

APPENDIX A: DETAILS OF THE EAP

CURRICULUM VITAE



SHARON MEYER

ASSOCIATE ENVIRONMENTAL CONSULTANT

Environmental Management, Africa

QUALIFICATIONS

| | | |
|------------|------|-------------------------------------|
| MSc | 2007 | Zoology and Environmental Education |
| BSc (Hons) | 2000 | Geography and Environmental Science |
| BSc | 1999 | Botany and Geography |

EXPERTISE

- Environmental and Social Feasibility Screening
- Environmental Authorisation Processes
- Environmental Impact and Risk Management
- Environmental and Social Due Diligence
- Project and Resource Management

Sharon has over 20 years of experience as an environmental scientist and project manager. She has managed complex projects within the mining and power generation sectors, with a focus on industrial waste management. Sharon has managed multi-national and multi-disciplinary teams on environmental and social due diligence projects in Africa.

Sharon has worked on a variety of mining projects including diamond, coal, gold, vanadium and tailings reclamation projects. Within the energy space, she has been involved in linear transmission line projects through sensitive socio-economic and biophysical environments within South Africa. Sharon has worked on coal-fired power station, gas turbine, photovoltaic solar, wind turbine and hydro-electric scheme projects.

Sharon also has experience on Resettlement Action Plans, Livelihood Restorations Plans and Community Census within southern Africa. Sharon has worked on various projects within Mozambique, Botswana, Namibia, Nigeria, Lesotho and South Africa.

PROJECTS

Kareerand TSF Expansion Project (2020)

The AngloGold Ashanti Tailings Storage Facility (TSF) at Kareerand needed to be expanded for the purposes of reprocessing of other local tailings facilities and depositing the processed tailings at the Kareerand TSF. Sharon project managed the integrated Environmental Authorisation Application, which included an Environmental Impact Assessment under the National Environmental Management Act NEMA (Act 107 of 1998 as amended), a Waste Management License Application under the National Environmental Management: Waste Act NEMWA (Act 59 of 2008, as amended) and an Integrated Water and Waste Management Plan under the National Water Act NWA (Act 36 of 1998, as amended).

| | |
|----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sibanye Stillwater IWWMP and RSIP updates for 6 mines (2020) | Update of the Rehabilitation Strategic Implementation Plans and Integrated Water and Waste Management Plans for Marikana, Baobab, Rustenburg, Blue Ridge, Kroondal and Kwezi, and Pandora Mines. |
| Impala Platinum Stakeholder Engagement Process for SLP (2020) | Management of the Stakeholder Engagement Process for the Social and Labour Plan 2 and 3. The process included two rounds of meetings with key stakeholders and registered interested and affected parties. |
| Tshipi Borwa Ramp Up Feasibility Study (2020) | A feasibility assessment was carried out and an environmental study was undertaken to inform the proposed ramp up. This included any environmental impacts of risks that may increase as a result of the ramp up, as well as the required environmental authorisations and licensing that would need to be obtained prior to initiation of the ramp up. |
| Gauteng Rapid Land Release Project (2020) | Environmental Screening and Feasibility Studies were carried out for 12 sites identified by the Department of Human Settlement for potential residential and commercial development. The study investigated the sensitivity of the receiving environments as well as the authorisations and licenses that would be required prior to development. |
| ANRML ESDD (2020) | Citibank required an Environmental and Social Due Diligence (ESDD) review of the African Natural Resources and Mining Limited (ANRML) Iron Ore Mine and Processing Plant proposed in Kaduna State of Nigeria. Sharon managed a multi-national and multi-disciplinary team of specialists on a site investigation and in the compilation of the gap analysis, Red Flag Report and ESDD Report. The ESDD review was carried out against a reference framework including IFC Performance Standards, Equator Principles III, African Development Bank Guidelines and Nigerian environmental and mining legislation. |
| Tutuka Power Station Exemption Amendment Appeal (2020) | The Tutuka Power Station requested an amendment to the exemption of lining the continuous Ash Disposal Facility (ADF) for an additional period over the exempted 54ha that had been approved. The Amendment Application was rejected. Sharon managed the process for Appeal and compiled the Appeal document in response to the rejection, citing legislative support and specialist findings as motivation. |
| Chitima Monitoring Program (2019) | The proposed Chitima Integrated Coal Power Project in Tete Province of Mozambique undertook a monthly monitoring program for ambient air quality and ground and surface water quality. Sharon project managed the process for a period of two years, directing resources for sampling, lab analysis, interpretation and reporting. |
| Chitima ESIA and RAP (2019) | Sharon managed the finalisation of the ESIA Report for submission to the Mozambican authority for decision making. She further managed the initial stages of the Resettlement Action Plan for an estimated 718 households that would need to be relocated due to the proposed coal mine and power station development. Sharon managed the community census update and provided input to the RAP strategy and identification of directly and indirectly affected households. Sharon worked with a local Mozambican social consultant to align the RAP to the local legislation and to international best practice. |

| | |
|-------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Kangra Mine Water Liability Assessment (2019) | Kangra Coal operates several mines throughout South Africa. Kangra required a Water Liability Assessment to inform the closure costs for the various mines. Sharon managed the specialist input from the hydrologists and hydrogeologists in compliance with the relevant and applicable South African legislation around mine closure and financial provisioning. The final report was submitted to Kangra Coal with closure budgets for decommissioning and post-closure water treatment costs per mine. |
| Richards Bay Combined Cycle Power Plant (2018) | Sharon project managed the Integrated Environmental Authorisation process for the proposed Combined Cycle Power Plant, which is a gas-powered facility. The project entailed specialist investigations, specifically around wetland and terrestrial ecology due to the high levels of biodiversity and endemism within the Richards Bay ecosystems. Engagement was facilitated with Conservation organisations, including Ezemvelo KZN Wildlife, the competent and commenting authorities, interested and affected parties and the proponent, Eskom. |
| Kruisvallei Hydro-Electric Scheme (2018) | Sharon project managed the Integrated Environmental Authorisation process for the proposed Kruisvallei Hydro-Electric Scheme near Bethlehem in the Free State Province, along the Ash River. Issues around this proposed project included tourism activities along the river, as well as the impact of the Lesotho Highlands Water Project on the flow of the Ash River, which will affect the hydro-scheme feasibility. Sharon managed various specialist studies to compile the Applications and supporting Reports for this project. |
| Thabametsi IPP Coal-Fired Power Station (2018) | The Thabametsi IPP Coal-Fired Power Station project in Lephalale, Limpopo Province, initiated an Appeal in response to a negative decision regarding the Environmental Authorisation application. Sharon managed the appeal, which focused on updating the air quality specialist study and including a Climate Change Assessment. In addition to the Appeal, Sharon managed the permitting required for the relocation of endangered spider species from the development site and permits for the removal of protected trees. |
| DEA First State of Waste Report (2018) | Sharon was part of the Golder/Savanna team that compiled the First State of Waste Report for South Africa for the Department of Environmental Affairs. Sharon managed the plan for stakeholder engagement, which would include all provinces within South Africa. The key waste producers, re-users, recyclers, transporters and disposal contractors and organisations were classed as key stakeholders and extensive communication was arranged with these stakeholders and information from significant waste generating organisations was obtained and analysed for the Report. |
| Khi Solar One (2017) | Sharon managed the Environmental Control Officer ECO and all environmental auditing on site at Khi Solar One power plant near Pofadder in the Northern Cape. Solar One is a 100MW concentrated solar power (CSP) plant. Environmental aspects were identified, impacts were monitored and reported, and mitigation, management and avoidance recommendations were discussed with the client, Abengoa. The plant covers an area of 140 hectares. |

| | |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Medupi Power Station FGD Retrofit Integrated Authorisation Process (2017) | <p>In order for Medupi Power Station to reach compliance with the conditions of their Air Emissions License, the power station needed to reduce sulphur emissions. The preferred technology was identified as Flue Gas Desulphurisation (FGD). This technology needed to be retrofit to the power station infrastructure. Sharon managed the required Integrated Environmental Authorisation process for this retrofit. The process comprised of highly technical chemical and water quality and quantity information and assessment. Close communication with the relevant national and provincial authorities was maintained throughout the process, as well as intensive engagement with key stakeholders including the Trans-Caledon Tunnel Authority (TCTA) regarding construction of and allocation from the MCWAP 2 water scheme.</p> |
| Kendal Power Station Continuous Ash Disposal Facility (2017) | <p>Kendal Power Station received an approval for an extended life for coal-fired electricity generation. This required additional area for the deposition of ash for the extended period of operation. Sharon project managed the Integrated Environmental Authorisation process. A team of engineers and specialist consultants was coordinated to undertake the required assessments to understand the sensitivities of the local receptors and the potential for biophysical, social and economic impact. The existing ADF was not lined, and the continuous ADF would require a Class C liner. The implications of the continued ash deposition was analysed and interpreted within the Impact Assessment Report which was submitted to the authorities.</p> |
| Strategic Ash Beneficiation Project Exemption Application for Eskom (2017) | <p>Sharon managed the specialist analysis, technical reporting and stakeholder engagement for Eskom Holdings, in order to apply for exemption of pulverised boiler ash for specific uses. This application included rigorous research of international use of ash in road construction, brick making and soil amelioration. The application was approved and informed changes to the NEMWA legislation.</p> |
| Camden Power Station Grave Relocation (2016) | <p>Camden Power Station ADF was approved for extension. However, there were several graves that had been identified and would need to be relocated. Sharon managed the process of engaging with the Heritage Specialist, the undertaker and the police, as required by legislation. Sharon supported the Heritage Specialist in communicating with the communities and families of the deceased and arranging plots for the remains at the local cemetery.</p> |
| Koffiefontein Diamond Mine Slimes Dam Development EIA (2016) | <p>Sharon managed the process for the applications for Waste Management License and Environmental Authorisation for the Koffiefontein Diamond Mine Slimes Dam. This slimes dam would be the first South African mining waste facility that would be lined in terms of the NEMWA regulations. Sharon managed the specialists, engaged the engineers and other technical team members in order to successfully obtain the required license and authorisation.</p> |
| Ndumo Gezisa Basic Assessment (2015) | <p>Ndumo Gezisa 132kV powerline was proposed through very sensitive sand forest habitat in the north of the KwaZulu Natal Province. The process for the Basic Assessment included detailed GIS mapping, modelling and alternative route identification and assessment. The powerline development was very controversial because the line would carry electricity to remote areas of KZN that did not have access to power, but the line would impact on the periphery of a highly sensitive sand forest and would require the relocation of several homesteads. The process was successfully completed.</p> |

