

Annex B

Curriculum Vitae

**FORM TECH-6
(CONTINUED)**

CURRICULUM VITAE (CV)

Position Title and No.	K-1, TEAM LEADER
Name of Expert:	Stuart Heather-Clark
Date of Birth:	9 August 1967
Country of Citizenship/Residence	South Africa

Education:

Mr Heather-Clark has over 19 years of experience in managing large integrated environmental projects including several industrial, power, port and off-shore oil and gas related Environmental Impact Assessments (EIA) and Strategic Environmental Assessments (SEA). Before joining ERM, Mr Heather-Clark was involved in more than 6 years of research on Strategic Environmental Assessment methodologies and was one of the lead authors of the South African SEA Guidelines. He has presented numerous conference papers and training courses on SEA. One of the SEA courses that he facilitated was organised via SEACAM and was presented in Mozambique. He continued his research in SEA specifically with regard to integrating environmental and social issues into strategic port planning and development. During this time he worked closely with many of the South African National Ports Authority's port environmental managers, planners and engineers.

Mr Heather-Clark has project managed numerous SEA's, including SEA of regional transport corridors from various landlocked countries through Mozambique, SEA for the Port of Saldanha, SEA for the Port of Cape Town and SEA for the Port of Richards Bay. Mr Heather-Clark has also project managed a number of large Environmental and Social Impact Assessments (ESIAs) in the mining, oil and gas and infrastructure sectors. He has also led numerous ESIAs for renewable energy project in South Africa including wind and solar projects. He has been involved in a number of internationally funded projects in Cameroon, Ethiopia, Zambia, Tanzania, Angola, Botswana, Namibia, Uganda and Mozambique. All of these projects involved interaction with lenders, developers, local stakeholders, including NGO's, government officials and local communities. Mr Heather-Clark has an in-depth understanding of the Equator Principles and IFC performance Standards.

- BSc Civil Engineering – Univ. of Cape Town (1992)
- MPhil Environmental Management – Univ. of Cape Town (1996)
- Certification Course ISO 14001 SABS (1997)
- Environmental Conflict Management Course (1997)
- Advanced Environmental Management Course (1997)
- Coastal Engineering Course (1998)
- Strategic Environmental Assessment Course (1998)

Employment record relevant to the assignment:

Period	Employing organization and your title/position. Contact info for references	Country	Summary of activities performed relevant to the Assignment
2004 - Present	Environmental Resources Management Southern Africa (Pty) Ltd Position: Partner	South Africa	See Table below.

	For references: Jeremy Soboil Managing Partner SubSaharan Africa Tel: +2721 6815400 e-mail: Jeremy.soboil@erm.com		
1994 - 2004	Centre for Scientific and Industrial Research (CSIR) Position: Business Unit Manager	South Africa	See Table below.

Membership in Professional Associations and Publications:

- Registered Professional Environmental Assessment Practitioner in South Africa,
- Registered Professional Environmental Assessment Practitioner in Uganda,
- International Association for Impact Assessment (IAIA) South Africa Member

Language Skills (indicate only languages in which you can work):

Language	Reading	Speaking	Writing
English	Good	Good	Good
Afrikaans	Good	Good	Good

Adequacy for the Assignment:

Detailed Tasks Assigned on Consultant's Team of Experts:	Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks
• Overall responsibility for supervising and integrating the inputs from various teams and specialists. • Review and quality control of all specialist reports and deliverables to ensure conformance with in-country requirements and applicable international standards and guidelines. • Liaison with key personnel from the World Bank, and government departments of Zambia and Zimbabwe.	See Table below.

Work Undertaken that Best Illustrates Capability to Handle the Tasks Assigned

Name of assignment/project: Cumulative Impact Assessment (CIA) of the Cambambe Hydropower Plant on the Kwanza River, Angola

Year: 2014

Location: **Angola**

Client: Odebrecht

Main project features: ERM was appointed to undertake a Cumulative Impact Assessment of the Cambambe Hydropower Plant on the Kwanza River in Angola.

Positions held: Project leader

Activities performed: Project Management, Quality control, integration and report writing.

Name of assignment/project: Millennium Challenge Account – Malawi: Infrastructure Development Project – Energy Sector (hydropower plants, transmission and distribution lines and substations)

Year: 2014

Location: **Malawi**

Client: Millennium Challenge Account – Malawi

Main project features: ERM was appointed as the Independent Engineer to review all the Contracting Engineers environmental and social studies associated with the Infrastructure Development Project. The project includes the upgrade and development of new infrastructure including hydropower plants, transmission lines, distribution lines and substations.

Positions held: Environmental Advisor

Activities performed: Review of all environmental and social reports associated with hydropower plant upgrades, new transmission and distribution lines and upgrade and development of new substations.

Name of assignment/project: Strategic Environmental Assessment for the supporting infrastructure for the Baynes Hydropower Project.

Year: 2014

Location: **Namibia/Angola**

Client: Permanent Joint Technical Committee for the Baynes Hydropower Project

Main project features: ERM was appointed to conduct an Environmental, Social and Health Impact Assessment (ESHIA) for the proposed Baynes Hydropower Project on the Kunene River. The ESHIA process consists of two phases: Phase 1 – Scoping; and Phase 2 – Baseline, Impact Assessment and Framework Environmental and Social Management Plan (ESMP).

The PJTC has now appointed ERM to undertake a Strategic Environmental Assessment of the associated infrastructure for the hydropower plant, including access roads for construction, transmission lines routing in Angola and Namibia and locations of an airfield.

Positions held: Project Manager

Activities performed: Quality control, technical advice on specialist studies, integration and report writing of SEA report and client liaison.

Name of assignment/project: Environmental and Social Impact Assessment for the Mphanda Nkuwa Hydropower Project

Year: 2011

Location: **Mozambique** – Tete Province

Client: HIDROELÉCTRICA DE MPHANDA NKUWA

Main project features: COBA and Impacto were appointed to undertake an ESHIA for the construction and operation of the Mphanda Nkuwa Hydropower Project, on the Zambezi River in Tete Province.

Positions held: Adviser

Activities performed: Mr Heather-Clark was appointed to act as advisor for the ESHIA for the Mphanda Nkuwa Hydropower Project in Mozambique. The core service was to advise the project team on international standards such as the IFC Performance Standards and World Commission on Dams.

Name of assignment/project: Environmental and Social Impact Assessment for the Baynes Hydropower Project.

Year: 2009 - 2010

Location: **Namibia/Angola**

Client: Permanent Joint Technical Committee for the Baynes Hydropower Project

Main project features: ERM was appointed to conduct an Environmental, Social and Health Impact Assessment (ESHIA) for the proposed Baynes Hydropower Project on the Kunene River. The ESHIA process consists of two phases: Phase 1 – Scoping; and Phase 2 – Baseline, Impact Assessment and Framework Environmental and Social Management Plan (ESMP). The ESHIA process is being conducted in accordance to the Angolan EIA Regulations, the Namibian EIA Regulations, the World Bank Safeguard Policies and the IFC performance standards.

Positions held: Project Advisor

Activities performed: Quality control, technical advice on specialist studies, integration and report writing of ESIA report and EMP and client liaison.

Name of assignment/project: Strategic Environmental Assessment for the Mozambican Regional Gateway Programme

Year: 2012

Location: Mozambique

Client: Mozambican Regional gateway Project (MRGP)

Main project features: The MRGP aims to support the improvement of the Southern African transport (roads, rail and ports), regional infrastructure network, which uses Mozambique as a gateway for international trade. The MRGP geographic scope encompasses the Beira and Nacala Transport Corridors and the respective links to the Maputo and Limpopo Corridors.

Positions held: Project director

Activities performed: The SEA identified environmental and social issues that need to be considered in the long terms planning an implementation of the rail and port infrastructure that makes up the Beira and Nacala Transport Corridors.

Name of assignment/project: ESIA for a new high voltage overhead transmission power line

Year: 2008 – 2009

Location: **Cameroon**

Client: AES Sonel

Main project features: The project included coordinating a multidisciplinary social and environmental team to undertake an Environmental and Social Impact Assessment and a full Resettlement Action Plan,

for a new electricity distribution project, comprising a 113km overhead power line. The ESIA included comprehensive public participation along the entire route of the transmission line, together with local, provincial and national authorities. The ESIA was undertaken according to Cameroonian EIA Regulations and World Bank guidelines.

Positions held: Project Director

Activities performed: Client liaison, overall quality control, technical advice on specialist studies, integration and report writing of ESIA report and EMP and client liaison.

Name of assignment/project: Strategic Environmental Assessment (SEA) for the Port of Cape Town

Year: 2003

Location: South Africa

Client: National Ports Authority of South Africa

Main project features: The SEA focussed on key environmental and social opportunities and constraint to the future long term development of the Port of Cape Town. It involved extensive public participation and several specialist studies.

Positions held: Project Manager

Activities performed: Project management and setting of ToRs for all specialist studies, integration and report writing of the Scoping Report, SEA report and SEMP, client liaison and all cost control.

Name of assignment/project: Implementation of the Equator Principles and IFC Performance Standards for Standard Bank's Project Financing Processes

Year: 2008

Location: South Africa,

Client: Standard Bank,

Main project features: Assist Standard Bank in adopting the Equator Principles. ERM developed an assessment system (based on the IFC Performance Standards) to link with Standard Bank's project finance transaction life-cycle. This involved the development of "tools" and guidance documents to form a system, together with training on the use of the system and the IFC Performance Standards for all project finance staff.

Positions held: Lead facilitator

Activities performed: Review of Equator Principles system and lead facilitator for training Standard Bank Staff in Johannesburg and London.

Name of assignment/project: Review of an EIA for a wind farm development 150MW to 300MW

Year: 2010

Location: South Africa – Eastern Cape

Client: Confidential

Main project features: ERM was appointed to review all the environmental permitting documentation associated with the development of 3 separate wind farm sites ranging from 150MW to 300MW output.

Positions held: Project Director

Activities performed: Reviewer and adviser to the client

Name of assignment/project:	ESIA for 8 separate wind farm and solar facilities ranging from 120MW to 350M output
Year:	2009 - 2010
Location:	South Africa - Western and Northern Cape Provinces
Client:	Mainstream Renewable Power
Main project features:	ERM was appointed to undertake an EIA for eight separate renewable energy facilities in the Northern and Western Cape, South Africa. The proposed facilities will make use of wind turbines and photovoltaic cells to generate power, with an output capacity of between 120MW and 350MW. A comprehensive public participation process was developed and facilitated by ERM. Potential impacts of the proposed projects were assessed by a number of specialist studies including; avifauna, bats, vegetation, as well as a visual impact assessment, social study, noise study and a comprehensive cultural heritage study. ERM was responsible for the project management and integration of the specialist studies into the EIA and compiling an Environmental Management Plan for the facility.
Positions held:	Project Director
Activities performed:	Client liaison, overall quality control, technical advice on specialist studies, integration and report writing of ESIA report and EMP and client liaison.
Name of assignment/project:	Permitting process for wind measurement masts for 8 separate wind farm facilities
Year:	2009
Location:	South Africa – Western and Northern Cape Provinces
Client:	Mainstream Renewable Power
Main project features:	ERM was responsible for completing all the necessary environmental permits for the erection of wind measurement masts on 8 wind farm sites across the Northern and Western Cape Provinces.
Positions held:	Project Director
Activities performed:	Client liaison, overall quality control, technical advice on specialist studies, integration and report writing of ESIA report and EMP and client liaison.
Name of assignment/project:	ESIA for 5 wind farm developments ranging from 20MW to 200MW output
Year:	2010
Location:	South Africa – Western and Northern Cape Provinces
Client:	G7 Renewable Energies (Pty) Ltd
Main project features:	ERM was appointed to undertake an EIA for five separate wind farm developments in the Northern and Western Cape, South Africa. The proposed facilities will make use of wind turbines to generate power, with an output capacity of between 30MW and 200MW. A comprehensive public participation process was developed and facilitated by ERM. Potential impacts of the proposed projects were assessed by a number of specialist studies including; avifauna, bats, vegetation, as well as a visual impact assessment, social study, noise study and a

comprehensive cultural heritage study. ERM was responsible for the project management and integration of the specialist studies into the EIA and compiling an Environmental Management Plan for the facility.

Positions held: Project Director

Activities performed: Client liaison, overall quality control, technical advice on specialist studies, integration and report writing of ESIA report and EMP and client liaison.

Name of assignment/project: Environmental Impact Assessment for solar farm (pv) development

Year: 2010

Location: South Africa – Northern Cape and Free State Provinces

Client: Intikon Renewable Energy

Main project features: ERM was appointed to undertake an EIA for the development of two solar power farms (photovoltaic cell plants) in the Northern Cape and Free State Provinces of South Africa. ERM will undertake the required studies to obtain environmental approval for these developments, including specialist studies such as landscape and visual and cultural heritage assessments, and stakeholder engagement.

Positions held: Project Director

Activities performed: Client liaison, overall quality control, technical advice on specialist studies, integration and report writing of ESIA report and EMP and client liaison.

Name of assignment/project: Environmental and Social Screening Study for port options in Pemba Bay

Year: 2012

Location: Pemba, Mozambique

Client: Anadarko

Main project features: Environmental and Social Screening Study for various port options in Pemba Bay.

Positions held: Project director

Activities performed: The screening study includes a multi-criteria assessment of various port locations taking into account marine and terrestrial ecology, social issues, land ownership, legal aspects and physical marine conditions.

Name of assignment/project: Environmental and Social Screening Study for a river barging project on the Zambezi River

Year: 2009

Location: Mozambique,

Client: Riversdale Mining

Main project features: Assessment of environmental and social risks associated with dredging over 500km of the Zambezi River.

Positions held: Project director

Activities performed: The project included reviewing existing information, mapping key sensitivities and facilitating a specialist workshop in order to develop Terms of Reference for detailed baseline studies that

will be required should the project proceed to a full ESIA.

Name of assignment/project: Prefeasibility Study for the Ore Line Expansion Project for the Sishen-Saldanha Ore Line and Port of Saldanha

Year: 2011-2012

Location: South Africa

Client: Transnet and various mining companies

Main project features: Environmental and Social Screening Study for the Pre-feasibility Phase of the Ore Line Expansion Project.

Positions held:

Activities performed: The study included compiling a detail Environmental and Social Design Criteria Report together with initial Stakeholder Engagement. A detailed multi-criteria assessment for various port and stockpile options was undertaken. The project included upgrading over a 800km of railway line and upgrading the port facilities including stockpiles, stacker-reclaimers, conveyors and shiploading facilities. The stakeholder engagement process was specifically designed to obtain buy-in from stakeholder who were strongly opposed some components of the port and rail expansion.

Name of assignment/project: Environmental Sensitivity Study of the Durban Dig Out Port Project

Year: 2010

Location: South Africa

Client: Transnet

Main project features: Environmental Sensitivity Study for the proposed dig-out port currently being considered by Transnet at the Durban International Airport Site.

Positions held: Project director

Activities performed: The aim of this assessment was to determine the biophysical, natural and social opportunities and constraints to the development of the dig-out port, as well as provide a strategic overview of the environmental context of the site. In addition, the sensitivity study provided strategic guidance in terms of the environmental due process and licensing requirements with respect to the National Environmental Management Act, and associated legislation.

