

1. Family name: Abuor
2. First names: Philip
3. Date of birth: 22/12/65
4. Nationality: Kenyan
5. Civil status: Married

6. Education:

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| Institution: | Kenyatta University, Nairobi, Kenya |
| Date: | 2016-Candidate |
| Degree: | PhD -Environmental Planning and Management |

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| Institution: | Jomo Kenyatta University of Agriculture and Technology, Nairobi, Kenya |
| Date: | 2005-2009 |
| Degree: | MSc In Environmental Science |

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| Institution: | University of Staffordshire, UK |
| Date: | 2003-2004 |
| Degree: | Msc -Environmental Management |

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| Institution: | University of Nairobi |
| Date: | 1988-1991 |
| Degree: | B.Sc in Chemistry |

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| Institution: | Kenya Institute of Management (KIM) |
| Date: | 1988-1991 |
| Diploma: | Diploma in Business Administration |

7. Language skills, mark 1 (worst) to 5 (best) for competence:

| Language | Reading | Speaking | Writing |
|-----------|---------|----------|---------|
| English | 5 | 5 | 5 |
| Kiswahili | 5 | 4 | 4 |

8. Membership of professional bodies:

- International Association for Impact Assessment (IAIA)
- Ecological Society of East Africa (ESEA)
- Institute of Environmental Assessors of Kenya (IEK)
- National Association for Clean Air (NACA- South Africa)
- Chairman- National Environmental Management Authority (Accreditation of NEMA Approved Laboratories)
- Approved Air Quality Monitor (DOSHS)

9. Other skills:

- Microsoft Office (Word, Excel, Access, Power Point..)
- AERMOD (AERMET, AEMAP) for Air Dispersion Modelling
- CULPUFF/CULMET (Air Dispersion Modelling)
- IMMI – for Noise Propagation/Modeling

10. Present position: Environmental Management Consultant

11. Years within the firm: 25 Years

12. Key qualifications (relevant to the project):

Philip Abuor is a registered environmental Lead Expert with NEMA and Approved Air & Noise Quality Monitor (GOK). He has actively been involved in environmental performance monitoring and baseline studies for over **20 years**. Currently, he is the Principal Environmental Consultant with ECE responsible for technical review of environmental monitoring and assessment reports covering baseline studies, ESIAs/EAs, Ambient and Source Air Emissions Monitoring and EMS implementation of various industry categories in East Africa Region.

Philip has post-graduate training in Environmental Science, environmental management system (ISO 14001- Lead Assessor), environmental health risk assessment and Climate Change Assessment under the requirements of the Kyoto Protocol (CDM/JI). Currently is a PhD Degree in Environmental Management and Planning candidate at the School of Environmental Studies Kenya University in Nairobi, Kenya

13. Specific country experience:

| Country | Date from (month/year) – to (month/year) |
|----------|--|
| Kenya | 2007-to date (work station) |
| Uganda | 2007 -2017 (intermittent) |
| Rwanda | 2011- 2017 (intermittent) |
| Ethiopia | 2012-2017 (intermittent) |
| Tanzania | 2007-2017 (Intermittent) |
| Zambia | 2011 |

14. Professional experience record (key projects):

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| Date | 2016-2017 |
| Location | Lokichar Basin- Turkana, Kenya |
| Company | Tullow Kenya BV/Golder Associates |
| Position | Team Leader -Ground Water and Drilled Mud Cuttings Monitoring |
| Description | Water Quality Sampling/Monitoring in support of the ESIA for South Lokichar Basin Oil Production <ul style="list-style-type: none"> • Ground Water Sampling and Analysis • Data interpretation and determination of compliance with the national and international protocols • Report production and presentation to the proponents/project developers |

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| Date | November- December 2017 |
| Location | Machakos County, Kenya |
| Company | E-Cue and Associates/KeNHA |
| Position | Lead Expert- Air and Noise Assessment |
| Description | <p>Construction of second carriageway of the Athi River – Machakos Turnoff Section of the Nairobi – Mombasa Road (A109) - Baseline Noise and Air Monitoring as per the World Bank/IFC EHS Guidelines</p> <ul style="list-style-type: none"> • Establishment of the baseline air, noise and vibration along the project corridor with specific reference to the sensitive receptors • A review of the regulatory requirements for the identified key pollutants against which compliance need to be assessed. • A study of the receiving environment and identification of potential sensitive receptors • Data Analysis and Reporting |

