

## CURRICULUM VITAE

## Environmental

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Company	Arcus GIBB
Name	<b>Jaana-Maria BALL</b>
Nationality	South African
Date of birth	22.12.1969
Profession	Environmental Scientist and Botanist/MBA
Position	Director
Specialisation	Project management, integrated environmental management including environmental impact assessments, environmental management programmes, botanical investigations, revegetation and rehabilitation programmes, integrated development planning; public facilitation, environmental auditing; and public private partnership advisory services
Start date with Arcus GIBB	1997 – Permanent full-time staff member

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### Key experience

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An environmental scientist with a Masters Degree in Business Administration and with 16 years of experience, Jaana-Maria Ball specialises in various environmental disciplines:

Her key experience includes:

- **Business administration and development** providing leadership and management of two business units (Environmental and Support Services) including strategic planning, financial performance, workload and resource planning, human resource management, quality management, review of projects and proposals, quality management and administration. Environmental Services comprises integrated environmental planning, hydrological and waste management services. Support services comprises human resources, information technology and marketing services
- **Project management** of various medium and large-scale infrastructural and environmental projects
- **Environmental advisory services and strategic environmental management** including Strategic Environmental Assessments and environmental scans
- **Environmental impact assessment (EIA)** of small, medium and large-scale infrastructure projects, including public participation processes
- **Environmental management programmes (EMP)** for the construction and operational phases of infrastructure developments
- **Environmental sensitivity and land-use suitability analyses** for various projects and biomes
- **Environmental management programme reports (EMPR) and mining permit applications** for borrow areas and mines in terms of the Mineral and Petroleum Resources Development Act of 2002
- **Vegetation studies** for ecologically sensitive areas within the Fynbos, Afromontane and Succulent Karoo Biomes
- **Rehabilitation and landscape plans** for various developments, particularly mining operations
- **Environmental auditing** including due-diligence, ISO 14001, legal compliance and waste audits
- **Integrated development planning (IDP)** including the management, facilitation and development of integrated development plans

- **Integrated Water Use Licensing Applications and General Authorisations for Water Use** to meet the requirements of the Department of Water Affairs and Forestry, and
  - **Public Private Partnership Advisory Services** in the procurement and delivery of infrastructure
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### **Qualifications and Registrations/Certifications**

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Bachelor of Science in Botany and Zoology : University of Cape Town, 1990  
Bachelor of Science (Honours) in Botany : University of Cape Town, 1991  
Master of Science in Botany (Ecology) : University of Cape Town, 1995  
Integrated Environmental Management - Theory and Practice : University of Cape Town, 1996  
Business Management Diploma : Damelin College, 1996  
Project Management (post-graduate course) : University of Cape Town, 2001  
Master of Business Administration (MBA) : University of Cape Town, 2003 (Full-time) and ESADE (Barcelona, Spain) (Full-time)  
Professional Member of the South African Council for Natural Scientists, 1998 to date  
PriSciNat No : 400049/98  
Professional Member, South African Institute of Ecologists and Environmental Scientists, 1998 to date  
Professional Member, South African Association of Botanists, 2000 to date  
Certified Environmental Impact Assessment Practitioner, Interim Certification Board, 2006 (application in process)  
Associate Environmental Auditor with Institute of Environmental Management and Assessment, 2006 (registration in process)

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**Career summary**


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- Oct 2009  
Present **Arcus GIBB** – Discipline Leader and Director: Environmental Services; Organisational Manager Environmental Services North; Environmental Technical Director; Director: Systems Efficiencies; North Regional Co-ordinator; PPP Advisory Services; Corporate Strategy Roll Out Team
- Jan 2008 to  
Sept 2008 **Arcus GIBB** – Discipline Leader and Director: Environmental Services; Organisational Manager Environmental Services North; Environmental Technical Director; Director: Support Services (IT, HR, Marketing, Knowledge Management); PPP Advisory Services; Corporate Strategy Roll Out Team
- Oct 2006 to  
Dec 2007 **Arcus GIBB** – Discipline Leader and Director: Environmental Services; Director; Support Services (IT, HR, Marketing); PPP Advisory Services; Committee Member: Arcus GIBB Employment Equity Committee; Head: Arcus GIBB Corporate Strategy Roll Out Team; Chair: Arcus GIBB Remuneration Committee; Member: Arcus GIBB Bursary Committee
- April 2005 to  
Sept 2006 **Arcus GIBB** – Director; National Group Manager of Environmental Services Division, Member: Arcus GIBB Operational Management Team; Member: Arcus GIBB Employment Equity Committee, PPP Advisory Services
- April 2004 to  
April 2005 **Arcus GIBB** – Senior Associate; National Group Manager of Environmental Services Division, Member of Operational Management Team, PPP Advisory Services
- Jan 2003 to  
April 2004 **UCT and ESADE's (Barcelona, Spain) Business School's Full-time Master of Business Administration (MBA) and Exchange Programme**
- April 2002 to  
Jan 2003 **Arcus GIBB** – Associate; Division Manager of Environmental Services Division Cape Town; Business Development Manager, Southern Region
- Jan 2000 to  
Mar 2002 **Arcus GIBB** – Associate; Division Manager Environmental Division Cape Town
- April 1998 to  
Dec 1999 **GIBB Africa** – Principal Environmental Scientist
- Feb 1997 to  
March 1998 **GIBB Africa** – Environmental Scientist

Key projects include:

**Strategic Advisory Studies**

- Project director as part of the Strategic Advisory Team to the Airports Company South Africa for the proposed Midfield Development at OR Tambo International Airport
- Project director as part of the Strategic Environmental Technical Support Team to the Gauteng Provincial Government for the R20 million Gautrain Project. Technical support will be provided during the construction and operational phases of this flagship transport service

**Strategic Environmental Assessments**

- Project director for the Strategic Environmental Assessment (SEA) and Integrated Waste Management Plan for the Greater Port Harcourt, Nigeria

- Project director for the George Municipality Strategic Environmental Assessment (SEA) for 1 068 km<sup>2</sup> municipal area in support of the Spatial Development Framework and seven Strategic Development Plans
- Project director for the Strategic Environmental Assessment (SEA) of the one million ha Heritage Park. This ecologically sensitive, socio-economically complex Park will encompass Pilansberg and Madikwe Nature Reserve and cross the border between South Africa and Botswana
- Project director for the Strategic Environmental Assessment (SEA) of the Vaalkop Dam Provincial Nature Reserve. This proposed nature reserve will encompass the Vaalkop Dam and surrounding area and link up with the Pilansberg Nature Reserve
- Project director for the Strategic Environmental Assessment (SEA) for the Magaliesberg and Mulderdrift Regions for Eskom. The SEA considers the environmental attributes of the study area and suggests an environmental planning framework specific to the needs of Eskom Distribution

**Environmental Studies (including Land-Use and Sensitivity Analyses)**

- Project director for the environmental scans for the Baralink Commuter Rail Corridor in the City of Johannesburg Metropolitan Municipality. The environmental scan involved the identification of environmentally sensitive areas in close proximity to the proposed Rail Corridor and the suggestion of recommendations for the preliminary design stage of the project
- Project director for the environmental scans for the PWV 10 (Metro Boulevard) in the City of Johannesburg Metropolitan Municipality. Sensitive environmental features were identified spatially and these areas were incorporated into the preliminary design of the road
- Project manager for the environmental study to investigate the proposed irrigation schemes within Olifants/Doring River catchment. The Western Cape Olifants/Doring River Irrigation Study (WODRIS) is a comprehensive study for the Provincial Administration of the Western Cape (PAWC) and is in line with government objectives of integrated river basin management and human settlement
- Project manager for the biophysical assessment of the Spier Development. A development planning process was initiated with the two local authorities, the Stellenbosch Municipality and the Winelands District Council. The proposed development consists of building, recreational and agricultural development types. Arcus GIBB was appointed to undertake a biophysical assessment and land-use planning exercise as part of the scoping study for the Master Vision of the Spier Development
- Project manager for the environmental sensitivity analysis for Elandsjagt Farm, at the western end of the Du Toit's Kloof valley. Arcus GIBB was appointed by Intersite Property Management Services to undertake an opportunities and constraints study in order to determine the viability of developing the site for commercial purposes
- Project manager for the environmental sensitivity analysis for proposed development at Grotto Bay on the West Coast. Arcus GIBB was appointed to compile an environmental sensitivity analysis report to guide the planning process for development. This analysis involved the assessment of the baseline biophysical conditions of the site, the identification of the main environmental issues that could affect the proposed development of the study site and recommendations for mitigation measures

- Project scientist for the Swartklip Environmental Study. A division of DENEL (Pty) Ltd, Swartklip Products, plan to redevelop portions of their 540 ha site near Khayelitsha in Cape Town. Arcus GIBB undertook an environmental analysis of the site to determine which parcels of land were suitable for development purposes

**Environmental Impact Assessments (EIA)**

- Project director for the Basic Assessment processes for nine proposed Cogeneration Power Plants for the Promethium-Exxaro Joint Venture. This project includes nine cogeneration power plants, to be installed at mines and industrial facilities across South Africa, for the generation of electricity from waste gas. The projects will enable the project initiator to earn Carbon Credits through the Clean Development Mechanism in terms of the Kyoto Protocol under the United Nations Framework Convention on Climate Change
- Project director for the Environmental Impact Assessment for the proposed Mulilo Coal Fired Power Station and associated infrastructure as well as associated power lines and substations in the Musina area of the Limpopo Province
- Project director for the EIA and EMP for the proposed Transmission Lines (Bantamsklip – Kappa 765 kV and Bantamsklip – Bacchus, Bacchus - Kappa and Bacchus – Muldersvlei 400 kV) for a conventional nuclear power station and associated infrastructure at the Bantamsklip site in the Western Cape (Nuclear 1). The project proponent is the Transmission Division of Eskom Holdings Limited. The EIA includes the screening and selection of suitable corridors, as well as a scoping process and detailed environmental impact assessment. The project includes detailed specialist studies, including social, economic, visual and biophysical, EIA process, public consultation and legal
- Project reviewer (internal) for the EIA and EMP for the proposed upgrade to the Sani Pass, Kwa-Zulu Natal. The project proponent is the Department of Transport. The EIA includes a scoping process and detailed environmental impact assessment, including specialist studies
- Project director and lead reviewer for the Strategic Process Review of the EIA to be undertaken for the Medupi Integration Project in the Limpopo Province including transmission lines and substations for Savannah Environmental
- Project director for the EIA and EMP for the construction of two runways (comprising a new re-aligned runway and second parallel runway) and the Basic Assessment for the upgrade of the access roads at the Cape Town International Airport, for the Airports Company of South Africa (ACSA)
- Project director for the George Western Bypass Road EIA for a 13 km bypass road linking the Outeniqua Pass to the National Road near the George Airport. The proposed road passes through a sensitive socio-economic area comprising 40 small rural properties. Provincial Government of Western Cape
- Project director for the EIA and EMP for the proposed construction, operation and decommissioning of the Pebble Bed Modular Reactor and associated infrastructure in the Western Cape. The project proponent is the Generation Division of Eskom Holdings Limited. The EIA includes a detailed environmental impact assessment. The project includes detailed specialist studies, including social and biophysical, EIA process, public consultation, legal and nuclear technology studies