| | |
|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pongola Candover Golela 132kV powerline (2015) | Eskom required the installation of a 132kV powerline from the Candover substation to the new Golela substation. The line would traverse several ecotourism operations. The project was contentious and extensive discussion was required with landowners and tourism operators to agree upon the preferred route and management planning. |
| Kusile Power Station 60-year Ash Disposal Facility (2014) | Sharon managed the team working on the Integrated Environmental Impact Assessment process for the proposed Kusile Power Station 60-year Ash Disposal Facility. The project entailed an EIA to cover the NEMA as well as the NEMWA regulations, as well as and Integrated Water and Waste Management Plan for the facility, including salt and water balance in terms of GN704. |
| Sasol Mafutha Town Integrated Scoping Phase (2014) | Sharon formed part of an extensive environmental team on the Sasol Mafutha project, which included the proposed Mafutha Mine, Mafutha Coal to Liquid Plant, and the Mafutha Town development. Sharon managed the Mafutha Town EIA process, including input to the Town design and layout for optimal environmental and socio-economic benefits. The project was halted after the Scoping Phase due to the client experiencing financial limitations. |
| Grootvlei Power Station Solar Installation (2014) | Grootvlei Power Station applied for environmental authorisation for a proposed solar installation to power components of a new plant on the Power Station footprint. The process was carried out through a Basic Assessment and the key aspect for assessment was the effect on the local wetland. Sharon managed this project successfully to obtain authorisation. |
| National Foundry Technology Network Waste Management License Guideline (2013) | Sharon was appointed by the National Foundry Technology Network to compile a Waste Management License Guideline. This Guideline was aimed at explaining the National Environmental Management: Waste Act NEMWA (Act 59 of 2008) and how foundries operating in South Africa would be affected by this legislation. The Guideline provided user-friendly steps toward compliance of all foundries to the legislation. |
| Working Group for Ash Beneficiation (2013) | Eskom established a working group for ash beneficiation, including other ash producers, such as Sasol, Mondi, Sappi, several academic institutions and the Coal Ash Association of South Africa. Sharon was appointed as the Environmental Advisor on this group. Sharon was active on the Working Group from 2013 to 2017. |
| Palm Ridge 88kV and Substation (2012) | Sharon managed the Basic Assessment for the proposed Palm Ridge 88kV powerline and substation. This project was aimed at providing electricity to the Palm Ridge community. The biggest challenge on this project was the planning of an inclusive public participation process for a community with a high level of illiteracy and inaccessibility to internet. |
| Kimberley Engineering Works Foundry WML (2012) | The Kimberley Engineering Works (KEW) Foundries has been operating for almost 100 years. With the promulgation of the NEMWA in 2008, KEW Foundry was required to comply with the regulations, and also to take cognisance of the National Environmental Management: Air Quality Act (Act 39 of 2004). Sharon managed the process for compliance to all relevant legislation. |
| IWWMP for Emfuleni Local Municipality (2012) | Emfuleni Local Municipality undertook to compile Master Plans for various waste aspects to be managed within the Municipality. Sharon project managed the compilation of the Integrated Water and Waste Management Plan which would input into the Waste Management Master Plan. |

| | |
|------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Olifantsfontein Landfill Site Waste Management License and EIA (2011) | The proposed Olifantsfontein general landfill site required environmental authorisation and Sharon was the project manager for the Waste Management License and Environmental Authorisation applications. |
| Klippan Mine EIA and community resettlement (2011) | Sharon was appointed by Klippan Mine to undertake the EIA application for the proposed expansion of the Klippan Coal Mine in Emalahleni, Mpumalnga Province. The project required the resettlement of several households for the purposes of expanding the open pit. Sharon managed the project up to the end of Scoping Phase, however, she recommended to the client that alternatives should be investigated as the impacts of the project were unacceptably high. The project was put on hold. |
| Zimalco Foundry NEMWA Process (2011) | Zimalco Foundry applied for a Waste Management License, and Sharon managed the process successfully to investigate potential environmental and socio-economic impacts of the Zimalco operation. The application was successful and Zimalco was compliant with the NEMWA going forward. |
| Prima Foundry NEMWA Process (2011) | Sharon managed the NEMWA Waste Management License Application Process for Prima Foundry. The Application was successful, and the Prima Foundry continued operating in line with the approved Waste Management Plan. |
| Monterey Sands WML (2011) | Monterey Sands is a foundry and sand reprocessing facility in the Benoni area. Sharon managed the application for a Waste Management License for the foundry and associated facilities. |
| Bapsfontein SEA (2011) | Bapsfontein Local Municipality undertook the compilation of the Strategic Development Framework (SDF) for the Municipality for 2011. Sharon managed the investigation and compilation of the Strategic Environmental Assessment to inform the planning of future development and conservation zones within the Municipality. |
| Teak Place WULA (2010) | Sharon undertook the compilation of the Water Use License Application for the proposed Teak Place Eco-Tourism development within the Cradle of Humankind. |
| Erand Housing Development (2010) | The Erand Housing Development required a Basic Assessment and EMP for the proposed residential 3 project. Sharon managed the environmental authorisation application process and undertook ECO auditing during the construction phase. |
| Steloy 24G application (2010) | Steloy Foundry applied for a 24G rectification for the disposal of solid waste to land. Sharon was involved in the process for rectification which was carried out as an Environmental Impact Assessment. Information provided through the process led to the competent authority fining the client and requiring rehabilitation of the impacted site. |
| Integrated EIA for Cullinan Diamond Mins Dam 7 (2010) | Sharon was the Environmental Assessment Practitioner on the project to gain approval for the rehabilitation and extension of Dam 7 at the Cullinan Diamond Mine in Northern Gauteng. The project included several specialist studies as well as input by the engineers around the safety of the dam and the compliance of the dam size to environmental regulations and safeguards. |
| Sewage Pipeline from Wilge Village to Phola WWTP (2010) | Sharon project managed the integrated application for the proposed sewage pipeline to reticulate sewage from Wilge Village to the Phola Wastewater Treatment Plant (WWTP). The pipeline route would traverse the Wilge River, requiring detailed investigations of the potential impacts to the River should there be a spill from the pipeline. The management plan needed to address the mitigation of these impacts. |

| | |
|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rapid Factory Renovators (2010) | Rapid Factory Renovators (RFR) is a recycling facility that reprocesses used foundry sand. This operation required a Waste Management License in compliance to NEMWA. Sharon successfully managed the process for the RFR. |
| Venetia Mine Venus Project (2009) | Sharon was the Environmental Assessment Practitioner on the Environmental Authorisation Application Process for the Venus Project at Venetia Mine in Messina, Limpopo Province. The project entailed the management of specialist studies, discussions with engineers and the relevant mine representatives to ascertain the feasibility of the project in terms of the potential for environmental and socio-economic impacts. |
| Janho Quarry ECO Management (2009) | Janho Quarry required weekly independent auditing by and Environmental Control Officer for the period of operation. Sharon was appointed as the ECO and undertook weekly investigations and compiled monthly compliance reports to the EMP for the site. Sharon managed the stakeholder grievance mechanism and reported these to the client for discussion and resolution. |
| Rhenosterspruit Eco-Development (2009) | Sharon undertook the compilation of the Eco-Reserve Conservation Plan for the proposed Rhenosterspruit Eco-Development within the Cradle of Humankind. The Conservation Plan supported the application for environmental authorisation. |
| Geduld Township establishment (2009) | The Geduld Township was earmarked for establishment near Springs in Gauteng Province. The township was controversial and the EIA processes entailed extensive stakeholder engagement with local land owners and residents. The site required specialist biodiversity investigations due to the size of the footprint and the conservation status of the grassland habitat. |
| EMPr amendment for Kleinkopje Colliery (2009) | The Kleinkopje Colliery required the amendment of their EMPr in order to include the Emalahleni Water Reclamation Project that affected the colliery management plan. Sharon worked at the environmental scientist on this amendment and undertook the site investigation, review of applicable reports and the technical amendment compilation. |
| EMPr amendment for Landau Colliery (2008) | Landau Colliery required the update of their EMPr to include the new Emalahleni Water Reclamation Project. Sharon worked at the environmental scientist on this amendment and undertook the site investigation, review of applicable reports and the technical amendment compilation. |
| Update of Cullinan Diamond Mine (2008) | Sharon undertook the update of the Cullinan Diamond Mine EMPr to include future operations planned for the mine. Sharon worked with specialist consultants as well as the mine engineers to ensure that all management issues were identified and addressed within the update. |
| Sani Pass Border Region Tourism Plan (2008) | Sharon project managed and compiled the Tourism Plan report for the Sani Pass Border Region. The Plan investigated the potential tarring of the road up Sani Pass to the Lesotho Border. This would make tourism access easier but was not supported by many of the tourism operators that took tourists up the pass in their 4x4 vehicles. Intensive stakeholder engagement was required for this study. Currently, as an outcome of this study, the Sani Pass road is being tarred. |

| | |
|-------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EMPr update for Kleinkopje Colliery (2007) | Kleinkopje Colliery required to amendment of the EMPr to include the change in the Anglo Coal mining operations relating to the No. 4 coal seam. Sharon undertook the review and amendment of the EMPr for Anglo Coal. |
| EMPr amendment for the Landau Colliery (2007) | Landau Colliery required to amendment of the EMPr to include the change in the Anglo Coal mining operations relating to the No. 4 coal seam. Sharon undertook the review and amendment of the EMPr for Anglo Coal. |
| Cradle of Humankind Eco-Development (2007) | Sharon undertook the necessary process and technical report writing to submit an Implementation and Conservation Plan for the Cradle of Humankind Eco-Development. This development required integrated environmental authorisation. |
| Kruger National Park Security Office (2007) | Kruger National Park required a Tourism Plan for the Security Office near the Skukuza Gate. Sharon undertook the compilation of this Tourism Plan. |
| EMPr amendment for Vametco Vanadium Mine (2006) | Vametco Vanadium Mine located in Britz, North West Province, required an amendment of the EMPr to include additional operations that had been initiated. Sharon undertook the amendment for the colliery. |
| EMPr amendment for Anglo Coal at Kriel Colliery (2006) | Anglo Coal required the amendment of the Kriel Colliery EMPr in order to adjust the prospecting activities to consider the Elders Wetland. Sharon reviewed the proposed prospecting activities in relation to the potential impacts to the wetland and amended the EMPr to effectively include management action plans to mitigate these impacts. |
| EMPr update for Greenside Colliery (2006) | Sharon updated the Greenside Colliery EMPr for Anglo Coal to include the mining operations for the No. 4 coal seam. |
| Cullinan Diamond Mine (2006) | Cullinan Diamond Mine initiated a Biomonitoring Project to assess quarterly aquatic quality within the McHardyspruit and other affected surface water bodies. Sharon managed this programme, including the scheduling of monitoring events, laboratory analysis and the interpretation of results and report compilation. |
| Pala Meetse Eco-Reserve EIA (2006) | Sharon was the project manager for the Integrated Environmental Authorisation application for the proposed Pala Meetse Eco-Reserve between Bela-Bela and Modimole in the Limpopo Province. The applications were supported by an eco-reserve conservation plan. Stakeholder engagement was extensive due to the fact that surrounding cattle farmers did not support the application and were concerned about wildlife diseases affecting their cattle. |
| EMPr addendum for Grootvlei Mine West Pit Operation (2005) | Grootvlei Mine required an addendum to their EMPr to address the mining operations at the West Pit. Sharon undertook the compilation of the Addendum and submitted this to the competent authority for approval. |
| Elders Mini Pit (2005) | Sharon was the Environmental Practitioner responsible for the EIA and EMPr compilation and process for the proposed Elders Mini Pit opencast mining operation. The processes included extensive engineering and specialist input, as well as significant engagement with the mine on the proposed Mine Works Programme and Life of Mine. |
| Kriel Dragline Walkway (2005) | Anglo Coal required the transfer of the Kriel Dragline from the Syferfontein Colliery to the Kriel Colliery. Sharon was involved on the planning of the Dragline Walkway, as well as in the auditing of the walkway management and rehabilitation. |