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| Date | April 2017- July 2017 |
| Location | Kigali, Rwanda |
| Company | Energy Utility Corporation Limited- EUCL |
| Position | Lead Consultant |
| Description | <p>Environmental Air and Noise Impact Assessment and Modeling for Jabana II Thermal Power Plant, Kigali as per the REMA and IFC Standards.</p> <ul style="list-style-type: none"> • Noise and Vibration Measurements • Atmospheric emissions measurements (PM, SO₂, NO_x, C_xH_y, CO, CO₂, O₂, Temperature, Flow Rate...) • Identification of emission sources/Sensitive Receptors • Modeling and establishing the fall out areas/locations • Assess significance of the air noise impacts/mitigation measures • Suggestion appropriate of management and monitoring plan for the plant |

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| Date | December 2016- March 2017 |
| Location | Lake Kivu, Rwanda |
| Company | Symbion Power Plant |
| Position | Lead Consultant- Air and Noise Impact Assessment |
| Description | <p>Environmental Air and Noise Impact Assessment and Modeling of the proposed Symbion Lake Kivu Gas Power Plant as per REMA and IFC Stds.</p> <ul style="list-style-type: none"> • Baseline Noise Assessment • Baseline Air Quality Assessment (PM₁₀, PM_{2.5}, SO₂, NO_x, VOCs, CO, CO₂..) • Identification of Sensitive Receptors • Modeling and prediction of the fall out areas/locations • Assessment of significance of the air noise impacts/ providing mitigation measures • Suggestion of management and monitoring plan for the plant |

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| Date | October 2017 |
| Location | Karuma ,Arua, Uganda |
| Company | Sinohydros Corporation Ltd- Karuma Hydro Power Project |
| Position | Lead Consultant Air and Noise Consultant |
| Description | Workplace Environment Air Noise Assessment <ul style="list-style-type: none"> • Expert for Air and Noise Monitoring • Air and noise measurements- underground tunnels (Power House, MTC, HRT, Surge Chamber and TRT) • Data interpretation and determination of compliance with the national and international protocols/Best Practice • Report production and presentation to the proponents/project developers |

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| Date | 2012-2017 |
| Location | Dar- es Salaam, Tanzania |
| Company | Tanzania Portland Cement Company Limited |
| Position | Lead Expert |
| Description | Annual Atmospheric/Stack Emissions Monitoring and Reporting under the IFC/World Bank Project Financing Requirements: <ul style="list-style-type: none"> • Review of the stack measurement reports • Data interpretation and determination of compliance with the national and IFC EHS Guidelines • Report production and presentation to the proponents/project developers |

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|-------------|---|
| Date | 2013-2013 |
| Location | Rwanda |
| Company | IFC World Bank |
| Position | Lead Consultant |
| Description | Development of Water Sampling Manual For Rwanda Utilities Company <ul style="list-style-type: none"> • Review of the existing water sampling and testing protocols in Rwanda • Development of Water Sampling Protocols • Capacity Buidling/Training of the Water Sampling Team in Rwanda. |

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| Date | 2008-2017 |
| Location | Mombasa, Kenya |
| Company | Bamburi Cement Company- LafargeHolcim |
| Position | Lead Consultant |
| Description | Annual Atmospheric/Stack Emissions Monitoring and Reporting under the LafargeHolcim Standards and the National/IFC and WB EHS Guidelines: <ul style="list-style-type: none"> • Review of the stack measurement reports • Data interpretation and determination of compliance with the national and LafargeHolcim Standards • Report production and presentation to the proponent |

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| Date | 2010- 2017 |
| Location | Nairobi, Kenya |
| Company | Iberafrica Power Plant |
| Position | Project Manager/Team Leader |
| Description | Annual Atmospheric/Stack Emissions Monitoring and Reporting under the Union Fenosa Standards and the National/IFC/WB EHS Guidelines: <ul style="list-style-type: none"> • Review of the stack measurement reports • Data interpretation and determination of compliance with the national and Union Fenosa Standards • Report production and presentation to the proponent |

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| Date | 2010- 2017 |
| Location | Mombasai, Kenya |
| Company | Tsavo Power Plant |
| Position | Project Manager/Team Leader |
| Description | Annual Atmospheric/Stack Emissions Monitoring and Reporting under the National /International Finance Corporation/World Bank Guidelines: <ul style="list-style-type: none"> • Review of the stack measurement reports • Data interpretation and determination of compliance with the national and IFC EHS Guidelines • Report production and presentation to the proponent |