- Project manager for the EIA and EMP for the proposed construction, operation and decommissioning of a conventional nuclear power station and associated infrastructure in the Western Cape (Nuclear 1). The project proponent is the Generation Division of Eskom Holdings Limited. The EIA includes the screening and selection of a suitable site for the nuclear plant, as well as a scoping process and detailed environmental impact assessment. The project includes 20 detailed specialist studies, including social and biophysical, EIA process, public consultation, legal and nuclear technology studies
- Project director for the EIA and EMP for the proposed expansion of the Morupule Power Station, Botswana. The EIA includes a detailed environmental impact assessment. The project includes detailed specialist studies, including social, air quality, noise impact studies and public consultation
- Project director for the Environmental Impact Assessment for the route determination of the proposed Metro Boulevard, Gauteng Province
- Project director for the Environmental Impact Assessment for the proposed N1/20 Metro Boulevard Interchange, Gauteng Province
- Project director for the Environmental Impact Assessment for the Westgate – Tarlton – Kromdraai 132 kV Sub-Transmission line and associated infrastructure, Gauteng Province
- Project director for the Basic Assessment for the proposed Watershed – Mmabatho 88 kV Power line. North West Province
- Project director for the EIA and Public Consultation Process for the 260 km 765 kV transmission powerline between Hydra to Perseus substations (Northern Cape and Free State), the 13 km 765 kV transmission power line between Beta and Perseus substations and associated infrastructure. This study involved a detailed impact assessment with extensive public consultation and specialist investigations
- Project director for the EIA for the proposed reclamation and treatment of Gaborone (Botswana) wastewater for potable use. This study involved a number of specialist studies and extensive public consultation
- Team leader for the EIA, Public Consultation Process, EMP, Water Use Licensing Applications, General Authorisation for Water Use and the Department of Mineral and Energy Affairs Applications for the R10 billion Eskom Braamhoek Pumped Storage Scheme in the Drakensberg. The proposed scheme comprises two reservoirs, interconnected by enclosed tunnel systems, with pump turbine units with a potential generation capacity of approximately 1 333 MW
- Project director for the EIA and Public Consultation Process for the City of Johannesburg's flagship Strategic Public Transport Network R250 million project which aims to provide public transport priority measures for 300 km of road network in Johannesburg
- Project director for the EIA and Public Consultation Process for the upgrade to Staatsartillery Road in Pretoria West
- Project director for various residential housing development EIAs in the Tshwane Metropolitan Municipality and Ekurhuleni Metropolitan Municipality
- Project director for the EIA, EMP and Public Consultation Process for the proposed Selebi – Pikwe Water Master Plan, Botswana. The aim of this infrastructure development is to be able to meet the water needs of the rapidly expanding town of Selebi Pikwe

- Project director for the EIA and Public Consultation Process for the closure of Chlookop Landfill site, Kempton Park
- Project director for the EIA and Public Consultation Process for the proposed generation expansion at Morupule Power Station (currently 118 MW), Botswana. The alternative of increasing power imported under a revised agreement with Eskom was evaluated. A number of specialist studies informed the EIA
- Project manager for the EIA of a proposed upgrade to the Blanco Boulevard, a major arterial road in George. This EIA has involved the evaluation of the archaeological, ecological, socio-economic, traffic, traffic noise, and the town and regional planning impacts of the proposed road link. This project has also entailed a public participation process
- Project manager for the EIA for the proposed Francistown Water Master Plan – Immediate Works, Botswana. The aim of this R250 million water infrastructure development is to be able to meet the development water needs of the rapidly expanding Francistown to year 2021. The project includes an EIA with extensive specialist studies and public participation
- Project manager for the EIA for the new restaurant complex at the Kirstenbosch National Botanical Gardens. The scoping report and EMP formed part of the National Botanical Institute's application for a permit to build within the Cape Peninsula Protected Natural Environment
- Project manager for the environmental studies undertaken at Fisantekraal Industrial Estate, Durbanville. This involved the undertaking of an EIA (including specialist studies) development and implementation of an EMP and rehabilitation specifications, and appointment and management of an Environmental Control Officer
- Project manager on the EIA for the proposed upgrade of the Rooisand Nature Reserve, within the Kogelberg Biosphere, Kleinmond. This project included the facilitation of the public participation process, specialist engineering, hydrogeological, archaeological and botanical studies, the development of an EMP for both the construction and operational phases and input into an opportunities and constraints plan
- Project manager for the environmental services undertaken for Helderberg Reservoirs (8, 5, 3 and 2 MI), Somerset West. This involved the undertaking of an EIA (including public facilitation) development and implementation of an EMP and rehabilitation specifications, and appointment and management of an Environmental Control Officer
- Project Scientist for the EIA of the Waste-tech Vissershok Uitspan hazardous waste disposal site at Vissershok, 24 km north of Cape Town. This project involved the evaluation of the biological, physical, air quality, health, social and economic impacts of the location of two hazardous waste sites at Vissershok. In addition, two extensive public participation processes were undertaken as part of the EIA studies. The EIA studies were undertaken in fulfilment of the Minimum Requirements for Waste Disposal by Landfill published by the Department of Water Affairs and Forestry in 1994
- Project scientist for the EIA of a proposed road link between the Outeniqua Pass the National Road 2 (N2) near George. This project entails a road link to the Outeniqua Pass and N2 that will relieve the increasing traffic pressure on the road network of central George. This EIA has involved the evaluation of the archaeological, agricultural, ecological, socio-economic, traffic, traffic noise, and the town and regional planning impacts of the proposed road link. This project has also entailed a public participation process

- Project Scientist for the EIA of the location of the National Road 2 bypassing Knysna. The Department of Transport required an EIA to assess the impacts of a bypass road on Knysna. A number of alternative routes were investigated during the course of this project. Public participation was required to obtain the views of the I&APs along the proposed route
- Project scientist for the \$2 billion Maputo Iron and Steel EIA. The Industrial Development Corporation of SA (IDC) proposed to construct an iron and steel plant in Maputo, Mozambique, using iron ore stockpiled in Phalaborwa, South Africa. The iron ore (6 million tonnes) would be transported via rail or pipeline from Phalaborwa to Maputo. The iron and steel plant would produce direct reduced iron and steel slab (approximately 3.5 million tonnes). Arcus GIBB undertook the EIA for this project
- Project scientist for the Preliminary EIA of alternative locations (Phalaborwa and Maputo) for an iron and steel plant and routes for a proposed slurry pipeline. An international consortium commissioned a study to investigate the feasibility of an iron ore mill in South Africa. Arcus GIBB was commissioned to investigate the environmental feasibility of this large-scale industrial project

**Environmental Management Plans (EMP)**

- Project director for the compilation of an Environmental Management Plan (EMP) for the construction and operational phases of the Perseus-Gamma, and Hydra-Gamma 765 kV transmission power lines, extension to the Hydra Substation, turn-ins of the Beta-Hydra 765 kV transmission power line to Perseus and upgrading of the Perseus Substation
- Project manager for the Generic Environmental Management Programme for Johannesburg City Parks (JCP). The Generic EMP was developed as a tool for managing the activities of all contractors employed to undertake construction work in the Public Open Spaces within the jurisdiction of the JCP
- Project manager for the Alien Vegetation Management Programme for the implementation of the Working for Water Programme (WWP) for the 300 ha Knysna River catchment. This included the generation of plans from data collected using a helicopter-borne Global Positioning System (GPS) as well as from interested and affected parties, and processed using the Arcinfo/ArcView range of GIS software, provision of recommendations on the time needed to clear the existing infestations and undertake follow-up clearing and setting of measurable goals and indicators against which the success in achieving the objectives of the WWP can be measured
- Project manager for the EMP for the proposed Neptune Interchange Coega Industrial Development Zone (IDZ) in Port Elizabeth. This R1.4 million project will provide the Port Elizabeth area with new industrial opportunities. This project involved the development and implementation of an EMP for the Neptune Interchange contract and Environmental Management Programme (EMPR) for borrow areas for the entire IDZ
- Project manager for the EMP for the proposed construction of Trunk Road 1/1, between George and the Outeniqua Pass. This project involved the upgrading and widening of the 20 km mountain pass, which required environmental input during both the design and construction phases. The appointment included an EMP for the construction phase of the project



- Project manager for the EMP for Thesen Island remediation, Knysna. This R10 million project includes the investigation and remediation of a timber processing plant including creosote and CCA contaminated land. This management involved the development and implementation of an EMP and rehabilitation specifications, and appointment and management of an Environmental Control Officer
- Project scientist for the EMP for Chapman's Peak Drive, Cape Peninsula. The Provincial Administration of the Western Cape commissioned Arcus GIBB to develop an EMP for the rehabilitation of the Chapman's Peak Drive
- Project scientist and rehabilitation specialist for the EMP for the Armaments Testing Facility at Rooiels. Somchem (Pty) Ltd commissioned Arcus GIBB to compile and implement an EMP for decommissioning soil remediation, rehabilitation, revegetation and long term monitoring of 11 ha armaments testing facility in the Kogelberg Biosphere Reserve
- Project scientist for the EMP for the Table Mountain Aerial Cableway upgrade, Cape Town. The National Parks Board commissioned Arcus GIBB to compile an EMP for the construction and operational phase of the R60 million upgrade of the cableway on this internationally renowned landmark. This management plan involved the compilation of environmental specifications to control the activities of the contractor and his staff, thus preventing unnecessary damage to the environment during the construction and operational phase of the project

**Integrated Development Planning (IDP)**

- Project manager for the compilation of an Integrated Development Plan (IDP) for the Buffalo City Municipality, Eastern Cape. This R2.5 million involved the formulation of issues, strategies, projects and budgets for the next five years through consultation with stakeholders in six Municipal Directorates

**Botanical Studies/Rehabilitation Programmes****Succulent Karoo Biome:**

- Project manager for the botanical study for the R250 million Industrial Development Corporation Silicon Metal Project. The project comprised specialist botanical input, GIS mapping and development of an EMP for prospecting that was incorporated into the feasibility study for the establishment of a silicon mine and metal smelter and the prospecting permit application for the proposed mine
- Project manager on specialist environmental input for proposed prospecting and mining by Namakwa Diamond Company (NDC). This project included the provision of specialist botanical input into the Environmental Management Programme Report (EMPR) and Environmental Impact Assessment (EIA) for prospecting and mining of a concession area (2 km wide and 30 km long directly adjacent to the Admiralty Strip) between the Olifants River Mouth and the Namaqua Sands Mine on the West Coast near Lutzville
- Project manager for the specialist environmental input for proposed prospecting and mining Trans Hex. This project included a botanical specialist and rehabilitation study of their surf-zone and Admiralty Strip mining concessions, located between Jakkalshok and Dorningbaai along the Cape West Coast. Phase 1 of the study will comprise a broad vegetation assessment and mapping of the concession area and development of a rehabilitation programme, while Phase 2 will comprise area specific vegetation surveys of the proposed areas to be mined

