO Limited Lusaka Zambia Cell: +260-966-586981 Email: <a href="mailto:ysichalwe@zesco.co.zm">ysichalwe@zesco.co.zm</a></p>	Chief Engineer Projects, Site Project Manager Lusaka Transmission & Distribution Projec (LTDRP)t	<p><b>World Bank – ZESCO Financed (USD16.5m): EPC Design, Construction supervision installation, testing and commissioning of the of the 180MVA 132/33/11kV new Industrial substation in the Lusaka City as follows;</b></p> <p><b>Under construction: 95% complete</b></p> <ul style="list-style-type: none"> <li>Undertook substation site selection, formulation and implementation of the Environmental Impact Assessment (EIA), Resettlement and Compensation Action Plan (RCAP) in a high urban land use contestation project area</li> <li>Undertook topographical survey and Geotechnical studies</li> </ul>

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		Mr. Joseph Kapika Senior Energy Specialist The World Bank Group Energy & Extractives 442 Roderick's Road. Lynwood Pretoria, Gauteng 0081 South Africa Tel: +27 12 742 3153 Mobile: +27 733 214 793 Mobile: +1 202 415 3062 Email: <a href="mailto:jkapika@worldbank.org">jkapika@worldbank.org</a>		<ul style="list-style-type: none"> <li>Designed and tested the substation earthing system</li> <li>Constructing the new Industrial 132/33/11kV Substation (3 x 132kV Feeder Bays, 2 x 132/33kV 90MVA transformer bays, 4 x 132/11kV 30MVA transformers Bays), 7 x 33kV outdoor feeder bays, associated 11kV switch room with 25panels)</li> <li>Constructing the 11kV Chabota and Katanga switching Stations, consisting of 3 x incomer circuit breakers, one bus-section and twelve feeder breakers, and associated 6 x 185mm<sup>2</sup>, 11kV underground cable, connecting the Switching Stations from with Industrial Substation (cable length totalling 18km)</li> <li>Undertook Site Acceptance Tests (SAT) and Factory Acceptance Test (FAT) at factories abroad</li> </ul>
Jan 2018 to Dec 2021 (Full time)	Lusaka, Zambia	<p style="text-align: center;"><b>ZESCO LIMITED</b></p> Mr. Yona Sichalwe Director of Distribution ZESCO Limited Lusaka Zambia Cell: +260-966-586981 E-mail: <a href="mailto:ysichalwe@zesco.co.zm">ysichalwe@zesco.co.zm</a>	Chief Engineer Projects, Site Project Manager Lusaka Transmission & Distribution Project (LTDRP)	<p><b>World Bank – ZESCO Financed (USD3.8m): EPC Design, Construction supervision for the installation, testing and commissioning of the 2 x200MVA 132kV Leopards Hill to Roma double circuit overhead line in the Lusaka City as follows;</b></p> <p><b>Under construction: 80% complete</b></p> <ul style="list-style-type: none"> <li>Undertook the overhead line route selection, route surveys, formulation and implementation of the Environmental Impact Assessment (EIA), Resettlement and Compensation Action Plan (RCAP) in a high urban land use contestation project area</li> <li>Participated in tower spotting, line profiling, soil selection, geotechnical studies, foundations, pole erection, stringing, pole earthing system and commissioning</li> <li>Implemented the SHEQ compliant site-specific Environment and Social Management Plans (ESMP) at site</li> <li>Demolished the existing 132kV Leopards Hill to Roma Line</li> <li>Constructing 27km of new 132kV (2 x 200MVA) double circuit, Kingbird conductor with OPGW Monopole (line also to accommodate the future Avondale turn-in - Strain Towers &amp; Ibex Hill Line turn -in)</li> </ul>
2018 to 2021 (Full time)		<p style="text-align: center;"><b>ZESCO LIMITED</b></p> Mr. Yona Sichalwe Director of Distribution ZESCO Limited Lusaka Zambia Cell: +260-966-586981 Email: <a href="mailto:ysichalwe@zesco.co.zm">ysichalwe@zesco.co.zm</a>	Chief Engineer Projects, Site Project Manager Lusaka Transmission & Distribution Project (LTDRP)	<p><b>World Bank – ZESCO Financed (USD5m): EPC Design, Construction supervision for the installation, testing and commissioning of the 1 x 200MVA 132kV LSMFEZ to Waterworks substation single circuit overhead line in the Lusaka City as follows;</b></p> <ul style="list-style-type: none"> <li>Undertook the overhead line route selection, route survey, pole earthing system, te surveys, formulation and implementation of the Environmental Impact Assessment (EIA), Resettlement and Compensation Action Plan (RCAP) in a high urban land use contestation project area</li> <li>Undertook tower spotting, line profiling, soil selection, geotechnical studies, foundations, pole erection, stringing, pole earthing system and commissioning</li> <li>Implemented the SHEQ compliant site specific Environment and Social Management Plans (ESMP) at site</li> </ul>