Name of assignment/project: Environmental and Social Impact Assessment for Transshipment of coal at the Port of Beira

Year: 2011

Location: **Mozambique**

Client: Riversdale Mining Mozambique

Main project features: ERM were appointed in collaboration with Impacto to undertake an ESIA of the coal transshipment project at the Port of Beira.

Positions held: Project Director

Activities performed: Client liaison, overall quality control, technical advice on specialist studies, integration and report writing of ESIA report and EMP and client liaison.

Name of assignment/project:	Environmental and Social Impact Assessment for a river barging project on the Zambezi River
Year:	2009 - 2011
Location:	Mozambique
Client:	Riversdale Mining Mozambique
Main project features:	ERM were appointed to undertake an ESIA for a project to dredge over 500km of the Zambezi River. The project includes full stakeholder engagement, coordination of various specialist studies with extensive field work and the integration of all information into an ESIA report and ESMP.
Positions held:	Project Director
Activities performed:	Client liaison, overall quality control, technical advice on specialist studies, integration and report writing of ESIA report and EMP and client liaison.
Name of assignment/project:	Equator Principled and IFC Performance Standards Review and Training, African Housing Solutions
Year:	2009
Location:	South Africa/Nigeria
Client:	African Housing Solutions/Houses for Africa
Main project features:	ERM was appointed to review and ESIA and Resettlement Policy Framework, for a housing development in Nigeria, against the Equator Principles and IFC Performance Standards. The project included a 2 ½ day training course on the Equator Principles and IFC Performance Standards.
Positions held:	Project Director
Activities performed:	Client liaison, overall quality control, review of ESIA and EMP.
Name of assignment/project:	Environmental and Social Screening Study for a river barging project on the Zambezi River
Year:	2009
Location:	Mozambique – Tete Province
Client:	Riversdale Mining Mozambique
Main project features:	ERM were appointed in collaboration with Impacto to undertake an Environmental and Social Screening Study for a dredging project over 500km of the Zambezi River. The project included reviewing existing information, mapping key sensitivities and facilitating a specialist workshop in order to develop Terms of Reference for detailed baseline studies that will be required should the project proceed to a full ESIA.
Positions held:	Project Director
Activities performed:	Quality control, technical advice on specialist studies, integration and report writing of ESIA report and EMP and client liaison.
Name of assignment/project:	Environmental and Social Impact Assessment for 2D seismic exploration project in the Rovuma Basin
Year:	2009
Location:	Mozambique

Client: Petronas

Main project features: ERM, in collaboration with a local consultancy was appointed to undertake an ESIA for an off-shore exploration drilling which involves undertaking an ESIA and compiling EMPs for offshore exploration activities in Blocks 3 & 6, situated in the Rovuma Basin off the coast of Mozambique. The exploration activities comprise 2D seismic surveys in deepwater.

Positions held: Project Director

Activities performed: Client liaison, overall quality control, technical advice on specialist studies, integration and report writing of ESIA report and EMP and client liaison.

Name of assignment/project: ESIA monitoring studies for Sasol's Off-shore gas exploration activities in Inhambane and Sofala Provinces

Year: 2007-2008

Location: **Mozambique**

Client: Sasol Petroleum Sofala & Empresa Nacional de Hidrocarbonetos

Main project features: Extensive environmental and social monitoring program for Sasol's offshore hydrocarbon exploration activities. Monitoring studies included seismic noise modeling and monitoring, dugong surveys, artisanal fish catch monitoring, coral reef surveys and monitoring, sea turtle monitoring and tourism monitoring.

Positions held: Project Director

Activities performed: Client liaison, technical guidance, overall quality control, integration of final report.

Name of assignment/project: ESIA for seismic surveys and exploration well drilling and testing in Blocks 16 and 19 off the coast of Mozambique

Year: 2005-2006

Location: **Mozambique**

Client: Sasol Petroleum Sofala & Empresa Nacional de Hidrocarbonetos

Main project features: ESIA for the Sasol's exploration activities which comprised 2D and 3D seismic surveys in deepwater and shallow water as well as exploration well drilling and testing activities. The ESIA included extensive public participation and was commended by the IFC for the public participation process. The ESIA was undertaken according to Mozambican EIA Regulations and IFC performance standards.

Positions held: Project Manager

Activities performed: Client liaison, appointment and project management of all specialist studies, integration of EPDA & ToR Reports and ESIA report and EMP, all cost control activities and liaison with local sub-contractors.

Name of assignment/project: ESIA of the Moatize Coal Mine and associated railway line and deep water port infrastructure

Year: 2006-2007

Location: **Mozambique**

Client: Vale

Main project features: ESIA of the Moatize coal mine and associated railway line and deep water port infrastructure. The ESIA included various specialist studies and was undertaken according to Mozambican EIA Regulations and International Best Practice.

Positions held: Project management – cost control

Activities performed: Liaison with local specialists, cost control activities, integration of EPDA & ToR reports and ESIA reports.

Name of assignment/project: ESIA for a Metal Recovery Plant and Slag Crushing, Screening and Weathering facility at Arcelor Mittal Saldanha Works

Year: 2007-2008

Location: South Africa - Saldanha

Client: MultiServ

Main project features: Undertaking an ESIA, including a public participation process and the following specialist studies: air quality, groundwater, noise, botanical, archaeology and a traffic study. The process included comprehensive public participation and was undertaken according to South Africa EIA Regulations and International Best Practice.

Positions held: Project Director

Activities performed: Input into ToR for specialist studies, quality control of the various studies, integration and report writing of baseline report, Scoping Report, ESIA Report and EMP, client liaison.

Name of assignment/project: Environmental and Social Baseline Assessment for a green fields coal mine and CTL plant development

Year: 2008- present

Location: South Africa

Client: Sasol

Main project features: One year of environmental and social baseline study for a green fields coal mine and associated Coal-to-Liquids Plant and associated infrastructure.

Positions held: Project Director

Activities performed: Input into ToR for specialist studies, quality control of the various studies, integration and report writing of baseline report, client liaison.

Name of assignment/project: ESIA for an Early Production System (EPS) and Power Plant

Year: 2007/8

Location: Uganda

Client: Tullow Uganda Operations Pty Ltd

Main project features: The project included a full ESIA for an Early Production System and associated Power Plant in the Kaiso-Tonya area on the banks of Lake Albert, Uganda. The intent of the project is to produce oil which will be converted into electrical power and distillate products (kerosene and diesel) for consumption within Uganda. The project included public participation and was undertaken according to Ugandan legislation and International Best Practice.

Positions held: Project Director

Activities performed: Project management of specialist studies, including setting of ToR and quality control of reports, integration of Scoping Report, Site Selection Report and ESIA Report and EMP, client liaison.

Name of assignment/project: ESIA of the Phase 2 expansion of the Mozal Aluminium Smelter and Matola Port Terminal in Maputo.

Year: 2000-2001

Location: Mozambique

Client: BHP Billiton,

Main project features: The ESIA included an assessment of the expansion of the port terminal at the Port of Matola and a review of the Phase 2 expansion of the Mozal aluminium smelter. The EIA was undertaken according to Mozambican EIA Regulations and IFC Performance Standards and all reports together with the ESIA process were reviewed and approved by the IFC.

Positions held: Project Manager

Activities performed: Project management and setting of ToRs for all specialist studies, integration and report writing of the PCDDP, EPDA & ToR report, ESIA report and EMP, client liaison and all cost control.

Name of assignment/project: Review of the ESIA undertaken for the Maputo Port Privatisation and Rehabilitation Project

Year: 2002

Location: Mozambique

Client: Development Bank of Southern Africa (DBSA)

Main project features: Review of the ESIA undertaken for the Maputo Port Privatisation and Rehabilitation Project.

Positions held: Environmental Adviser

Activities performed: Environmental Adviser to the Development Bank of Southern Africa. Included field visit to the Port of Maputo, review of all relevant ESIA documentation, meetings with MICOA and compilation of a review report. The review was undertaken against the Mozambican EIA Regulations and International Best Practice.

Name of assignment/project: Strategic Environmental and Social Overview and ESIA for offshore exploration well drilling activities in Blocks 2 and 3A,

Year: 2006-2008

Location: Lake Albert, Uganda

Client: Tullow Oil Plc and Heritage Oil and Gas Limited,

Main project features: The strategic overview provided a framework within which ESIA's were undertaken for the offshore drilling project in Lake Albert. A site selection study was undertaken for onshore support infrastructure and a full ESIA for all off-shore activities. The ESIA was undertaken according to Ugandan EIA Regulations and International Best Practice.

Positions held:	Project Director
Activities performed:	Input into ToR for specialist studies, quality control of the various studies, integration and report writing of baseline report, Scoping Report, ESIA Report and EMP, client liaison.
Name of assignment/project:	Environmental screening study for the establishment of a deep-water port at Ponta Dabela
Year:	2001
Location:	Mozambique
Client:	Confidential Client
Main project features:	Environmental and social screening study to identify environmental, social and economic issues and show stoppers associated with the development of a deep-water port on the coast on Mozambique.
Positions held:	Project Manager
Activities performed:	Project management of specialist studies, including setting of ToR and quality control of reports, cost control and integration and report writing of Screening Report.
Name of assignment/project:	Environmental and Social Screening and Qualitative Risk Assessment Western Ports and Rail Corridor
Year:	2007
Location:	South Africa
Client:	Transnet
Main project features:	Identifying environmental and social risks associated with future port development in the Port of Saldanha, Port of Cape Town and Port of Mossel Bay. The scope of the study included the review of previous EIAs, SEAs and other planning documents to identify environmental and social drivers and assess their risk to future port planning, development and operations. The ERM team interacted on a regular basis with the port and rail engineering and design teams to develop a port development framework for a 30 year planning period.
Positions held:	Project Manager
Activities performed:	Review of existing reports, liaison with port and rail engineers, integration and report writing of Screening Report, cost control.
Name of assignment/project:	Environmental and Social Screening and Qualitative Risk Assessment Central Ports and Rail Corridor
Year:	2007
Location:	South Africa
Client:	Transnet
Main project features:	Identifying environmental and social risks associated with future port development in the Port of East London, Port of Port Elizabeth and Port of Ngqura. The scope of the study included the review of previous EIAs, SEAs and other planning documents to identify environmental and social drivers and assess their risk to future port planning, development and operations. The ERM team interacted on a regular basis with the port and rail engineering and design teams to develop a port development framework for a 30 year planning period.

Positions held:	Project Manager
Activities performed:	Review of existing reports, liaison with port and rail engineers, integration and report writing of Screening Report, cost control.
Name of assignment/project:	Environmental and Social Screening and Qualitative Risk Assessment Eastern Ports and Rail Corridor
Year:	2007
Location:	South Africa
Client:	Transnet
Main project features:	Identifying environmental and social risks associated with future port development in the Port of Durban and Port of Richards Bay. The scope of the study included the review of previous ESIAs, SEAs and other planning documents to identify environmental and social drivers and assess their risk to future port planning, development and operations. The ERM team interacted on a regular basis with the port and rail engineering and design teams to develop a port development framework for a 30 year planning period.
Positions held:	Project Manager
Activities performed:	Review of existing reports, liaison with port and rail engineers, integration and report writing of Screening Report, cost control.
Name of assignment/project:	Comparative review of ESIAs undertaken by ERM globally for electricity utilities
Year:	2007
Location:	South Africa
Client:	Eskom
Main project features:	The project included research to provide Eskom with an overview of different EIA governance systems and approaches to managing EIAs specifically for energy utilities in other countries, as well as identifying trends in EIA practice.
Positions held:	Project Director
Activities performed:	Client liaison and quality control of research reports.
Name of assignment/project:	ESIA for the upgrade and expansion of the existing sinter plant.
Year:	2006
Location:	South Africa
Client:	Arcelor Mittal
Main project features:	ESIA and public participation process to meet South African EIA Regulations. This included coordination of the technology review, air quality, health and waste management specialist studies and compilation of the integrated Scoping and ESIA Report and EMP.
Positions held:	Project Director
Activities performed:	Input into ToR for specialist studies, quality control of the various studies, integration and report writing of baseline report, Scoping Report, ESIA Report and EMP, client liaison.
Name of assignment/project:	ESIA of a proposed expansion of the Container Terminal

	Stacking area at the Port of Cape Town, National Ports Authority
Year:	2003-2004
Location:	South Africa
Client:	National Port Authority
Main project features:	The project included the expansion of the Cape Town container terminal into the sea through dredging 1 million m ³ of material for reclamation. The ESIA included a detailed study on alternative sources for fill material and other studies which focused on marine archaeology, coastal erosion, marine hydrodynamics and water quality, visual, noise and traffic. The ESIA included full stakeholder engagement throughout the ESIA process.
Positions held:	Project Manager
Activities performed:	Project management and setting of ToRs for all specialist studies, integration and report writing of the Scoping Report, ESIA report and EMP, client liaison and all cost control.
Name of assignment/project:	Environmental Site Suitability Study for a manganese smelter
Year:	2004
Location:	Mozambique and South Africa
Client:	Asia Minerals Limited
Main project features:	A preliminary site selection process for a manganese smelter by identifying key environmental and social issues for potential sites within South Africa and Mozambique.
Positions held:	Project Manager
Activities performed:	Research and site visit (including Beluluane Industrial) and compilation of key environmental and social opportunities and constraints.
Name of assignment/project:	Training: EIA and SEA training courses for the past 10 years
Year:	2003
Location:	South Africa, Zambia, Ethiopia, Kuwait, Namibia
Client:	SAIEA, World Bank, various South Africa Universities, SEACAM
Main project features:	ESIA training has focussed on the practical aspects on managing an ESIA process in developing countries. Including client and authority liaison, specialist management and integration and report writing.
	SEA training courses focussed on SEA process and implementation.
	Introduction to Equator Principles and IFC Performance Standards.
Positions held:	Lead Course Facilitator
Activities performed:	Leading 2 to 5 day training courses on SEA, EIA and Introduction to Equator Principles and IFC Performance Standards.

Expert's contact information: (e-mail: stuart.heather-clark@erm.com, phone: +2721 681 5400)

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Client, and/or sanctions by the Bank.



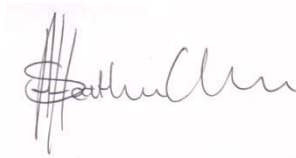
Stuart Heather-Clark

12 August 2014

Name of Expert

Signature

Date



Stuart Heather-Clark

12 August 2014

Name of authorized
Representative of the Consultant
(the same who signs the Proposal)

Signature

Date

Dieter Rodewald

Senior Consultant
Impact Assessment and Planning (IAP)



Dieter Rodewald is a Senior Environmental Consultant within ERM's Impact Assessment and Planning (IAP) team based in Durban, South Africa.

Dieter has over 6 years' experience and holds a Masters of Agricultural Economics from the University of KwaZulu-Natal. He has worked as either a lead consultant or as a coordinator, in mining, infrastructure, industrial, oil and gas and renewable energy related Environment and Social Impact Assessments (ESIAs) for a range of infrastructure projects. Many of these ESIAs have been in compliance with the IFC Performance Standards.