**Fynbos Biome:**

- Project manager for the specialist botanical study for the proposed development of a regional landfill facility on the Karweyderskraal site, near Hermanus. The proposed site is approximately 100 ha in size. The aim of this specialist study was to survey the site and assess the potential effects of the proposed landfill would have on the flora present on site
- Project manager for the specialist botanical study for the proposed development of social housing at Meerlust Bosbou. The Winelands District Council initiated this development in order to provide social housing for 422 families
- Project manager for the specialist botanical study of the Cape International Airport (CIA) site for the Airports Company of South Africa. This project involves the extension of the existing CIA northwards to cover the entire 350 ha site within the next 35 to 50 years. The environmental input will be incorporated into the planning phase of the proposed developments at CIA and as baseline information for the environmental management system for CIA
- Project manager for the specialist botanical study for the proposed extension of the Zandvliet or Macassar Wastewater Treatment Works and associated infrastructure. The proposed extensions are required to meet the present and future wastewater capacity problems experienced in the Cape Metropolitan Area. Potential impacts of development and recommendations for their mitigation were made
- Project manager for the specialist botanical study for Phases 1 - 3 of the proposed Blaauwberg City development, potential of development and recommendations for their mitigation were made. A Global Positioning System (GPS) was used to map remnant vegetation
- Project manager for the specialist botanical study for phase 7 of the existing Sunset Beach residential development. This project involves the extension of Sunset Beach northwards and comprises the final phase of the Milnerton Estate's developments, potential environmental impacts of development and recommendations for their mitigation were made

**Environmental Audits**

- Project director and lead auditor for compliance audits of Eskom's Gourikwa and Atlantis Gas Turbine Power Stations
- Project director for a due-diligence audits of a number of bottling facilities for an international client
- Project director for waste management audits of the Linbro and Marie-Louise waste sites, Johannesburg
- Project manager for the environmental audit for the operation of the Table Mountain Cableway (TMC). The Table Mountain Aerial Cableway Company (TMACC) developed an environmental management system (EMS) for the operation of TMC in accordance with the requirements of ISO 140001. Arcus GIBB were appointed to undertake an external audit. The audit aimed to assess the current status of the EMS for the operation of the TMC and recommend improvement opportunities based on TMACC's EMS

**Other Studies**

- Project director for the Application for Mining Permits for borrow pits required for the Medupi Coal Fired Power Station, Limpopo Province

## JM BALL C V SHEET 11

## Environmental

- Project director for the Water Use Authorisation process for identified Water Uses at the Portland Cement Company's Jupiter Cement Plant in terms of the National Water Act
- Project director and manager for the 5-year Strategic Plan for the Department of Water Affairs and Forestry Chief Directorate: Water Resources and Information Management
- Head of Arcus GIBB's corporate strategy implementation team which is responsible for the overall implementation of Arcus GIBB's 5-year Corporate Strategy both at Company and business unit level
- Project manager for the corporatisation of the National SMME Fishing Forum. The National SMME Fishing Forum was established in 1999 to represent small, medium and micro entities, defend their interests and rights, as well as promote their development and participation within the industry. Arcus GIBB were appointed by the Forum to assist with the corporatisation of the organisation in order to maximise on investment and development opportunities that are currently available
- Project manager and institutional advisor on the identification of three candidate sites within each of the 20 identified 'search centres' in or around the Cape Metropolitan Area and the environmental audits preparation of 'site acquisition reports' for Ericsson

Oct 1995 to  
Feb 1997

### **University of Cape Town** (Institute for Plant Conservation) - Consultant

Responsible for the planning and execution of specialist vegetation studies in ecologically sensitive areas. Key projects include:

- Developing guidelines for sustainable harvesting of thatching reed
- Environmental assessment of a ecologically rich site on the Southern Cape Coast due to be rezoned and subdivided
- Specialist input relating to the impacts on vegetation within the sites affected by:
  - The upgrades to the Table Mountain aerial cableway system
  - A large entertainment complex on the Cape Peninsula
  - A residential development along the sensitive Cape Peninsula coastline
  - A housing development in the Tygerberg area
  - Three proposed Olympic competition venues in the Cape Peninsula
  - A large multi-purpose community facility in the Cape Peninsula
  - A road upgrade in the Cape Peninsula, and
  - A development corridor in the Cape Peninsula
- Specialist input relating to the management of vegetation within:
  - A sensitive wetland area surrounded by a large entertainment/office park
  - Private nature reserves and
  - A natural area managed for provision of water resources
- Botanical surveys of:
  - A large river catchment area in the Western Cape and
  - A community parkland in the Cape Peninsula

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Jan 1992 to  
Sept 1995

**University of Cape Town** (Department of Botany) - Post-Graduate Student

Completed Masters degree in Botany (Ecology), and was involved in practical classes for undergraduate students and supervision of project assistants

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**Professional and other Affiliations**

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Committee member (1997 to 2003) and member (2003 to present), International Association for Impact Assessment

Member, Environment Sub-Committee, Cape Peninsula Protected Natural Environment Sub-committee and General Committee (Portfolio – Environment), Mountain Club of South Africa, 1997 - 2003

Member, Botanical Society of South Africa, 1996 to present

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**Language capability**

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	<b>Speaking</b>	<b>Reading</b>	<b>Writing</b>
English	Excellent	Excellent	Excellent
Afrikaans	Fair	Fair	Fair
Spanish	Basic	Basic	Basic

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**Signature**

**Date**

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## CURRICULUM VITAE

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Company	Arcus GIBB
Name	<b>Rebecca THOMAS</b>
Nationality	South African
Date of Birth	21.07.1981
Profession	Senior Environmental Consultant
Position	Senior Environmental Scientist
Specialisation	Environmental Management and Impact Assessment, Environmental Management Plan, Public Participation Process and Project Management
Start date with Arcus GIBB	2009 – Permanent full-time staff member

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### Key experience

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A senior environmental scientist with seven years of experience, Rebecca Thomas specialises as an environmental consultant. She was employed at SSI and Parsons Brinckerhoff Africa before joining Arcus GIBB's Environmental Division

Her key experience includes:

- **General management and review of Environmental Impact Assessment (EIA) projects**
  - **Compilation BA/EIA reports and Environmental Management Plans (EMPs)**
  - **Undertaking and managing public participation processes and consultation**
  - **Undertaking and managing fatal flaw / feasibility studies**
  - **Project administration**
  - **Supervision junior staff**
  - **International experience in Botswana, Tanzania, Morocco and the Netherlands**
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### Qualifications

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Bachelor of Science (Environmental Science): University of Witwatersrand, 2002  
Postgraduate Diploma in Business Management (PDM): Wits Business School, current

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## R THOMAS CV SHEET 2

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### Career summary

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- Oct 2009 to Date **Arcus GIBB (Pty) Ltd** – Senior Environmental Scientist
- Responsible for leading and providing scientific services for a range of environmental projects including EIAs, environmental planning, environmental feasibility studies, and environmental fatal flaw assessments.
- 2008 to 2009 **Parsons Brinkerhoff Africa (Pty) Ltd** - Environmental Team Leader
- Environmental Team Leader responsible for various EIAs for the development of numerous energy related projects within South Africa and Botswana, namely coal-fired power stations and electrical transmission power lines. Tasks included client liaison, financial, programme and staff management and managing and contributing to the drafting of Environmental Impact Reports.
- 2007 to 2008 **Bohlweki Environmental / SSI Engineers and Environmental Consultants** - Air Quality Specialist
- Air Quality Specialist responsible for emission modelling as part of EIA studies for proposed developments and contributions to municipal Air Quality Management Plans (AQMP).
- 2004 to 2007 **Bohlweki Environmental / SSI Engineers and Environmental Consultants** - Environmental Consultant
- An environmental consultant active in Environmental Impact Assessments, Environmental Monitoring, Environmental Management Programmes and Environmental Management Systems

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### Project experience

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#### Environmental Management and Impact Assessment

Responsible for managing the client and a consulting team to ensure that the EIA process was implemented correctly, on schedule and within budget, the EIA process includes applications, baseline assessments and EIA reports.

- EIA for the proposed 25 MW Community Wind Farm in St Helena Bay, Western Cape Province. The EIA includes the scoping process and detailed environmental impact assessment. The project includes detailed specialist studies such as social, visual and biophysical as well as a full public participation process. Senior Scientist and Project Leader. Just Energy. Current
- EIA for the proposed 300 MW Caledon Wind Farm, Western Cape Province. The EIA includes the scoping process and detailed environmental impact assessment. The project includes detailed specialist studies such as social, visual and biophysical as well as a full public participation process. Senior Scientist and Project Leader. Caledon Wind. Current
- Basic Assessment (BA) for the proposed PPC Dwaalboom Boiler Ash Storage Facility. This BA includes the compilation of a Basic Assessment Report and

### **R THOMAS CV SHEET 3**

application, public consultation process and environmental management plan for submission to the Department of Environmental Affairs (DEA). Senior Scientist and Project Leader. PPC. Current

- Basic Assessment (BA) for the proposed Ekurhuleni Nyoni Regional Park upgrade in Vosloorsrus, Gauteng Province. This BA includes the compilation of a Basic Assessment Report and application, public consultation process and environmental management plan for submission to the Gauteng Department of Agricultural and Rural Development (G DARD). Senior Scientist and Project Leader. Ekurhuleni Metropolitan Municipality. Current
- EIA for the proposed reclamation and treatment of Gaborone (Botswana) wastewater for potable use, this study involved a number of specialist studies and extensive public consultation. Senior Scientist. Water Utilities Corporation (WUC). 2010.
- Senior scientist for three EIAs for the Botswana Water Utilities Corporation (WUC). The EIAs are for the upgrading of the Sowa, Jwaneng and Lobatse Water Supply Master Plans. These EIAs are located throughout Botswana and for each includes a detailed scoping and public consultation process, compilation of an environmental management plan and undertaking of identified detailed specialist studies required for the Department of Environmental Affairs decision making, namely visual and heritage studies. Senior Scientist. Water Utilities Corporation (WUC). 2010.
- Environmental Screening Study for the proposed co-generation plant to be established at Saldanha Mittal, Western Cape Province. This study included the identification of environmental fatal flaws and licenses required in terms of the proposed project as well as providing a plan indicating how to proceed with the project. Senior Scientist and Project Leader. Exxaro. 2010.
- Environmental Screening Study for the Robertson Community Wind Farm for Just Energy, Western Cape Province. This study included the identification of environmental fatal flaws and licenses required in terms of the proposed project as well as providing a plan indicating how to proceed with the project. Senior Scientist and Project Leader. Just Energy. 2010.
- EIA and EMP for the proposed transmission lines (Bantamsklip – Kappa 765 kV and Bantamsklip – Bacchus, Bacchus - Kappa and Bacchus – Muldersvlei 400 kV) for a conventional nuclear power station and associated infrastructure at the Bantamsklip site in the Western Cape (Nuclear 1). The project proponent is the Transmission Division of Eskom Holdings Limited. The EIA includes the screening and selection of suitable corridors, as well as a scoping process and detailed environmental impact assessment. The project includes detailed specialist studies, including social, economic, visual and biophysical, EIA process, public consultation and legal. Senior Scientist and Project Leader. Eskom Transmission. 2009 – Ongoing.
- Powerline walkdown assessment and environmental management plan for the Eskom Watershed Mmabatho 132 kV transmission line, North West Province. Senior Scientist and Project Leader. Eskom Distribution. 2010.
- EIA for the proposed Mulilo Coal Fired Power Station and associated transmission lines near Musina, Limpopo Province. Environmental Project Co-ordinator. Mulilo Power. 2008 – 2009.