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		Mr. Joseph Kapika Senior Energy Specialist The World Bank Group Energy & Extractives 442 Roderick's Road. Lynwood Pretoria, Gauteng 0081 South Africa Tel: +27 12 742 3153 Mobile: +27 733 214 793 Mobile: +1 202 415 3062 Email: <a href="mailto:jkapika@worldbank.org">jkapika@worldbank.org</a>		<ul style="list-style-type: none"> <li>Constructed, undertook Site acceptance Tests (SAT) and commissioned a 20km new 132kV (200MVA) single circuit, with OPGW, Monopole line from LSMFEZ Substation to Water Works substation</li> </ul>
2018 TO 2021 (Full time)		<p style="text-align: center;"><b>ZESCO LIMITED</b></p> Mr. Yona Sichalwe Director of Distribution ZESCO Limited Lusaka Zambia Cell: +260-966-586981 Email: <a href="mailto:ysichalwe@zesco.co.zm">ysichalwe@zesco.co.zm</a>	Chief Engineer Projects, Site Project Manager Lusaka Transmission & Distribution Project (LTDRP)	<p><b>World Bank – ZESCO Financed (USD3.1m): EPC Design, Construction supervision for the installation, testing and commissioning of the 7km, 1 x 200MVA, 132kV Lusaka West to Industrial substation and reconductor 5km of 1x200mVA 132kV single circuit Industrial to Coventry overhead line in the Lusaka City as follows;</b></p> <p><b>Under construction: 78% complete</b></p> <ul style="list-style-type: none"> <li>Undrtook the overhead line route selection, route surveys, formulation and implementation of the Environmental Impact Assessment (EIA), Resettlement and Compensation Action Plan (RCAP) in a high urban land use contestation project areas</li> <li>Participated in tower spotting, line profiling, soil selection, geotechnical studies, foundations, pole erection, stringing, pole earthing system and commissioning</li> <li>Implementing the SHEQ compliant site specific Environment and Social Manangement Plans (ESMP) at site</li> <li>To de-string the existing 132kV Line and re-conductor the 5km 132kV (200MVA) single circuit, Kingbird conductor with OPGW, line from Industrial to Coventry substation</li> <li>To construct 7km of new 132kV (2 x 200MVA) double circuit, Kingbird conductor with OPGW, line from Lusaka West to Industrial substation</li> </ul>
Sept 2020-Dec 2021 (Full time)	Lusaka, Zambia	<p style="text-align: center;"><b>ZESCO LIMITED</b></p> Mr. Yona Sichalwe Director of Distribution ZESCO Limited Lusaka Zambia Cell: +260-966-586981 Email: <a href="mailto:ysichalwe@zesco.co.zm">ysichalwe@zesco.co.zm</a>	Chief Engineer Projects, Site Project Manager Lusaka Transmission & Distribution Project (LTDRP)	<p><b>World Bank – ZESCO Financed (USD17.3m): EPC Design, Construction supervision for the installation, testing and commissioning of the of the 180MVA 132/33/11kV new Avondale substation in the Lusaka City as follows;</b></p> <p><b>Under Construction:50% complete</b></p> <ul style="list-style-type: none"> <li>Undertook substation site selection, formulation and implementation of the Environmental Impact Assessment (EIA), Resettlement and Compensation Action Plan (RCAP) in a high urban land use contestation project areas</li> <li>Undertook topographical survey and Geotechnical studies</li> </ul>

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		Mr. Joseph Kapika Senior Energy Specialist The World Bank Group Energy & Extractives 442 Roderick's Road. Lynwood Pretoria, Gauteng 0081 South Africa Tel: +27 12 742 3153 Mobile: +27 733 214 793 Mobile: +1 202 415 3062 Email: <a href="mailto:jkapika@worldbank.org">jkapika@worldbank.org</a>		<ul style="list-style-type: none"> <li>Designed and tested the substation earthing system</li> <li>Constructing new Avondale 132/33/11kV Substation (6 x 132kV Feeder Bays, 2 x 132/33kV 90MVA transformer bays, 3 x 132/11kV 30MVA transformers Bays), 7 x 33kV outdoor feeder bays, associated switching room with 17 panels (3 x incomers / 2 x sections / 12 x feeder panels)</li> <li>Constructing Silverest and Vorna Valley 11 kV Switching Stations, typically consisting of 3 x incomer circuit breakers, one bus-section and twelve feeder breakers, and associated 6 x 185mm<sup>2</sup>, 11kV underground cable, interconnecting the Switching Stations with Avondale Substation (approximately 3km length of cable per each switching station)</li> <li>Connecting (Turn-in) to the Leopard Hill – Roma 132kV (200MVA) double circuit Kingbird Line</li> </ul>
2021 TO 2022 (Full time)	Lusaka, Zambia	<p><b>ZESCO LIMITED</b></p> Mr. Yona Sichalwe Director of Distribution ZESCO Limited Lusaka Zambia Cell: +260-966-586981 Email: <a href="mailto:ysichalwe@zesco.co.zm">ysichalwe@zesco.co.zm</a> <p>Mr Kiragu Mugwe            Energy Sector Engineer            Regional Representation for East Africa            European Investment Bank            Dunhill Towers            115, Waiyaki way Westlands            Nairobi, Kenya            Tel: +254 20 2735260/1            Tel: +254 20 2713278            Email: <a href="mailto:k.mugwe@eib.org">k.mugwe@eib.org</a></p>	Chief Engineer Projects, Site Project Manager Lusaka Transmission & Distribution Project (LTDRP)	<p><b>EIB – ZESCO Financed (USD4.7m): EPC Design, Construction supervision for the installation, testing and commissioning of the of the 132/11kV Bauleni substation in the Lusaka City as follows;</b></p> <p><b>Under Construction: 30% complete</b></p> <ul style="list-style-type: none"> <li>Undertook substation site selection, formulation and implementation of the Environmental Impact Assessment (EIA), Resettlement and Compensation Action Plan (RCAP) in a high urban land use contestation project areas</li> <li>Undertaking topographical survey and Geotechnical studies</li> <li>Constructing new Bauleni 132/11kV Substation (2 x 132kV Feeder Bays, 3 x 132/11kV 30MVA transformers Bays), associated switching room with 17 panels (3 x incomers / 2 x sections /12 x feeder panels)</li> <li>Cutting into 132kV Leopard Hill – Waterworks 132 kV Overhead line</li> </ul>
TBA	Lusaka, Zambia	<p><b>ZESCO LIMITED</b></p> Mr. Yona Sichalwe Director of Distribution ZESCO Limited Lusaka Zambia Cell: +260-966-586981 Email: <a href="mailto:ysichalwe@zesco.co.zm">ysichalwe@zesco.co.zm</a> <p>Mr Kiragu Mugwe            Energy Sector Engineer            Regional Representation for East</p>	Chief Engineer Projects, Site Project Manager Lusaka Transmission & Distribution Project (LTDRP)	<p><b>EIB – ZESCO Financed (Engineer's estimate USD14m): EPC Design, Construction supervision for the installation, testing and commissioning of the of the 132/11kV Jimmy substation and future cupgrade of the Lusaka West 330/132kV to 500MVA firm substation in the Lusaka City as follows;</b></p> <p><b>Under procurement: Tender evaluated</b>            Undertook substation site selection, topographical survey, formulation of the Environmental Impact Assessment (EIA), Resettlement and Compensation Action Plan (RCAP). <b>Participated in need identification, power system studies and design planning for the future construction of the</b> new Jimmy 132/11kV Substation (2 x 132kV Feeder Bays, 3 x 132/11kV 30MVA transformers Bays), associated switching room with 17 panels (3 x incomers / 2 x sections /12 x feeder panels),</p> <p><b>Under procurement: Tender evaluated</b>  <b>Participated in need identification, power system studies and design planning for the future upgrade of the</b> Lusaka West 330/132kV to 500MVA firm substation. Essentially replacing Lusaka West 3 x 125MVA, 330/132kV with 3 x 250MVA, 330/132kV transformers as well as re-equipping one 132kV Feeder bay at Coventry substation and equip with Differential</p>