His experience has involved frequent liaison and participatory consultation with international lenders, developers, local stakeholders, including non-governmental agencies, government officials and local communities on a range of development, consultative and project management issues.

Dieter's most recent projects include as Project Manager for the Allana Potash Mining Project and the Yara Dallol Potash Mining Project (both of which include studies associated with ancillary infrastructure), in the Danakil Depression of North east Ethiopia as well as Project Manager for the Kangra Coal Mining Project in Mpumalanga, South Africa, and Ncondezi Coal Company's Water Supply and Retention Project in Mozambique. These projects involved managing a multi-disciplinary team of experts in challenging physical, socio-economic and legal environments. The Allana Potash ESHIA in Ethiopia completed by Dieter received very favourable reviews by a number of international financial institutions, including the IFC.

Dieter has experience working in Uganda, Ethiopia, Mozambique and all across South Africa.

Furthermore, Dieter has managed large multi-disciplinary and international teams. This was

acknowledged in the form of an ERM global collaboration award.

Dieter's strength lies in understanding clients' needs and managing people in order to deliver projects that meet expectations, both technically and financially.

This was evident when Shell awarded Dieter a cost reduction award in recognition of the significant contribution made by him in reducing costs associated with their environmental services programme.

Fields of Competence

- Project management of ESIAs for large, complex projects, to both local and IFC standards.
- Environmental, Social and Health Impact Assessments (ESHIA)
- Environmental Management Plans
- Environmental Management Programmes (EMPRs) for mining projects
- Public Participation programmes
- Environmental Auditing
- Ecological Support

Education

- MSc (Agricultural Economics), University of KwaZulu-Natal, South Africa, 2007
- BSc, (Agricultural Business), University of KwaZulu-Natal, South Africa, 2005

Languages

- English
- Basic Afrikaans

Key Industry Sectors

- Mining
- Ports
- Import/Export
- Oil and Gas
- Energy
- Transport

Key Projects

Yara Dallol Potash Project, Danakil Depression, Afar Region, Ethiopia, Yara Dallol BV, 2013 – present Project Manager

Currently managing the Environmental, Social and Health Impact Assessment (ESHIA) process for a proposed potash mining project in north eastern Ethiopia. This project involves the management of a multi-disciplinary team of experts from around the world. This project is being undertaken in conformance to the IFC PSs and includes all projects ancillary to the mine, including a social and environmental screening assessment for access roads to Djibouti port, screening assessment for a regional overhead transmission line and basic EIA for port facilities.

Water Supply and Retention Project associated with the Ncondezi Coal Mining Project, Tete Province, Mozambique, Ncondezi Coal Company Mozambique Limitada, 2014 – Present Project Manager

Currently managing the Environmental and Social Impact Assessment process for a proposed water supply and retention project in the Tete Province, Mozambique. This project involves the management of an in-country sub-contractor team. This project is being undertaken in compliance with National Mozambican laws and with international guidelines and standards.

Dallol Potash Project, Danakil Depression, Afar Region, Ethiopia, Allana Potash Corp, 2012 – 2013 Project Manager

Managed the Environmental, Social and Health Impact Assessment (ESHIA) process for a proposed potash mining project in north eastern Ethiopia. This project has involved the management of a multi-disciplinary team of experts from around the world. This project was undertaken in conformance to the IFC PSs. This project also includes all projects ancillary to the mine, including a social and environmental screening assessment for access roads to Djibouti port, H&S advice as well as a Resettlement Action Plan (RAP).

Coal Mine Expansion, Environmental Management Programme Revision and Associated Scoping and EIA, Mpumalanga, South Africa, Kangra Coal (Pty) Ltd, 2010 – present Project Manager

Currently carrying out an EIA and the associated licencing process for a proposed underground coal mine expansion and adit development Project in Piet Retief, South Africa. Project involves both the ESIA, an expanded public participation programme, as well as a

myriad of licensing requirements, in conformance to South African law.

3D-Seismic Survey in the Jobi Rii, Jobi East and Mpyo-Bbegeri Fields, Social Impact Assessment, Uganda, Tullow Uganda Limited, 2011 Lead Social Consultant

ERM were contracted to carry out an ESIA to Ugandan and International Funding Corporation (IFC) Standards. Responsible for collecting all in-country social baseline data and compiling associated social impact assessment reports, as per to the ESIA.

Makhado Colliery Project, Independent National Environmental Legislation Review, Limpopo Province, South Africa, Coal of Africa, 2011 Project Consultant

Carried out an independent National Environmental Legislation review and gap analysis of the Environmental Scoping and Impact Assessment reports.

Hydropower Development, ESIA, Mkushi District, Central Province, Zambia, Muchinga Power Company Limited, 2011 – present Assistant Project Manager

Currently assisting in facilitating the ESIA process for the proposed 255 MW hydro power project on the Lunsewfwu and Mkushi Rivers in Zambia.

Asset Verification, Valuation and Network Environmental Assessment for over 1,000 commercial customer delivery points, South Africa, Shell South Africa Marketing (Pty) Ltd, 2010 - 2011 Project Manager

Managed a team of over 15 individuals across three offices who mobilised and verified over 13,000 assets located over 1,000 commercial customer sites. As part of these assessments, teams also carried out a Network Environmental Risk Assessment for each site visited.

National Landfill Gas to Energy Project, Waste Licence Application Process, South Africa, CEF (Pty) Ltd, 2008 - 10 Project Manager

Facilitated the Waste Licencing and associated basic assessment procedures for 15 landfills. The project's purpose was to utilise landfill gas as a fuel for energy production.

**Proposed Upgrade and Redevelopment of the Effluent Treatment System, Waste Licence Application Process, Newcastle, KwaZulu-Natal, South Africa, ArcelorMittal (Pty) Ltd. Newcastle Works, 2010
Project Manager**

Facilitated the Waste Licensing, and associated Scoping report, in preparation for an EIA for the upgrade and redevelopment of the effluent treatment system.

**Dune Stabilisation, Environmental Impact Assessment, Kingsburgh, KwaZulu-Natal, South Africa, Boardwalk Complex Body Corporate, 2009 - 2010
Project Manager**

Facilitated a Basic Assessment process for the proposed construction of dune stabilisation technology, to prevent the collapse of buildings at the Boardwalk Complex in the Lovu River. Specialist studies associated with the process included a Conceptual Solutions Assessment and a Coastal Ecological Assessment.

**Storage Sheds, Multi-Purpose Terminals, Section 24(g) Application, Port of Richards Bay, KwaZulu-Natal, South Africa Transnet Port Terminals, 2009 - 2010
Project Manager**

Facilitated a Section 24(g) application and the associated Basic Assessment process for four multi-purpose storage sheds. The sheds were constructed prior to obtaining environmental authorisation.

**Transmission Lines Refurbishment Projects, eThekwin Municipality (E8804), Environmental Assessment and EMP, eThekwin Municipality, KwaZulu-Natal, South Africa, Phambili Merz, 2008 - 2009
Project Manager**

Conducted an Environmental Assessment and compiled an Environmental Assessment and Management Plan report for various maintenance and construction activities on overhead transmission lines.

**Storage of Metallurgical Coke, Environmental Assessment, Durban, KwaZulu-Natal, South Africa, Bridge Port, 2009
Project Manager**

Conducted an Environmental Assessment and compiled a duty of care report for temporary storage of approximately 37 000 tons of Metallurgical Coke at the Bayhead Durban facility.

Input / Export Operations, Environmental Support, Durban, KwaZulu-Natal, South Africa, Bridge Port 2008 - 2010

Project Manager

Provided specialist support services to aid the implementation of an Environmental Management System (EMS) and provide the necessary environmental monitoring and reporting.

**Transmission Lines Refurbishment and Rebuilding Projects, Environmental Auditing, eThekwin Municipality, KwaZulu-Natal, South Africa, Phambili Merz, 2008 - 2010
Project Manager**

Facilitated the role as an independent Environmental Control Officer undertaking EMP compliance audits for various maintenance and construction activities on overhead transmission lines.

**Construction of Dickens Road On- and Off-Ramps, Vegetation Assessment, Umbogintwini, KwaZulu-Natal, South Africa, Arbour Town (Pty) Ltd, 2009
Specialist Support**

Undertook a Vegetation Assessment of the proposed sites for the construction of the Dickens Road off- and on- ramps. The aim of the survey was to identify common on-site floral species, and assess the ecological value of the site for inclusion into the proposed off-/on-ramp's EIA.

**Roads and Associated Stormwater Infrastructure Upgrade, Wetland Assessment, Pongola, KwaZulu-Natal, South Africa, Afri-Infra (Pty) Ltd, 2009
Specialist Support**

Undertook a Wetland Vegetation Assessment at the site. The objective of the assessment was to use vegetation as a field guide to assist in locating the boundary of the wetland.

**Princess Magogo Stadium, Wetland Rehabilitation, KwaMashu, KwaZulu-Natal, South Africa, PMSA, 2010
Specialist Support**

Facilitated as a independent Wetland Consultant and assisted in the rehabilitation of a wetland.

**Development and Planning – Agricultural Assessment
for the Shongweni Local Area Plan, Shongweni,
KwaZulu-Natal, South Africa, eThekweni
Municipality, 2010**

Specialist Support

Compiled an Agricultural Assessment report which focused on the status quo of the agricultural potential in the area. The aim of the study was to obtain a general overview of the area, which was not supported by field observations or field studies. It was based primarily on detailed topographical analysis together with other pertinent literature.

**FORM TECH-6
(CONTINUED)**

CURRICULUM VITAE (CV)

Position Title and No.	K-6, Public Consultation Facilitator
Name of Expert:	Janet Mkhabela
Date of Birth:	06 June 1980
Country of Citizenship/Residence	South Africa

Education:

Master's Degree (Policy & Development Studies), University of KwaZulu-Natal, South Africa, 2005

Honours Degree (Policy & Development Studies), University of Natal, South Africa, 2003

Undergraduate Degree in Industrial, Organisational & Labour Studies: University of Cape Town, South Africa, 2003

Employment record relevant to the assignment: { Starting with present position, list in reverse order. Please provide dates, name of employing organization, titles of positions held, types of activities performed and location of the assignment, and contact information of previous clients and employing organization(s) who can be contacted for references. Past employment that is not relevant to the assignment does not need to be included. }

Period	Employing organization and your title/position. Contact infor for references	Country	Summary of activities performed relevant to the Assignment
2007 – present	Environmental Resources Management Consultant For references: Telephone : 021 6815400 e-mail: david.shandler@erm.com; Mr. David Shandler ,Partner	South Africa	Social Specialist on the Muchinga Hydropower Plant ESIA Social Specialist on the Upgrade of the Mulungushi Hydropower Plant

Membership in Professional Associations and Publications:

N/A

Language Skills (indicate only languages in which you can work):

<i>Language</i>	<i>Reading</i>	<i>Speaking</i>	<i>Writing</i>
English	Good	Good	Good
isiZulu (<i>mother tongue</i>)	Good	Good	Good

Adequacy for the Assignment:

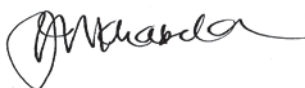
Detailed Tasks Assigned: • Design, implement and undertake all stakeholder engagement activities for the ESIA • Hosting of Public Participation Meetings • Report Writing • Compile a Stakeholder Consultation Report • Compilation of the Resettlement Policy Framework	Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks: Name of assignment or project: Muchinga Hydropower Plant Year: 2011 -2013 Location: Zambia Client: Muchinga Hydropower Company Main project features: Establishment of a new hydropower plant 6km of the confluence of the Lunsemfwa and Mkushi River, establishment of a new workers' village, roads, clinics, batching plants, and underground pressure tunnels Positions held: Lead Social Specialist Activities performed: • Stakeholder engagement at various levels, including national, provincial, district authorities, traditional leaders and multiple communities (i.e., Chembe Chiefdom villages in the Luano Game Management Areas) • Compilation of socio-economic baseline and impact assessment • Compilation of a Resettlement Policy Framework Name of assignment or project: Rehabilitation of the Mulungushi Hydropower Plant Year: 2013 Location: Zambia Client: Lunsemfwa Hydropower Company (LHPC) Main project features: Upgrade to the existing Mulungushi Hydropower Station, including construction of a new powerhouse, a 4.5km pressure tunnel, a new transmission line and access road. Positions held: Lead Social Specialist Activities performed: • Compilation of socio-economic baseline and impact assessment • Stakeholder engagement at various levels, including national, provincial, district authorities, traditional leaders and multiple communities • Compilation of a Resettlement Policy Framework Name of assignment or project: T.E.N. Ghana ESIA Year: 2012 Location: Ghana Client: Tullow Ghana Limited Main project features: Offshore oil and gas mining project, with an FPSO permanently docked 60km offshore; aggravated stakeholders who wanted benefits from the mining activities as well as believed that the offshore oil and gas mining activities were resulting in the reduction of fish stocks. Positions held: Lead Social Specialist Activities performed: • Stakeholder engagement with 22 communities (out
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	of 122) in six districts of the Western Region. • Compilation of socio-economic baseline and impact assessment • Compilation of PCDD and stakeholder consultation report Name of assignment or project: Upgrade of Manganese Ore Line Year: 2012-2013 Location: South Africa Client: Transnet Limited Main project features: Upgrade of an 800+ km manganese ore line; through the extension of existing railway loops from the Port of PE to Hotazel, SA, and establishment of a new railway yard Positions held: Lead Social Specialist Activities performed: • Compilation of socio-economic baseline and impact assessment • Engagement of multiple stakeholders along the length of the railway line (in two provinces and multiple municipalities); including authorities, commercial and emerging farmers, and communities (including CPAs).
{List all deliverables/tasks as in TECH- 5 in which the Expert will be involved}	Detailed socio-economic baseline report Social impact assessment report Social Management Plans Resettlement Policy Framework (RPF) Stakeholder Consultation Stakeholder consultation Report

Expert's contact information: (e-mail janet.mkhabela@erm.com; phone +27 21 681 5400)

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Client, and/or sanctions by the Bank.