| | |
|-----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EMPr for road diversion borrow pits (2005) | Sharon undertook the Environmental Management Programme compilation for the road diversion at Kriel South Coal Mine in Mpumalanga. |
| Evander Mega Tailings Facility (2005) | Harmony Gold Mine required that a site selection process and pre-feasibility study be undertaken for the proposed Evander Mega Tailings Facility. Sharon was responsible for input to the site selection and pre-feasibility study in terms of environmental and socio-economic impacts and benefits. |
| Mponeng Mine VCR Below 120 Level (2004) | Sharon was the Environmental Practitioner responsible for the compilation of the Environmental Risk Assessment for the Mponeng Mine Refrigeration Expansion for the VCR Below 120 Level Project. Sharon needed to understand the technical implications and requirements for the refrigeration for the increased depth in mining in order to draw up the Risk Assessment and understand the environmental and socio-economic risks and benefits. |
| No 17 Shaft Development at Impala Platinum (2004) | A Scoping Report and Plan of Study for the EIA was compiled by Sharon for the proposed No 17 Shaft Development at the Impala Platinum Mine in Rustenburg, North West Province. This entailed review of existing operations and integration of engineering and specialist input to the assessment. |
| McHardyspruit Diversion Basic Assessment (2003) | Sharon was involved in the public participation process relating to the proposed McHardyspruit Diversion that Cullinan Diamond Mine applied for with the relevant competent authorities. Sharon engaged with key stakeholders as well as with interested and affected parties to ensure that the process was compliant to regulations and to facilitate engagement of stakeholders with the project to inform the client and decision making. |
| Anglo Coal Biodiversity Action Plan (2003) | Anglo Coal required Biodiversity Action Plans for eight operational collieries within the Mpumalanga Province. Sharon was responsible as the Environmental Practitioner and Floral Specialist to compile the Action Plans, including identification and mapping of medicinal, Red Data and conservation species for protection or for removal to a nursery. An Alien Invasive Management Plan was included within the eight Plans. |
| Secretary of Eskom Waste Management Forum (2002 and 2003) | Sharon served as the secretary of the Eskom Waste Management Forum in 2002 and 2003. This Forum discussed the performance of waste management within Eskom and promoted the introduction of innovative waste management technology. |
| Grootvlei Power Station (2002) | Eskom investigated the potential return to service of three older mothballed power stations; Komati, Camden and Grootvlei. Sharon managed the environmental risk assessment and EMPr for the potential return to service of the Grootvlei Power Station by 2010. |
| Eskom Waste Management Software Investigation (2002) | Sharon was responsible for investigation of waste management software for the management of Eskom office and industrial waste streams. This involved research of waste management systems and software that was available for multiple waste streams that would affect the reporting of volumes of waste from cradle to grave. |
| Biological Control Research for Lanner Falcon control of pigeons in urban areas (2002) | Sharon was responsible for the release and feeding of two juvenile Lanner Falcons on MegaWatt Park roof in Sunninghill. The falcons were hand-fed for a period of 3 months until they were able to hunt independently on the wing. The project found that the presence of the Lanner Falcons significantly reduced the numbers of pigeons nesting and breeding on the roof. Sharon worked with the specialist ornithologist on this project. |

| | |
|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Animal Behaviour and Interaction Program (2001) | Sharon was allocated to undertake the animal interactions program at Eskom. This included research and problem solving around sociable weavers nesting on the distribution lines in the Northern Cape, the crows nesting on transmission lines in KZN, and woodpeckers damaging wooden distribution poles in remote KZN areas. Sharon also investigated the potential animal interactions with underground lines, and how these could be mitigated. Sharon won top Eskom researcher award for this programme in 2002. |
| MEMBERSHIPS | |
| Committee Member | IAIAsa Gauteng Branch Committee 2019 to 2020. |
| Member | IAIAsa |
| Professional Registration | SACNASP <i>Pr. Sci. Nat.</i> Environmental Management. |
| Professional Registration | EAPASA <u>(Pending)</u> |
| PUBLICATIONS | |
| | <u>Creating an Enabling Environment for Mining in Uganda</u> . Presented at the 8 th Annual Mineral Wealth Conference in Kampala, Uganda. 3 rd October 2019. |
| | <u>Baseline Environmental and Social Assessments within the Exploration Phase</u> , Mining Weekly, April 2019. |
| AWARDS | |
| Presentation of the Year (2013) | National Foundry Technology Network presented the Presentation of the Year for Sharon's presentation on the NEMWA regulations and the implications for the Foundry Network. |
| Researcher of the Year (2002) | Eskom Researcher of the Year for Animal Interactions Programme, focusing on animal interaction with transmission and distribution lines, as well as with urban infrastructure. |
| Best Research Project (2002) | Sociable Weaver study in Groblershoop, Northern Cape, successfully solved the challenge of Sociable Weavers nesting on distribution lines, causing poles to collapse, or flashovers when wet. |

EAPASA

Unit 19 Oxford Office Park
3 Bauhinia Street
Highveld Techno Park
Centurion
0157
Tel. (+27) 12 880 2154

Environmental Assessment Practitioners Association of South Africa

Advancing environmental assessment practice in South Africa



Email: registrar@eapasa.org / Website: www.eapasa.org

Ms Sharon Meyer
232-06 Percheron Road
Beaulieu
Midrand
1684

Sent by email to: sharonm@gcs-sa.biz

Dear Ms Meyer

Registered Environmental Assessment Practitioner: Number 2019/976
Sharon Lee Meyer : South African ID 7612140229084

The Environmental Assessment Practitioners Association of South Africa (EAPASA) herewith certifies that Sharon Lee Meyer is a Registered Environmental Assessment Practitioner (EAP) in accordance with the prescribed criteria of Regulation 15.(1) of the Section 24H Registration Authority Regulations (Regulation No. 849, Gazette No. 40154 of 22 July 2016, of the National Environmental Management Act (NEMA), Act No. 107 of 1998, as amended).

Your registration is duly authorised by EAPASA as the single Registration Authority for EAPs in South Africa (appointed as per Regulation No. 104, Gazette No. 41434 of 8 February 2018, in terms of section 24H(3)(a) of the NEMA). Your status as a Registered EAP is displayed in the 'EAP Register' - please find your name and contact email address at

<https://registration.eapasa.org/registered-practitioners>

Your registration is effective for a period of five years from 13 October 2020, and expires on 13 October 2025. The renewal of your registration in 2025 will be contingent on you having met the requirements of EAPASA's Continuing Professional Development (CPD) policy during each year of registration.

As a Registered EAP you are required to uphold the EAPASA Code of Ethical Conduct and Practice in your professional endeavours, towards the goal of quality assurance in environmental assessment practice.

Please accept my congratulations on your registration.

Best regards

Dr Richard Hill
Registrar

Date: 13 October 2020

Board Members: Ms Snowy Makhudu (Chairperson), Mr Khangwelo Desmond Musetsho (Vice-Chairperson),
Mr Ntsako Baloyi, Mr Zama Dlamini, Mr Siyabonga Gqalangile, Ms Jacqui Hex, Mr Phumudzo Nethwadzi, Mr Danie Neumann.
Registrar: Dr Richard Hill
NPO Reg. No. 122-986



THE SOUTH AFRICAN COUNCIL
FOR
NATURAL SCIENTIFIC PROFESSIONS

herewith certifies that

Sharon Lee Meyer

Registration number 400293/05

has been registered as a

Professional Natural Scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003

(Act 27 of 2003)

in the following field(s) of practice
(Schedule I of the Act)

Environmental Science

15 November 2005

Pretoria

President

Chief Executive Officer

CURRICULUM VITAE



ROB HOUNSOME

AFRICA GROUP MANAGING DIRECTOR

QUALIFICATIONS

MSc 1994
Environment
Geochemistry

BSc (Honours) 1993
Environmental
Geology

BSc Geology 1992
and Applied
Geology

EXPERTISE

- Environment, Social and Governance
- Due Diligence and Lender Compliance
- ESIA
- Stakeholder Engagement
- Pollution & Waste
- Climate Change

Rob is the Managing Director of the SLR Group of Companies in Africa. He has 27 years of wide-ranging experience in Environmental and Social advisory and consulting in more than 41 countries worldwide.

Rob has a particular interest in advising on complex environmental and social issues in developing countries and in assessing, monitoring and managing the impacts of development directly, indirectly and cumulatively on the natural environment and people. His experience has ranged from supporting National Government and International Agencies with the development and application of customised environmental planning and assessment tools through to completing ESDD's and ESIA's in accordance with requirements of National Governments, Industry Associations, and various funding agencies including major International Finance Institutes, Equator Principle Banks, and/or PE and Legal Firms. In addition, he has completed multiple research and consultancy technical assignments in the fields of Climate Change and Pollution & Waste.

Rob has worked extensively in the Mining, Oil & Gas, Manufacturing/Industrial and Infrastructure sectors.

Rob has lectured and supervised research students at Universities in South Africa, Sweden and the U.K., has facilitated multiple Environmental capacity building programmes across Africa and has presented keynote addresses to a number of international conferences on diverse subjects such as Environmental Assessment, Climate Change, Sustainability and Waste.

EXPERIENCE

**Africa Regional Manager /
Africa Group Managing
Director**

SLR Consulting
(2019 – current)

**Regional Director, Ramboll
Middle East & Asia**
(2015 – 2019)

**Leader of African Regional
Operations and Technical**

- International Association of Impact Assessment (Board Member from 2001 - 2006)
- South African Council for Natural Scientific Professions
- National Certification Referee for Environmental Assessment Practitioners (Founding Board Member)
- Board of the School of Environmental Sciences (University of Kwazulu-Natal, South Africa)
- Director of Golder Associates Ghana (30 person company with total revenue in excess of \$5M and executing projects up to \$4.5m for local and international clients in oil & gas and the mining sector.
- Director of Golder Associates Guinea (with total revenue in excess of \$30M)
- Director of Golder Associates Democratic Republic of Congo (with total revenue in excess of \$10M)
- Director of Golder Associates Mozambique (25 person company with total revenue in excess of \$5M and executing projects up to \$3M)

Director for Environmental
Projects, Golder Associates
(2007-2015)

Director of Environment,
Pollution and Waste
Business Unit, Council for
Scientific and Industrial
Research: Natural
Resources and the
Environment (NRE)
(1997-2007)

Environmental Consultant,
Walmsley Environmental
Consultants
(1994 – 1997)

- Director of Golder Associates Botswana (5 person company with total revenue in excess of \$2M and executing projects up to \$500k)
- Director of Ramboll Middle East (250 person company with total revenue of \$125M)
- Managing Director of SLR Consulting Africa Group of Companies

Country Experience:

- **Africa:** Botswana, Democratic Republic of Congo, Ethiopia, Ghana, Guinea, Liberia, Mauritania, Mozambique, Namibia, Nigeria, Senegal, Sierra Leone, South Africa, Sudan, Swaziland, Tanzania, Uganda, Zambia, Zimbabwe
- **Asia:** Afghanistan, China, India, Philippine's, Uzbekistan, Vietnam
- **Europe:** Croatia, Denmark, Norway, Russia, Sweden, United Kingdom
- **Middle East and North Africa:** Algeria, Egypt, Jordan, Lebanon, Oman, Qatar, Saudi Arabia, Syria, UAE, Yemen

PROJECTS

As LESC, acted in an independent capacity to determine whether projects are compliant with the requirements of International Finance Institutions (IFI's). The assignments have involved assessing compliance, the development of Environmental and Social Action Plans, liaison with Lenders and their various advisors, and assisting in the drafting of suitable covenants into lending documents. Ongoing consulting support has been provided to Lenders for projects with potentially significant impacts.