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		Africa European Investment Bank Dunhill Towers 115, Waiyaki way Westlands Nairobi, Kenya Tel: +254 20 2735260/1 Tel: +254 20 2713278 Email: <a href="mailto:k.mugwe@eib.org">k.mugwe@eib.org</a>		protection
TBA		<p><b>ZESCO LIMITED</b></p> <p>Mr. Yona Sichelwe            Director of Distribution            ZESCO Limited            Lusaka            Zambia            Cell: +260-966-586981            Email: <a href="mailto:ysichelwe@zesco.co.zm">ysichelwe@zesco.co.zm</a></p> <p>Mr Muntungwa Mugala (Retired            ZESCO Director-Distribution),            Phone: +260966767025;            Email:  <a href="mailto:muntungwamugala@gmail.com">muntungwamugala@gmail.com</a></p>	Chief Engineer Projects, Site Project Manager Lusaka Transmission & Distribution Project (LTDRP)	<p><b>Awaits financing (Engineer's Estimate USD2.1m) - EPC Design, Construction supervision installation, testing and commissioning 330/132kV to 500MVA firm substation as follows:</b></p> <ul style="list-style-type: none"> <li>Participated in need identification, power system studies and design planning for the future upgrade of the Leopards Hill 330/132kV to 500MVA firm substation. Replace Leopards Hill 2x 150MVA, 330/132kV with 2 x 250MVA, 330/132kV transformers</li> </ul> <p><b>Awaits financing (Engineer's Estimate USD20.1m) - EPC Design, Construction supervision installation, testing and commissioning of the new UNZA 132/33/11kV 270MVA Substation as follows:</b></p> <ul style="list-style-type: none"> <li>Participated in need identification, power system studies and design planning for the future construction of the new UNZA 132/33/11kV Substation (2 x 132kV Feeder Bays, 2 x 132/33kV 90MVA transformer bays, 3 x 132/11kV 30MVA transformers Bays), 7 x 33kV outdoor feeder bays, associated switching room with 17 panels (3 x incomers / 2 x sections / 12 x feeder panels)</li> <li>Participated in need identification, power system studies and design planning for the future construction of the Garden and Napsa (Near FAZ house) 11 kV Switching Stations, typically consisting of 3 x incomer circuit breakers, one bus-section and twelve feeder breakers, and associated 6 x 185mm<sup>2</sup>, 11kV underground cable, interconnecting the Switching Stations with UNZA Substation (approximately 3km)</li> </ul> <p><b>Awaits financing (Engineer's Estimate USD14.2m) - EPC Design, Construction supervision installation, testing and commissioning of the new 132kV Roma to UNZA overhead line as follows:</b></p> <ul style="list-style-type: none"> <li>Participated in need identification, power system studies and design planning for the future construction of the 7km 132kV (2 x 200MVA) double circuit, Kingbird conductor with OPGW, Monopole line from Roma Substation to UNZA Substation</li> </ul> <p><b>At planning stage:</b></p> <ul style="list-style-type: none"> <li>Participated in need identification, power system studies and design planning for the future construction of the Dublin Substation. The scope will involve rebuilding the existing (2 x 7.5MVA, 33/11kV) Dublin Substation to 2 x 30MVA 33/11kV transformers and rebuild associate 33kV and 11kV equipment (3 x 33kV Feeder Bays, 2 x 33/11kV transformer Bays, 15 x 11kV Feeder Panels)</li> <li>If New UNZA substation &amp; 132kV OHL is implemented, then Dublin becomes an 11kV switching station</li> </ul> <p><b>Awaits financing (Engineer's Estimate USD12.9m) - EPC Design, Construction supervision installation, testing and commissioning of the new 132kV Chilanga to Lusaka West overhead line as follows:</b></p> <ul style="list-style-type: none"> <li>Participated in need identification, power system studies and design planning for the future construction and equipping the 132 kV line bay (200 MVA) at Lusaka West</li> <li>Participated in need identification, power system studies and design planning for the future construction of the 50 km of</li> </ul>