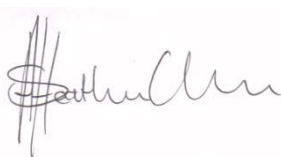
Janet Mkhabela

{11/08/2014}

Name of Expert

Signature

Date



Stuart Heather-Clark

12 August 2014

Name of authorized
Representative of the Consultant
(the same who signs the Proposal)

Signature

Date

**FORM TECH-6
(CONTINUED)**

CURRICULUM VITAE (CV)

Position Title and No.	K-4, Terrestrial Ecologist/Biodiversity Technical Lead
Name of Expert:	Andrew Cauldwell
Date of Birth:	10/05/1966
Country of Citizenship/Residence	South Africa

Education:

School, college and/or University Attended	Degree/certificate or other specialized education obtained	Date Obtained
University of Pretoria	MSc Wildlife Management	1996
University of Pretoria	BSc Honours Wildlife Management	1994
University of Natal	BSc Agriculture	1987

Employment record relevant to the assignment:

Period	Employing organization and your title/position.	Country	Summary of activities
July 2014 to Jan 2015	Batoka Gorge Hydropower Project Client: Zambesi River Authority	Victoria Falls, Zimbabwe / Livingstone, Zambia	Biodiversity Technical Lead. An ESIA is currently being developed for a large hydropower scheme on the Zambezi River within the Batoka Gorge downstream of the Victoria Falls. Activities performed: Coordination of baseline ecological studies, impact assessment and development of a management plan.
2013	Mulungushi Hydroper Scheme	Kabwe, Zambia	Biodiversity technical support towards development of the Mulungushi – Muchinga Hydropower upgrade
July 2013	Seismic survey in the central Ethiopian Rift Valley Client: Africa Oil inc	Rift Valley, Ethiopia	An ESIA was developed for a proposed seismic survey for oil exploration in a 45,000 km ² block within the Rift Valley. The area includes eight large lakes, several protected areas, extensive natural and cultivated habitats. Positions held: Biodiversity Technical Lead. Activities performed: Extensive consultation was held with national, regional and district (Woreda) authorities as field survey and community consultation to assess ecological sensitivity and ecosystem services. The study includes and Impact Assessment and major inputs into an EMP.
2013 - ongoing	ESIA for a potash solution mine, Northern Ethiopia Client: Yara / Ethio-Potash	Danakil Depression, northern Ethiopia	An ESIA was undertaken jointly with in-country specialists to meet IFC Performance Standards. This project is based in an extreme desert habitat 120 m below sea level, and the hottest inhabited place on earth. This project has been extended to include an independent ESIA for a haul road to the Djibouti Port with fieldwork conducted in May 2013. Positions held: Biodiversity Technical Lead Activities performed: Biodiversity components included terrestrial, aquatic and ecosystem services assessments. Duties included field team leadership and Biodiversity Technical Lead.
2012	ESIA development for four iron ore mines, road, rail and port Clients: Verdanta and China Union	Liberia	Development of six independent ESIA's of four proposed open cast iron ore sites as well as road rail and port developments for two independent clients in Liberia covering both brownfield and remote greenfields sites. Some greenfields sites are within primary rainforest habitats that are potentially Tier 1 Critical Habitats. Positions held: Biodiversity Technical Lead Activities performed: High level biodiversity risk

Period	Employing organization and your title/position.	Country	Summary of activities
			assessment and scientific peer review.
2011 – March 2013	ESIA development for an iron ore mine Client: London Mining Corporation	Sierra Leone	An ESIA was undertaken to meet both Sierra Leone in-country and IFC standards. The ESIA contains a strong biodiversity component with assessment of a brownfields iron ore mine, haul road and barging route through an Important Bird Area and Ramsar wetland. Positions held: Biodiversity Technical Lead Activities performed: Biodiversity studies have covered detailed vegetation, faunal, avifaunal and aquatic ecological assessments. Responsibilities included involvement in extensive ESIA compilation and project management.
Feb 2013	ESIA for a Zinc Mine, Northern Cape Client: Black Mountain Mining, Verdanta	Northern Cape, South Africa	Development of a comprehensive ESIA to client standards (based on IFC standards) for a zinc mine in sensitive and irreplaceable inselberg habitats. Positions held: Biodiversity Technical Lead Activities performed: Includes comprehensive impact assessment and offset strategy. Duties have involved technical leadership for high profile subcontractors, impact assessment and consolidation of biodiversity components of the ESIA.

Membership in Professional Associations and Publications:

Associations: Professionally registered Ecologist in South Africa (Pr.Sci.Nat. Membership number 400213/09)

South African Wildlife Management Association

Birdlife South Africa

Language Skills (indicate only languages in which you can work): English, Afrikaans, Swahili

Adequacy for the Assignment:

Detailed Tasks Assigned on Consultant's Team of Experts:	Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks
• Review existing reports and data • Co-ordination of biological component • Review and responsibility of Baseline delivery • Analysis of potentially fatal flaws • Terrestrial ecology impact assessment • Development of mitigation measures for terrestrial ecology component • Report compilation and feedback	Andrew has previous experience in leading biodiversity studies and coordinating efforts in the following previously listed assignments: • Batoka Gorge Hydropower Project • Seismic survey in the central Ethiopian Rift Valley • ESIA for a potash solution mine, Northern Ethiopia • ESIA development for four iron ore mines, road, rail and port • ESIA development for an iron ore mine Andrew has been responsible for assessing impacts and formulating practical mitigation in all of the previously listed assignments as well as many other assignments in Africa.

Expert's contact information: (e-mail: andrew.cauldwell@erm.com, phone: +2711798 4300)

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Client, and/or sanctions by the Bank.

Andrew Cauldwell



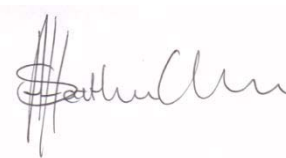
12 August 2014

Name of Expert

Signature

Date

Stuart Heather-Clark



12 August 2014

Name of authorized
Representative of the Consultant
(the same who signs the Proposal)

Signature

Date

**FORM TECH-6
(CONTINUED)**

CURRICULUM VITAE (CV)

Position Title and No.	K-5, Sociologist
Name of Expert:	Liza van der Merwe
Date of Birth:	17 October 1964
Country of Citizenship/Residence	South Africa

Education:

BA Hon Development Studies, University of Stellenbosch, 1987

BA Development Studies, Sociology, Business Psychology, University of Stellenbosch, 1986

Employment record relevant to the assignment:

Period	Employing organization and your title/position. Contact info for references	Country	Summary of activities performed relevant to the Assignment
2013 - present	Environmental Resources Management Southern Africa (Pty) Ltd Position: Partner For references: Jeremy Soboil Managing Partner SubSaharan Africa Tel: +2721 6815400 e-mail: Jeremy.soboil@erm.com	South Africa	See table below.
1999 - 2008	Employer: Trans Caledon Tunnel Authority (TCTA) Positions held: Land Acquisition Manager	South Africa	See table below.
1999 - 2008	Employer: ECV Assessment cc Positions held: Specialist Social Development Consultant	South Africa	See table below.
1988 - 1999	Employer: Human Sciences Research Council (HSRC) Positions held: Senior Researcher	South Africa	See table below.
1988	Employer: University of South Africa (UNISA) Positions held: Junior Lecturer	South Africa	See table below.

Membership in Professional Associations and Publications:

International Association for Impact Assessment - South African Chapter

Language Skills (indicate only languages in which you can work):

<i>Language</i>	<i>Reading</i>	<i>Speaking</i>	<i>Writing</i>
English	Good	Good	Good
Afrikaans	Good	Good	Good

Adequacy for the Assignment:

Detailed Tasks Assigned on Consultant's Team of Experts:	Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks
• Planning and undertaking a social assessment, including compensation and resettlement policy framework • Assisting with Public Participation Meetings • Questionnaire design • Report Writing	Name of assignment or project: Berg Water Project_____ Year: 2003 - 2008_____ Location: Franschhoek, Western Cape, South Africa_____ Client: Trans Caledon Tunnel Authority _____ Main project features: Dam construction, and management of social environment during construction process_____ Positions held: Sociologist_____ Activities performed: Plan and manage the development and implementation of social and land rights aspects, development of scopes of services' for specialist consultants such as valuers, legal specialists, land surveyors and social specialists; drafting of request for proposals and tender management.____
	Name of assignment or project: The Vaal River Eastern Sub-System Augmentation Project in Gauteng and Mpumalanga_____ Year: 2005 - 2012_____ Location: Secunda, Mpumalanga Province, South Africa_____ Client: Trans Caledon Tunnel Authority_____ Main project features: Pipeline construction, management of social and land rights acquisition environment_____ Positions held: Sociologist_____ Activities performed: development of social strategy policy documents; development of project related terms of references; proposal and tender management, evaluation and administration; management of particular project components such as employment, procurement and training, archaeology and heritage; land and land rights acquisition processes with land owners by means

	of negotiation and expropriation_
	Name of assignment or project: Mabeskraal Upgrade of Water Systems_____ Year: 2003_____ Location: North-West Province, South Africa_____ Client: Magalies Water_____ Main project features: Upgrade of domestic water supply infrastructure; management of social aspects during project implementation _____ Positions held: Project Manager and Trainer_____ Activities performed: Establishment and training of Project Steering Committee, hosting of public participation meetings, questionnaire design, training of field staff in data gathering techniques, report writing and attendance of project management meetings.

Expert's contact information: (e-mail : liza.vandermerwe@erm.com, phone : +27216815400)

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Client, and/or sanctions by the Bank.

Liza van der Merwe



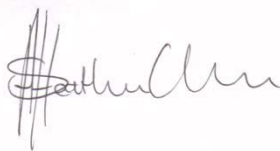
12 August 2014

Name of Expert

Signature

Date

Stuart Heather-Clark



12 August 2014

Name of authorized
Representative of the Consultant
(the same who signs the Proposal)

Signature

Date

**FORM TECH-6
(CONTINUED)**

CURRICULUM VITAE (CV)

Position Title and No.	K-7, Civil Engineer/ Dam Safety
Name of Expert:	John Colson Dulude
Date of Birth:	Age = >21 (DOB withheld for EEO and privacy compliance)
Country of Citizenship/Residence	USA

Education:

MBA, Finance, Charleston Southern University, Charleston, SC , 1992

B.S., Civil Engineering, The Citadel, Charleston, SC, 1980

Licensed Professional Engineer

34 Years of experience

Employment record relevant to the assignment:

Period	Employing organization and your title/position. Contact info for references	Country	Summary of activities performed relevant to the Assignment
June 2014 - present	Millennium Challenge Corporation (MCC) and ESCOM (power company) Independent Engineer Millennium Challenge Corporation Ben Campbell, Project Manager campbellbl@mcc.gov Oliver Pierson, Resident Country Director – Malawi Local Cell: +265 (0) 9949 62296 US Cell: +1 202 375 8661 piersono@mcc.gov	Malawi	1. Independent Engineer for Liwonde Barrage (Shire River) Supporting the ESIA for investment to refurbish the Shire River Cascade hydro facilities. The focus of this work involves evaluating and developing solutions associated with substantial impacts of sediment and non-native, invasive, aquatic weeds that are impacting the generating capability of the entire cascade. The role of Independent Engineer provides detailed review and evaluation of the Client recommended approaches to mitigation. 2. Nkula Hydro Project (Shire River) Evaluation of operation and sediment load remediation as part of cascade analysis to optimize power production. Evaluated implications of downstream sediment loading, safety issues and operating ranges. Developed cost and logistical analysis of remediation work. Evaluated safety issues associated with pool management higher than design specifications. 3. Tedzani Hydro Project (Shire River) Evaluation of operation and sediment load remediation as part of cascade analysis to optimize power production. Evaluated implications of downstream sediment loading, safety issues and operating ranges. Developed cost and logistical analysis of remediation work. 4. Kapichira Hydro Project (Shire River)

			Evaluation of operation and sediment load remediation as part of cascade analysis to optimize power production. Evaluated implications of downstream sediment loading, safety issues and safe operating ranges. Evaluated implications of upstream remediation and flow management on Kapichira, the most downstream project in the cascade. Developed cost and logistical analysis of remediation work.
2014	Odebrecht (Proposed)	Angola	5. Cambambe Hydroelectric project Preliminary scoping of dam safety and hazard issues for the Cambambe hydroelectric project. Scoped issue assessment including geotechnical data requirements, operating head issues and potential structural issues. Scoped downstream hazard analysis issues and potential alternatives.
2013	KazREFF/ EBRD Independent Engineer	Kazakhstan	6. Kazakhstan - New Hydro Feasibility Study Evaluated and identifying new hydro potential throughout the country of Kazakhstan as part of an overall renewable resources program evaluation. This grid scale work was performed under the auspices of the European Bank for Reconstruction and Development as part of the formal program of Strategic Environmental Review of the Kazakhstan Renewable Financing Facility. The goal of the project is to identify more than 2 GW of renewable capacity in the country. Successfully developed a methodology for quickly identifying hydro opportunities, balancing them with resource potential and alternative generation, and establishing generation potential based on those opportunities. Project included evaluation of resource statistics and translating data into generation potential. This work will be used in the next phase of system feasibility and connect opportunities to load centers and evaluate potential displacement of non-renewable generation.
1998 - 2006	Santee-Cooper Managing Engineer	USA	7. West Pinopolis Dam Seismic Retrofit A \$30 million project to bolster the West Pinopolis Dam to withstand the probable maximum earthquake of 7.5MM. The reservoirs above the dam represent one of the largest man-made reservoirs in the U.S. by surface area. The project involved retrofitting/bolstering an existing dam without dewatering the reservoir and included significant excavation and replacement, and the use of stone column vibro-compaction to effectively improve the relative density of granular soils. The objective is increased mechanical properties (shear strength, stiffness, and bearing capacity). The project was finished on time and ahead of budget and met all of the regulatory requirements as designed.
1985 - 2000	Santee Cooper	USA	8. Dam Safety Program Director

	Managing Engineer		Responsible for all in-house heavy/civil construction for large southeast public utility. Responsible for specialized and highly sensitive projects up to USD30 Million, which included dam analysis involving both static and seismic slope stability analysis, evaluation, and other design requirements for large embankment dams. Also performed large construction as well as demolition projects associated with generating stations, switching stations, substations, and transmission lines. Responsible for the safety, maintenance, and operations of 70 kilometers of dams and dikes. Managed and performed the analysis of dams to meet mandated stability requirements with special emphasis on seismic response. Initiated, developed, and implemented the first full scale test of an Emergency Action Plan for Dam Failure in the United States, and also performed 14 different EAP tests including five (5) full scale tests, and oversaw 5 Dam Safety Inspections according to regulations and best engineering practices.
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Membership in Professional Associations and Publications:

- American Society of Civil Engineers
- Association of State Dam Safety Officials
- American Fishery Society
- National Hydropower Association

Language Skills (indicate only languages in which you can work): English (native)

Adequacy for the Assignment:

Detailed Tasks Assigned on Consultant's Team of Experts:	Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks
• Review all existing engineering documentation related to the Kariba Dam Rehabilitation Works, and provide comment. • Provide recommendations on the suitability of the site, engineering design, and need for the Kariba Dam Rehabilitation Works. • Provide input into health and safety aspects of the project. • Report Compilation	See table above for experience listing.

Expert's contact information: (john.dulude@erm.com, +1 843 416 5115 (office), +1 843 813 8786 (mobile))

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Client, and/or sanctions by the Bank.

John C. Dulude



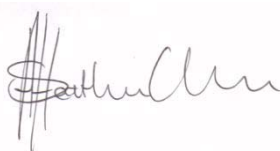
11/08/2014

Name of Expert

Signature

Date

Stuart Heather-Clark



12 August 2014

Name of authorized
Representative of the Consultant
(the same who signs the Proposal)

Signature

Date

**FORM TECH-6
(CONTINUED)**

CURRICULUM VITAE (CV)

Position Title and No.	K-2, Water Resources
Name of Expert:	Tim Smith
Date of Birth:	20 August 1966
Country of Citizenship/Residence	United Kingdom

Education:

MSc Engineering Hydrology, Imperial College of Science, Technology and Medicine,
University of London, 1989

DIC (Diploma of Imperial College), Imperial College of Science, Technology and Medicine,
University of London, 1989

BSc (1st Class Hons, Pilkington Prize) Physics, Imperial College of Science, Technology and
Medicine, University of London, 1988

Employment record relevant to the assignment:

Period	Employing organization and your title/position. Contact infor for references	Country	Summary of activities performed relevant to the Assignment
1995 - Present	Environmental Resources Management Limited Position: Technical Director	United Kingdom	See Table below.
1989 - 1995	Mott MacDonald Limited Position: Graduate Engineer	United Kingdom	See Table below.