Lenders Environmental and Social Consultant (LESC)

- LESC for Sohar Aluminium (2004 – ongoing)
- LESC for Emirates Aluminium (2007 – ongoing)
- LESC for Mindoro nickel project in Papua New Guinea (PNG) with a particular emphasis on resettlement action plans and the implications on indigenous people (2007)
- LESC Emirates Cement Company, United Arab Emirates (2007 – 2012)
- LESC for Cimint Blanc Algerian Spa, Algeria (2007 – 2012)
- LESC, for the Emerging Markets Telecommunications Company (EMTS) Project, in Lagos, Nigeria including the development of an Environmental & Social Action Plan and subsequent Environmental Management Programme (2008)
- LESC for Petroleum storage facility in Beira, Mozambique (2010)
- LESC for Aqalyng Water Management facility, Ghana (2010)
- LESC for the proposed Nkout Iron Ore project (2010)
- LESC for confidential acquisition of comprehensive waste management service facility to oil and gas exploration companies working offshore of Luanda, Angola (2010)
- LESC for Lafarge Cement Plant, Nigeria (2011)
- LESC for the Accugas Pipeline Project, Akwa Ibom State, Nigeria (2011)
- LESC for Roofings Ltd, Kampala, Uganda (2011)
- LESC for Boseto Copper Mine, Botswana (2012)
- LESC for Penumbra Coal Project, Mpumalanga, South Africa (2013)
- LESC for confidential aggregates quarry and cement manufacturing facility in Beluluane Industrial Park, Maputo and to the south of the city, Mozambique (2014)
- LESC for Konkola Copper Mines, the largest copper mine in Africa and one of the largest integrated copper facilities in the world (2015)
- LESC for Mina's proposed Petroleum storage terminal, berth facilities and associated infrastructure in the Port of Salalah, Oman (2016)
- LESC for Emirates Global Aluminium's bauxite refinery and associated works in the Emirate of Abu Dhabi, United Arab Emirates (2014 – Present)
- LESC for Duqm Refinery's proposed Refinery, Terminal(s) and pipeline project and associated facilities in the Special Economic Development Zone in Duqm, Oman (2017)
- LESC for Tuluu Kapi Gold Mine, Ethiopia (2020-ongoing)
- LESC for Lucara Diamond mine, Botswana (2021)

Fulfilled the role as ESDD consultant to determine any Environmental or Social liabilities with various facilities for investment purposes or in conjunction with ongoing compliance.

Environmental and Social Due Diligence Consultant

- ESDD for Envirotech, Johannesburg, South Africa (1995)
- ESDD Europair Johannesburg, South Africa (1995)
- ESDD review of a mining project in Zimbabwe for a confidential client (1996)
- ESDD for Mozambique Ports Development Company, Mozambique (2001)
- ESDD for Copper Mine and associated facilities in Zaire (1996-1997)
- ESDD of Freestart Battery CC in Pinetown, South Africa (2006)
- ESDD for the Proposed Medical Waste Management Facility at the Shongweni Landfill Site (Durban, South Africa) (2007)
- ESDD for the Taung Irrigation Scheme Project comprising three integrated projects (2007)
- ESDD for First Quantum Mining and Operations Limited (FQMOL) proposed Fishtie mine at Kashime Copper Project, Zambia (2008)
- ESDD for Iduapriem Mine, Ghana (2009)
- ESDD for Mogale Alloys, South Africa (2009)
- Annual ESDD audits for the Anglo Gold Ashanti Obuasi Mine in Ghana (2009-2012)
- ESDD of Tulawaka and Bulyanhulu gold mines in Tanzania (2009-2014)
- ESDD for three oil and gas facilities in Nigeria (2010)
- ESDD on Keaton Energy, South Africa (2010)
- ESDD for Richards Bay Minerals (2011)
- ESDD for Driefontein Mine, South Africa (2011)
- Environmental and social due diligence, including an Equator Principles compliance review, of the Central Ashanti Gold Ltd. mining operations in Ghana (2011)
- ESDD, including an IFI compliance review, of Gold Fields (Ghana) Ltd. Tarkwa and Damang Gold Mine operations in Ghana (2011)
- ESDD for a gold mine in Ghana (confidential for an Australian and European banking consortium) (2012)
- ESDD for a coal mine (Kangra Mine) in South Africa; this was an acquisition due diligence that had to address all liabilities including those for closure (2012)
- ESDD for Morila Mine, Ghana (2012)
- ESDD, including an IFI compliance review for the Medinandi Gold Mining Project for Papillon Resources in Mali (2012)
- ESDD for Sadiola Mine, Mali (2014)
- ESDD on a South African ferrochrome plant for Rukki Oyj, for acquisition purposes (2014)
- ESDD for ARABIAN PAPER PRODUCTS COMPANY-OLAYAN, Modon, KSA (2016)
- ESDD on several oil and gas installations in Saudi Arabia for acquisition or leasing purposes (2016 – 2018)
- ESDD on mixed-use development site in Split, Croatia (2018)
- ESDD and feasibility study for an Oil Refinery in Afghanistan on behalf of InFrontier (2019)
- ESDD for telecommunications portfolio investment with sites in nine countries across Africa (2019)
- ESDD for confidential mining project in Ethiopia (2020)
- ESDD for confidential mining project in Mpumalanga, South Africa (2020)
- ESDD for confidential industrial project in Lago, Nigeria (2020)

| | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | Mining |
| Environmental and Social Impact Assessment and Environmental Management Programme Report for Glenover Phosphate mine, South Africa (1995) | Acted as Project Manager and lead author for the ESIA and EMP. Included the management of water, soils, air and ecology specialists and socio-economist. Led the stakeholder engagement programme. |
| Environmental and Social Impact Assessment and Environmental Management Programme Report for Zwartkloof fluorspar mine, South Africa (1995) | Acted as Project Manager and lead author for the ESIA and EMP. Included the management of water, soils, air and ecology specialists and socio-economist. Led the stakeholder engagement programme. |
| Environmental and Social Impact Assessment and Environmental Management Programme Report for New Clydesdale Colliery, Exxaro (1995) | Acted as Project Manager and lead author for the ESIA and EMP. Included the management of water, soils, air and ecology specialists and socio-economist. Led the stakeholder engagement programme. |
| Environmental and Social Impact Assessment and Environmental Management Programme Report for Greenside Colliery, Anglo American (1996) | Acted as Project Manager and lead author for the ESIA and EMP. Included the management of water, soils, air and ecology specialists and socio-economist. Led the stakeholder engagement programme. |
| Environmental and Social Impact Assessment and Environmental Management Programme Report for Kloof underground gold mine, Goldfields S.A. (1996) | Acted as Project Manager and lead author for the ESIA and EMP. Included the management of water, soils, air and ecology specialists and socio-economist. Led the stakeholder engagement programme. |

| | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Environmental and Social Impact Assessment and Environmental Management Programme Report for limestone quarry, Ready Mix Materials (1996) | Acted as Project Manager and lead author for the ESIA and EMP. Included the management of water, soils, air and ecology specialists and socio-economist. Led the stakeholder engagement programme. |
| Environmental and Social Impact Assessment and Environmental Management Programme Report for Sigma Colliery, Sasolburg (1996) | Acted as Project Manager and lead author for the ESIA and EMP. Included the management of water, soils, air and ecology specialists and socio-economist. Led the stakeholder engagement programme. |
| Environmental and Social Impact Assessment and Environmental Management Programme Report for Greenside Colliery, Anglo American (1996) | Acted as Project Manager and lead author for the ESIA and EMP. Included the management of water, soils, air and ecology specialists and socio-economist. Led the stakeholder engagement programme. |
| EIA and contamination assessment for Sodimiza Copper Mine, Fluor Daniel Zaire/DRC (1996) | A Canadian based mining concern were interested in acquiring the Sodimiza Copper Mine in the Democratic Republic of Congo (at that stage Zaire). The EIA was conducted to review the environmental performance of the current operations and to evaluate the consequence of further expanding the mine. The EIA revealed significant environmental degradation on site including the sterilisation of vast tracts of land and significant water contamination. These impacts were manifest in a number of health concerns within the local community. The recommendations from the EIA led to the client implementing an integrated rehabilitation programme and putting in place community processes in response to the health concerns. |
| EIA for coal mining operation Riversdale Mozambique Lda (now Rio Tinto), Mozambique (2008-2009) | Technical advisor of two Environmental and Social Impact Assessments (ESIA) for Africa's largest open-cast coal mine and a coal-fired power plant near Tete, Mozambique on the confluence of two of the country's biggest rivers. Technical support for ESIA: procedural, enviro-legal, technical quality, socio-cultural and socio-economic risk and opportunities. Led and developed sustainability assessment for the proposed developments. |
| EIA for the Tulu Kapi Gold Mine, Ethiopia (2012-2015) | Project Leader. Nyota Minerals are proposing to establish a gold mine in rural Ethiopia. The ESIA was conducted to local regulatory and IFC standards and delivered well ahead of schedule. The project team integrated local technical experts with international specialists from more than 5 countries. |

| | |
|----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ESIA for Richards Bay Minerals expansion projects (2012-2015) | Project leader. The project involved assessing whether Richards Bay minerals had the appropriate approvals in place for all of their facilities and retrospective ESIA's for any unapproved facilities. This techno-legal project ultimately resulted in RBM regularising all of their permit conditions. |
| Various environmental assessment projects for Debswana (2012-2015) | Delivery of various environmental assessment and management projects as part of an overall Framework agreement for Debswana operations in Botswana. |
| ESIA & EMP update for Minas Moatize coal mine, Tete (2013-2014) | Technical advisor for the update of the ESIA and EMP for a coal mine in Tete, Mozambique. The project entailed a full review and update of all technical studies and the subsequent ESIA/EMP documents for submission to IFI's and the local regulators. |
| ESIA for Jindal iron ore mine, Kwazulu-Natal, South Africa (2013-2015) | Project leader for the ESIA Conducted an Environmental Impact Assessment for the establishment of an iron ore mine in South Africa to IFC standards on behalf of Jindal Africa. The proposed mine will be established within a moderately populated rural area of and may involve the resettlement of considerable numbers of people. The ESIA included a team of more than 100 specialists operating in diverse fields of expertise. |
| Strategic Environmental Advisory for Jindal coal, Botswana (2014) | Project leader advising Jindal on the regulatory and international financing requirements to establish a coal mine and associated power facility in Botswana. |
| ESIA for Manganese Mine in Northern Cape, South Africa (2019) | Project leader for the ESIA to regularise South 32's MMT mine's legal status. |
| ESG Closure advisory (2020 – current) | Advising several clients in South Africa on ESG considerations in mine closure in South Africa in alignment with the upcoming financial provision regulations. |
| Oil and Gas | |
| EIA's for service station sites on the N3 near to Pietermaritzburg, Shell Petroleum, Durban, South Africa (1997) | Acted as Project Manager. The EIA compared two sites for the establishment of a service station adjacent to a National road. The EIA found neither site to be suitable due to high water tables and sensitive ecological conditions. |
| EIA for a gas pipeline in the Bazaruto archipelago, Sasol, Mozambique (2001-2002) | Project Manager. Sasol, as a project partner, were planning to implement a natural gas pipeline throughout the Bazaruto archipelago. The EIA involved detailed sea and land-based fieldwork and a comprehensive public engagement programme. |