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2021 TO 2022 (Full time)	Lusaka, Zambia	<p><b>ZESCO LIMITED</b></p> <p>Mr. Yona Sichalwe Director of Distribution ZESCO Limited Lusaka Zambia Cell: +260-966-586981 Email: <a href="mailto:ysichalwe@zesco.co.zm">ysichalwe@zesco.co.zm</a></p> <p>Mr Kiragu Mugwe Energy Sector Engineer Regional Representation for East Africa European Investment Bank Dunhill Towers 115, Waiyaki way Westlands Nairobi, Kenya Tel: +254 20 2735260/1 Tel: +254 20 2713278 Email: <a href="mailto:k.mugwe@eib.org">k.mugwe@eib.org</a></p>	Chief Engineer Projects, Site Project Manager Lusaka Transmission & Distribution Project (LTDRP)	<p>132kV (200MVA) double circuit, Kingbird conductor with OPGW, Monopole line from Chilanga to Lusaka West Substation</p> <p><b>EIB – ZESCO Financed (USD4.2m): EPC Design, Construction supervision for the installation, testing and commissioning of the of the 2x30MVA 33/11kV Woodlands substation in the Lusaka City as follows;</b></p> <p><b>Under Construction:30% complete</b></p> <ul style="list-style-type: none"> <li>Undertook substation site selection, formulation of the Environmental Impact Assessment (EIA), Resettlement and Compensation Action Plan (RCAP)</li> <li>Undertaking topographical survey and Geotechnical studies</li> <li>To build new Woodlands Substation 33/11kV 2 x 30MVA transformers (3 x 33kV Feeder Bays, 2 x 33/11kV transformer Bays, 15 x 11kV Feeder Panels)</li> </ul>
May 2021 TO 2022 (Full time)	Lusaka, Zambia	<p><b>ZESCO LIMITED</b></p> <p>Mr. Yona Sichalwe Director of Distribution ZESCO Limited Lusaka Zambia Cell: +260-966-586981 Email: <a href="mailto:ysichalwe@zesco.co.zm">ysichalwe@zesco.co.zm</a></p> <p>Mr Kiragu Mugwe Energy Sector Engineer Regional Representation for East Africa European Investment Bank Dunhill Towers 115, Waiyaki way Westlands Nairobi, Kenya Tel: +254 20 2735260/1 Tel: +254 20 2713278 Email: <a href="mailto:k.mugwe@eib.org">k.mugwe@eib.org</a></p>	Chief Engineer Projects, Site Project Manager Lusaka Transmission & Distribution Project (LTDRP)	<p><b>EIB – ZESCO Financed (USD2m): EPC Design, Construction supervision for the installation, testing and commissioning of the 33kV overhead lines in the Lusaka City as follows;</b></p> <p><b>Under Construction: 30% complete</b></p> <ul style="list-style-type: none"> <li>Upgrading 2 x 33kV Coventry – Kafue Road OHLs: Existing 4km, 2 x 33kV 150mm<sup>2</sup> (18MVA) ACSR overhead line between Coventry and Kafue Road to be demolished and replaced with double circuit Monopole 300mm<sup>2</sup> ACSR conductor (36MVA), (demolish one circuit and construct new double circuit and then demolish second circuit)</li> <li>Constructing 2 x 2km, 33kV, 300mm<sup>2</sup> ACSR (31MVA) overhead line between Industrial and Mungwi Road substations</li> <li>Constructing 8km, 33kV, 2 x 300mm<sup>2</sup> ACSR (31MVA) overhead line between Mungwi Road – Matero substations, Matero substations - (Recycle Mungwi Road –Liverpool 33kV circuit to a double circuit line, with one circuit terminating at Liverpool. The other circuit to be constructed on triple circuit with the existing Liverpool – Matero 33kV line, one circuit terminating at new 33kV bay Matero substation) Note: 2x33kV feeder bays already available at Mungwi</li> </ul>
2021 to 2022 (Full time)	Lusaka, Zambia	<p><b>ZESCO LIMITED</b></p> <p>Mr. Yona Sichalwe Director of Distribution ZESCO Limited Lusaka</p>	Chief Engineer Projects, Site Project Manager Lusaka Transmission &	<p><b>EIB – ZESCO Financed (USD8.8m): EPC Design, Construction supervision for the installation, testing and commissioning of the of the 33/11kV Ibex substation in the Lusaka City as follows;</b></p> <p><b>Under Construction: 30% complete</b></p>