Membership in Professional Associations and Publications:

Chartered Engineer (CEng)

Chartered Environmentalist (CEnv)

Member of the Chartered Institution of Water and Environmental Management (MCIWEM)

Member of the British Hydrological Society

Language Skills (indicate only languages in which you can work):

<i>Language</i>	<i>Reading</i>	<i>Speaking</i>	<i>Writing</i>
English (mother tongue)	Good	Good	Good
French	Fair	Poor	Poor

Adequacy for the Assignment:

Detailed Tasks Assigned on Consultant's Team of Experts:	Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks
• Evaluate the potential changes in flow regime. • Evaluate impact on water resource availability of Zambia and Zimbabwe. • Evaluate the impact on downstream water resource availability. • Evaluate the impact on factors such as sediment flows, eutrophication, and temperature and chemical change. • Report compilation	Name of assignment or project: Environmental and Social Assessment (ESIA) of the Red Sea-Dead Sea Water Conveyance Project_____ Year: 2008 - date_____ Location: Jordan, Middle East_____ Client: World Bank_____ Main project features: Assessment of potential routes through the Dead Sea valley to convey water to halt the decline in Dead Sea water levels. The project includes water conveyance, desalination and hydropower generation_____ Positions held: Project Director and Water Resources Expert_____ Activities performed: Overall direction and coordination of the team of experts establishing the environmental and social baseline, and assessing impacts associated with this project. Mr Smith is also responsible for QA/QC, financial management and senior client liaison. _____
	Name of assignment or project: Inga 3 Hydropower Development Project Year: 2010_____ Location: Congo (DRC)_____ Client: Confidential Client_____ Main project features: The Inga III Dam is the first of six phases of the Grand Inga Hydroelectric Project. The dam wall will be constructed in two steps (low and then high head). The maximum electricity generation capacity will be approximately 4800 MW. _____ Positions held: Water resources specialist _____ Activities performed: Strategic management and technical coordination for the project. _____
	Name of assignment or project: Lom Pangar Hydropower Project_____ Year: 2011_____ Location: Cameroon_____ Client: European Investment Bank_____ Main project features: Regulating Dam, hydro-electric power plant and a transmission line to the existing Eastern Network. _____

	Positions held: Hydrology Expert_____ Activities performed: Independent review of the the Environmental and Social Assessment (ESIA) prepared for the Lom Pangar Hydropower Project_____
	Name of assignment or project: Baynes Hydropower Project Environmental and Social Impact Assessment (ESIA)_____ Year: 2009 – date_____ Location: Namibia and Angola_____ Client: Permanent Joint Technical Commission of the Baynes Committee (Joint Angolan-Namibian Government institution)_____ Main project features: Hydropower scheme on the Kunene River which forms the international border between the two countries._____ Positions held: Physical Component Lead and Water Resources Specialist_____ Activities performed: Overall responsibility for supervising and integrating the inputs of team members for this element of the ESIA, and for authoring. Water resources and downstream environmental flow issues are considered very significant issues._____
	Name of assignment or project: Environmental and Social Assessment (ESIA) for the Lake Volta Timber Harvesting Project_____ Year: 2007-2008,_____ Location: Ghana_____ Client: CSRD_____ Main project features: The objective of the project was to assess the environmental and social impacts of extracting submerged timber from the Afram Arm of Lake Volta, one of the world’s largest reservoirs created by the construction of the Akosombo dam and hydropower plant. Potential impacts on the dam, related structures and on power generation were a major issue, as the plant supplies over 80% of Ghana’s electricity Positions held: Team Leader and Water Resources Expert_____ Activities performed: Hydrology team lead and responsible for identifying physical impacts associated with the project._____

	Name of assignment or project: Environmental and Social Assessment (ESIA), and Resettlement Planning, of the Proposed Bui Hydropower Project_____
	Year: 2006-2007_____
	Location: Ghana_____
	Client: Ministry of Energy/Biu Development Commission_____
	Main project features: The project consists of a high profile hydropower dam with the capacity to generate 400 MW. On completion, the dam will displace over a thousand people, and create a reservoir that will inundate over 20% of a national park. The ESIA Report included a detailed assessment of the significance of potential impacts, as well as a summary of pertinent legislation, assessment of alternatives, and mitigation measures.
	Positions held: Physical Component Team Lead and Water Resources Expert_____
	Activities performed: Responsible for leading the hydrology team and identifying the physical baseline conditions and the physical impacts associated with the project. ERM delivered three detailed reports: an Environmental and Social Impact Assessment Report, an Environmental and Social Management Plan, and a Resettlement Planning Framework.
	Name of assignment or project: Environmental review of Illisu Hydro-Electric Dam Project Proposal_____
	Year: 1999-2000_____
	Location: Turkey_____
	Client: UK Export Credit Guarantee Department (ECGD)_____
	Main project features: Evaluation of proposed Ilisu hydropower dam in north-east Turkey, with potential impacts that included: resettlement of 20,000 persons; inundation of extremely important archaeological and cultural remains; and international water rights issues with neighboring Iraq.
	Positions held: Water Resources Expert_____
	Activities performed: Activities performed include a review of identified gaps in the coverage of the EIA and EMP recommendations on essential pre-conditions for ECGD support to the project._____

Expert's contact information: (e-mail: tim.m.smith@erm.com, phone: +442032065302)

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Client, and/or sanctions by the Bank.

Tim Smith

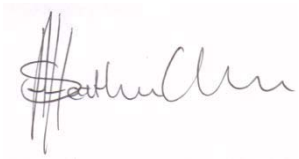
Signed on behalf below.

12 August 2014

Name of Expert

Signature

Date

A handwritten signature in black ink, appearing to read "Stuart Heather-Clark", is written over a light pink rectangular background.

Stuart Heather-Clark

12 August 2014

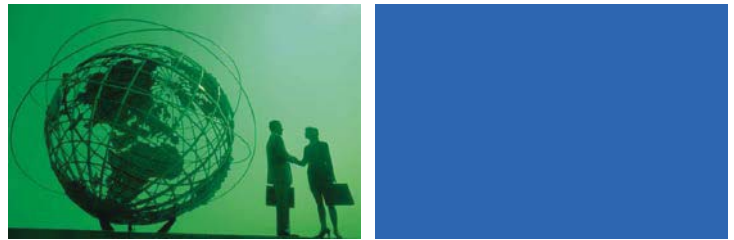
Name of authorized
Representative of the Consultant
(the same who signs the Proposal)

Signature

Date

Brendon Solik

Researcher
IAP



Brendon Solik is a Researcher with ERM Cape Town, South Africa. Upon obtaining his Honours in environmental management degree he was employed by Bloomberg where he worked in the New Energy Finance division. Following this, he travelled overseas to complete his Msc degree in Water Science, Policy and Management at the University of Oxford in the UK. Since joining ERM in March 2014 he has been assisting with research and report writing for major oil and gas, and mining projects located in South Africa and Angola.

Fields of competence include research and analysis; sustainability analysis, public water supply issues; water governance; and public policy.

Fields of Competence

- Research and Analysis
- Legal Review of South African Environmental Legislation

Professional Affiliations & Registrations

- Young Water Professional (YWP)

Education

- Masters of Science in Water Science, Policy and Management from the University of Oxford (2013)
- B. Soc. Sci. (Honours) in Environmental Management from the University of Cape Town (2011)
- B. Soc. Sci with Majors in Economics, Politics, and Environmental Geographical Science (2010)

Languages

- English

Key projects

Construction of Sonaref Crude Oil Refinery and Marine Terminal, Angola, Sonangol, 2014 Reseracher:

The project involved a detailed assessment of the proposed refinery, which is to be located in Lobito, Angola, and will have a capacity of 200,000 BPSD of refined product. Mr. Solik was responsible for the review of the Sonaref Refinery ESHIA Report and also wrote the Non-Technical Summary for this project.

Confidential Project, South Africa, Confidential Client, 2014:

Mr. Solik studied various project proposals for a large scale project in South Africa and then proceeded to design and write a legal roadmap to be used for decision making purposes. This involved a detailed review of the legislative framework of South African Environmental Law.

Confidential Project, Botswana, Confidential Client, 2014

Researcher:

This Project involved the gathering of site specific environmental and social baseline information and the subsequent undertaking of detailed risk assessment within the regionally protected / sensitive area where the project is located. Mr. Solik researched relevant information required for the baseline and then determined what historical and/or external factors would impact the project. This project allowed the client with a comprehensive non-technical risk register associated with the objectives of the project.

Tugela South EMPr Ammendment, South Africa, Exxon Mobil, 2014

Reseracher:

ERM was appointed to conduct an EMPr amendment for the South Tugela Exploration Area off the coast of South Africa. This involved the preparation of an Environmental Management Programme (EMPr) in accordance with applicable South African requirements (i.e. the Minerals and Petroleum Resources Development Act, No. 28 of 2002) and applicable standards. Responsibilities on the project include, research, review, and building the stakeholder database.

ESIA for Industrial Facilities for GET, Special Economic Zone, Luanda, Angola, General Electric, 2014

Researcher:

ERM was appointed to conduct a detailed assessment of the proposed industrial facilities for the construction and testing of electrical generators, located in Luanda, Angola. The project will have a footprint of 80 000 m² and Mr Solik's responsibility on the project include review and quality control of the EIS Report.

Tougheeda Aspeling

Researcher

Impact Assessment Planning (IAP)



Tougheeda Aspeling, is ERM's Stakeholder Engagement Coordinator based in the Cape Town office of ERM Southern Africa, and has been with the company for five years.

She has extensive experience in supporting the design and implementation of stakeholder engagement processes, stakeholder database development and management, the logistical co-ordination of public participation events for multi-stakeholder groups; as well as the preparation and administration of project documentation and communication. She has extensive experience in complex and high profile capital project developments, strategic planning processes and conflict management exercises. Clients have included a range of multi-national oil and gas, power, mining and industrial clients, as well as public and parastatal clients at a municipal and national level in South Africa. Tougheeda has primarily been in the Western, Northern and Eastern Cape Provinces and KwaZulu Natal. However, she also has experience elsewhere in South Africa and neighbouring countries.

Prior to joining ERM's Impact Assessment and Planning Practice in 2008, Tougheeda worked for Department of Environmental Affairs and Tourism (Branch : Marine and Coastal Management) Cape Town for 11 years.

Fields of Competence

- Project Administration
- Public Participation Project Management
- Stakeholder Analysis
- Database Design for Process Outcomes
- Data Management
- Design and Implementation of Stakeholder Communication Strategies
- Event Co-ordination

Languages

- English
- Afrikaans

Key Industry Sectors

- Transportation
- Urban Development
- Mining
- Government
- Infrastructure Development
- Conservation and Natural Resource Management
- Oil and Gas
- Power

Key Projects

Coal Mine Expansion, Environmental Management Programme Revision and Associated Scoping and EIA, Mpumalanga, South Africa, Kangra Coal (Pty) Ltd, 2010 – present

Stakeholder Engagement Consultant

Currently carrying out an EIA and the associated licencing process for a proposed coal mine expansion Project in Piet Retief.

Social Impact Assessment for the Proposed Melkville Solar Park, Northern Cape, Solar Reserve, 2012 – 2013.

Stakeholder Engagement Consultant

ERM was appointed to undertake a full Scoping/EIA for a proposed solar park in the Northern Cape. Tougheeda was responsible for undertaking all Stakeholder Engagement Process that will be integrated into the EIA.

Basic Assessment Report (BAR) and Environmental management Plan (EMP) for the decommission of the Jaffes Ford Retail Site, Shell Gess Programme, Shell Pty Ltd, Worcester, South Africa, 2013

Stakeholder Engagement Consultant

Responsible for the database, publishing adverts, sending out notification (email and postage). Responsible for the distribution of the BARs. The compilation of the Public Participation Chapter in the BARs.

Basic Assessment Report (BAR) and Environmental management Plan (EMP) for the decommission of the Shell Sandkraal Street Retail Site, Shell Gess Programme, Shell Pty Ltd, George, South Africa, 2013

Stakeholder Engagement Consultant

Responsible for the database, publishing adverts, sending out notification (email and postage). Responsible for the distribution of the BARs. The compilation of the Public Participation Chapter in the BARs.

EIA for 90MW solar farm at Graspan in the Northern Cape, 2012.

Administrator

ERM was commissioned to undertake an Environmental Impact Assessment (EIA) for a proposed Photovoltaic Solar Farm located at Graspan near Hopetown in the Northern Cape province, South Africa. The proposed facility will make use of photovoltaic arrays to generate solar power, with a output capacity of approximately 90MW. Tougheeda was responsible with the distribution of reports. Arranging of public meetings and all logistics arranging a public meeting. Updating the database with the attendance of the public meetings. Sending out notifications (email and postage). Placing of adverts in the newspapers.

EIA for 90MW solar farm at Genoegsaam in the Eastern Cape, 2012.

Stakeholder Engagement Consultant

ERM was commissioned to undertake an Environmental Impact Assessment (EIA) for a proposed Photovoltaic Solar Farm located at Genoegsaam near Cradock in the Eastern Cape province, South Africa. The proposed facility will make use of photovoltaic arrays to generate solar power, with a output capacity of approximately 90MW. Tougheeda was responsible with the distribution of reports. Arranging of public meetings and all logistics arranging a public meeting. Updating the database with the attendance of the public meetings. Sending out notifications (email and postage). Placing of adverts in the newspapers.

EIA for 90MW solar farm at Drennan in the Eastern Cape, 2012.

Stakeholder Engagement Consultant

ERM was commissioned to undertake an Environmental Impact Assessment (EIA) for a proposed Photovoltaic Solar Farm located at Drennan near Cradock in the Eastern Cape province, South Africa. The proposed facility will make use of photovoltaic arrays to generate solar power, with a output capacity of approximately 90MW. Tougheeda was responsible for the database and with the distribution of reports. Arranging of public meetings and all logistics arranging a public meeting. Updating the database with the attendance of the public meetings. Sending out notifications (email and postage). Placing of adverts in the newspapers.

Underground Pipeline Project, Cape Town Refinery, Chevron, 2010 – 2012

Administrator

EIA for the installation of an underground pipeline from the refinery, extending approximately 1.3 km along Koeberg Road. Tougheeda was responsible with the distribution of reports. Putting up of Site Notices and taking pictures for the public participation chapter in the BAR. Sending out notifications (email and postage). Placing of adverts in the newspapers.

Port of Saldanha LPG Project, Environmental Impact Assessment, Sunrise Energy, 2012 – 2013

Administrator

Project Consultant for an EIA for the installation of and LPG Importation and Storage Facility within and adjacent to the Port of Saldanha, West Coast, South Africa. Tougheeda was responsible with the distribution of reports. Arranging of public meetings and all logistics arranging a public meeting. Updating the database with the attendance of the public meetings. Sending out notifications (email and postage). Placing of adverts in the newspapers.