| | |
|------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>ESIA for Durban-Johannesburg pipeline for Transnet Ltd, South African fuels transportation company South Africa (2007-2009)</p> | <p>Co-Project Manager for Environmental and Social Impact Assessment (ESIA) for the New National Multi-Products Project (NMPP) for Transnet Ltd. Transnet Ltd is the South African State company with the mandate to ensure security of fuel supply to the country. The NMPP Project was one of the largest infrastructure projects ever in South Africa (US\$ 2 billion). The project consists of a coastal and inland fuel accumulation terminal capable of storing up to 180 000 m3 of different fuels joined by a 555-km 24' multi-products pipeline across mainly private land, with eight pump stations along the route.</p> |
| <p>ESIA's for Vopak Terminals petroleum storage facilities in Durban (x2), Richards Bay and Heidelberg, South Africa (2008-2014)</p> | <p>Project leader for several EIA's in Durban, Richards Bay and Heidelberg for greenfield (3 facilities) and brownfield (2 facilities) for petroleum storage on behalf of Vopak terminals in South Africa. The ESIA's were delivered in sensitive receiving locations from a risk management and/or environmental perspective and as such received significant scrutiny from the authorities and the public. In each case the projects were approved with no protest and/or conditionality.</p> |
| <p>ESIA for offshore and onshore facilities for Kosmos in Ghana (2011)</p> | <p>Project advisor. The ESIA focused on offshore and onshore facilities in Ghana with a focus on the impact on fisheries and fishermen.</p> |
| <p>Various ESIA's for fuel station decommissioning projects on behalf of Chevron in southern Africa (8 distinct projects) (2012-2015)</p> | <p>Project leader. Chevron have been decommissioning a number of their service stations in South Africa and are required to completed ESIA's in order to do so. A cost and time efficient ESIA process was negotiated with the authority to enable Chevron to successfully implement their project plans ahead of schedule and at a cost well below what they had expected.</p> |
| <p>EIA for GTL plant in Uzbekistan, Uzbekistan GTL (2012-2014)</p> | <p>Uzbekistan GTL is a joint venture between Uzbekneftegaz, Petronas and Sasol and are proposing to establish a GTL plant in Shurtan gas and chemical complex in Uzbekistan. Acted and Project Leader for the ESIA involving successful submission to meet local regulatory requirements and approval from IFI's including Export Credit Agencies. The ESIA was conducted in a combination of English and Uzbek and involved, at its peak, a team of >60 specialists. The role included negotiation with various international lending stakeholders.</p> |
| <p>ESIA for Shell Petroleum's Karoo basin unconventional gas exploration project (2012-2013)</p> | <p>Acted as Project Director, Technical reviewer and public consultation facilitator on the ESIA for Shell's Karoo project. The project entails unconventional gas exploration in the Karoo Basin in South Africa. The project received unprecedented public attention in South Africa and globally and resulted in one of the most comprehensive public consultation programmes ever undertaken for an ESIA project.</p> |

| | |
|--------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Establishment of Environmental and Social Management Plans for CNOOC (2012-2013) | Project Leader. In advance of CNOOC establishing their operations in Uganda, a comprehensive suite of ESMP documents were prepared. The ESMP's followed the requirements of the Ugandan regulations and the requirements of IFI's and positioned CNOOC for a successful project in-country. |
| ESIA for CNOOC oil and gas development in Uganda (2013-2015) | Acted as Project Director and overall ESIA lead for the ESIA to local and international standards for fullfield development, refinery and associated pipelines of a field in Uganda on behalf of the Chinese National Offshore Oil Company (CNOOC). The project included significant liaison and negotiation with the Ugandan government, project partners and IFI's. The project is a greenfields development in the oil and gas sector on the shores of Lake Albert in western Uganda, and represents the first production license issued in Uganda. CNOOC is the operator, with equal shareholding between CNOOC, Total and Tullow. A gas pipeline through rural terrain is part of the project scope. |
| ESIA baseline Physical and Biological monitoring for offshore Lake Tanganyika on behalf of Beach Petroleum (2013-2014) | Project Manager. Beach Petroleum were looking to establish an offshore exploration programme in Lake Tanganyika. As a precursor to the ESIA, a two year physical and biological monitoring programme in the offshore environment. The project team from originated from the US, Canada, South Africa and Tanzania. |
| ESIA for Sasol's Refinery, Central Processing Facility and Associated Pipelines on behalf of Sasol Mozambique via Genesis (2014) | Acted as Project Advisor for an Environmental Impact Assessment to IFC Performance Standards for a proposed expansion of the current Sasol Natural Gas Project in the Inhambane Province of Mozambique near Inhassoro, with the addition of a refinery, liquids plant and 19 new wells, half of which represent 'first oil' (light oil) in Mozambique, and an oil as well as gas pipeline. |
| Environmental Performance Review for Sohar Refinery, Oman (2014) | Undertook a strategic environmental review of the environmental performance of the Sohar Refinery for submission to the Ministry of Environment and Climate Affairs in Oman. The review provided a benchmark of environmental performance compared with similar refineries worldwide to guide the setting of regulatory standards. |
| ESIA for Puma Energy, Botswana (2014) | EIA to local regulatory standards for Puma Energy to establish various terminal projects in Botswana. |

| | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>ESIA to IFI and local regulatory standards for 2D seismic survey on behalf of Delonex, Ethiopia (2014-2015)</p> | <p>Project Leader. Delonex has been awarded an exploration license in Ethiopia, covering Blocks 18, 19 and 21, located in the Warder-Galadi area with a total acreage of 29,865 sq km. An ESIA was undertaken to IFC and local regulatory standards for the 2D seismic survey phase of the exploration programme. The ESIA was successfully delivered in an aggressive (4 month) timeframe through careful planning, close liaison with the client and the authorities and by ensuring that the technical work was delivered to a very high standard.</p> |
| <p>ESIA to local standards for two Oil and Gas support facility sites in Dammam, KSA on behalf of NOV (2017-2018)</p> | <p>Project Leader. NOV is looking to establish two industrial sites to provide support to the Saudi Arabian oil and gas sector. Two ESIA's were undertaken to meet local standards.</p> |
| | <p>Manufacturing and Power</p> |
| <p>EIA for a chromic acid plant at Hlobane, Anglo American, Kwazulu-Natal, S.A. (1996)</p> | <p>Anglo American were proposing to develop a Chromic Acid Plant near one of their mining activities at Hlobane near to Vryheid (Kwazulu-Natal, South Africa). The EIA evaluated the environmental significance of the proposed development to the local atmospheric, aquatic, terrestrial and socio-economic conditions. As a consequence of the EIA and the significant issues identified, Anglo American decided not to proceed with the development.</p> |
| <p>EIA and environmental management plan for Hulett Aluminium's expansion project, Hulett Aluminium, Pietermaritzburg, South Africa (1996)</p> | <p>Hulett Aluminium process aluminium products including foil etc. from their plant in Pietermaritzburg. The EIA evaluated the environmental implications of expanding their operations. The EIA identified a number of impacts related to atmospheric pollution and water contamination and recommended mitigation measures to limit the significance of the impacts.</p> |
| <p>EIA and environmental management plan for Indian Ocean Fertiliser's expansion in Richards Bay, Indian Ocean Fertiliser, Richards Bay, South Africa (1999)</p> | <p>Fulfilled the role as Project Manager Indian Ocean Fertiliser make phosphorus-based fertilizers from their plant in Richards Bay (Kwazulu-Natal). The EIA evaluated the environmental implications of expanding their operations. The EIA identified a number of impacts related to atmospheric pollution, water contamination, marine pollution, waste management and socio-economics and recommended mitigation measures to limit the significance of the impacts. This project was particularly well received by the regional decision-makers.</p> |

| | |
|---------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>EIA for the expansion of the Hillside aluminium smelter, Richard Bay, South Africa (1999-2000)</p> | <p>Hillside Aluminium was proposing to expand their operation into being the largest aluminium smelter in the western world. The EIA represented one of the most complex processes undertaken in South Africa to-date. The EIA process eventually reached over 100,000 stakeholders across diverse cultural backgrounds, age groups, language etc. This was supported with technical expertise focused on understanding the key environmental and socio-economic impacts. The project was awarded the 2001 BHP Billiton International Health Safety and Environment Award and the IAIA's National Premium Award. This project has expanded to include the preparation of waste water management guidelines and the development of an EIA follow-up process in support of the EIA.</p> |
| <p>Ongoing Strategic Environmental Management guidance to Hillside Aluminium (multiple projects) (1999- ongoing)</p> | <p>Providing specialist environmental management support to Hillside Aluminium for a variety of issues/initiatives, including:</p> <ul style="list-style-type: none"> Quantification of Groundwater and Receptor Impacts at Hillside Aluminium Development of an Integrated Water and Waste Management Plan (IWWMP) and a Rehabilitation Strategy and Implementation Plan (RSIP) Advising Hillside Aluminium on water management planning including the requirements for their stormwater retention facility Guidance on regulatory and ISO compliance Hillside Aluminium on their air quality requirements including an international benchmarking exercise on SO₂ and fluoride emissions from anode baking process and reduction sources. Ongoing support for liaison with communities. |
| <p>EIA for the development of an aluminium smelter in Coega Eastern Cape, South Africa (2000-2001)</p> | <p>Acted in the role as Technical Advisor for the EIA of the proposed Aluminium Pechiney smelter in the Coega Industrial Development Zone in the Eastern Cape Province of South Africa. The EIA involved complex air quality issues associated with cumulative emissions and nearby communities.</p> |
| <p>Ongoing Strategic Environmental Management guidance to Bayside Aluminium (multiple projects) (2000- ongoing)</p> | <p>Providing specialist environmental management support to Bayside Aluminium for a variety of issues/initiatives, including:</p> <ul style="list-style-type: none"> Quantification of Contamination Sources, Groundwater Pathway and Receptor Impacts Advising Bayside Aluminium on closure issues specifically in terms of water pollution and waste management Ad hoc support in liaison with regulators on water and waste issues PIN for Bayside Aluminium's proposal to conduct a greenhouse gas reduction project/programme. |

| | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Ongoing Strategic Environmental Management guidance to Mozal Aluminium (multiple projects) (2003- ongoing)</p> | <p>Providing specialist environmental management support to Mozal Aluminium for a variety of issues/initiatives, including:</p> <p>Environmental inputs on design, supply, manufacture, installation, construction and commissioning of treated waste water recovery water treatment plant</p> <p>Assisting MOZAL with waste management issues associated with dross</p> <p>Environmental and social monitoring plan</p> |
| <p>Ongoing Environmental Management support for Sohar Aluminium in Oman (2004- ongoing)</p> | <p>Ongoing advisory services to Sohar Aluminium (including the berth facilities, power plant, and the aluminium smelter) delivered formally on a bi-annual basis to support compliance with regulatory requirements and those of the Lenders through all Phases of Design, Construction, commissioning and Operations. Specialist services have included:</p> <p>Preparation of the Operations Environmental Management Framework</p> <p>Guidance on the management of SO₂ and fluoride emissions to meet international lender requirements</p> <p>Undertaking an Environmental review for the Omani government of the operating performance of the aluminium smelter and captured power plant.</p> <p>Training of Sohar Aluminium staff on the environmental issues associated with aluminium smelting in the Gulf.</p> |
| <p>EIA for the Rainbow Millenium Power Company, Richards Bay, South Africa (2004-2006)</p> | <p>Project Manager. The Rainbow Millenium Power Company is proposing to establish the first private enterprise coal fired power station in South Africa (at a location in Richards Bay). The project includes initially providing strategic support for the client to understand their environmental process requirements followed by a comprehensive EIA process. The EIA involved a specialist team of in excess of 50 scientists, engineers and sociologists due to the complex nature of the development and the proposed location.</p> |
| <p>EIA for a Ferrochrome Smelter on behalf of Tata Steel (India), Richards Bay, South Africa (2005-2006)</p> | <p>Project leader. Tata Steel proposed to establish a ferrochrome smelter in the heart of an industrial zone near to a residential area. The investment represents the first by this company outside of India. Due to the complexity of the receiving environment and the issues associated with public health and safety, the project received significant scrutiny from the public and the authorities. Through high quality technical work and a considered public engagement programme, the project was successful and Tata Steel are operating an environmentally acceptable facility.</p> |
| <p>EIA for an integrated aluminium complex in the Russian Federation, International Finance Corporation and European Bank for Reconstruction and Development, Russia (2005-2006)</p> | <p>Project Leader. SUAL Aluminium are proposing to establish an integrated aluminium complex, including a bauxite mine, an aluminium refinery and an aluminium smelter in the Russian Federation. The EIA is in the process of being conducted in terms of the IFC and EBRD's requirements and in line with the Russian 'OVOS' legislation. Included in the EIA process was the requirement to conduct a detailed audit of current activities at the bauxite mine and at another of SUAL's operations.</p> |