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		Zambia Cell: +260-966-586981 Email: <a href="mailto:ysichalwe@zesco.co.zm">ysichalwe@zesco.co.zm</a>  Mr Kiragu Mugwe Energy Sector Engineer Regional Representation for East Africa European Investment Bank Dunhill Towers 115, Waiyaki way Westlands Nairobi, Kenya Tel: +254 20 2735260/1 Tel: +254 20 2713278 Email: <a href="mailto:k.mugwe@eib.org">k.mugwe@eib.org</a>	Distribution Project (LTDRP)	<ul style="list-style-type: none"> <li>Constructing new Ibex 132/11kV Substation (2 x 132kV Feeder Bays, 3 x 132/11kV 30MVA transformers Bays), associated switching room with 17 panels (3 x incomers / 2 x sections /12 x feeder panels)</li> <li>Constructing 2 x 11 kV Switching Stations, typically consisting of 3 x incomer circuit breakers one bus-section and twelve feeder breakers, and associated 6 x 185mm<sup>2</sup>, 11kV underground cable, interconnecting the Switching Stations with Ibex Substation (approximately 3km per each switching station)</li> </ul>
TBA (Full time)	Lusaka, Zambia	<b>ZESCO LIMITED</b> Mr. Yona Sichalwe Director of Distribution ZESCO Limited Lusaka Zambia Cell: +260-966-586981 Email: <a href="mailto:ysichalwe@zesco.co.zm">ysichalwe@zesco.co.zm</a>  Mr Kiragu Mugwe Energy Sector Engineer Regional Representation for East Africa European Investment Bank Dunhill Towers 115, Waiyaki way Westlands Nairobi, Kenya Tel: +254 20 2735260/1 Tel: +254 20 2713278 Email: <a href="mailto:k.mugwe@eib.org">k.mugwe@eib.org</a>	Chief Engineer Projects, Site Project Manager Lusaka Transmission & Distribution Project (LTDRP)	<b>EIB – ZESCO Financed (Engineer’s estimate USD2.5m): EPC Design, Construction supervision for the installation, testing and commissioning of the 132kV Monopole turn-in line from the 132kV Leopards Hill to Roma line to New Ibex Substation in the Lusaka City as follows;</b>  <b>Under propcurement:</b> Tender evaluated  <ul style="list-style-type: none"> <li>Constructing 8.5km of new 132kV (2 x 200MVA) double circuit, Kingbird conductor with OPGW, Monopole turn-in line to New Ibex Substation</li> </ul>
TBA (Full time)	Lusaka, Zambia	<b>ZESCO LIMITED</b> Mr. Yona Sichalwe Director of Distribution ZESCO Limited Lusaka Zambia Cell: +260-966-586981 Email: <a href="mailto:ysichalwe@zesco.co.zm">ysichalwe@zesco.co.zm</a>  Mr Kiragu Mugwe Energy Sector Engineer	Chief Engineer Projects, Site Project Manager Lusaka Transmission & Distribution Project (LTDRP)	<b>EIB – ZESCO Financed (Engineers estimate USD3.3m): EPC Design, Construction supervision for the installation, testing and commissioning of the 132kV Monopole line from Chawama to Coventry via Jimmy substation in the Lusaka City as follows;</b>  <b>Under Construction:</b> Tender evaluated  <ul style="list-style-type: none"> <li>Constructing 6km of new 132kV (1 x 200MVA) single circuit, Kingbird conductor with OPGW, Monopole OHL from Chawama to Jimmy Substation</li> <li>Constructing 6.5km of new 132kV (1 x 200MVA) single circuit, Kingbird conductor with OPGW, Monopole OHL from Jimmy to Coventry Substation</li> </ul>

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		Regional Representation for East Africa European Investment Bank Dunhill Towers 115, Waiyaki way Westlands Nairobi, Kenya Tel: +254 20 2735260/1 Tel: +254 20 2713278 Email: <a href="mailto:k.mugwe@eib.org">k.mugwe@eib.org</a>		
December 2010 to May 2013 (Full time)	Lusaka, Zambia	<b>ZESCO LIMITED</b> Mr. Kenneth Muteto Retired Director of Distribution and Customer Services ZESCO Limited Lusaka Zambia Cell: +260-966-957326 E-mail: <a href="mailto:kmuteto@gmail.com">kmuteto@gmail.com</a>  <b>ZESCO Limited</b> Mr Muntungwa Mugala (Retired Director-Distribution), Phone: +260966767025; Email: <a href="mailto:muntungwamugala@gmail.com">muntungwamugala@gmail.com</a>	Regional Manager – Lusaka East Region /Project Manager Energy Efficiency Pilot Project in PHI	The Lusaka East Region borders with the Lusaka West, Lusaka Central, Lusaka South and Lusaka Eastern Regions. The Region further extends to Chisamba, Chibombo and Chongwe. The customer base in Lusaka East was at 50,000. My principle accountabilities include the following;  <b>As Regional Manager</b> <ul style="list-style-type: none"> <li>Ensuring the profitability and performance of the Region</li> <li>Ensuring co-ordination and supervise the entire Customer Services activities of the Region</li> <li>Ensuring carrying out of effective maintenance of the Distribution System and apply best operating practices</li> <li>Ensuring reduction of distribution losses</li> <li>Ensuring effective management of materials and Human Resources</li> <li>Ensuring compliance with safety requirement</li> <li>Reducing costs in the region by managing the resources effectively including transport</li> <li>Executing small to medium capital projects in the Region</li> <li>Carrying out other duties lawfully assigned by the Lusaka Divisional Manager</li> </ul>
2013 to 2014	Lusaka, Zambia	<b>ZESCO Limited</b> Mr Muntungwa Mugala (Retired Director-Distribution), Phone: +260966767025; Email: <a href="mailto:muntungwamugala@gmail.com">muntungwamugala@gmail.com</a>	Project Manager - Energy Efficiency use and planning Pilot Project in PHI Lusaka	<b>SIDA- ZESCO Financed (USD0.5m). Planning, Design, Procurement and implementation of the Energy Efficiency use and planning Pilot Project in PHI Lusaka – energy savings of 0.9228MW.</b>  The aim of the project was to save electricity energy through the implementation of Integrated Demand Management (IDM) activities in the project area called Presidential Housing Initiative (PHI) Township in Lusaka, Zambia. The objective of the project was to introduce sustainable methods of Efficient Energy Use and Planning to customers so as to achieve virtual generation (savings) of electricity energy of approximately <b>1.17MW</b> out of the <b>1.968MW</b> consumed by the <b>900 households</b> in PHI Township in <b>2014</b> .  The scope of the project involved Measurement and Verification (M&V), distribution loss reduction, installation of 900 prepayment meters and distribution of 4165 energy saving lamps. Others were the installation of 10 solar water geysers, 3 ring fencing energy meter, customer sensitization on the benefits of registering with the ZESCO SMS system and the media power alert system.  The activities were predominantly Energy Efficiency (EE). Essentially, as part of the objective, the project induced a paradigm shift towards the efficient use of electricity energy by PHI domestic customers. Through these activities it was envisaged that a <b>total of 1.24MW</b> of electricity energy would be saved thereby giving the PHI households direct economic benefits. At project close off time the total electricity energy <b>saved was 0.9228MW.</b>
2010 to 2013 (Full	Lusaka, Zambia	<b>ZESCO LIMITED</b> Mr Victor Mapani Retired ZESCO Lusaka Division	Acting Appointment - Regional Manager Lusaka South, Lusaka	<b>Regional Manager Lusaka South and Lusaka Central Region;</b> <ul style="list-style-type: none"> <li>Acted as Regional Manager Lusaka South Region and Lusaka Central Region for two months and one month respectively</li> </ul>