Amendment to an Environmental Management Programme (EMPr) for Exploration in the Algoa/Gamtoos Block, NewAGE, South Africa, 2012.

Stakeholder Engagement Consultant

South Africa's Mineral and Petroleum Resources Development Act requires an Environmental Management Programme (EMPr) to be compiled and submitted to the Petroleum Agency South Africa as part of an application for an Exploration Right. NewAGE appointed ERM to develop the EMPr and the subsequent amendment required due to a change in work programme. Tougheeda was responsible with the creating of the database and distribution of reports. Sending out notifications (email and postage). Placing of adverts in the newspapers. Arranging of public meetings and all logistics arranging a public meeting. Dealing with telephonic queries from the public.

Environmental Management Program for Exploration of the Bredasdorp Block, South Africa, Impact Africa, 2012 to 2013

Stakeholder Engagement Consultant

Environmental Management Program (EMPr) for Impact Africa's planned exploration surveys in the Bredasdorp Block off the south coast of South Africa. The block is located in water depths between 100m and 200m. The development of the EMPr was carried out in terms of the South Africa Mineral and Petroleum Resources Development Act (MPRDA) and included an evaluation of the relevant legal and regulatory requirements; determination of the environmental (biological and physical) and social conditions; determination of potential impacts; and creation of a comprehensive mitigation and management plan.

Social Impact Assessment, South Africa, Black Mountain Mining, Zinc Mine Project, 2012 – 2013

Stakeholder Engagement Consultant

ERM was contracted to undertake a Social Impact Assessment (SIA) as part of an ESIA process for a proposed Zinc Mine Project. Tougheeda was responsible with the updating the database and distribution of reports. Sending out notifications (email and postage). Placing of adverts in the newspapers. Arranging of public meetings and all logistics arranging a public meeting. Dealing with telephonic queries from the public.

Development of a Stakeholder Engagement Strategy, Transnet Port Terminals – Port of Port Elizabeth, Port Operations, 2012.

Stakeholder Engagement Consultant

ERM has been contracted to draft a stakeholder engagement strategy for Transnet Port Terminals for their manganese export terminal in Port Elizabeth. Tougheeda was responsible for all logistics of travelling. Arranging all interviews for the Project Consultant

Waste Management Licence Basic Assessment, Cape Town Refinery, Chevron, 2011 – current

Administrator

Waste Management Licence Application and associated Basic Assessment process for the construction of a consolidated waste facility at the Chevron Refinery in Cape Town. Tougheeda was responsible with the distribution of reports. Putting up of Site Notices and taking pictures for the public participation chapter in the BAR. Sending out notifications (email and postage). Placing of adverts in the newspapers.

EIA for 160MW solar farm at Groenwater in the Northern Cape, 2011.

Administrator

ERM was commissioned to undertake an Environmental Impact Assessment (EIA) for a proposed Photovoltaic Solar Farm located at Groenwater near Potmasburg in the Northern Cape province, South Africa. Tougheeda was responsible with the distribution of reports. Arranging of public meetings and all logistics arranging a public meeting. Updating the database with the attendance of the public meetings. Sending out notifications (email and postage) . Placing of adverts in the newspapers.

EIA for 100MW solar farm at Southdrift in the Free State Cape, 2011.

Administrator

ERM was commissioned to undertake an Environmental Impact Assessment (EIA) for a proposed Photovoltaic Solar Farm located at Southdrift near Bloemfontein in the Free State province, South Africa. The proposed facility will make use of photovoltaic arrays to generate solar power, with a output capacity of approximately 100MW. Tougheeda was responsible with the distribution of reports. Arranging of public meetings and all logistics arranging a public meeting. Updating the database with the attendance of the public meetings. Sending out notifications (email and postage). Placing of adverts in the newspapers.

Section 24G Rectification Application, South Africa, Atlantis Foundries, Environmental Impact Assessment, 2011.

Administrator

Section 24G Rectification Application for the unlawful installation of above-ground storage tanks at the Atlantis Foundries site in Atlantis, Cape Town. Tougheeda was responsible with the creating of the database and distribution of reports. Sending out notifications (email and postage). Placing of adverts in the newspapers. Arranging of public meetings and all logistics arranging a public meeting. Dealing with telephonic queries from the public.

Solar Power Farm Environmental Impact Assessments, Intikon Energy, 2010 – 2011

Administrator

EIAs for 2 Solar Power Farms in the Northern Cape and Free State. Tougheeda was responsible with the distribution of reports. Arranging of public meetings and all logistics arranging a public meeting. Updating the database with the attendance of the public meetings. Sending out notifications (email and postage). Placing of adverts in the newspapers.

Basic Assessment Process, South Africa, Eskom, Power, 2011.

Administrator

ERM was contracted to undertake a Basic Assessment for the installation of a transmission line in the Bergriver Municipality. Tougheeda was responsible with the distributing of reports. Sending out of notificaitons (email and postage). Placing of adverts.

ESIAs for eight renewable energy facility developments (including wind and solar). Mainstream Renewable Power South Africa, 2010 – 2011.

Administrator

Process of engagement with wide range of stakeholders with diverse interests in the proposed developments. The engagement process included focus group meetings, public meetings, open house events. Managing distribution of reports. Sending out of notifications to stakeholders and recording all comments that was received.

Rectification Application, South Africa, Distell, 2010.

Administrator

ERM was contracted to undertake a rectification application for storage tanks in order to attain the necessary authorisation. A key component of the rectification application process was the public participation process. Tougheeda was responsible with the creating of the database and distribution of reports. Putting up of Site Notices on Site. Sending out notifications (email and postage). Placing of adverts in the newspapers. Arranging of public meetings and all logistics arranging a public meeting. Dealing with telephonic queries from the public.

ESIAs for five wind farm developments. G7 Renewable Energy, 2009 – 2010.

Administrator

Managing distribution of reports. Sending out of notifications to stakeholders and recording all comments that was received. Engaging with telephonic queries about the project.

ESIA for the upgrade of a 1,100 km railway line across the Great Karoo from Hotazel via De Aar to Coega, Transnet (Hatch), 2008 – 2009.

Administrator

Managing distribution of reports. Sending out of notifications to stakeholders and recording all comments that was received. Engaging with telephonic queries about the project. Assist with materials preparation to inform stakeholders and the public of changes at the station.

CURRICULUM VITAE

FELIX CHISHA K DIT. CCNA
Lusaka.

MOBILE: +260-974-074 384 // +260-963 258 535

**EMAIL: felixchisha@yahoo.com
felixchisha@airtelzm.blackberry.com**

OBJECTIVES

To contribute positively to the exploitation of Data Management, and Information and Communication Technology. Goal oriented and willing to apply my best in Data/ICT Management. Want to work where productivity is key and quality never compromised.

Date of Birth : 16th November, 1973

Marital Status : Married

Nationality : Zambian

Contact Phone: Mobile: 0963 – 258 535 or 0974 – 074 384

Languages : English

Local Languages	Spoken/Written	Understanding
Bemba	Excellent	Excellent
Nyanja	Excellent	Excellent
Lamba	Very good	Excellent
Lala	Very good	Excellent
Swaka	Very good	Very good

ACADEMIC BACKGROUND

- 1990 – 1991:** Junior Secondary School Leaving Certificate,
Mukobeko Secondary School, Kabwe.
- 1992 – 1994:** Senior Secondary School GCE 'O' Level Certificate,
Mukobeko Secondary School, Kabwe.

PROFESSIONAL EXPERIENCE

- Jan – Dec 2008:** Diploma in Information Technology (Levels I and II)
Copperbelt University, Kitwe
- Systems Analysis and Design I
 - Data Communications and Networking
 - Computer Architecture and Organisation I
 - Mathematics
- Jan – Aug 2006:** Cisco Certified Network Associate IV (CCNA 1 to 4) Certification
University of Zambia, Lusaka
WAN Technologies
- Concepts and characteristics of Network Address Translation, and explain its configuration, use, and administration on a network
 - Compare and contrast workstation and server operating systems and the associated hardware
 - Concepts of network management, and explain how network management tools are used on a modern network
- AUGUST 1996:**
- Introduction to Computers
 - MS-DOS
 - Information Management
 - Computer Maintenance
 - Hardware & Software Installation

TRAINING/WORKSHOPS

- 02 – 04 Jul 08:** 3rd IAVI Regional Data Management Workshop
Entebbe, Uganda
- Review of Data Management of all IAVI studies. This was attended by all sites in Africa and was sponsored by the International AIDS Vaccine Initiative (IAVI).
 - IAVI's Vaccine Clinical Trials and Epidemiological Studies
 - Information Technology in Clinical Studies
 - IAVI's future Projects Related to IT and Data Management
 -

- 25 – 26 Sept 07:** **Introductory Data Management Centre Training**
Sponsored by Frontier Science and Technology Research Foundation
Pamodzi Hotel, Lusaka, Zambia
- Data Management Centre Procedures
- 29 – 30 Jan 07:** **IAVI V002 Investigator Meeting**
Nairobi, Kenya
- Communications Flow and monitoring
 - AE/EAE Reporting and Data Management
- 03 – 09 Nov 06:** **Protocol D Validation**
IAVI HQ, Nairobi, Kenya
- Validated all Protocol D Data records for all sites up to level three (3) using the DataFax System. Total records validated – **14,631**.
- 31 Oct – 02 Nov 06:** **Advanced GCP/GCLP for HIV Vaccine Studies**
Nairobi, Kenya
- AIDS Vaccine Trials and Good Clinical Practice (GCP) sponsored by the International AIDS Vaccine Initiative (IAVI) and hosted by Johns Hopkins Bloomberg School of Public Health (Center for Immunization Research).
- 20 – Oct 2006:** **V001 Data Management Training**
Kigali, Rwanda
- 28 – 29 Jun 2006:** **IAVI Regional Data Management Workshop**
Nairobi, Kenya
- 19 – 22 Sep 05:** **GCP Training**
Entebbe, Uganda

PRESENTATIONS

- 28 June 2006:** **Data Management Procedures for Site 23 (Lusaka)**
- Presented to more than 70 participants of the 1st IAVI Data Management Workshop held in Nairobi, Kenya
- 03 July 2008:** **Skype as a Data Management Tool**
- Presented at the 3rd Data Management Workshop held in Entebbe, Uganda. More than 70 participants attended.

WORK EXPERIENCE

06 – 26 Jul 2013

ESIA for Lunsemfwa/Mulungushi Hydropower Plants, Zambia, LHPC, 2013 - on-going, by ERM.

In-Country Consultant (Team Member) – Data Management

Social impact assessment and stakeholder consultation for an upgrade of a hydropower plant. Stakeholder consultation involved consultation of national, provincial, district and traditional authorities as well as villagers located close to the project site.

Main Project features included filling up the gaps in the socio-economic component in the ESIA conducted by Environmental Resource Management (ERM) of suit ZEMA requirements.

Conducted community consultative meetings, language interpretation, administering of survey questionnaires, Report writing and editing.

Other responsibilities undertaken include; translation of some ERM project briefs into local language (Bemba), recorded attendance register and questions and answers during consultative meetings, provided daily reports and final report.

Inspired villagers to open up and ask questions by applying my good interpersonal skills, this helped people relax and participate fully.

Interacted and worked very well with ERM staff and this resulted in completing our tasks expeditiously.

September 2013

Environmental Impact Assessment for the proposed project of the Public Security Network Phase III (Safe City Project), for the Ministry of Home Affairs, Zambia.

Consultant – Data Management

The project involves the installation of communication equipment and construction of Base Stations (Cell sites) complete with control rooms in 209 cell sites across the country, 90% of the proposed sites will utilise the existing Zamtel towers which are already provided with fencing, power supply systems and other communication equipment in order to minimize possible environmental impacts arising from this project.

I provided draft and final data formatting, editing, printing, binding and submission to ZEMA of this 212-paged EIA. Repagination after picture insertions, generation of new Table of Contents. Currently awaiting feedback from ZEMA.

- Jan –to-Dec 09:** **ZAMBIA-EMORY HIV RESEARCH PROJECT (ZEHRP)/
INTERNATIONAL AIDS VACCINE INITIATIVE (IAVI)
Copperbelt Sites**
- Transferred to Copperbelt to manage Data and IT depts at our two sites in Ndola and Kitwe.
- Position:** **Data Co-ordinator/IT Manager**
Duties:
- Review clinical and lab forms for completeness and accuracy
 - Ensure that Lab data forms have been QC'd by appropriate staff
 - Respond to, and keep track of queries
- Jun '05- Dec 07:** **ZAMBIA-EMORY HIV RESEARCH PROJECT (ZEHRP)/
INTERNATIONAL AIDS VACCINE INITIATIVE (IAVI)
Lusaka IAVI Site**
- Position:** **Data Co-ordinator/IT Management**
Duties :
- Review all forms for completeness and accuracy
 - Ensure that data forms have been QC'd by appropriate staff
 - Respond to, and keep track of queries
 - Run and manage the office of the Project Co-ordinator when not in the office
- Mar '04 – May '05:** **ZAMBIA EMORY HIV RESEARCH PROJECT (ZEHRP)
Lusaka Main Site**
- Position:** **Data Management Staff/Resident IT Support**
Duties:
- Manually enter data in the database using Microsoft Access
 - Work as Domain Administrator
- Jul '01 – Feb '04:** **INTENCITY COMMUNICATIONS & BUSINESS CENTRE**
Position: **Computer Consultant/Technical Manager**
Duties: Manage and maintain networked computers
- 1998 – 1999:** **TOUCHWORLD BUSINESS CENTRE**
Position: **Computer Consultant**
Duties: Offer Computer Maintenance Consultancy and Windows tuition
- Nov '97-Feb '98:** **OPTIMUM PROFESSIONALS CORPORATE CENTRE**
Position: **Computer Consultant (Part-Time)**
Duties: In Charge of all Computer services, working with various Packages.

1995 – 1996: **E. W. TARRY (Z) LTD**
Position: **Shop Detective**
 • Liaised with Dispatch Officer on In-coming and out-going goods

ABILITIES

- Excellent inter-personal skills
- Focused and motivated fast learner
- Neat, fast and creative worker, Self motivated

SCHOOL ACHIEVEMENTS/RESPONSIBILITIES

1993 – 1994 : School Deputy Head Boy
1993 : School Debate Club Chairman
1992 – 1994 : School Press Club Editor-In-Chief
1992 - 1994 : Voted best school debater
1990 – 1994 : School Drama Club Chairman
1992 : Won the NATAAZ Provincial best Actor Award
 : Led school into winning the District and Provincial Drama Festivals.