| | |
|----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>ESIA for BHP Billiton's proposed titanium ore smelter in Beluluane Industrial Park, Maputo (Mozambique) (2007)</p> | <p>Project Leader. An ESIA was undertaken for BHP Billiton's proposed titanium ore smelter in Maputo Mozambique. The project focused on significant issues associated with air and water quality and waste management. Due to market conditions, the project did not proceed.</p> |
| <p>Environmental Management support for Emirates Aluminium in Abu Dhabi, UAE (2007- ongoing)</p> | <p>Ongoing advisory services to Emirates Aluminium (including the berth facilities, power plant, and the world's largest single site aluminium smelter) delivered formally on a bi-annual basis to support compliance with regulatory requirements and those of the Lenders through all Phases of Design, Construction, commissioning and Operations.</p> |
| <p>ESIA for Kempe Dross' processing facility in Beluluane Industrial Park, Maputo (2008)</p> | <p>Project Leader. The ESIA was undertaken to determine the environmental suitability of Kempe Dross' facility to process waste from the Mozal smelter.</p> |
| <p>Environmental Management support for Kempe Dross (2008)</p> | <p>Advising Kempe on their approach to the management of dross and SPL on various smelters globally including in South Africa, Mozambique, the Middle East and Russia</p> |
| <p>EIA for the Moatize Power Project, Tete, Mozambique (2008-2009)</p> | <p>Project Leader. Vale were looking to establish a coal-fired power station adjacent to their mine in Mozambique. The power station would draw water from the Zambezi river and release immediately downstream into the same source. A technical team of more than 120 local and international specialists were assembled for the project. The ESIA was scrutinised by local regulators and IFI's and found to be one of the most comprehensive ever undertaken in the region. It has subsequently been used as a case study example for other companies looking to undertake ESIA's in the region.</p> |
| <p>Government of India (2009)</p> | <p>Guidance to the Government of India on environmental and social issues relating to investments into the aluminium smelting sector.</p> |
| <p>ESIA & EMP for Lafarge quarry and cement kiln in Syria (2011)</p> | <p>Project Leader. Lafarge sought international finance for their cement plant near to Aleppo in Syria. The ESIA was conducted in association with a Jordanian and Syrian partner and covered issues relating to air, water, waste, traffic, nomadic people and ecology. The project received finance from IFI's.</p> |
| <p>ESIA & EMP for Cimpor's proposed aggregate mine and processing facility in Gorongosa National Park (2011)</p> | <p>Project Leader. Cimpor sought finance from the IFC to establish a limestone quarry and aggregate processing facility inside the borders of the Gorongosa National Park. Due to the sensitivity of the receiving environment, the project attracted considerable international scrutiny and required a comprehensive ESIA and EMP with a particular focus on biodiversity impacts.</p> |

| | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Development of EMP for Ma'Aden Aluminium smelter (2012) | Project Leader for the development of a comprehensive OESMP to meet lender requirements for the Ma'Aden Aluminium smelter in Saudi Arabia. |
| ESIA for sulphuric acid plant on Dundee Precious Metals site in Tsumeb, Namibia (2013-2014) | Project Leader. The ESIA was conducted on a brownfield site and included a number of technical studies focused on land, air and groundwater contamination. Due to historical issues with the site, careful delineation was required between existing issues and those likely to be caused by the newly proposed project. |
| Environmental Assessment of Hillside Aluminium's operations in Richards Bay (2014-2015) | Project Leader. A retrospective Environmental Assessment was conducted at the Hillside Aluminium smelter to determine the impacts of the facility so as to meet the requirements of the BHP Billiton Group. |
| | Other |
| EIA and contamination assessment of the New England Road Landfill site Pietermaritzburg Municipality, Pietermaritzburg, South Africa (1996) | The EIA involved determining the significance of expanding the operations of the New England Road Landfill site to accept hazardous waste materials. The EIA focused on issues of water contamination and odour. The resultant management plan ensured that the impacts were mitigated. |
| ESIA for the siting of hazardous landfill sites (1995-1996) | Project leader. Using GIS tools and through public interaction this project determined suitable sites for the establishment of hazardous landfill sites. |
| Environmental management strategy for Ekuseni, Nelson Mandela Children's Foundation (1996) | The Nelson Mandela Children's Foundation established a youth detention centre in Ekuseni. The project prepared a waste management strategy that aimed at receiving maximum return on waste products (i.e. waste reuse and recycling were key). In addition, a composting facility was established. Of the total waste produced only 10% was eventually landfilled. This project was conducted pro bono. |
| EIA for a bulk water supply in Ubombo, Mhlathuze Water, Zululand, South Africa (1997) | Mhlathuze Water was proposing to provide water to rural communities in Northern KwaZulu-Natal. The EIA evaluated two aspects of the proposal; firstly, whether the water source would be adequate and secondly, whether the pipeline to transport the water would have significant environmental consequences. In both cases, the environmental implications were mitigated and the bulk water scheme went ahead. |
| | |

| | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Environmental assessment and management plan for the Lubombo SDI, Department of Trade and Industry; South Africa, Swaziland and Mozambique (1998) | The Lubombo Spatial Development Initiative (SDI) were looking to promote a number of tourism initiatives in Swaziland and KwaZulu-Natal. The EIA evaluated the environmental effects of these developments and put in place a screening mechanism to evaluate tourism proposals. |
| ESIA for a five star tourism facility on the banks of the Zambezi River in Zambia (1998) | Acted as Project Leader for the ESIA of a 5-star resort located on the banks of the Zambezi River. Due to the project location critical issues were identified with respect to the migration of elephant to the river along with the potential loss of culturally sensitive areas. Mitigation plans were developed in conjunction with the local communities to reduce the significance of this impact. |
| ESIA guidelines and approach for Kalpasar project, India (2006) | Review of Environmental Assessment approach for the proposed Kalpasar project comprising the development of a 64km dam across the Gulf of Kalambhat, thereby impounding the flows of 12 rivers which discharge into the gulf, to form a freshwater lake of approximately 2,000 km ² . Provided recommendations to the Government of Gujarat on utilising alternative approaches to ESIA to establish environmental and social risks and impacts.) |
| ESIA for road upgrade project for Transnet (2009) | Project Leader. Transnet Limited undertook a large capital projects expansion programme of all the facilities in the Port of Durban. One important aspect that is crucial to the effective functioning of the port is the road and transportation system, which has become strained due to high traffic volumes using the port's road system. To solve this growing problem, Transnet Limited intends to upgrade and expand the roads in the Port of Durban. This will help facilitate the effective transportation of goods and cargo into and out of the harbour. The ESIA focused on the road upgrade programme across the port. |
| Feasibility study and ESIA for water re-use plant (2010-2014) | Project Leader. As a result of a water reconciliation process it became evident that there were insufficient water resources in the Durban Municipality. This project focused on understanding the technological, financial, environmental and social feasibility of re-using water for potable purposes in the Municipality. The project culminated in the preparation of an ESIA and associated permitting programme. |
| Advisor to Waste Management service provider (Interwaste) on the development of facilities in Tete and Pemba (2012-2014) | Acted as Project Advisor for a waste management service provider on the Environmental and Social implications of establishing a landfill site in Mozambique to support the mining and/or oil and gas industries. |
| ESIA for road development project in rural Uganda for CNOOC (2013) | Project Leader. A road is required to be constructed through a national park and community area in rural Uganda to access the Lake Albert oil fields. A rapid ESIA was conducted to meet the requirements of the local regulators and the IFC. |

| | |
|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ESIA for the establishment of a hazardous waste landfill site on behalf of Interwaste (2013-2015) | <p>Acted as Project Director for the ESIA of a hazardous waste landfill site with the incumbent issues of groundwater contamination and the potential loss of a wetland area.</p> |
| ESIA for a five star tourism facility in Bilene, Mozambique (2015) | <p>Project Director for the ESIA of a 5-star tourism resort in an ecologically sensitive part of rural Mozambique.</p> |
| Environmental and Social Review of water supply offtake point for power plant (2015) | <p>Review of environmental and social implications for the ACWA Power offtake from the Zambezi river for their power plant in Moatize, Mozambique. Determined the technical feasibility of and the potential environmental and social implications associated with a proposed change in the position of the water supply intake point on the Zambezi River and also the first 3.5 km of the rising main to the Vale Moatize Coal Mine running parallel to the Zambezi River.</p> |
| ESIA for land development project in Aqaba, Jordan (2016) | <p>The Saudi Arabian sovereign wealth fund (PIF) are looking to establish three large-scale development facilities in Aqaba, Jordan. The ESIA involved the assessment of three individual sites in Aqaba for residential, commercial and mix-use activities.</p> |
| ESIA for land development in Umm al Qwaim, UAE (2018) | <p>The ESIA focused on infrastructure development for a large island development offshore of the Emirate of Umm al Qwaim in the UAE.</p> |
| | <p>Development of Environmental Regulations, Guidelines and Best Practice Documents</p> |
| Land and soil quality monitoring guidelines, Gold Fields (1996) | <p>Land and soil quality monitoring guidelines were devised for the environmental branch of Gold Fields SA as part their day-to-day monitoring activities. The monitoring guidelines were then taught to the client through a number of training programmes and through the development of a video. The monitoring guidelines were tested at Greenside coal and Kloof gold mines to determine their suitability which was confirmed.</p> |
| Environmental management guidelines in Paulpietersberg, Anglocoal (1996) | <p>Anglocoal were in the process of closing a coal mine in Paulpietersberg. This project evaluated the environmental conditions of the mine (which was found to be producing significant environmental degradation specifically in terms of acid leachate) and prepared environmental management and rehabilitation guidelines to remediate the issues.</p> |
| Waste Management Guidelines for the Mozambique Ports and Rail Company, Mozambique (1998) | <p>The Mozambique Ports and Rail Company were proposing to privatize their ports throughout Mozambique. This project involved an environmental evaluation of the ports from a waste management perspective to identify significant environmental impacts and then went on to recommend management measures that needed to be implemented prior to privatization going ahead.</p> |

| | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Development of Environmental Management for the Federal Government of Ethiopia, World Bank (1999-2001) | <p>The objectives of this project were improve the capacity of experts and professionals engaged in Environmental Management activities, build competence and capacity in Environmental Management methods, upgrade and compile the already prepared procedural and sectoral EM guidelines, and prepare and develop project level EM guidelines in Ethiopia. The project was conducted in two phases, the first focused on institution building at the Federal level and the second focusing on regional training.</p> |
| Environmental monitoring strategies for the Federal Government of Ethiopia and Djibouti, United Nations Industrial Development Organisation (2000) | <p>As part of UNIDO's integrated programme for Ecologically Sustainable Industrial Development in Ethiopia and Djibouti, this project has focused on implementing integrated monitoring strategies to support sustainable industrial development in the country. Working closely with the Ethiopian EPA, the project has both implemented practices and ensured that adequate capacity has been built to ensure the sustainability of those practices in Ethiopia and Djibouti.</p> |
| Development of South Africa's Integrated Environmental Management (IEM) Information Series (2004-2006) | <p>Project Director for the development of South Africa's Integrated Environmental Management (IEM) Information Series comprising 16 guidance documents, as follows: Overview of Integrated Environmental Management; Screening; Scoping; Stakeholder Engagement; Specialist Studies; Impact Significance; Ecological Risk Assessment; Cumulative Effects Assessment; Cost Benefit Analysis; Life Cycle Assessment; Strategic Environmental Assessment; Criteria for determining Alternatives in EIA; Environmental Management Plans; Review in Environmental Impact Assessment; Environmental Auditing; Environmental Impact Reporting; and Environmental Economics (2005 – 2006)</p> |
| Development of guidelines for SEA of mining activities (2004) | <p>As one of their environmental management guideline series, SEACAM commissioned the preparation of a guideline document to guide mining activity EIA's in the coastal zone. A comprehensive booklet was developed for distribution to a number of stakeholders.</p> |
| Development of guidelines for the incorporation of HIV/AIDS into EIA, World Bank (2004) | <p>In recognition of the relationship between development and HIV/AIDS, this project provided detailed guidelines to link HIV/AIDS issues into the EIA process and then further into the project implementation cycle. The project drew on development experiences in Ethiopia, Uganda and South Africa.</p> |
| Development of EIA guidelines and institutional arrangements for the Mpumalanga Government (2006-2008) | <p>The objectives of this assignment were to develop regional guidelines for Environmental Management and the associated institutional arrangements for their implementation in the province of Mpumalanga.</p> |
| Development of Environmental Enforcement legislation and Implementation Guidelines for the Government of Sudan, World Bank (2010-2011) | <p>The objectives of this project were improve the capacity of experts and professionals engaged in environmental enforcement activities, build competence and capacity in enforcement methods, upgrade and compile the already prepared procedural and sectoral guidelines. The project included a full review of the institutional capacity of Sudan's environmental enforcement team and resulted in a revised institutional framework and plan for the implementation thereof.</p> |

| | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Development of EIA guidelines for renewable energy projects in southern Africa (2013-2014) | The project involved the preparation of guidelines on what to include for a variety of renewable energy projects in Southern Africa taking account of key environmental or social concerns and regulatory requirements. |
| Development of Environmental mitigation options for the Port of Richards Bay Coal Terminal (2015) | This project involved the assessment of environmental impacts from coal storage at the Richards Bay Terminal and the development of mitigation options to concept level for presentation to the Department of Water Affairs. The study included a comprehensive evaluation of water and dust impacts along with an assessment of the relative opportunities and constraints associated with mitigation options. The project concluded with the presentation of the options to RBCT management and onto DWA for implementation purposes. |
| Strategic Transformation Office Leader for Greater Authority of Meteorology and Environmental Protection (GAMEP), Saudi Arabia (2017-2018) | The Saudi Arabian government is looking to modernise its environmental function and are implementing an ambitious programme of 22 major initiatives with a total value of USD 1B over 10 years. Leading a team of 22 specialists to guide the implementation of the initiatives. As part of the exercise, Ramboll has been advising on key standards and parameters for the oil and gas sector in KSA including for the refineries. |
| Transformation of the Municipal Waste sector in the Kingdom of Saudi Arabia for Ministry of Municipal and Rural Affairs (2017-2018) | The Saudi Arabian government is seeking to upgrade all Municipal Waste Management Facilities. Leading a team of 15 specialists ranging from Waste classification experts through to experts in Landfill Engineering and waste processing, the project resulted in PPP's for the 5 major municipalities and a further 15 municipalities undergoing review. |
| | Strategic Environmental Assessment and Sustainability Appraisal |
| Sustainable development report for Richards Bay minerals (1999-2001) | This project involved the development of sustainable development strategies for Richards Bay Minerals. The purpose of the project was to understand how sustainable current operations were/are and to put in place a strategic direction for sustainable development at the mine and smelting operations into closure. |
| Strategy for sustainable development for the Mining and Minerals sector in southern Africa, Mining Minerals and Sustainable Development (1999) | This project involved the preparation of a paper to assist the Mining and Minerals sector in Southern Africa understand the meaning of sustainable development as it applies to their operations. The paper formed a cornerstone for detailed evaluations regarding sustainability and the mining sector in the sub-region. |
| Preparation of guidelines for sustainability in poor urban communities in South Africa Department of Arts, Culture, Science and Technology Country Study (1999-2001) | This project entailed a large research project funded by the South African government aimed at developing a toolkit for ensuring that appropriate technologies are implemented for sustainable development in communities living in poverty in South Africa. The project involved the management of researchers from 5 countries and with different technical expertise. A number of papers and research outputs have resulted from the project. |

| | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Sustainability Management Plan for the South Durban Industrial Area (1997-2000)</p> | <p>This comprehensive SEA resulted in the development of a detailed sustainability plan for the largest industrial zone in Kwazulu-Natal. The plan integrated economic development needs with environmental constraints. The zone includes two significant petroleum refineries which were an integral part of the assessment process.</p> |
| <p>Sustainability Management Plan of the Cato Manor Structure Plan for Durban Metro, Cato Manor Development Association, Durban, South Africa (1997)</p> | <p>The project evaluated the environmental consequences of the development plan for the area. The project then went onto develop a detailed Sustainability Management Plan for the area.</p> |
| <p>Plan for the Maputo Corridor SDI, Department of Transport and the Department of Trade and Industry, Mpumalanga, South Africa (1998-1999)</p> | <p>The Maputo Corridor has been identified as a strategic development zone that links Johannesburg with Maputo. This project considered the opportunities and constraints that the environment will place on development opportunities, including those within the mining sector. On the basis of these social and environmental issues, a Sustainability Management Plan was devised to inform the ongoing planning process and to inform the decision-makers of appropriate developmental actions.</p> |
| <p>Sustainability Management Framework for industrial development in Richards Bay and Empangeni, Richards Bay and Empangeni TLC, South Africa (1999)</p> | <p>This project considered the opportunities and constraints that the environment will place on industrial development opportunities in Richards Bay and Empangeni. On the basis of these environmental issues, a Strategic Environmental Management Plan was devised to inform the ongoing planning process and to inform the decision-makers of appropriate environmental actions. Ongoing environmental management in the region is currently guided by the Management Plan.</p> |
| <p>Strategic Environmental Assessment for Stream Flow Reduction Activities in Mpumalanga, Department of Water Affairs and Forestry (2000)</p> | <p>Forestry represents a significant risk to water resources in the Mpumalanga Province in South Africa. This project considered the nature of those risks and through a decision-making framework identified suitable areas for further development.</p> |
| <p>Environmental sustainable industrial development strategy for Ethiopia, United Nations Industrial Development Organisation, Ethiopia (2000)</p> | <p>Ethiopia is in the process of implementing a Sustainable Industrial Development Policy. This project developed a project strategy for determining the activities that need to be undertaken when implementing an ESID approach.</p> |

| | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Environmental sustainable industrial development strategy for Tanzania, United Nations Industrial Development Organisation, Tanzania (2000)</p> | <p>Tanzania is in the process of implementing a Sustainable Industrial Development Policy. This project developed a project strategy for determining the activities that need to be undertaken when implementing an ESID approach.</p> |
| <p>Development and implementation of sustainability management plans for Durban, Richards Bay, Sasolberg, the National Ports Authority, Coastal and Marine Management, and the CAPE project Municipalities of Durban and Richards Bay, Sasol, the NPA and MCM (various projects) (2000-2006)</p> | <p>These projects although distinct dealt with the development of sustainability management plans and indicators to guide ongoing environmental reporting. The projects engaged stakeholders in determining their key sustainability concerns and vision and devised indicators on that basis.</p> |
| <p>Development of a National core set of Sustainability Indicators for South Africa's State of the Environment Report, Department of Environmental Affairs and Tourism, South Africa (2002-2004)</p> | <p>This project has involved the preparation of a core set of environmental indicators for national State of the Environment Reporting in South Africa. The project has looked to integrate the needs of specialists with technical indicators. Ongoing activities in this project include the development and implementation of training modules for similar activities in the regional authorities in South Africa.</p> |
| <p>Mining and Sustainable Development Country Study in South Africa, Department of Minerals & Energy, South Africa (2003-2006)</p> | <p>This project aims to provide guidelines for various aspects of sustainable development to the mining industry in South Africa, including the development of closure plans (at the mine and regional levels), environmental and social management guidelines and rehabilitation guidelines.</p> |
| <p>Development of SEA guidelines in the coastal zone, SEACAM, Southern Africa (2003)</p> | <p>This project involved the preparation of detailed guidelines for undertaking SEA in the Coastal Zones of east Africa.</p> |
| <p>Environmental Management Framework, Department of Water Affairs and Forestry (2004-2006)</p> | <p>As a legislated commitment, DWAF are required to prepare a detailed environmental management framework to inform the implementation of their ongoing plans. The EMF is a detailed strategic environmental management document that deals with all activities within the department and includes modalities for their implementation.</p> |

| | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Point Nepean Sustainable Development Management Plan, Australia (2007)</p> | <p>Project advisor for the preparation of a Sustainable Development Management Plan for the tourism facilities in Point Nepean located near Melbourne, Australia.</p> |
| <p>Preparation of South Africa's submission to the United Nations Commission for Sustainable Development (CSD-16) (2007)</p> | <p>Led the team responsible for preparing and presenting South Africa's submission to the UNCSO. This involved the management of a multi-stakeholder team from the public and private sector along with various non-governmental bodies.</p> |
| <p>Environmental and Social Strategic Assessment for the Development of the Mineral Sector in the Mano River Union, Guinea, Liberia, Sierra Leone (2008-2010)</p> | <p>The West African Mineral Sector Strategic Analysis (WAMSSA) is a strategic environmental and social assessment intended to identify policy, institutional and regulatory adjustments required for integrating environmental and social considerations into mineral sector development in Africa.</p> |
| | <p>Environmental Capacity Building</p> |
| <p>Environmental Impact Assessment short courses (Multiple) National Department of Health South Africa, the Universities of Orange Free State, Zululand and Durban-Westville, and Lund University, Sweden. As part of an initiative of the World Bank EIA courses were presented in Zambia, Ethiopia, Sudan, Tanzania, Namibia and Mozambique, (ongoing)</p> | <p>Environmental Assessment courses are typically in the region of one week in length and have focused on providing the attendees with skills that will enable them to conduct an EIA. The courses focus on EIA in the developing world.</p> |
| <p>Environmental Assessment and Management course for the Ethiopian Environmental Protection Authority and Regional Authorities (2001-2002)</p> | <p>The World Bank funded an EIA course at the Federal level in Ethiopia in support of the EIA Guideline revision process. That course was well received and repeated through a number of regional courses held in Addis Ababa, Gambella, Asossa, Oromiya, Dire Dawa, Harar, Jijiga, Bahir Dar, Mekelle, Awassa and Aysaita</p> |

| | |
|-------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EIA courses for post graduate students, University of Natal, South Africa (2001-2009) | A comprehensive EA course is delivered annually for University of Natal students. The course includes 26 lectures, 6 tutorials and 6 practicals. The typical number of students is 45 to 60. |
| Environmental Assessment for Mining in the Coastal Zone, SEACAM (2005) | A one week course detailing the environmental implications of coastal zone mining was delivered to government officials, academics and consultants from countries on the east coast of Africa. |
| Strategic Environmental Assessment, IAIA and SEACAM (2005) | Presented several week long courses in the content, process and intent of SEA to government officials, consultants and academics. |
| Review of EIA practitioners, Shell, Nigeria (2005) | Shell (Nigeria) were looking to improve the quality of their internal environmental assessment staff and in their consultants. The project involved interviewing EA practitioners to evaluate competency and to rate them according to the international IEMSA accreditation system. |
| The incorporation of HIV/AIDS into EIA – short course, World Bank (2005) | A week long course on how to incorporate HIV/AIDS issues into development programmes was delivered to government officials, academics and consultants from southern African countries |

INDUSTRY LEADERSHIP

- Development of National Environmental Impact Assessment regulations and processes in various countries in Africa including South Africa, Ethiopia, Tanzania, Sudan, Guinea, Liberia and Sierra Leone for as a consultant for the World Bank.
- Participation and leadership in a number of international policy processes:
 - United Nations Industrial Development Organisation regarding Cleaner Production Strategies, and Sustainability in East Africa (most notably Ethiopia and Tanzania)
 - United Nations Environment Programme National Communication on Climate Change, Technology Needs Assessment for Climate Change in Southern Africa.
 - Organisation for Economic Cooperation and Development (OECD) for the incorporation of Strategic Environmental Issues into International Lending.
 - The World Bank regarding the incorporation of strategic issues such as HIV/AIDS and climate change into ESIA.
 - The Global Reporting Initiative (GRI) on the incorporation of sustainability indicators into company reporting.
 - ICLEI – Local governments for Sustainability panel on climate change at the local level including having been invited to lead a delegation to three global climate change conferences (COP14, 15 & 16).
 - The World Bank on considerations for Sustainability-led mining development in the Manu River Union Counties of Guinea, Sierra Leone and Liberia.
- University lecturer at the post-graduate level in Environmental Assessment and Management at the University of Kwazulu-Natal, South Africa, Lund University, Sweden and the University of Manchester, UK.
- Supervisor of 12 MSc theses with the University of Kwazulu-Natal and Lund University, Sweden.
- Presented keynote addresses to a number of international conferences on diverse subjects such as Environmental Assessment, Climate Change, Sustainability and Waste.
- Board Memberships for the School of Environmental Sciences at the University of Kwazulu-Natal and with private sector companies in Africa.
- Expert witness for several confidential arbitration hearings.