Date from-Date to	Location	Company & reference person <sup>2</sup> (name & contact details)	Position	Description
time)		Manager Cell: +260 965555137 E-mail: v.ben.mapani@live.co.uk  <b>ZESCO Limited</b> Christopher Phiri (Retired Divisional Manager-Distribution), Phone: +260969887217; Email: <a href="mailto:yatshapc@gmail.com">yatshapc@gmail.com</a>	Central Region and Technical Services Manager – Lusaka	<ul style="list-style-type: none"> <li>Acted as Technical Services Manager (TSM), Lusaka Division August 2009 – September 2009</li> <li>Team player in the formulation of the inputs to the company strategic business plans and annual budgets relating to Metering, Protection, Transformer and switch gear maintenance as well transformer repair workshop</li> <li>During Period of Acting Reliability of Power improved, through prompt faults resolution</li> <li>Human resource motivated by recognition of their work and teamwork in the department</li> <li>Introduced work, commissioning, and daily reporting procedures</li> <li>Team leader in formulating the transformer, switch gear and distribution lines commissioning check lists</li> </ul>
2005 to 2010 (Full time)	Zambia	<b>ZESCO LIMITED</b> Mr. Christopher Mubemba Retired Director of Transmission ZESCO Limited Lusaka Zambia Cell: +260-977-790 938 E-mail: <a href="mailto:chrismubemba@gmail.com">chrismubemba@gmail.com</a>	Principal Electrical Engineer Metering/site Manager Metering Projects	<p><b>Electricity energy metering systems and projects</b></p> <p><b>a) Metering operation and maintenance</b>            Formulation and Implementation of the ZESCO metering policy Ensuring consistence of procurement of meters and metering equipment and their installation. Ensuring that a timely and effective annual maintenance programme is in place and implemented. Ensuring that all the installations are metered. Ensuring reduction of distribution losses on the network. Ensuring accuracy of all installed meters. Managing both human/metering resources in the department. Co-ordination with all relevant Departments in Generation and Transmission, Customer Service and Distribution &amp; Supply. Ensuring availability of materials (i.e. metering equipment by drawing up specifications, preparing of Requests For Proposal (RFPs) for electricity credit energy meters, electricity Prepayment metering system, metering equipment and accessories Evaluating RFPs and conducting contract negotiations. In total I prepared over 20 RFPs for the procurement of meters and metering accessories.</p> <p><b>b) Metering Ptojects</b></p> <ul style="list-style-type: none"> <li>Execution of the enterprise-wide Distribution Loss Reduction Project. The project was set up after several studies and assessments showed that the corporation was losing significant revenue through unaccounted for electricity sales despite running an efficient generation and transmission system. The total budget of the project is USD8million. Planning of the installation work, management and works inspection. Monitoring and inspection for quality of works implemented. Ensuring smooth handover of completed works to operation and maintenance. Developed technical specifications and Factory acceptance testing of various energy meter at manufacturer premises to ensure compliance to specified quality standard. Specified, procured and installed standard metering test benches.</li> </ul> <p><b>Key statistcs and achievements:</b></p> <ul style="list-style-type: none"> <li>The project involved installation of 300,000 prepayment meters and 100, 000 credit meters</li> <li>Installed over 300,000 STS key pad common base prepayment meters complete with the vending system in Lusaka</li> <li>Installed over 30,000 smart card prepayment meters have complete with the vending system in Ndola</li> <li>Installed over 67,000 credit meters (single and three phase) country wide</li> <li>Metered all bulky supply metering points between Generation/Transmission and Distribution</li> <li>Established metering ring fencing for all the 16 regions national wide and losses drastically reduced from a record high of 30% in 2002 to now 20% in the ZESCO's Distribution network. Distribution losses particularly in Lusaka Division reduced from over 30% to 16% within 7years, saving the corporations billions of Kwacha</li> <li>Implemented the implemented the phase one, phase two and phase three of the ZESCO Ltd prepayment Project</li> </ul>
2001 to 2005 (Full time)		<b>ZESCO LIMITED</b> Mr. Christopher Mubemba Retired Director of Transmission ZESCO Limited	Senior Electrical Engineer - Metering Generation and Transmission	<p><b>Electricity energy metering systems – principal accountabilities</b></p> <ul style="list-style-type: none"> <li>Carrying out timely maintenance of metering equipment to minimise Transmission plant down time</li> <li>Carrying out designs, modifications, installations, commissioning of metering Systems and review of documentation</li> </ul>