HOBBIES

- Reading, Poetry and Play writing
- Meeting people, Acting and singing, picnicking
- Movies and listening to Music

REFERENCE

Mr. Melusi Chella
 Chief Technician
 Microlink Technologies
 Mobile: 0977-881874
Ndola

Mr. Chiwele Simukonda
 Labworld Technical Manager
 AFGRI Corporation Ltd
 Mobile: 0977-458 799
Lusaka

Derek Mwape
 Senior Scientist; MSc Agro & Enviro Aspects
 Environmental Monitoring Ltd
Lusaka
 Mobile: +260 977 218 964

Dr. Mubiana Inambao
 Director, ZEHRP Ndola (Ubumi Bwesu)
 Mobile: 0966-780 601
Ndola

**FORM TECH-6
(CONTINUED)**

CURRICULUM VITAE (CV)

Position Title and No.	K-4, Terrestrial Ecologist
Name of Expert:	Susan Childes
Date of Birth:	12 July 1957
Country of Citizenship/Residence	Zimbabwe

Education:

BSc Hons (Zoology & Botany), University of Rhodesia, 1978

MSc (Ecology) *cum laude* University of Witwatersrand, 1984

Employment record relevant to the assignment: {Starting with present position, list in reverse order. Please provide dates, name of employing organization, titles of positions held, types of activities performed and location of the assignment, and contact information of previous clients and employing organization(s) who can be contacted for references. Past employment that is not relevant to the assignment does not need to be included.}

Period	Employing organization and your title/position. Contact infor for references	Country	Summary of activities performed relevant to the Assignment
2007 - Present	Black Crystal Environmental Consultants Positions held: Ecologist	Zimbabwe	Ecology / Biodiversity surveys and assessments; Project Management; proposal writing and budget preparation; editing and peer review of reports from other Black Crystal consultants
1996 - 2007	Various consultancies on a range of projects with: Africa Resources Trust, Bird Life Zimbabwe, Environment Africa, Biodiversity Foundation for Africa, Crocodile Farmers Association of Zimbabwe. Positions held: Ecologist	Zimbabwe	Ecologist / Biodiversity specialist reports
1989 - 1996	Claremont Orchards Position held: Floriculture Manager	Zimbabwe	Management of large flower export business
1979 - 1989	Department of National Parks Positions held: Ecologist	Zimbabwe	Vegetation and wildlife surveys; ecological management plans

Membership in Professional Associations and Publications: N/A

Language Skills (indicate only languages in which you can work):

<i>Language</i>	Reading	<i>Speaking</i>	<i>Writing</i>
English (mother tongue)	Good	Good	Good
French	Fair	Poor	Poor

Adequacy for the Assignment:

Detailed Tasks Assigned on Consultant's Team of Experts:	Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks
• review existing reports and data • co-ordination of biological component • site visits and detailed biodiversity field work • vegetation map and sensitive areas, • survey of wildlife • analysis of potentially fatal flaws, impacts and mitigation measures • report compilation and feedback	Name of assignment or project: EPIRP 005 Environmental and Social Audit and Environmental Management Plan for Hwange Power Station Year: 2013-2014_____ Location: Hwange District, Zimbabwe_____ Client: Zimbabwe Power Corporation (ZPC) funded through African Development Bank (AfDB), administered by Crown Agents_____ Main project features: Audit of existing power station environmental management systems with a view to client becoming compliant with AfDB and IFC standards. Project was co-ordinated by Sustainability Pty Ltd (Australia) and undertaken in partnership with Epoch Resources Pty Ltd (South Africa) and Black Crystal Consulting Pvt Ltd (Zimbabwe). Hwange currently produces 400-550 MW of power from a potential of 920MW. This project aimed to identify problems and thereby lead to improved power generation efficiency as well as reducing the impacts of the power station on the environment._____ Positions held: Ecological Consultant and Project Leader (Zimbabwe)_____ Activities performed: Project Management for the Zimbabwean team of specialists (terrestrial and aquatic ecologists, social scientists); baseline report production of both biodiversity and social components, client meetings and liaison with partners. Undertook baseline studies of terrestrial ecology of project site, analysis of impacts, mitigation measures, monitoring plans._____ Name of assignment or project: Environmental Impact Assessment (EIA) for phase I and phase II of the Pungwe Hydropower project_____ Year: 2011- 2013_____ Location: Nyanga District, Zimbabwe_____ Client: Independent public-private partnership_____ Main project features: Phase I: 2.8MW and Phase II 15MW _____ Positions held: Ecological Consultant and Project Leader_____ Activities performed: Conducted the EIA for the Pungwe Hydropower project with a team of specialists. Phase I fully complied with Zimbabwean Environmental Legislation and Phase II complied with IFC and Equator Principle Standards_____ Name of assignment or project: Environmental Impact Assessment (EIA) for Lake Mutirikwe Hydropower project_____

	Year: 2012_____ Location: Masvingo District, Zimbabwe_____ Client: Independent public-private partnership_____ Main project features: 5 MW scheme based at wall of existing dam_____ Positions held: Ecological Consultant and Project Leader__ Activities performed: Ecological assessment and EIA report compilation and client liaison for Lake Mutirikwe Hydropower project with a team of specialists.
	Name of assignment or project: Environmental Impact Assessment (EIA) for Duru River Hydropower project_____ Year: 2011_____ Location: Nyanga District, Zimbabwe_____ Client: Independent public-private partnership_____ Main project features: 8.7MW run of river scheme (Greenfield site)_____ Positions held: Ecological Consultant_____ Activities performed: Specialist Ecological Assessment
	Name of assignment or project: Environmental Impact Assessment (EIA) for the development of a fish farm on Lake Kariba_____ Year: 2008_____ Location: Lake Kariba, Zimbabwe_____ Client: Africa Sun Hotels (Public company)_____ Main project features: Tilapia fish farm using floating aquatic plants as a feed supplement_____ Positions held: Consulting Ecologist_____ Activities performed: Ecological assessment and EIA report compilation_____
	Name of assignment or project: Biodiversity Survey of Katombora Islands, Zambezi River_____ Year: 2005_____ Location: Zambia_____ Client: Environment Africa (NGO)_____ Main project features: Assessment of biodiversity through botanical, butterfly, bird, amphibian, reptile, mammal and fish surveys_____ Positions held: Consulting Ecologist_____ Activities performed: Co-ordinator of the Biodiversity Survey and author of the associated report._____

	Name of assignment or project: Victoria Falls Combination Master Plan_____ Year: 2000_____ Location: Victoria Falls, Zimbabwe_____ Client: CIDA/Victoria Falls Consortium _____ Main project features: Development of a plan that incorporates expansion of Victoria Falls town whilst addressing the potential impact on surrounding wildlife and wilderness area_____ Positions held: Consultant Ecologist _____ Activities performed: Vegetation survey, mapping, co-ordination of bird and mammal surveys, preparation of Environmental Specialist Report_____
	Name of assignment or project: Department of National Parks & Wildlife Management, Zimbabwe_____ Year: 1979-83/1985-89 (9 years)_____ Location: Hwange National Park, Matetsi Safari Area, and Nyanga National Park, Zimbabwe_____ Client: Employed by the Government of Zimbabwe_____ Main project features: Project features varied, but related to activity listing below._____ Positions held: Ecologist_____ Activities performed: Work included the surveying and mapping of vegetation, development of management policies for fire, road alignment, surveying wild life populations, monitoring status and distribution of Wild Dog, <i>Lycaon pictus</i>, and the compilation of vegetation and bird checklists. In Nyanga, the major focus was on developing a practical method for controlling the alien invasive plants in the montane grasslands, particularly wattle (<i>Acacia mearnsii</i> and <i>A. dealbata</i>) and pine (<i>pinus sp.</i>). Activities also included the initiation of the first Blue Swallow (<i>Hirundo atrocaerulea</i>) survey and awareness raising around the threatened status of the species. _____

Expert's contact information: (e-mail : mhumhe@zol.co.zw)

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Client, and/or sanctions by the Bank.

Sue Childes

12 August 2014

Name of Expert

Signature

Date

Stuart Heather-Clark

12 August 2014

Name of authorized Representative of the Consultant (the same who signs the Proposal)	Signature	Date
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PERSONAL DETAILS

NAME: **OLIVER MANJENGWA**

DATE OF BIRTH: **08 OCTOBER 1985**

NATIONALITY: **ZIMBABWEAN**

MARITAL STATUS: **SINGLE**

ACADEMIC QUALIFICATIONS

Bachelor of Science Majoring in Environmental Science and Archaeology (University of Cape Town)

Bachelor of Science Honours in Archaeology (University of Cape Town)

PROFESSIONAL REGISTRATION AND AFFILIATIONS

Association of Southern African Professional Archaeologists (ASAPA)

EMPLOYMENT HISTORY

Environmental Consultant for the Institute of Environmental Studies, University of Zimbabwe, 2014.

Environmental Consultant for Black Crystal Consulting Private Limited 2013.

Environmental Consultant at Ground Water Consulting Services GCS (Pty) Ltd Environmental Unit 2011- 2012.

Environmental Officer at RSV-Geological Environmental and Mine Modelling Engineers (Pty) Ltd 2010- 2011.

Sub consultant at Black Crystal Consulting Private Limited – 2009.

SPECIALIZATION

Environmental Science, Archaeology, Water Use Licencing, Closure Cost Assessments and Auditing.

FIELD EXPERIENCE

2014 Environmental Assessments for the Urbanization and Risk in Zimbabwe: Reducing Poverty and Enhancing Resilience Study implemented by the Institute of Environmental Studies. Water, biodiversity, wetland, waste management and urban agriculture assessments in 8 urban centres: Harare, Bulawayo, Chitungwiza, Bindura, Chipinge, Hwange, Chiredzi, and Gokwe.

2013 Member of the Black Crystal Consulting team who carried out the second SEAT (Social Economic Assessment Toolkit) review for Anglo American's Unki Platinum Mine, Midlands Province.

2011/2 Compilation of reports and following up on environmental authorisations (see Table below)

2009 Research assistant for the Centre for Applied Social Sciences on institutional arrangements around small scale livestock and local level Scenario Planning in the Great Limpopo Transfrontier Conservation Area.

2008 Fieldwork, mapping and survey at Elandsfontien, Western Cape Province, South Africa, under the guidance of Dr David Braun.

2008 Excavations at Dithakong during the 2008 field season directed by Dr Simon Hall.

2007 Excavations at Smelterskop, Rooiberg, during the 2007 field season directed by Dr Simon Hall.

2007 Field research in Valhalla Park as part of undergraduate coursework, Interpreting the Urban Environment, under the guidance of Dr Sophie Oldfield.

SPECIFIC EXPERIENCE IN ENVIRONMENTAL CONSULTING

Location (South Africa)	Client	Name of Project
Mpumalanga	Shanduka Pty Ltd	Zebediela Environmental Management Plan
Mpumalanga	Shanduka Pty Ltd	Prospecting Rights Application
Mpumalanga	Kangra Coal Pty Ltd	Section 102 Environmental Impact Assessment for Existing and Proposed Open Cast Pits
Mpumalanga	Total Coal South Africa (TCSA)	Environmental Audit for TCSAs Forzando North Operations
Virginia	Wits Gold Pty Ltd	Radon Monitoring Survey and Hydrocensus
Brits	Zandfotein Property Development	Amendments to Water Use Licence and Water Balance
Nelspruit	Foskor	Annual Biomonitoring to adhere to conditions of Environmental Authorisation granted by

		the Department of Environmental Affairs
Kariba (Zimbabwe)	E Khaka	Prospecting EIA for Kariba Nyamasowa Camp
	Esterling Gold Mine	Closure Cost Assessment
Klerskdorp	Siimer and Jack Tau Lekoa Gold Mines	Closure Cost Assessment
	Associated Manganese	Rehabilitation Plan
Mpumalanga	Transvaal Gold Mining Estates (Pty) Ltd	Renewal of Mining Rights with the Department of Mineral Resources
Xolobeni Eastern Cape	Transworld Energy and Minerals (SA) (Pty) Ltd	Public Participation Process and Drafting of Environmental Management Programme
North West Province	Northam Platinum	Booyseindal Contractors Camp Integrated Water Use Licence

PROFESSIONAL TESTAMENTS

CEO of RSV-GEM (SA) Mr Vimal Bansi PrSciNat
Contact Details Office +27 11 227 3072
vimal.bansi@rsv-gem.com

Dr Shadreck Chirikure University of Cape Town
Contact Details Office +27 21 650 2351
shadreck.chirikure@uct.ac.za

Environmental Unit Director GCS (Pty) Ltd Mr Ferdinand Pieterse
Contact Details Office +27 11 803 5726
ferdi@gcs-sa.biz

COUNTRIES WORKED IN

Zimbabwe
South Africa

LANGUAGE PROFICIENCY

English
Shona

**FORM TECH-6
(CONTINUED)**

CURRICULUM VITAE (CV)

Position Title and No.	K-3, Aquatic Ecologist and Team Leader for Freshwater Studies
Name of Expert:	Michiel Jonker
Date of Birth:	1984/05/25
Country of Citizenship/Residence	South Africa

Education:

2011	M. Sc (Environmental Management) University of Johannesburg
2009	M.Sc (Aquatic Health) <i>cum laude</i> University of Johannesburg
2006	B.Sc Honours (Zoology) <i>cum laude</i> University of Johannesburg
2005	B.Sc (Natural and Environmental Sciences) University of Johannesburg

Employment record relevant to the assignment:

Period	Employing organization and your title/position. Contact in for references	Country	Summary of activities performed relevant to the Assignment
Feb '08 – Pres	Ecotone Freshwater Consultants Member, Freshwater Ecologist and Project Manager	South Africa, Mozambique, Tanzania, Zambia, Republic of Congo	Freshwater ecology and ecohydrology specialist team leader.

Membership in Professional Associations and Publications:

Professional Associations

- Member of the Zoological Society of Southern Africa (ZSSA)
- Member of the Southern African Society of Aquatic Scientists (SASAqS)
- The South African Council for Natural Scientific Professions (SACNASP) Registration number: *Pr. Sci.Nat* (400275/12)
- Member of the International Association of Impact Assessment-SA (IAIA SA)

Publications

- Walsh, G., Jonker, M. & Mamonekene, V. (2014). Fishes of the Tributaries of the Lower Kouilou, Nounbi and Coastal River Systems, Republic of Congo, west-central Africa. *Checklist Journal of Species*.
- Jonker, M.N., Van Vuren, J.H.J & Wepener, V. (2009). The impact of feedlot effluent on water quality and aquatic macroinvertebrate community structure in streams of the upper Vaal River catchment, South Africa. *African Journal of Aquatic Science* **34** (3).
- De Jager, C., Swemmer, A., Aneck-Hahn, N.H., van Zijl, C., van Wyk, S., Bornman, M.S., Barnhoorn, I.E.J., Jonker M., van Vuren, J.H.J. & Burger, A.E.C. (2010). Endocrine Disrupting Chemical (EDC) Activity and
- Health Effects of Identified Veterinary Growth Stimulants in Surface and Ground Water. WRC report no. K5-1686. Pretoria, South Africa.