## **R THOMAS CV SHEET 4**

- Environmental Fatal Flaws Analysis for the proposed Sekoko Coal Fired Power Station and associated transmission lines near Lephalale, Limpopo Province. Senior Scientist. Sekoko Resources. 2009.
- Environmental Fatal Flaws Analysis for the proposed Mulilo Coal Fired Power Station and associated transmission lines near Musina, Limpopo Province. Senior Scientist. Mulilo Power. 2009.
- EIA for the proposed Mmamantswe Coal Fired Power Station, associated transmission lines and coal mine, Kgatleng District, Botswana. Senior Scientist and Project Leader. Aviva Corporation. 2008 – 2009.
- Environmental Fatal Flaws Analysis for five proposed Investec Wind Farm sites within the Northern Cape Province. Project Leader. Investec. 2008.
- EIA for the proposed Upgrade of the Metal Recovery Crushing and Screening Plant at the ArcelorMittal Vanderbijlpark Works, Gauteng Province. Project Leader. ArcelorMittal. 2008.
- EIA for the proposed extension of the hydra substation and the proposed construction of a new 765 kV transmission power line between the Hydra and Gamma Substations, Northern Cape Province. Environmental Scientist. Eskom Transmission. 2007 – 2008.
- EIA for the proposed Mercury – Garona 400 kV transmission power line, traversing the Free State, North West and Northern Cape Province. Environmental Scientist. Eskom Transmission. 2007 – 2008.
- EIA for the proposed Atlantis OCGT Power Station and associated 400 kV power lines, Western Cape Province. Environmental Scientist. Eskom Transmission. 2007 – 2008.
- EIA for the proposed construction of two low-flow gauging weirs in the Lower Orange River and Lower Vaal River, Northern Cape Province. Environmental Scientist. Department of Water Affairs and Forestry (DWAF). 2007 – 2008.
- Environmental Scoping Study for the proposed 132 kV sub transmission line from Mayfern Traction Substation to Delta Substation in Nelspruit, Mpumalanga Province. Environmental Scientist. Eskom Distribution. 2006 - 2007.
- Environmental Scoping Study for the proposed 132 kV sub transmission line between Witkloof Substation and the proposed new Thuli Substation, Carolina, Mpumalanga Province. Environmental Scientist. Eskom Distribution. 2006 - 2007.
- Environmental Scoping Study for the proposed 132 kV sub transmission line from Kabokweni Substation to the proposed new Hlau Hlau Substation, Mpumalanga Province. Environmental Scientist. Eskom Distribution. 2006 - 2007.
- Environmental Scoping Study for the proposed 132 kV sub transmission line from Kiepersol Substation to Hazyview Traction Substation and upgrading of Kiepersol Substation, Mpumalanga Province. Environmental Scientist. Eskom Distribution. 2005 - 2007.



## **R THOMAS CV SHEET 5**

- Environmental Scoping Study for the proposed 132 kV sub transmission lines and proposed new substation to Zandfontein, Mpumalanga Province. Environmental Scientist. Eskom Distribution. 2005 - 2006.

### **Environmental Management Plans**

Project management, management of specialist's and compilation of the following projects included:

- Environmental Management Plan for the Morupule B - Phokoje 400 kV Transmission line, Botswana. Project Leader. Botswana Power Corporation (BPC). 2008
- Environmental Management Plan for the proposed 400 kV transmission lines and new substation at the Atlantis OCGT Power Station, Western Cape Province. Environmental Scientist. Eskom Distribution. 2007 - 2008.
- Environmental Management Plan for the proposed Phase 1 and 2 developments of the Gardner Ross Golf and Country Estate project, integrating the current Environmental Management Plan in place for phase 1. Environmental Scientist. Gardener Ross. 2005 - 2006.
- Environmental Management Plan for the proposed 132 kV sub transmission lines and new substation to Zandfontein mine, Mpumalanga Province. Environmental Scientist. Eskom Distribution. 2005 - 2006.

### **Air Quality Impact Assessment**

Involved with the Air Quality Impact Assessments and Dispersion Modelling for the following projects:

- Air Quality Impact Assessment for the proposed Zimplats Smelter expansion, Harare, Zimbabwe. Air Quality Specialist. Zimplats. 2007.
- Air Quality Impact Assessment for the proposed Majuba Combined Cycle Gas Turbine (CCGT) Power Station, Mpumalanga Province. Air Quality Specialist. Eskom Generation. 2007.

### **Specialist Studies**

Various specialist study projects, responsible for the project management and day-to-day co-ordination of the following projects, to ensure timeous collection of information and submission of required deliverables:

- Independent Review of the Burnstone Gold Mine Environmental Impact Assessment and Environmental Management Plans, in accordance with the Equator Principles, Mpumalanga Province. Project Leader. Snowden. 2008.
- Visual Impact Assessment Report for Robinson Deep Landfill, Gauteng Province. Environmental Scientist. Pikitup. 2006.
- Identification and Compilation of Transwerk Germiston Environmental Aspects and Impacts Register, Germiston, Gauteng Province. Environmental Scientist. Transwerk. 2006.
- Compilation of CTMM Noise Zoning Report for Regions 1 – 8, Gauteng Province. Environmental Scientist. CTMM. 2005.

## **R THOMAS CV SHEET 6**

- Water License Applications for New Mining Operations at the Holcim South Africa Dudfield Plant, North West Province. Environmental Scientist. Holcim. 2005 – 2006.
- Exemption Application and Public Participation Process for Komati Power Station: Return-to-Service, Mpumalanga Province. Public Participation Consultant. 2004.
- Exemption Application and Public Participation Process for the Vaal VRESAP 88 kV Distribution line and new VRESAP Substation. Environmental Scientist and Project Leader. 2006.

### **Public Participation Process**

Responsible for the co-ordination of the Public Participation Process, involving the compilation of Public Participation documentation, arranging and co-ordinating public meetings, management of Interested and Affected Party (I&AP) database's and day-to-day solicitation of comments and responses to and from I&APs. Projects included:

- Public Participation Process for the return-to-service of Grootvlei's Power Station, Mpumalanga Province. Public Participation Consultant. Eskom Generation. 2004.
- Public Participation Process for the proposed Waste Blending Platform to be established in Gauteng Province. Public Participation Consultant. Holcim. 2004.
- Public Participation Process for the proposed Rand Water 80km bulk supply pipeline from Centurion to Rustenburg. Public Participation Consultant. Rand Water. 2004.
- SANParks National Database for the Environmental Management Plans for selective National Parks. Public Participation Consultant. SANParks. 2004.

### **International Experience**

Internationally has provided consulting services on the following projects:

- Various energy related projects, Gaborone, Botswana. Environmental Consultant. 2008 – 2009.
- Environmental Inception Report for Dar-es-Salaam International Airport (DIA) and the Tanzanian Airport Authority (TAA). Identification of Environmental Impacts, Gap Analysis of existing infrastructure in Dar-es-Salaam and future requirements of the city, inclusive of water and sewage management facilities. Environmental Consultant. TAA. 2007
- GIS Mapping and Conservation Management for a Private Game Reserve near Rabat, Morocco. Looking at wildlife management, rehabilitation and renovation of the property as well as game management. Environmental Consultant. Confidential. 2007
- Presentation on South African Public-Private Partnership and Environmental Impact Assessment at the Partners for Roads International Conference on Roads and Regional Development, Prague, Czech Republic. 2007.
- Three months knowledge exchange and working experience with Bohlweki Environmental Association Company, DHV, in the Netherlands from September 2007 to December 2007

**R THOMAS CV SHEET 7**

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**Language capability**

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	<b>Speaking</b>	<b>Reading</b>	<b>Writing</b>
English	Excellent	Excellent	Excellent
Afrikaans	Fair	Fair	Some ability

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**Signature**

**Date**

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SHORT CURRICULUM VITAE: Dr David Hoare ID no. 661104 5024 088	<b>Ecologist</b> <b>David Hoare Consulting c.c.</b>
<b>Date of birth:</b> 04/11/1966	<b>RESPONSIBILITY:</b>
<b>Academic qualifications:</b> B.Sc (Botany and Zoology) Rhodes University; B.Sc Honours (Botany) Rhodes University, M.Sc. (Botany) University of Pretoria PhD (Ecology) – Nelson Mandela Metropolitan University, Port Elizabeth	Ecological Specialist responsible for vegetation, flora and fauna inventories, vegetation, habitat and land-use mapping, threatened plant and animal species surveys, alien species surveys.
<b>Nationality:</b> South African	<b>EXPERTISE:</b>
<b>Additional qualifications:</b> Soil Classification Competence Certificate; Environmental Law Course; Environmental Management Systems (ISO 14001) Course; ERDAS Imagine Software Course (Remote sensing image processing software)	Ecological researcher in projects involving the description of terrestrial and coastal ecosystems. Broad expertise in the ecology and conservation of grasslands, thicket, wetlands, fynbos and coastal ecosystems. Project expertise includes baseline biological surveys for the mining, forestry and utility industries, national vegetation mapping programmes for government and research organisations, natural resource management using satellite remote sensing and aerial photography, environmental management and project management (research projects).
<b>Professional Societies:</b> <u>Professional Natural Scientist:</u> South African Council for Natural Scientific Professions (2005) Reg. no. 400221/05 <u>Professional member:</u> South African Institute of Ecologists and Environmental Scientists (Ecology, Botany) <u>Member:</u> International Association of Vegetation Scientists	
<b>Countries of work experience:</b> South Africa, Kenya, Tanzania, Zimbabwe, Mozambique, Swaziland, Zambia.	
<b>RELEVANT EXPERIENCE:</b> Ecological consultant since 1995. Author of 13 scientific publications, 6 technical scientific reports, 15 scientific conference presentations and over 250 ecological specialist consulting reports. Attended 15 national and international congresses & 5 expert workshops, lectured ecology at 2 universities and referee for 2 international journals. Wide experience in ecological studies within grassland, thicket, savanna and fynbos, as well as riparian, coastal and wetland vegetation. Senior author on Thicket Biome chapter in recent publication on vegetation of South Africa (SANBI), as well as second author on Grassland Biome chapter and co-author on three other chapters. Also compiled map of the Eastern Cape vegetation for the same publication. A list of publications and recent reports is given below:	

### Refereed scientific articles:

- HOARE, D.B.** & BREDEKAMP, G.J. 1999. Grassland communities of the Amatola / Winterberg mountain region of the Eastern Cape, South Africa. *South African Journal of Botany* 64: 44-61.
- HOARE, D.B.**, VICTOR, J.E., LUBKE, R.A. & MUCINA, L., 2000. Vegetation of the coastal fynbos and rocky headlands south of George, South Africa. *Bothalia* 30: 87-96.
- VICTOR, J.E., **HOARE, D.B.** & LUBKE, R.A., 2000. Checklist of plant species of the coastal fynbos and rocky headlands south of George, South Africa. *Bothalia* 30: 97-101.
- MUCINA, L., BREDEKAMP, G.J., **HOARE, D.B.** & MCDONALD, D.J. 2000. A National Vegetation Database for South Africa *South African Journal of Science* 96: 1-2.
- HOARE, D.B.** & BREDEKAMP, G.J. 2001. Syntaxonomy and environmental gradients of the grasslands of the Stormberg / Drakensberg mountain region of the Eastern Cape, South Africa.. *South African Journal of Botany* 67: 595 – 608.
- LUBKE, R.A., **HOARE, D.B.**, VICTOR, J.E. & KETELAAR, R. 2003. The vegetation of the habitat of the Brenton blue butterfly, *Orachrysops niobe* (Trimen), in the Western Cape, South Africa. *South African Journal of Science* 99: 201-206.
- HOARE, D.B.** & FROST, P. 2004. Phenological classification of natural vegetation in southern Africa using AVHRR vegetation index data. *Applied Vegetation Science* 7: 19-28.
- FOX, S.C., HOFFMANN, M.T. and **HOARE, D.** 2005. The phenological pattern of vegetation in Namaqualand, South Africa and its climatic correlates using NOAA-AVHRR NDVI data. *South African Geographic Journal*, 87: 85-94.