AWARDS

Industry Awards

- BHP Billiton International Health Safety and Environment Award (2001)
- Global Premium Award for Excellence in Environmental Assessment (International Association of Impact Assessment) (2002)
- Consulting Engineers South Africa (CESA) Award for International Business Developer of the Year (2011)
- Climate Change Business Journal Business Achievement Award – Project Merit in Climate Change Adaptation (GIZ Vulnerability and Impact of Climate Change on Major Tourism Attractions and Activities) (2012)

Personal/Company Awards

- CSIR:
 - Most Improved Scientist (1997)
 - Achiever of the Year (1999)
 - Leadership Award (1999)
 - Technologies for Environmental Assessment and Management Mentorship Awards (2000 & 2001)
 - Leadership Award (2002)
- Golder Associates:
 - Special Initiatives Award for leading the growth of several offices in Africa (2007)
 - Global Innovation Award for the development and implementation of new services in Climate Change vulnerability assessment and adaptation into Golder's global business (2008)
 - Global Business Development Award (2014)

CURRICULUM VITAE



MAVISHA NARIANSAMY

SENIOR ENVIRONMENTAL CONSULTANT

EMPA, South Africa

QUALIFICATIONS

| | | |
|----------|------|---------------------------------------------------------------------|
| GDE | 2015 | Graduate Diploma in Engineering – Environmental Engineering |
| BSc Hons | 2011 | Bachelor of Science (Hons) - Environmental Monitoring and Modelling |
| BSc | 2009 | Bachelor of Science- Biological Science |

EXPERTISE

- Environmental and Social Impact Assessment
- Strategic Environmental Assessments
- Stakeholder Engagement
- Water quality
- Screening Studies
- Integrated Waste and Water Management Plan
- Compliance Auditing

Mavisha Nariansamy is a Senior Environmental Consultant with the EMPA division at SLR. Mavisha began her environmental career working at the Department of Environmental Affairs in Chief Directorate: Protected Areas Systems Management. There she gained experience drafting National Norms and Standard's for mining in protected areas, reviewing EIAs for proposed listed activities in protected areas and updating the NPAES database. She has more than 6 years of experience in the civil engineering and environmental consulting field gaining experience in the mining, power, linear infrastructure, and water sectors. The current role focuses on servicing clients in the mining sector undertaking the management and execution of Environmental authorisations (EIA and scoping, EMPr Amendments, Basic Assessment), compilation of management plans, risk assessments, compliance auditing, monitoring and permitting. In addition to being well versed with the South African legislative processes, she is also experienced in working on international ESIA's involving alignment with the Equator Principles and IFC Performance Standards. She has worked on projects at varying capacities in Swaziland, Democratic Republic of Congo, Guinea, Namibia and South Africa.

PROJECTS

Marula Platinum – Scoping and EIA and IWULA for a 10 MW Solar PV Plant
(Present)

Project manager. Compilation of reports, co-ordination of Integrated Water Use License Process and Scoping and EIA Process.

Marula Platinum – Basic Assessment and EMPr Amendment for the Ventilation Shaft Project
(2020 – present)

Project manager. Compilation of BAR and EMPr document. Management of authorisation process, specialist investigations and authorisation process.

NAMPARKS (Namibia) Scoping and EIA
(2020)

Project assistance. Compilation of Scoping and EIA report for NAMPARKS V infrastructure upgrade.

| | |
|------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| South Africa Mainstream Renewable Power Developments – Screening Report (2020) | Assistance project manager. Compilation of screening report for off-shore wind farms. |
| West Wits IWWMP (2020) | Project assistance. Compilation of the IWWMP for the West Wits mining operation in Johannesburg. |
| Norplats Plant Substation Expansion (Present) | Project Manager. Amendment of Environmental Management Programme for the Upgrade of the Plant Substation - Zondereinde Mine. Co-ordination of specialists, public participation, and management of the authorisation process. Compilation of Amended EMP documents. |
| Tshipi Borwa Mine: Compilation of RSIP (2020) | Project Manager. Compilation of the Rehabilitation Strategy and Implementation Plan for the Tshipi Borwa Mine. |
| Projects undertaken during the employ of Knight Piesold South Africa | |
| EMPr Update for Bakubung Platinum Mine (2016 – 2019) | Project Manager. The project was concerned with the amendment process for Bakubung Platinum Mine for the establishment of a new Tailings Storage Facility. The process included specialist studies as well as Integrated Water Use License amendments. |
| Water Quality Monitoring: Transnet Freight Rail (TFR) (2018 – 2019) | Project Manager. Logistical co-ordination and management for water quality monitoring for TFR across South Africa for an 18-month period. Analysis of chemical results and compilation of monthly monitoring reports. |
| External EIA Audits: Middelburg Ferrochrome (2019) | Project Manager and auditor. Conducted an external audit in terms of Regulation 34 of the EIA Regulations. Assessed compliance and reporting of audit findings to relevant authority. |
| Legal compliance audits for Middelburg Ferrochrome (2018) | Project Manager. Auditing of compliance to GN 704 regulations and ECA Section 20, stipulations of site Water Use License (WUL) and compliance to Kloof Dump closure Permit. Reporting of audit conditions. |
| Management Plans for Redstone Water Use Licence – Solar Reserve LLC (2018) | Project Assistance. Compilation of a rehabilitation plan for watercourses around project area. |
| EMPr Update: Wessel Hotazel Manganese Mines (2016 - 2018) | Project Manager. Update of the existing EMPr for the Wessels Mine, where activities included liaison with client and government officials, co-ordination of specialist studies, assessment of impact; public participation process and compilation of Environmental Impact Assessment Report. |
| Water Use License – Middelburg Ferrochrome (2017) | External Auditor. Auditing of compliance to GN 704 regulations and stipulations of site Water Use License (WUL) and compilation of audit reports. |

| | |
|-----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ECO monitoring for Ezulwini Water Supply Project - Swaziland Water Services Corporation (Swaziland) (2018) | Project Manager and External ECO Auditor. Conducted monthly ECO monitoring and ensuring compliance to construction CMP. Compilation of monthly ECO reports. |
| Kinsevere Primary Copper ESIA – MMG Kinsevere Copper Mine (DRC) (2017) | Project Assistance. Co-ordination of specialist studies, compilation of impact assessment for ESIA report and review of specialist studies. |
| Water Use License (WUL) audits - Samancor Chrome Ferrometals (2016 – 2018) | External Auditor. Auditing of compliance to stipulations of Water Use License (WUL) and compilation of audit report. |
| Aquatic Biomonitoring at all Wastewater Treatment Works – Johannesburg Water (2014 – 2018) | Project Assistance. Undertook quarterly water quality monitoring including administrative, logistical duties and compilation of reports |
| Water Quality Site Support – MMG Kinsevere Copper Mine (DRC) (2014 – 2018) | Project Manager. Compilation of the mine's water quality reports based on interpretation of laboratory results, providing water quality recommendations for the mine based on findings and trends, logistical support and procedures for water monitoring and sampling events. |
| Biodiversity Site Support – MMG Kinsevere Copper Mine (DRC) (2014 – 2018) | Project Manager. Project management and support for specialist studies undertaken at Kinsevere Copper Mine, to determine rehabilitation success of plant translocation programme |
| EIA for Oxidation Ponds - Ohangwena Regional Council (Namibia) (2016) | Project Assistance. Compilation of scoping report and impact assessment and preparation of BID documents and public participation material. |
| Initial Environmental Evaluation: Ezulwini Water Supply – Swaziland Water Services Corporation (Swaziland) (2016) | Project Assistance. Compilation of baseline and project description, stakeholder consultation and review of draft IEE report. |
| The City Deep Kazerne freight hub roads upgrade programme: ECO audit – SANRAL (2016) | ECO Auditor. Conduct monthly ECO monitoring and ensuring compliance to construction CMP and compilation of monthly ECO reports. |

| | |
|------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ethemba Dam Environmental Impact Assessment - Ministry of Natural Resources and Energy (Swaziland) (2015 – 2016) | Project Assistance. Assistance with compilation some chapters for the ESIA Report. |
| Air Quality Site Support – MMG Kinsevere Copper Mine (DRC) (2014 – 2016) | Project Manager. Compilation of monthly feedback air quality reports, interpretation of laboratory data and management recommendations, logistical and administrative duties and management of sub consultants. |
| Environmental Impact Notice for plant modification and pit expansion for Siguiri Gold Mine – AngloGold Ashanti (Guinea) (2015) | Project Assistance. Updating EIN for Siguiri Gold Mine by compiling and reporting of baseline water quality data and other environmental baseline components for EIN update for the Combination Plant Project. |
| State of the Rivers – City of Johannesburg (2015) | Project Assistance. Conducted vegetation assessment (VEGRAI), including identification of riverine vegetation. |
| Lethabo Power Station: Waste Classification and Lining Type Assessment – ESKOM (2015) | Project Manager. Waste classification of ash and sewage sludge. Project management role and co-ordination/ liaison with specialists. |
| Update of Environmental Impact Study – MMG Kinsevere Copper Mine (DRC) (2014) | Project Assistance. Assisted with writing the baseline chapter for the update of the Environmental Impact Study and stakeholder material such as BID documents and information brochures. |
| Water Pollution Monitoring for Van Eck Power Station, Ruacana Power Station and Brakwater Depot – NamPower (2014 – 2015) | Project Assistance. Data analysis and report compilation, data capture, trend analysis and provide water quality recommendations. |
| MEMBERSHIPS | |
| Pr. Sci. Nat. SACNASP (Membership Number 115550) | Professional Natural Scientist (Environmental Science) of the South African Council for Natural Scientific Professions (SACNASP). |

IAIAsa
(Membership Number
6474)

Full member of the International Association of Impact Assessment (South Africa)



herewith certifies that
Mavisha Nariansamy
Registration Number: 115550
is a registered scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003
(Act 27 of 2003)
in the following field(s) of practice (Schedule 1 of the Act)
Environmental Science (Professional Natural Scientist)

Effective 20 July 2016

Expires 31 March 2022



A handwritten signature in black ink, appearing to read 'Botha'.

Chairperson

A handwritten signature in black ink, appearing to read 'M. Prinsloo'.

Chief Executive Officer