Language Skills (indicate only languages in which you can work):

Language	Comprehension	Oral Expression	Written Expression
English	Excellent	Excellent	Excellent
Afrikaans	Excellent	Excellent	Excellent

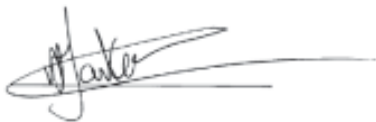
Adequacy for the Assignment:

Detailed Tasks Assigned on Consultant's Team of Experts:	Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks
Freshwater ecology and eco-hydrology specialist team leader responsible for the following. • Freshwater ecology field assessment, in line with local and international IFC standards. • Reporting of the baseline state of the aquatic environment using relevant methodology. • Production of an Impact Assessment pertaining to the freshwater environment and eco-hydrology undertaken from a hydrological flows perspective based on the proposed reduction during the construction phase of the new stilling basin and associated works. • Provision of mitigation measures to limit the impact on the ecological integrity of the receiving aquatic environment.	• Mulungushi Hydropower Project (Zambia, 2013/2014), Freshwater ecology specialist study and Environmental Flow Assessment (EFA) for the proposed upgrade to the Mulungushi Hydropower Station near Kabwe. (ERM, Mike Everett, M +27 72 610 6281, mike.everett@erm.com) • Muchinga Hydropower Project (Zambia, 2013), Freshwater ecology specialist study and Environmental Flow Assessment (EFA) for the proposed Muchinga Hydropower upgrade. (ERM, Mike Everett, M +27 72 610 6281, mike.everett@erm.com) • Moamba Barrage(Mozambique, 2011): Aquatic specialist study for the proposed Moamba Dam on the Inkomati River bordering Mozambique and South Africa. (Reference: Uke Overvest, Impacto, Uke Overvest, + 258 82 3046650)

Expert's contact information: (e-mail: michiel@ecotone-sa.co.za., phone: 084 585 7479)

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Client, and/or sanctions by the Bank.

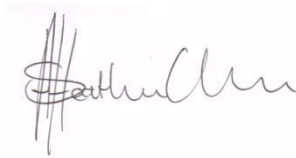


08/08/2014

Michiel Jonker

Signature

Date



Stuart Heather-Clark

12 August 2014

Name of authorized
Representative of the Consultant
(the same who signs the Proposal)

Signature

Date

Curriculum Vitae: Marco Alexandre

Date of birth:	28-10-1984	Languages:	English / Afrikaans / Portuguese
ID number:	841028 5080 084	Marital status:	Married
Nationality:	South African	Drivers licence:	Code 8
Postal address:	19 The Vineyard, Hilary Rd, Randpark Ridge, 2169.	Contact number:	072 622 8586
		Work e-mail:	marco@ecotone-sa.co.za
		Personal e-mail:	marco.a@webmail.co.za

Education

University of Johannesburg

2008 – 2010

MSc (*Aquatic Health*)

Dissertation title: *Selected Biomarkers of the Effects of Veterinary Growth Stimulants on Clarias gariepinus.*

2007

University of Johannesburg

BSC (*Honours*) - Biodiversity and Conservation

Related course work: Laboratory and Field Competencies, Environmental Impact Assessment and Social Impact Assessment, Philosophy and Research Methodology, Population Genetics and Biosystematics, Mammal Diversity, Nature Conservation, Parasitology, Herpetology, Resource Management, Molecular Evolution and Terrestrial and Conservation Ecology.

Honours project title: Invertebrate And Fish Diversity in Lake Chrissie, Mpumalanga.

2003 – 2006

University of Johannesburg

BSC (*Zoology and Botany*)

Courses completed: Zoology and botany (*Majors*), chemistry, biochemistry, environmental chemistry, biogeochemistry, statistics, fundamental physics and mathematics.

Employment and Work Experience

Jan '10 – Pres

**Ecotone Freshwater Consultants
Ecologist**

Recent projects:

- **ERM:** Kariba Dam Rehabilitation Project, Aquatic Specialist and Impact Assessment, Zambia / Zimbabwe (September 2014 – Present).
- **Pembani Coal:** Aquatic Biomonitoring Assessment, Carolina (March 2012 - Present).

- **Anglo Coal** New Largo Mine, Aquatic Biomonitoring Assessment of the Wilge River, Saalboomspruit and Associated Tributaries Mpumalanga (March 2010 - Present)
- **Jeffares & Green / ESKOM** Riparian Monitoring Assessment, Kusile Power Station (January 2014 – Present).
- **Jeffares & Green / Kumba Iron Ore Mine** Riparian Vegetation Delineation and Assessment, NDVI analysis of Zero Order Drainages and Floodline Delineation, Thabazimbi, Limpopo (November 2014).
- **PRISM EMS** Limnological and impact assessment, proposed dredging of Douglas Dam, Ermelo, Mpumalanga (October 2014).
- **Shangoni** Aquatic specialist report and impact assessment, Pedestrian Bridge Upgrade, Delmas, Mpumalanga (August 2014).
- **Doogvallei Rail Siding** Company (Pty) Ltd, Aquatic Biomonitoring Assessment of associated drainage lines, Carolina Mpumalanga (September 2012 - July 2014).
- **COMINCO**: Hinda Project, Baseline Freshwater Biodiversity Specialist Study, Republic of Congo (June-July 2014).
- **E Oppenheimer & Sons**: Water quality assessment, Fireblade Aviation, Johannesburg, South Africa (May, 2014).
- **Ncondezi Coal**: Water Supply and Retention Environmental Impact Assessment - Aquatic Ecology and Ecological Flow Requirement Assessment. Tete, Mozambique (April 2014 – Present)
- **FFMES**, Exxaro DMC Iron Congo Project, Tsinguidi Offset Area assessment, Tsinguidi, Republic of the Congo (October 2013 - January 2014)
- **Homeland Mining and Energy SA**, proposed Eloff Opencast Mine, Delmas, Mpumalanga (May 2013)
- **Eskom** Majuba Ash Disposal Facility, Wetland Specialist Study for the Scoping/EIA, Mpumalanga, South Africa (September 2012 - Present)
- **Eskom** Tutuka Ash Disposal Facility, Wetland Specialist Study for the EIA
- **Eskom** Majuba Ermelo Railway Line River Crossings, Riparian Vegetation Assessment, Mpumalanga South Africa (March 2013)
- **GladAfrica** Apies River Rehabilitation Project, Wonderboom to the K8, Aquatic Specialist Study, Gauteng (January 2013)
- **GladAfrica** Centurion Lake Sediment Trap, Aquatic Specialist Study Gauteng (November 2012)
- **MSA**, Meyerton Waste Water Treatment Works Upgrade, Aquatic Specialist Study, Gauteng (November 2012)
- **FFMES** Sintoukola Project, Aquatic Specialist Study, Republic of Congo (May and July 2012)
- **Shanduka Coal** Wetland and Impact Assessment for a proposed 400kV line relocation, Middleburg Mpumalanga (April 2012)
- **Coffey Environments** Tete Iron project, Aquatic Specialist Study of the Revuboe river, Chiuta and Moatize districts, Tete Mozambique (March 2012)
- **Homeland Mining and Energy SA** proposed Eloff Opencast Mine, Specialist Wetland Delineation, Mpumalanga (February 2012)
- **Shanduka Coal** Wetland and Impact Assessment of a pan located in the Graspan Colliery, Middleburg Mpumalanga (January 2012)
- **Exxaro** agVanTi Project, Aquatic Ecology Baseline Study, Limpopo (January 2012)
- **Coal of Africa** Vuna Colliery, Aquatic Biomonitoring Assessment of the Selons river and associated tributaries, Mpumalanga (July 2011 – Pres)

- **Doornkraal Feedlot** Section G24 for feedlot of the Groot Marico River, North West (June 2011)
- **Coal of Africa** Hartzoghoop Colliery pan study, Mpumalanga (May 2011)
- **Rand Water** B19 pipeline upgrade, Vereeniging (May 2011)
- **Coal of Africa** Hartzoghoop, Biodiversity Assessment Mpumalanga (March 2011)
- **Mareletaspruit** specialist aquatic Assessment Pretoria (March 2011)
- **Transnet** New Multi-Purpose Pipeline, Specialist Aquatic Assessment of the Malanspruit (July & September 2012; February 2011)
- **Jukskei River** pipeline crossing, Johannesburg (February 2011)
- **SpillTech** Aquatic Biomonitoring Assessment, Ladysmith (January & February 2011)
- **Transnet** Specialist Aquatic Assessment of Hydro-Testing Sandspruit, KZN (February 2011)
- **Transnet** Specialist Aquatic Assessment of Boesmanspruit, KZN (January – May 2011)
- Biomonitoring of the rehabilitation process for the **Jukskei River**, Edenvale (August 2010 – March 2011)
- **Zola Wetland Park** SASS5 Assessment, Soweto (November 2010)
- **Transnet** Specialist Aquatic Assessment of Boesmanspruit, KZN (October 2010)
- **Transnet** Specialist Aquatic Assessment of uMsunduze River, KZN (October 2010)
- **NuCoal** – Vuna Colliery, Specialist Aquatic Scientist, Mpumalanga (March & July 2010)
- **Coal of Africa** Woestalleen Colliery, Aquatic Specialist for river biodiversity studies, Mpumalanga (June 2010)
- **Veremo Minerals** Specialist Aquatic Scientist, Limpopo (May 2010)
- Pienaars River Pipeline Crossing, Pretoria (May 2010)
- **Transnet** Specialist Aquatic Scientist, Heidelberg to Durban route (January 2010 – Pres)
- **Mooiplaats** Lights Industrial and Township Development, Aquatic Ecological Assessment, Pretoria (January 2010)

Jan '08 – Dec '09

Ecotone Freshwater Consultants

Junior consultant / Field Assistant (part time)

Assisted in the following aquatic surveys:

- **Zeekoegat** Eco-Estate Residential Development, Pienaars River Mooiplaats, Aquatic Ecological Surey (February 2008)
- **Proposed Northern Farms Development**, Detailed Aquatic Survey, Johannesburg (March 2008)
- **Eskom** Majuba Coal railway line, Water Quality, Ermelo (February 2009)
- **Proposed Township Development**, Aquatic Ecology Basic Assessment, Glen Austin (April 2009)
- Report writing and Quotations

Jan '08 – Dec '09

Prism Environmental Management Services

Junior consultant / Field Assistant (part time)

Involved in the following vegetation assessments:

- Badenhorst Estate (Jan 2008)
- Portion 25, Broederstroom (Feb 2008)
- Portion 205 & 206 Roodekrans, Greengate Development (Feb 2008)
- Olievenpoort Ext 14 Holding 332 & 333 (February 2008)
- Holding 7 Hoogland (March 2008)
- Boundary Park, Holding 479 (March 2008)
- Pretoriusstad Ext 7 Nigel (April 2008)
- Holding 480 North Riding (Oct 2008)
- Honey Park Ext 12 & 27 (Oct 2008)
- Boundary Park 37 (Oct 2008)
- Greengate Ext 35 (Nov 2008)
- 34 Rietfontein, Portion 34 (April 2009)
- Rietfontein Portion 5 (Oct 2009)

Involved in the following ecological assessments:

- Muldersway Ext 2 (Oct 2008)
- Lanseria Ext 33 (Nov 2008)
- Mogale Ext 3 (Nov 2008)
- Ptn 81 Vlakfontein 30IR (Feb 2009)

Involved in the following wetland assessments:

- Ptn 56 Geduld 123 IR (June 2008)
- Honey Part Ext 27 (June 2008)
- Lanseria Ext 33 (Sept 2008)
- Muldersway Ext 2 (Sept 2008)
- Lanseria Ext 33 (Nov 2008)
- Mahube Valley Ext 26 (Jan 2009)

Involved in the following small mammal assessment:

- Die Wilgers Et 79, Lynwood, Pretoria (April 2008)
Juliana's Golden Mole and common Mole-rat (Specialist: Dr Sarita Maree)

2008 – 2009

Department of Zoology (University of Johannesburg)

Assisted in PHD research (Lab and Field work)

Water quality of the Blesbokspruit and the effect it has on aquatic organism

- Effects on fish and Macro-invertebrates

2008 – 2009

Department of Zoology (University of Johannesburg)

Assisted in M.Sc research

Physiological response of smallmouth yellowfish (*Labeobarbus aeneus*) to catch and release fly-fishing in the Vaal River.

- In this study we were trained in the withdrawing of blood and in tagging

2008

Greenline Environmental Consulting

Involved in the following surveys:

- Biodiversity assessment, BHP Billiton, Middleburg (Dec 2008)
- Rehabilitation on construction site, Ferrero Roche (July 2009)

2008**ECON @ UJ****Assisted in the following aquatic surveys:**

- Biomonitoring assessment of an aquatic ecosystem, Newcastle (Feb 2008)
- Baseline biomonitoring assessment of the aquatic ecosystem associated with the Lebowa Platinum Mine. Basic aquatic assessment and report writing (Nov 2008)

2007 – 2008**Department of Zoology (UJ)**

Demonstrator – Lab Assistant / Supervising 1st year students / Marking of books and exams

Department of Zoology (UJ)**Assisted in M.Sc research**

Full Biodiversity assessment of the Suiderbosrand and Blesbokspruit assessment included SASS5, FAI, IHI, IHAS and water quality analysis.

Workshops and Courses

September 2014**River Health Training (RQS)**

Determination of the ecological states within the eco-classification process with specific emphasis on habitat (RHAM, IHI), fish (FRAI), macroinvertebrates (MIRAI) and integration of these tools with the EcoStatus and RivDint tools. Department of Water Affairs and Forestry (DWAF), Resource Quality Services Pretoria, South Africa

November 2009**Wild Flower Identification Course**

Introduction to wild flowers, identification of flowers and practical wild flower identification

February 2009**Grass Identification Workshop**

Introduction, identification and practical on grass

November 2008**Wetland and Riparian Delineation Course**

Wetland Consulting Services and Department of Water Affairs and Forestry (DWAF)

Aug – Oct 2007**Environmental Analysis and Management (UJ)**

Environmental Impact Assessment (EIA)

Social Impact Assessment (SIA)

Report Writing

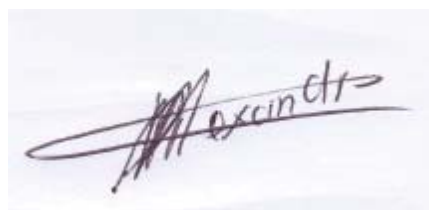
Publications

- Van der Zee, J., Walsh, G., Sonnenberg, R., Alexandre, M. & Jonker, M.N. (*in press*). A description of three new co-occurring *Aphyosemion* species (Cyprinodontiformes: Nothobranchiidae) from Lower Guinea, with notes on habitat partitioning and allopatric speciation. *Zootaxa*.

Societies and Accreditations

May 2009	Accredited Wetland Delineator Wetland Consulting Services and Department of Water Affairs and Forestry (DWAF)
March 2011	The South African Council for Natural Scientific Professions (SACNASP) Professional Natural Scientist <i>Pr. Sci. Nat.</i> (Aquatic Health and Zoological Science) Registration number: 400079/13
October 2014	SASS5 Accredited Practitioner (Since 2008) Department of Water Affairs and Forestry (DWAF)

I, Marco Alexandre, do hereby declare that all the information furnished above is true to the best of my knowledge.



Marco				Alexandre
MSc		(Aquatic	Health)	UJ
Cand.		Sci.		Nat.
Freshwater				Ecologist
M	+27	72	622	8586
T	+27	11	672	1375
F	088	011	672	1375
marco@ecotone-sa.co.za				