### Book chapters and conference proceedings:

- HOARE, D.B.** 2002. Biodiversity and performance of grassland ecosystems in communal and commercial farming systems in South Africa. Proceedings of the FAO's Biodiversity and Ecosystem Approach in Agriculture, Forestry and Fisheries Event: 12-13 October, 2002. Food and Agriculture Organisation of the United Nations, Viale delle Terme di Caracalla, Rome, Italy. pp. 10 - 27.
- STEENKAMP, Y., VAN WYK, A.E., VICTOR, J.E., **HOARE, D.B.**, DOLD, A.P., SMITH, G.F. & COWLING, R.M. 2005. Maputaland-Pondoland-Albany Hotspot. In: Mittermeier, R.A., Gil, P.R., Hoffmann, M., Pilgrim, J., Brooks, T., Mittermeier, C.G., Lamoreux, J. & Fonseca, G.A.B. da (eds.) *Hotspots revisited*. CEMEX, pp.218-229. ISBN 968-6397-77-9
- STEENKAMP, Y., VAN WYK, A.E., VICTOR, J.E., **HOARE, D.B.**, DOLD, A.P., SMITH, G.F. & COWLING, R.M. 2005. Maputaland-Pondoland-Albany Hotspot. <http://www.biodiversityhotspots.org/xp/hotspots/maputaland/>.
- HOARE, D.B.**, MUCINA, L., RUTHERFORD, M.C., VLOK, J., EUSTON-BROWN, D., PALMER, A.R., POWRIE, L.W., LECHMERE-OERTEL, R.G., PROCHES, S.M., DOLD, T. and WARD, R.A. *Albany Thickets*. in Mucina, L. and Rutherford, M.C. (eds.) 2006. Vegetation map of South Africa, Lesotho and Swaziland: an illustrated guide. *Strelitzia* 19, South African National Biodiversity Institute, Pretoria.
- MUCINA, L., **HOARE, D.B.**, LÖTTER, M.C., DU PREEZ, P.J., RUTHERFORD, M.C., SCOTT-SHAW, C.R., BREDEKAMP, G.J., POWRIE, L.W., SCOTT, L., CAMP, K.G.T., CILLIERS, S.S., BEZUIDENHOUT, H., MOSTERT, T.H., SIEBERT, S.J., WINTER, P.J.D., BURROWS, J.E., DOBSON, L., WARD, R.A., STALMANS, M., OLIVER, E.G.H., SIEBERT, F., SCHMIDT, E., KOBISI, K., KOSE, L. 2006. *Grassland Biome*. In: Mucina, L. & Rutherford, M.C. (eds.) Vegetation map of South Africa, Lesotho and Swaziland: an illustrated guide. *Strelitzia* 19. South African National Biodiversity Institute, Pretoria.
- RUTHERFORD, M.C., MUCINA, L., LÖTTER, M.C., BREDEKAMP, G.J., SMIT, J.H.L., SCOTT-SHAW, C.R., **HOARE, D.B.**, GOODMAN, P.S., BEZUIDENHOUT, H., SCOTT, L. & ELLIS, F., POWRIE, L.W., SIEBERT, F., MOSTERT, T.H., HENNING, B.J., VENTER, C.E., CAMP, K.G.T., SIEBERT, S.J., MATTHEWS, W.S., BURROWS, J.E., DOBSON, L., VAN ROOYEN, N., SCHMIDT, E., WINTER, P.J.D., DU PREEZ, P.J., WARD, R.A., WILLIAMSON, S. and HURTER, P.J.H. 2006. *Savanna Biome*. In: Mucina, L. & Rutherford, M.C. (eds.) Vegetation map of South Africa, Lesotho and Swaziland: an illustrated guide. *Strelitzia* 19. South African National Biodiversity Institute, Pretoria.
- MUCINA, L., RUTHERFORD, M.C., PALMER, A.R., MILTON, S.J., SCOTT, L., VAN DER MERWE, B., **HOARE, D.B.**, BEZUIDENHOUT, H., VLOK, J.H.J., EUSTON-BROWN, D.I.W., POWRIE, L.W. & DOLD, A.P. 2006. *Nama-Karoo Biome*. In: Mucina, L. & Rutherford, M.C. (eds.) Vegetation map of South Africa, Lesotho and Swaziland: an illustrated guide. *Strelitzia* 19. South African National Biodiversity Institute, Pretoria.
- MUCINA, L., SCOTT-SHAW, C.R., RUTHERFORD, M.C., CAMP, K.G.T., MATTHEWS, W.S., POWRIE, L.W. and **HOARE, D.B.** 2006. *Indian Ocean Coastal Belt*. In: Mucina, L. & Rutherford, M.C. (eds.) Vegetation map of South Africa, Lesotho and Swaziland: an illustrated guide. *Strelitzia* 19. South African National Biodiversity Institute, Pretoria.

### Conference Presentations:

- HOARE, D.B. & LUBKE, R.A. *Management effects on diversity at Goukamma Nature Reserve, Southern Cape*; Paper presentation, Fynbos Forum, Bienne Donne, July 1994

- HOARE, D.B., VICTOR, J.E. & LUBKE, R.A. *Description of the coastal fynbos south of George, southern Cape*; Paper presentation, Fynbos Forum, Bienne Donne, July 1994
- HOARE, D.B. & LUBKE, R.A. *Management effects on fynbos diversity at Goukamma Nature Reserve, Southern Cape*; Paper presentation, South African Association of Botanists Annual Congress, Bloemfontein, January 1995
- HOARE, D.B. & BOTHA, C.E.J. *Anatomy and ecophysiology of the dunegrass Ehrharta villosa var. maxima*; Poster presentation, South African Association of Botanists Annual Congress, Bloemfontein, January 1995
- HOARE, D.B., PALMER, A.R. & BREDENKAMP, G.J. 1996. *Modelling grassland community distributions in the Eastern Cape using annual rainfall and elevation*; Poster presentation, South African Association of Botanists Annual Congress, Stellenbosch, January 1996
- HOARE, D.B. *Modelling vegetation on a past climate as a test for palaeontological hypotheses on vegetation distributions*; Paper presentation, Randse Afrikaanse Universiteit postgraduate symposium, 1997
- HOARE, D.B., VICTOR, J.E. & BREDENKAMP, G.J. *Historical and ecological links between grassy fynbos and afro-montane fynbos in the Eastern Cape*; Paper presentation, South African Association of Botanists Annual Congress, Cape Town, January 1998
- LUBKE, R.A., HOARE, D.B., VICTOR, J.E. & KETELAAR, R. *The habitat of the Brenton Blue Butterfly*. Paper presentation, South African Association of Botanists Annual Congress, Cape Town, January 1998
- HOARE, D.B. & PANAGOS, M.D. *Satellite stratification of vegetation – structure or floristic composition?* Poster presentation at the 34<sup>th</sup> Annual Congress of the Grassland Society of South Africa, Warmbaths, 1-4 February 1999.
- HOARE, D.B. & WESSELS, K. *Conservation status and threats to grasslands of the northern regions of South Africa*, Poster presentation at the South African Association of Botanists Annual Congress, Potchefstroom, January 2000.
- HOARE, D.B. *Phenological dynamics of Eastern Cape vegetation*. Oral paper presentation at the South African Association of Botanists Annual Congress, Grahamstown, January 2002.
- HOARE, D.B., MUCINA, L., VAN DER MERWE, J.P.H. & PALMER, A.R. *Classification and digital mapping of grasslands of the Eastern Cape* Poster presentation at the South African Association of Botanists Annual Congress, Grahamstown, January 2002.
- HOARE, D.B. *Deriving phenological variables for Eastern Cape vegetation using satellite data* Poster presentation at the South African Association of Botanists Annual Congress, Grahamstown, January 2002.
- MUCINA, L., RUTHERFORD, M.C., HOARE, D.B. & POWRIE, L.W. 2003. *VegMap: The new vegetation map of South Africa, Lesotho and Swaziland*. In: Pedrotti, F. (ed.) *Abstracts: Water Resources and Vegetation, 46<sup>th</sup> Symposium of the International Association for Vegetation Science*, June 8 to 14 – Napoli, Italy.
- HOARE, D.B. 2003. *Species diversity patterns in moist temperate grasslands of South Africa*. Proceedings of the VIIth International Rangeland Congress, 26 July – 1 August 2003, Durban South Africa. *African Journal of Range and Forage Science*. 20: 84.

#### **Unpublished technical reports:**

- PALMER, A.R., HOARE, D.B. & HINTSA, M.D., 1999. *Using satellite imagery to map veld condition in Mpumalanga: A preliminary report*. Report to the National Department of Agriculture (Directorate Resource Conservation). ARC Range and Forage Institute, Grahamstown.
- HOARE, D.B. 1999. *The classification and mapping of the savanna biome of South Africa: methodology for mapping the vegetation communities of the South African savanna at a scale of 1:250 000*. Report to the National Department of Agriculture (Directorate Resource Conservation). ARC Range and Forage Institute, Pretoria.
- HOARE, D.B. 1999. *The classification and mapping of the savanna biome of South Africa: size and coverage of field data that exists on the database of vegetation data for South African savanna*. Report to the National Department of Agriculture (Directorate Resource Conservation). ARC Range and Forage Institute, Pretoria.
- THOMPSON, M.W., VAN DEN BERG, H.M., NEWBY, T.S. & HOARE, D.B. 2001. *Guideline procedures for national land-cover mapping and change monitoring*. Report no. ENV/P/C 2001-006 produced for Department of Water Affairs and Forestry, National Department of Agriculture and Department of Environment Affairs and Tourism. Copyright: Council for Scientific and Industrial Research (CSIR) and Agricultural Research Council (ARC).
- HOARE, D.B. 2003. *Natural resource survey of node O R Tambo, using remote sensing techniques*, Unpublished report and database of field data for ARC Institute for Soil, Climate & Water, ARC Range and Forage Institute, Grahamstown.
- HOARE, D.B. 2003. *Short-term changes in vegetation of Suikerbosrand Nature Reserve, South Africa, on the basis of resampled vegetation sites*. Gauteng Department of Agriculture, Conservation, Environment and Land Affairs, Conservation Division.