Date from-Date to	Location	Company & reference person <sup>2</sup> (name & contact details)	Position	Description
		Lusaka Zambia Cell: +260-977-790 938 E-mail: <a href="mailto:chrismubemba@gmail.com">chrismubemba@gmail.com</a>		<ul style="list-style-type: none"> <li>Carrying out the calibration and testing of bulk meters and other metering equipment</li> <li>Preparing technical and other reports</li> <li>Ensuring compliance to safety, standards and statutory regulations and procedures for metering systems and personnel</li> <li>Ensuring cleanliness at metering points to acceptable standards</li> <li>Monitoring bulk stations and analysing consumption at delivery points to distribution, supply and client services</li> <li>Procuring of the necessary spares and other requisites</li> <li>Conducting staff training</li> <li>Ensuring availability of well trained, authorised, disciplined and highly motivated staff</li> <li>Liaise with relevant sections and authorities on metering issues i.e. telemetry, smart metering, distribution and supply, national grid interconnections measuring points to other corporations in the region etc</li> <li>Advise management and implement new metering technology and practices</li> <li>Preparing a departmental annual budget and ensure control. The budget embraced USD\$8million</li> <li>Managing departmental transport</li> <li>Ensuring timely readings of strategic energy meters</li> <li>Carrying out fault diagnosis and rectification on all metering equipment and circuits</li> </ul>
2000 - 2001 (Full time)	Ndola, Zamia	<p><b>TAZAMA PILINES</b></p> <p>Mr. Davison Thawethe Managing Director TAZAMA Pipelines Ltd P.O. Box 71651 Ndola - Zambia Mobile: +260977447392 Email: <a href="mailto:thawethe@hotmail.com">thawethe@hotmail.com</a></p> <p>Mr. Patrick Musenyesa Regional Manager - Tanzanian Region TAZAMA Pipelines Ltd P.O. Box 2157 Dar-es-Salam - Tanzania Mobile: +255744787164 or +260966784316l Email: <a href="mailto:pmusenyesa@tazama.co.zm">pmusenyesa@tazama.co.zm</a></p>	Instrument and Control System Engineer	<p><b>Crude oil Pipeline Instrumentation and Control systems – there are two pipelines, 12inch and 8 inch diamenter. The Pipeline is 1700km (from Da –es-Salaam to Ndola) with seven pumping booster stations (two in Zambia and five in Tanzania); my principal accountabilities included the following;</b></p> <ul style="list-style-type: none"> <li>Planning, managing subordinate staff, maintaining and calibration crude oil pipelines operational data and safety instrumentation, crude oil throughput metres for which company revenue was calculated at the terminal crude oil pumps and prime movers protection instrumentation, tank gauging and speed control. Designed new and modification control circuits where necessary. Specifying and recommending for purchase of all equipment pertaining to instrumentation and control. Prepared weekly, monthly and quarterly work reports to management</li> <li>Working in projects department of TAZAMA pipelines where I have been involved in Construction of a crude oil storage tank (40000cubic meters capacity) under the <b>World Bank - Republic of Zambia</b> funded <b>Petroleum sector (Phase IV) Rehabilitation Project</b> as well as the <b>refurbishment of six other existing crude oil tanks</b></li> </ul> <p><b>Project responsibilities included:</b></p> <ul style="list-style-type: none"> <li>Project coordination and inspection of all the electrical, instrumentation and control design drawings done by our contractor (Groupe Snig - France) and advised The consulting Engineer (Tahal Consulting Engineers Ltd in Israel) on what modifications should be made before his approval. Supervising all installations pertaining to electrical, instrumentation and control so that they are done according to specifications and according to the internationally recognised national standards. Additional responsibilities include inspection of all other design works and installations e.g. civil works, site control (non- destructive tests) and construction of the tank at site. The project was worth <b>USDS15million</b></li> <li>I spearheaded the Engineering Procedures Improvement Performance (EPIP) exercise in TAZAMA Pipelines limited i.e. drafting equipment checklists, work procedures, permit to work system and equipment registers. I was the architect of the establishment of the TAZAMA Regional Engineering Planning and scheduling office</li> <li>Overall the plant and human resource responsibility worth USD\$5million</li> <li>As part of my Graduateship (Honours Bachelor's degree) thesis – I designed and managed a <b>USDS91000.00</b> project entitled "Automation of an Acid effluent Plant" in for which interview I attended in autumn in 1999 in London</li> </ul>
1996 to 2000 (Full time)		<p><b>TAZAMA PILINES</b></p> <p>Mr. Davison Thawethe Managing Director TAZAMA Pipelines Ltd P.O. Box 71651</p>	Technician then promoted to Superintendent - Instrumentation and Control Systems	<p><b>Crude oil Pipeline Instrumentation and Control systems – there are two pipelines, 12inch and 8 inch diamenter. The Pipeline is 1700km (from Da –es-Salaam to Ndola) with seven pumping booster stations (two in Zambia and five in Tanzania); my principal accountabilities included the following;</b></p> <p>Carried out Supervisory duties in Instruments and Control Systems on the Zambian region reporting to the Senior Electrical</p>