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| Date | 2010- 2017 |
| Location | Kilifi, Kenya |
| Company | Rabai Power Plant |
| Position | Project Manager/Team Leader |
| Description | Annual Atmospheric/Stack Emissions Measurements and Reporting under the National NEMA/IFC EHS Guidelines: <ul style="list-style-type: none"> • Review of the stack measurement reports • Data interpretation and determination of compliance with the national and IFC EHS Guidelines • Report production and presentation to the proponent |

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| Date | 2010- 2017 |
| Location | Thika, Kenya |
| Company | Thika Power Plant |
| Position | Project Manager/Team Leader |
| Description | Annual Atmospheric/Stack Emissions Measurements and Reporting under the National NEMA/IFC EHS Guidelines: <ul style="list-style-type: none"> • Review of the stack measurement reports • Data interpretation and determination of compliance with the national and IFC EHS Guidelines • Report production and presentation to the proponent |
| Date | 2012- 2017 |

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| Location | Athi River, Kenya |
| Company | Gulf Power Plant |
| Position | Project Manager/Team Leader |
| Description | Annual Atmospheric/Stack Emissions Measurements and Reporting under the National NEMA/IFC EHS Guidelines: <ul style="list-style-type: none"> • Review of the stack measurement reports • Data interpretation and determination of compliance with the national and IFC EHS Guidelines • Report production and presentation to the proponent |

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| Date | 2016- 2017 |
| Location | Nairobi, Kenya |
| Company | Luxconsult/KfW/Ministry of Transport and Infrastructure |
| Position | Lead Expert- Air and Noise Assessment |
| Description | Feasibility and Detailed Design of a Corridor of a Bus Rapid Transit in Nairobi, Kenya. EuropeAid/136090/DH/SER/KE. Lines 3 West, 4 West and 3 East <ul style="list-style-type: none"> • Baseline air and noise measurements along the BRT Project Corridor- Lines 3West, 4West and 3East • Data interpretation and reporting in line with the NEMA and KfW Environmental Safeguards |

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| Date | 2015-2016 |
| Location | Loitoktok, Kenya |
| Company | Devki Energy Company Limited |
| Position | Lead Expert- Air and Noise Assessment |
| Description | Air Quality Impact Assessment of the Devki Coal Plant as per IFC Environmental Safeguard Requirements: <ul style="list-style-type: none"> • Analysis of available baseline air quality information and determine the ambient air pollutants • A review of the regulatory requirements for the identified key pollutants against which compliance need to be assessed. • A review of the proposed project activities and identify the sources of emissions and associated sources. • A study of the receiving environment and identification of potential sensitive receptors • Determine and simulate by way of atmospheric dispersion modelling ground level concentrations arising from the proposed project • |

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| Date | 2014-2015 |
| Location | Nairobi, Kenya |
| Company | Kenya Airports Authority/Runji and Partners Engineers |
| Position | Lead Expert- Air and Noise Assessment |
| Description | <p>Air and Noise Impact Assessment part of the ESIA of the proposed TERMINAL expansion Greenfield Jomo Kenyatta International Airport (GFT), Nairobi; client Kenya Airports Authority:</p> <ul style="list-style-type: none"> • Baseline environmental noise and air measurements and Reporting • Analysis of available baseline air quality information and determine the ambient air pollutants • A review of the regulatory requirements for the identified key pollutants against which compliance need to be assessed. • A review of the proposed project activities and identify the sources of emissions and associated sources. • A study of the receiving environment and identification of potential sensitive receptors |

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| Date | 2010 |
| Location | Athi River, Kenya |
| Company | Gulf Energy |
| Position | Team Leader- Air and Noise Assessment |
| Description | <p>Baseline Study for Proposed Gulf Energy Medium Speed Diesel Power Plant in Athi River, Kenya:</p> <ul style="list-style-type: none"> • Established the baseline air and noise of the proposed project area • Air dispersion modelling of the proposed thermal power plant • Predicted the selected air pollutants fall out areas • Identified the sensitive receptors • Provided/suggested mitigation measures and project alternatives • Data analysis and reporting to the proponents/project funding agencies – International Finance Corporation (IFC) |

Name Philip ABUOR

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describe me, my qualification, and my experience.

Date: **18/02/2020**



Signature of expert

Signature of authorised

Full name of authorised representative: Denis Repushinki