**Consulting reports:**

Total of over 250 specialist consulting reports for environmental projects from 1995–2010. Relevant ones of a similar nature to the current project include the following:

<b>Project</b>	<b>Year</b>	<b>Province</b>
ENVIRONMENTAL SCOPING REPORT: Specialist ecological study on the potential impacts of the proposed Dorper Wind Energy Facility Project, Indwe	2010	Eastern Cape
ENVIRONMENTAL SCOPING REPORT: Specialist ecological study on the potential impacts of the proposed Amakhaya Emoyeni Wind Energy Facility Project, Cookhouse	2010	Eastern Cape
ENVIRONMENTAL SCOPING REPORT: Specialist ecological study on the potential impacts of the proposed AB Wind Energy Facility Project, Indwe	2010	Eastern Cape
ENVIRONMENTAL SCOPING REPORT: Specialist fauna study on potential impacts of the proposed West Coast One Wind Energy Facility Project, Vredenburg	2010	Western Cape
ENVIRONMENTAL SCOPING REPORT: Specialist fauna study on potential impacts of the proposed Rheboksfontein Wind Energy Facility Project, Darling	2010	Western Cape
ENVIRONMENTAL SCOPING REPORT: Specialist ecological study on the potential impacts of the proposed Suurplaats Wind Energy Facility Project, Sutherland	2010	Western Cape, Northern Cape
Environmental Impact Report: Ecological study of the proposed Cookhouse Wind Energy Facility	2009	Eastern Cape
Environmental Scoping Report: Ecological study of the proposed Flagging Trees Wind Energy Facility	2009	Eastern Cape
Environmental Impact Assessment for the Establishment of the Caledon Wind Farm, Western Cape Province: Environmental Scoping Report: Fauna Impact Assessment Study	2009	Western Cape
Ecological impact assessment of the proposed George western bypass	2008	Western Cape
Terrestrial ecology impact assessment for the Knysna N2 Toll Highway EIA, Knysna	2008	Western Cape Province

# Curriculum Vitae

## CHRIS VAN ROOYEN

**DATE OF BIRTH:** 30 April 1964

**SPECIALIST FIELD:** Avifauna

### **RELEVANT WORK EXPERIENCE (PLSE SEE APPENDIX A FOR A MORE COMPREHENSIVE CAREER HISTORY)**

- 1991-1995: Volunteer for the Endangered Wildlife Trust's Raptor Conservation Group and Vulture Study Group.
- 1996-2007: Specialist Consultant with the Endangered Wildlife Trust. Duties entailed the overall co-ordination and management of the Endangered Wildlife Trust's national programme to eliminate negative wildlife interactions with electrical utility structures in southern Africa
- Since November 2007 to present: Environmental Consultant specialising in Bird Impact Assessment Studies

## **CLIENTS**

### **Industry**

- Eskom Distribution Division
- Eskom Transmission Division
- Eskom Research (Resources and Strategy)
- Eskom Generation Division
- Botswana Power Company
- NamPower (Namibia)
- Debswana (Botswana)
- SAPPI
- Texas Utility Company (USA)
- TransPower (New Zealand)
- South African Roads Agency
- Mainstream Renewable Power
- Windcurrent SA

### **Lead Consultants**

- Bohlweki Environmental
- Strategic Environmental Focus
- Tswelopele Environmental
- Digby Wells Associates
- Iliso Consulting
- Savannah Environmental
- PBA International



- Arcus Gibb
- Landscape Dynamics
- BKS
- Naledzi Environmental
- Eyethu Engineers
- Ninham Shand
- WSP Environmental
- Enviro Dynamics (Namibia)
- Eco Assessments
- Loci Environmental (Botswana)
- SRK
- Zitholele Consulting
- EcoPlan (Namibia)
- Groundwater Consultant Services – SA
- CSIR
- CIC International
- EnviroXcellence Services
- Naledzi Environmental Consultants
- Cymbian Enviro-social Consultants
- Envirovolution Consulting
- Nzumbululo Heritage Consultants
- Synergistics Environmental Services
- Seedcracker Environmental Consulting
- Namibia Nature Foundation
- Texture Environmental
- Environmental Evaluation Unit, University of Cape Town

## **PROJECTS**

### **Bird Impact Assessment Specialist Studies:**

#### **For power lines:**

1. Chobe 33kV Distribution line
2. Athene - Umfolozi 400kV
3. Beta-Delphi 400kV
4. Cape Strengthening Scheme 765kV
5. Flurian-Louis-Trichardt 132kV
6. Ghanzi 132kV (Botswana)
7. Ikaros 400kV
8. Matimba-Witkop 400kV
9. Naboomspruit 132kV
10. Tabor-Flurian 132kV
11. Windhoek - Walvisbaai 220 kV (Namibia)
12. Witkop-Overysseel 132kV
13. Breyten 88kV
14. Adis-Phoebus 400kV
15. Dhuva-Janus 400kV
16. Perseus-Mercury 400kV
17. Gravelotte 132kV
18. Ikaros 400 kV
19. Khanye 132kV (Botswana)

20. Moropule – Thamaga 220 kV (Botswana)
21. Parys 132kV
22. Simplon –Everest 132kV
23. Tutuka-Alpha 400kV
24. Simplon-Der Brochen 132kV
25. Big Tree 132kV
26. Mercury-Ferrum-Garona 400kV
27. Zeus-Perseus 765kV
28. Matimba B Integration Project
29. Caprivi 350kV DC (Namibia)
30. Gerus-Mururani Gate 350kV DC (Namibia)
31. Mmamabula 220kV (Botswana)
32. Steenberg-Der Brochen 132kV
33. Venetia-Paradise T 132kV
34. Burgersfort 132kV
35. Majuba-Umfolozi 765kV
36. Delta 765kV Substation
37. Braamhoek 22kV
38. Steelpoort Merensky 400kV
39. Mmamabula Delta 400kV
40. Delta Epsilon 765kV
41. Gerus-Zambezi 350kV DC Interconnector: Review of proposed avian mitigation measures for the Okavango and Kwando River crossings
42. Giyani 22kV Distribution line
43. Lihobong-Kao 132/11kV distribution power line, Lesotho
44. 132kV Leslie – Wildebeest distribution line
45. A proposed new 50 kV Spoornet feeder line between Sishen and Saldanha
46. Cairns 132kv substation extension and associated power lines
47. Pimlico 132kv substation extension and associated power lines
48. Gyani 22kV
49. Matafin 132kV
50. Nkomazi\_Fig Tree 132kV
51. Pebble Rock 132kV
52. Reddersburg 132kV
53. Thaba Combine 132kV
54. Nkomati 132kV
55. Louis Trichardt – Musina 132kV
56. Endicot 44kV
57. Apollo Lepini 400kV
58. Tarlton-Spring Farms 132kV
59. Kuschke 132kV substation
60. Bendstore 66kV Substation and associated lines
61. Kuiseb 400kV (Namibia)
62. Gyani-Malamulele 132kV
63. Watershed 132kV
64. Bakone 132kV substation
65. Eerstegoud 132kV LILO lines
66. Kumba Iron Ore: SWEP - Relocation of Infrastructure
67. Kudu Gas Power Station: Associated power lines
68. Steenberg Booyseindal 132kV
69. Toulon Pumps 33kV
70. Thabatshipi 132kV

71. Witkop-Silica 132kV
72. Bakubung 132kV
73. Nelsriver 132kV
74. Rethabiseng 132kV
75. Tilburg 132kV
76. GaKgapane 66kV
77. Knobel Gilead 132kV
78. Bochum Knobel 132kV
79. Madibeng 132kV
80. Witbank Railway Line and associated infrastructure
81. Spencer NDP phase 2 (5 lines)
82. Akanani 132kV
83. Hermes-Dominion Reefs 132kV
84. Cape Pensinsula Strengthening Project 400kV
85. Magalakwena 132kV
86. Benfiosa 132kV
87. Dithabaneng 132kV
88. Taunus Diepkloof 132kV
89. Taunus Doornkop 132kV
90. Tweedracht 132kV
91. Jane Furse 132kV
92. Majeje Sub 132kV
93. Tabor Louis Trichardt 132kV
94. Riversong 88kV
95. Mamatsekele 132kV
96. Kabokweni 132kV
97. MDPP 400kV Botswana
98. Marble Hall NDP 132kV
99. Bokmakiere 132kV Substation and LILO lines
100. Styldrift 132kV
101. Taunus – Diepkloof 132kV
102. Bighorn NDP 132kV
103. Waterkloof 88kV
104. Camden – Theta 765kV
105. Dhuva – Minerva 400kV Diversion
106. Lesedi –Grootpan 132kV
107. Waterberg NDP
108. Bulgerivier – Dorset 132kV
109. Bulgerivier – Toulon 132kV

**Bird Impact Assessment Studies for power stations:**

1. Open Cycle Gas Turbine Plants & The Associated Transmission Lines & Substation At Atlantis, Western Cape
2. Kangra Power Station: Siting Report

**Ongoing involvement in Bird Impact Assessment Studies for wind-powered generation facilities:**

1. Eskom Klipheuwel Experimental Wind Power Facility, Western Cape
2. Mainstream Wind Facility Jeffreys Bay, Eastern Cape
3. Biotherm, Swellendam, (Excelsior), Western Cape
4. Biotherm, Napier, (Matjieskloof), Western Cape

5. Windcurrent SA, Jeffreys Bay, Eastern Cape
6. Caledon Wind, Caledon, Western Cape
7. Innowind (4 sites), Western Cape
8. Renewable Energy Systems (RES) Oyster Bay, Eastern Cape
9. Oelsner Group (Kerriefontein), Western Cape
10. Oelsner Group (Langefontein), Western Cape
11. InCa Energy, (3 sites) Western and Eastern Cape

**Bird Impact Assessment Studies for Solar Energy Plants: 1**

1. Concentrated Solar Power Plant, Upington, Northern Cape.

**Bird Impact Assessment Studies for Desalination Plants: 1**

1. Proposed Desalination Project at Mile 6 near Swakopmund, Namibia

**Risk Assessments on existing electricity infrastructure: 18**

1. Amandel 132kV
2. Atlanta 22kV
3. Butterworth-Ncora 66kV
4. Debswana Jwaneng 66kV (Botswana)
5. Edwardsdam – Mareetsane 88kV
6. Gaborone 132kV (Botswana)
7. Lydenburg-Merensky 132kV
8. Tabor-Dendron 132kV
9. Vryheid-Bredasdorp 66kV
10. Vygeboom 132kV
11. Watershed-Mmabatho 88kV
12. Welgevonden 22kV network
13. Ferrum-Garona 275kV
14. Investigation into genet related faulting at the Perseus Substation,
15. North-West Transmission Region
16. Investigation into genet related faulting at the Helios Substation,
17. Western Transmission Region
18. Investigation into vulture electrocutions on staggered vertical reticulation structures in the Northern Cape

**Bird Impact Assessment Studies for other non-power line developments: 22**

1. Lizard Point Golf Estate
2. Lever Creek Estates
3. Leloko Lifestyle Estates
4. Vaaloewers Residential Development
5. Clearwater Estates Grass Owl Impact Study
6. Sommerset Ext. Grass Owl Study
7. Proposed Three Diamonds Trading Mining Project (Portion 9 and 15 of the Farm Blesbokfontein)
8. N17 Section: Springs To Leandra –“Borrow Pit 12 And Access Road On (Section 9, 6 And 28 Of The Farm Winterhoek 314 Ir)
9. South African Police Services Gauteng Radio Communication System: Portion 136 Of The Farm 528 Jq, Lindley.