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		Ndola - Zambia Mobile: +260977447392 Email: <a href="mailto:thawethe@hotmail.com">thawethe@hotmail.com</a>		Engineer. Did maintenance, calibration and planning on the following; <ul style="list-style-type: none"> <li>• Diesel engines speed measurement and control using Woodward Governors</li> <li>• Diesel engines protection systems</li> <li>• Pump protection systems</li> <li>• Three-term controllers</li> <li>• Pressure, Level and Flow Measurement Temperature measurement and control</li> <li>• Alarming, annunciation and trips</li> <li>• Oil measurement Prover loops</li> <li>• Master metering</li> <li>• Pipeline safety and scraper indication</li> <li>• Pipeline Integrity Tests</li> <li>• Programmable Logic Controllees (PLCs) and Motor Control</li> <li>• Design, writing programmes and wiring circuits</li> <li>• Interfacing PLC to analog components</li> <li>• Did a Project in Traffic Signal Sequencer</li> <li>• Did steam cleaner maintenance</li> </ul>
1993 – 1996 (Full time)	Mufulira, Zambia	<p><b>KAFIRONDA EXPLOSIVES LTD (NOW AFRICAN EXPLOSIVES LIMITED)</b></p> <p>Mr Phillip A. Cheembela            Retired Head of Electrical and Instrumentation            Kafironda Explosives Ltd            Mufulira            Zambia            Cell: +260 966787151            Email: <a href="mailto:cpacltd2007@gmail.com">cpacltd2007@gmail.com</a></p> <p>Mr Morgan Mukenani            Underground Bulk Site Supervisor            African Explosives Limited (formerly Kafironda Ltd)            Box 40092            Mufulira            Cell: +260 966924115</p>	Instrumentation Technician	<p><b>Working as an Electrical/Instrumentation and Control Systems Foreman at Kafironda Explosives (now African Explosives Ltd - AEL) Ltd</b></p> <ul style="list-style-type: none"> <li>• Carried out Supervisory duties at Foreman Level</li> <li>• Did routine maintenance jobs in Electrical/instruments and Control systems</li> <li>• Prepared maintenance management procedures</li> <li>• Did Permit to Work Procedures</li> <li>• Also did the following scope of work in hazardous and non-Hazardous areas</li> </ul> <p><b>a) Instrumentation and Control Systems</b></p> <ul style="list-style-type: none"> <li>• Did pH, pressure, flow, temperature, level, calibrations, measurement and control</li> <li>• Setting up pneumatic and electronic three - term (PID) controllers</li> <li>• Did alarming Annunciation and trip system</li> <li>• Industrial and domestic refrigeration system</li> <li>• Electro-hydraulics, calibrations and electronics on Bulk Info/Emulsion Computerised explosive trucks</li> <li>• Process Water softening management</li> <li>• Configuration of the Intelligence Automation (I/A) Series System FOXBORO</li> <li>• Fault finding and installation of the Telephone Network System</li> <li>• Final control elements - pneumatic, hydraulic and electrical</li> <li>• Programmable Logic Controllers</li> <li>• Maintained Office machine equipment and Test equipment</li> <li>• pH Control design and installation</li> <li>• Analytical instruments</li> <li>• Filled Thermal Systems</li> <li>• Metal Detectors, Avery Scales, Saco-valves and DP cells</li> <li>• Done permit to work system</li> <li>• Plant compressed air dryers and automatic drain filters</li> <li>• Intelligent and smart transducers/transmitters</li> <li>• Analogue and digital transducers</li> <li>• Maintained and calibrated weights and measures scales</li> </ul> <p><b>b) Electrical/Electronics</b></p> <ul style="list-style-type: none"> <li>• Did electrical power sub-station inspections and maintenance</li> <li>• Servicing of high power and low power voltage switch gears (OCBs, VCBs, JK switches ETC )</li> </ul>

Date from-Date to	Location	Company & reference person <sup>2</sup> (name & contact details)	Position	Description
				<ul style="list-style-type: none"> <li>• Motor panel wiring, protection and control</li> <li>• Switch gear and transformer oil testing</li> <li>• Installation of boreholes motors</li> <li>• Power cable jointing</li> <li>• Transformer testing</li> <li>• Electronic repairs (PCBs etc)</li> </ul> <b>c) Refrigeration</b> <ul style="list-style-type: none"> <li>• Maintained plant chillers</li> <li>• Repaired Fridges</li> <li>• Installed and maintained air conditioning systems</li> <li>• Installed air dryer systems for pneumatics</li> </ul>
1990 to1993 (Full time)	Mumbwa, Mbala and Lusaka Zambia		Aircraft Instrumentation Technician	<b>Zambia Air Force (ZAF)</b> <ul style="list-style-type: none"> <li>• Competent to carry out instruments, control and electrical installations, routine maintenance services and calibrations.</li> <li>• Did test equipment maintenance, protection and system wiring. Did aircraft landing and take-off ground marshalling.</li> <li>• Also carried out major inspections on both fixed and rotary wing aircrafts.</li> <li>• Did before and after flight checks inspections.</li> <li>• Did Flight Engineer's duties during air tests on Helicopter AB 47G aircraft.</li> </ul>

**Other relevant information (e.g. Publications and Lecturing):**

- Chirwa, J. M., (2020), Assessment of the National Impact of the Solar Photovoltaic Technology as an Alternative Source of Electricity Energy in Zambia, Master Thesis, Heriot Watt University, Edinburgh, United Kingdom.
- Chirwa, J. M., (2014), Project Report: Implementation of Efficient Energy Activities in PHI Township in Zambia, Advanced Diploma Final Report, Life Acadmy, Karlstad, Sweden.
- Chirwa, J. M., (2009), Prepayment: The ZESCO journey – Itron User Conference of October 2009. Arabella Western Hotel & SPA South Africa.
- Chirwa, J. M. & Mubemba, C., (2004), Strategies for Distribution Loss Reduction in ZESCO – Metering India International Seminar, New Delhi, India.
- Chirwa, J. M., (2009), Prepayment: The ZESCO journey – Itron User Conference of October 2009. Arabella Western Hotel & SPA South Africa
- Chirwa, J. M. & Mubemba, C., (2004), Prepayment Metering the Zambian Experience – South African Prepayment Week (SAPW) Conference, ESKOM Conference Center, Johannesburg, South Africa.
- Chirwa, J. M., (2004), Strategies for Distribution Loss Reduction in ZESCO – Inter Utility Workshop, EDM, Maputo, Mozambique
- Chirwa, J. M., (1999), Automation of an Acid Effluent Plant, Undergraduate Thesis, City & Guilds Institute of London, UK.
- After graduating with an MBA in **2009** I developed interest in **business studies lecturing**. Subsequently, in the year **2010** I took up formal lecturing on a part-time basis in a University environment at DMI – St. Eugene University in Lusaka – Zambia. My tutoring strength is in the following courses: Business Strategy, Business Economic,s Marketing Management, International Marketing, International Management, International Business, Leadership and Change management and Academic student study skills in essay writing, report writing and referencing

## **ACADEMIC REFERENCES**

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