10. Report for the proposed upgrade and extension of the Zeekoegat Wastewater Treatment Works, Gauteng.
11. Bird Impact Assessment for Portion 265 (a portion of Portion 163) of the farm Rietfontein 189-JR, Gauteng.
12. Bird Impact Assessment Study for Portions 54 and 55 of the Farm Zwartkop 525 JQ, Gauteng.
13. Bird Impact Assessment Study Portions 8 and 36 of the Farm Nooitgedacht 534 JQ, Gauteng.
14. Shumba's Rest Bird Impact Assessment Study
15. Randfontein Golf Estate Bird Impact Assessment Study
16. Zilkaatsnek Wildlife Estate
17. Regenstein Communications Tower (Namibia)
18. Input into Richards Bay Comparative Risk Assessment Study
19. Maquasa West Open Cast Coal Mine
20. Glen Erasmia Residential Development, Kempton Park, Gauteng
21. Bird Impact Assessment Study, Weltevreden Mine, Mpumalanga
22. Bird Impact Assessment Study, Olifantsvlei Cemetery, Johannesburg

### **Environmental Impact Assessment Reports: 1**

- Draft Environmental Impact Report for a proposed dam in the Moseitse River in Botswana

### **Basic Assessments: 2**

- Proposed temporary and permanent diversion of Lovato Road, Gauteng
- Flood Management: Rosslyn East at Frans du Toit Road, City of Tshwane

### **Section 24G of NEMA applications: 1**

- Rectification application for the de-silting of the Kaalplaasspruit, Rosslyn

## **Papers and Conference Presentations**

1. Van Rooyen, C. S. 1996. Towards an Integrated Management System for the Management of Wildlife Interactions with Electricity Structures. Abstracts of the 2<sup>nd</sup> International Conference on Raptors p.9. Raptor Research Foundation/University of Urbino.
2. Van Rooyen, C.S. & Piper, S.E. 1997. The effects of Powerlines on Vultures. *In: BOSHOFF, A.F., ANDERSON, M.D.& BORELLO, W.D. (Eds). Vultures in the 21<sup>st</sup> Century: Proceedings of a workshop on vulture research and conservation in southern Africa.* Johannesburg: Vulture Study Group: 102-104.
3. Kruger, R. & Van Rooyen, C.S. 1998. Evaluating the risk existing powerlines pose to large raptors by using risk assessment methodology: The Molopo case study. Proceedings of the 5<sup>th</sup> World Conference on Birds of Prey and Owls (in press). Raptor Conservation Group/World Working Group on Birds of Prey and Owls. Midrand. South Africa.

4. Van Rooyen, C.S., Kruger, R., Nelson, P.A & Fedorsky, C.A. 1998. The Eskom/EWT Strategic Partnership: The South African Approach towards the Management of Wildlife/Utility Interactions. EEI Natural Resources/Biologist National Workshop.1998. Edison Electrical Institute, Washington, D.C.
5. Van Rooyen, C.S. 1998. Raptor mortality on powerlines in South Africa. Proceedings of the 5<sup>th</sup> World Conference on Birds of Prey and Owls (in press.). Raptor Conservation Group/World Working Group on Birds of Prey and Owls. Midrand. South Africa
6. Van Rooyen, C.S. 1998. Experiences of Partnerships in South Africa. Conference Proceedings, Second NGO Conference on the Environment, November 3-5 1998. Gaborone, Botswana.
7. Van Rooyen, C.S. 1999. An overview of the Eskom-EWT Strategic Partnership in South Africa. EPRI Workshop On Avian Interactions with Utility Structures 2-3 December 1999, Charleston, South Carolina.
8. Van Rooyen, C.S. & Taylor, P.V. 1999. Bird Streamers as probable cause of electrocutions in South Africa. EPRI Workshop on Avian Interactions with Utility Structures 2-3 December 1999. Charleston, South Carolina.
9. Van Rooyen, C.S. 2000. An overview of vulture electrocutions in South Africa. Vulture News No.43. Endangered Wildlife Trust. Johannesburg, South Africa.
10. Van Rooyen, C.S. Vosloo, H.F. & R.E. Harness. 2002. Eliminating bird streamers as a cause of faulting on transmission lines in South Africa. IEEE 46<sup>th</sup> Rural Electric Power Conference. May 2002. Colorado Springs. Colorado.
11. Van Rooyen, C. 2003. Mitigation Programme for Avian Collisions with Eskom Transmission Lines. Unpublished Progress Report. Endangered Wildlife Trust. September 2003.
12. Smallie, J. & Van Rooyen, C. 2003. Risk assessment of bird interaction on the Hydra-Droërvier 1 and 2 400kV. Unpublished report to Eskom Transmission Group. Endangered Wildlife Trust. Johannesburg. South Africa
13. Kruger, R. Van Rooyen, C.S. & Maritz, A. 2003. The electrocution risk posed to vultures by vertically configured medium voltage designs. Proceedings of the 6<sup>th</sup> World Conference on Birds of Prey and Owls, Budapest, Hungary, May 2003.
14. Van Rooyen, C. 2004. Report on vulture interactions with powerlines in southern Africa: 1996 to 2003. In: Monadjem, A., Anderson, M.D., Piper, S.E. & Boshoff, A.F. (Eds). *The vultures of Southern Africa-Quo Vadis?* Proceedings of a workshop on vulture research and conservation in southern Africa. Birds of Prey Working Group, Johannesburg.
15. Smallie, J. J & Van Rooyen, C.S. 2005. Impact of Bird Streamers on Quality of Supply on Transmission Lines: A Case Study. Proceedings of the 5<sup>th</sup> International Conference on Power and Energy Systems, Benalmadena, Spain.

16. Jenkins, A. Van Rooyen, C.S., De Goede J.A, Matshikiza M.T. 2005. Managing raptor interactions with powerlines in South Africa. Proceedings of the 5<sup>th</sup> International Conference on Power and Energy Systems, Benalmadena, Spain.
17. Van Rooyen, C.S., Froneman A, Piper S, Michael M. 2006. Assessing the power line network in the KwaZulu-Natal Province of South Africa from a vulture interaction perspective. Proceedings of International Conference on Utility Line Structures, Fort Collins, Colorado, March 2006.

## **Research Reports**

1. Van Rooyen, C. Jenkins, A. De Goede, J. & Smallie J. 2003. Environmentally acceptable ways to minimise the incidence of power outages associated with large raptor nests on Eskom pylons in the Karoo: Lessons learnt to date. Project number 9RE-00005 / R1127 Technology Services International. Johannesburg. South Africa.
2. Jenkins, A. De Goede, J. & Van Rooyen, C. 2004. Environmentally acceptable ways to minimise the incidence of power outages associated with large raptor nests on Eskom pylons in the Karoo. Project number R99-00754. Technology Services International. Johannesburg. South Africa.
3. Jenkins, A. De Goede, J. & Van Rooyen, C. 2005. Implementation of management recommendations stemming from the Eskom Electric Eagle Project (or EEEP Phase 5). Project number R99-00754. Technology Services International. Johannesburg. South Africa.
4. Van Rooyen, C., Froneman A. & Piper S.E. 2004. The evaluation of vulture interactions with power lines in KwaZulu-Natal: Research Report RES/RR/04/24331. Eskom Resources and Strategy.
5. Van Rooyen, C. 2006. The evaluation of vulture interactions with power lines in KwaZulu-Natal: Phase Two. Research Report RES/RR/06/28111. Eskom Resources and Strategy.
6. Van Rooyen, C.S., Froneman A, Piper S. 2006. The quantification of risks that power lines pose to vultures in the greater Kimberley area. Research Report RES/RR/06/28106. Eskom Resources and Strategy.

## **Book Chapters**

1. Van Rooyen, C.S & Ledger J. A. 1999. Birds and Utility Structures: Developments in Southern Africa. In: Birds and Power lines: Collisions, Electrocution and Breeding. Ferrer M and Janss G F E Eds.
2. Van Rooyen, C.S. 2004. The Management of Wildlife Interactions with overhead lines. In The fundamentals and practice of Overhead Line Maintenance (132kV and above), pp217-245. Eskom Technology, Services International, Johannesburg.

## **Awards**

- The Eskom-EWT Strategic Partnership won the Edison Electric Institute Common Goals Award in the USA for outstanding electric utility customer and community relations programmes in 1997, from a field of 61 international entries from 49 countries.
- The Eskom-EWT Strategic Partnership was a finalist in the 1998 and 2000 Green Trust Awards.
- Eskom Manager's Award in 1997 for the management of animal interactions.
- Eskom Manager's Award in 1999 for environmental management.
- Highly Commended Award in 2001 for Business Efficiency from Eskom Transmission Group.
- Nominated for Eskom Chairman's Award in 2001 in Environmental Category
- Runner-up: Eskom Resources and Strategy manager's award 2003
- Listed in Marqui's Who's Who in the World 2007 edition
- Northern Cape Raptor Conservationist of the Year: 2004

## **Other interests/activities**

- I am a professional wildlife photographer and have been conducting photo safaris and courses since 2004 in my free time. My special interest is bird photography, and my photos have appeared in numerous publications both in SA and abroad. I have also received merit awards in the Agfa, Fuji and BBC Wildlife Photographic Awards competitions.
- I am an accomplished bird artist and have done several stamps designs for the South African Post Office. I am also a co-illustrator of Roberts Birds of South Africa 7<sup>th</sup> Edition and the Roberts Field Guide to the Birds of Southern Africa 2007.



Chris van Rooyen



## APPENDIX A: Career history

My formal training is in the legal sciences. I studied at the Rand Afrikaans University where I obtained my LLB in 1990, and I was admitted as an advocate in 1994. However, my interest and passion has always been for the natural sciences, particularly the study of birds. I therefore had no regrets when I abandoned my legal career to pursue a career in conservation in 1996.

I started my formal employment in the conservation field at the Endangered Wildlife Trust (EWT) in April 1996. Prior to that I was a volunteer and member of the management committees of the Raptor Conservation Group and Vulture Study Group (now amalgamated under the Birds of Prey Working Group of the Endangered Wildlife Trust). I was offered the position of working group manager in April 1996 by Dr. John Ledger, then Director of the EWT, and my brief was to develop a strategic partnership with Eskom, aimed at reducing the conflicts between electricity infrastructure and wildlife, particularly birds.

Broadly speaking, my duties entailed the following:

- Strategic and operational liaison with electricity utilities, academic institutions and conservation bodies (senior management down to field staff)
- Initiation and co-ordination of strategic research initiatives on wildlife interaction with the electricity infrastructure to ensure appropriate mitigation strategies.
- Implementing a research programme on the prevention of wildlife and industry conflicts consisting of various projects to a total annual value of about R500 000.
- Conducting specialist investigations on the impact of existing and proposed electricity infrastructure on avifauna and vice versa.
- Auditing the implementation by Eskom of mitigation measures that had been recommended by the EWT

During my eleven and a half years at the EWT, I vigorously applied my energy and skills in order to become an authority in the field of wildlife conflicts with industry, both locally and internationally. Prior to the establishment of the Eskom-EWT Strategic Partnership, the South African experience with regard to wildlife interactions and electricity structures was generally characterised by an *ad hoc* approach, fragmented documentation, inconsistency of data and few "before and after" studies. I worked hard to systematically address these issues in order to place the entire management of this complex problem on a firm scientific footing. In summary, my career since 1996 rested on two main pillars namely conservation action and applied research. The applied research is largely in the field of wildlife interactions with electricity infrastructure. This requires a thorough understanding of birds and their interactions with the environment, both natural and artificial. I also developed a special expertise in the field of bird interaction with electricity infrastructure, in which I am currently the leading African authority.

My work at the EWT centred on the following key objectives:

- The design and maintenance of a national incident register for wildlife-electricity interactions. This was to ensure the identification of areas of high importance for biodiversity and quality of supply, and to track the implementation of mitigation measures. This data was analysed in order to design the best possible mitigation measures for each individual situation.
- The ongoing research, development and implementation of mitigation strategies to reduce negative wildlife interactions with electricity infrastructure.
- Capacity building within the electricity industry through dedicated training of Eskom staff in all aspects of wildlife interaction management on the Eskom grid.
- Ongoing investigations into all aspects of wildlife interactions with electricity infrastructure.
- Conducting specialist studies on the potential impacts of power lines on birds as part of environmental impact studies for new power lines.
- Comprehensive reporting to the electricity industry on all issues of wildlife interaction with the electricity grid through detailed quarterly reports to Eskom.
- Strategic input into Eskom's environmental policies.
- One of the most important objectives of my work was to ensure that scientific input was obtained on a continuous basis to inform the proposed mitigation strategies. It was furthermore my duty to ensure that the scientific community remained informed of new developments in this field through contributions at scientific conferences and workshops. Apart from regular contributions at scientific conferences and symposia, I also developed a comprehensive research portfolio funded by Eskom Research. This resulted in a continuous flow of research reports to Eskom on various issues pertaining to wildlife and power lines. These reports were used to inform Eskom's environmental management strategies pertaining to wildlife interaction management.

Below I have attempted to summarise the important milestones in my career since 1996:

- I established a national incident register for wildlife interactions for the whole of South Africa in 1996. This was the first attempt ever to quantify the incidence of wildlife mortality on electrification structures on a national scale. By November 2007, the register had 2953 records of wildlife mortality. This register serves as an important management and analyses tool to track the implementation of mitigation measures all over South Africa, and is used to inform the design of suitable mitigation measures for each individual locality. The data from this register is also used in multiple other ways, such as to identify the species that are most impacted upon and to discover trends in wildlife mortality.
- Formal recognition of wildlife interaction mitigation implementation as a key performance indicator in the Eskom Distribution Division. This important milestone ensures that the necessary incentive is there for recommendations to be implemented to reduce wildlife mortality.
- Formal recognition of a specialist bird impact assessment study as a standard component of all environmental impact processes for new Transmission lines. This was a key development in that it provided, for the first time, a scientific platform to assess the possible impacts of a proposed new line on birds. I did

- the first ever specialist bird impact assessment study for a transmission line in 2000.
- By September 2007, 874 investigations into wildlife mortality on power lines had been completed under my supervision. I developed a standard protocol for these investigations which were performed by the staff of the EWT and myself. This has resulted in thousands of kilometres of power line being modified to prevent further wildlife mortality.
  - One of my most important tasks was to act as ornithological consultant on the National Bird Guard Project Team. This was a multidisciplinary team operating within the Eskom Transmission Division that had to address the faulting caused by birds on transmission lines. The work done by this team resulted in the fitting of perch deterrents on 10 000km of transmission lines at a cost of R38m. This resulted in a 76% reduction of bird induced faults on the national transmission grid within 12 months.
  - In 2001, I was approached by a USA utility company (in Texas) to assist them in reducing the bird faulting on a problematic transmission line. After investigations I developed a mitigation strategy for the line which resulted in a 98% reduction in faulting caused by birds. I subsequently consulted to other utilities in the USA and in New Zealand. I also regularly worked in Namibia and Botswana.
  - I assisted with the development of the Bird Flapper, a South African device developed to reduce bird collisions with power lines.
  - I presented the first ever training in electricity-wildlife interaction management to delegates of the Southern African Power Pool community in Kinshasa in the DRC. It was a major breakthrough when wildlife interaction training was included as a standard component of Eskom's training syllabus.
  - The Edison Electric Institute Common Goals Award in the USA was awarded to the Eskom-EWT Partnership within one year of becoming operational, from a field of 61 international entries from 49 countries. In the course of my career at the EWT, I received four awards from Eskom in recognition of the work that I did in improving their environmental management systems. I was also nominated for an Eskom's Chairman's Award and was voted Northern Cape Raptor Conservationist of the Year by the Northern Cape Raptor Forum in 2004. The Eskom-EWT Strategic Partnership was a finalist in the 1998 and 2000 Green Trust Awards.
  - I have been instrumental in several large research projects under the auspices of the Eskom-EWT Strategic Partnership. The research reports to which I contributed that resulted from these projects are listed below. The knowledge that was gained from this research resulted in vastly improved mitigation strategies for wildlife and power line conflicts throughout South Africa. The total research portfolio that I managed at EWT was in the order of about R500 000 a year.
  - In 2005 I was one of a handful of international experts that was requested by the Avian Power Line Interaction Committee in the USA to review the next edition of the authoritative Suggested Practices for Mitigating Bird Electrocutions on Power Lines: The State of the Art in 2005. I made sure that the lessons that I learnt through my research in southern Africa was included.
  - In July 2006 it was stipulated by the Directorate of Nature Conservation in Gauteng (GDACE) as part of their requirements for biodiversity assessments that where a development involves overhead lines (power lines or telephone lines) I must provide specialist input into the management plan.
  - In 2005 I acted as co-supervisor (together with Dr. Alan Urick) for a masters degree in Engineering Business Management from the University of Warwick

that dealt with the costs of electricity faults caused by birds on the Eskom grid.

Since my resignation from the EWT in November 2007, I continue to act as an advisor to Eskom and other industries on the management of wildlife, (particularly bird) conflicts with industrial infrastructure and developments. I have since broadened my scope beyond the electricity industry to general bird impact related work e.g., the impact of non electricity related industrial and residential developments on birds. In 2008, I was appointed as specialist consultant for a three-year period to assist the Namibian power utility, NamPower, and the Namibia Nature Foundation to forge a strategic partnership along the lines of the Eskom-EWT Strategic Partnership.

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# CURRICULUM VITAE



## JON MCSTAY, DIRECTOR Engineering and Environmental Geologist

### QUALIFICATIONS & PROFESSIONAL MEMBERSHIPS

- Bachelor of Science (Honours) in Geological Sciences: University of Birmingham, 1982.
- Doctor of Philosophy in Geology: University of Cape Town, 1992.

### AREAS OF EXPERTISE

- Engineering Geology
- Geotechnical Investigations
- Contaminated Land and Remediation Studies
- Strategic Level Remediation Planning
- Technical Guideline and Policy Development For Regulators
- Expert Witness

### COUNTRIES WORKED

Seychelles, Mauritius, Namibia, Angola, Mozambique, Botswana, Zambia, Zimbabwe.

### RELEVANT EXPERIENCE

#### Foundation Engineering

- Port of Ngqura, Ore Terminal Feasibility Study, Coega, Eastern Cape 2007-2008
- Green Point Stadium, 2010 FIFA World Cup, Cape Town, 2006-2008
- Khayelitsha Rail – Cape Town, 2005; Garden Route Shopping Mall – George, 2004
- Sonangol Headquarter Building - Luanda ,2000 – 2001
- US Consulate Steenberg - Cape Town, 2001-2005;
- Century City, Cape Town - Monex, 1996 - 2001
- Westlake Cape Town - Rabie Property Developers, 1998 - 1999
- Kenilworth Racecourse, Cape Town - Rabie Property Developers, 1998 - 2000
- US Embassy Luanda, Angola - EDI Architecture Inc, 1999

# CURRICULUM VITAE

- Geotechnical analysis and reporting on proposed embassy site for four-storey building.
- Coega Industrial Port - Portnet, 1997 – 1999
- Emerald Beach, Strand - Rabie Property Developers, 1994
- Caltex service station and exhibition centre and regional offices, Victoria & Alfred Waterfront, Cape Town - Caltex, 1993
- Newlands Phase 2 - Western Province Cricket Club, 1992 - 1994

## Geophysical Investigations

- 2010 FIFA World Cup Stadium, Green Point, Cape Town, 2006
- Helderberg Pipeline, 2006; Roggebaai Canal Development , 2003
- Kelvin Power Station, 2003; Hambanathi Ground Penetrating Radar Survey, 1998
- South Arm, V&A Waterfront, Cape Town, 1995
- AECI Somerset West. Ground penetrating radar feasibility study, 1995
- Saldanha Steel - Iscor, 1994; Rosendal radar - Bellville Municipality, 1993

# Curriculum Vitae

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## Tony Barbour

### ENVIRONMENTAL CONSULTANT AND RESEARCHER

P O Box 1753, Sun Valley, 7975, South Africa  
(Tel) 27-21-789 1112 - (Fax) 27-21-789 1112 – (Cell) 082 600 8266  
(E-Mail) [tbarbour@telkomsa.net](mailto:tbarbour@telkomsa.net)

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My experience as an environmental consultant includes working for ten years as a consultant in the private sector in South Africa followed by four and a half years at the University of Cape Town's Environmental Evaluation Unit. During this time I gained experience and developed skills in a number of areas, including project management, preparation of proposals (technical and financial), report writing, reviewing and editing, environmental, strategic and social impact assessment, waste management, facilitation, teaching and training. My interests as an independent environmental consultant and researcher are linked to social impact assessment, strategic environmental assessment and planning, resource economics, training, capacity building and review work.

I have also served on the Board of Trustees for the Environmental Monitoring Group, an Environmental Non Government Organisation, for the last 12 years. I am also currently a director on the Richtersveld Environmental and Rehabilitation Company. This company was set up as part of the successful land claim by the Richtersveld community who live in the north-western part of South Africa.

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#### PERSONAL DETAILS

Tony Barbour, born on 8 June 1961  
Nationality: South African and Irish  
Married, with four children.

#### EDUCATION

BSc (Geology and Economics) Rhodes, 1984  
BEcon (Hons) Rhodes, 1985  
MSc (Environmental Science) University of Cape Town, 1992

#### ADDITIONAL QUALIFICATIONS

Advanced and basic mediation/facilitation skills training course. Centre for Conflict Resolution, University of Cape Town (1999).  
Multi-party negotiation and facilitation skills for natural resource management, MEPC/CIDA (1999).

#### ACADEMIC AWARDS

Schwartz Award, Top Student, Geology III, Rhodes University.  
Shell Medal of Excellence, Top student, Masters Course Work, MSc Environmental Science, UCT.

#### AREAS OF EXPERIENCE AND EXPERTISE

Project management, proposal writing, preparation, review and editing of reports and documents, environmental planning and management, Social Impact Assessment (SIA); Environmental Impact Assessment (EIA); Strategic Environmental Assessment (SEA); waste management, environmental

economics, facilitation, public participation, training and teaching. Countries with work experience include South Africa, Namibia, Botswana, Zambia, Lesotho, Swaziland, Ghana, Mozambique and Mauritius.

## **EMPLOYMENT RECORD**

- **Private Consultant: November 2004-current.**
- **University of Cape Town: August 1996-October 2004**  
Environmental Evaluation Unit (EEU), University of Cape Town. Senior Environmental Consultant and Researcher.
- **Private sector: 1991-August 2000**  
1991-1996: Ninham Shand Consulting (Cape Town). Senior Environmental Scientist.  
1996-August 2000: Steffen, Robertson and Kirsten (SRK Consulting) – Associate Director, Manager Environmental Section, SRK Consulting, Cape Town.
- **Lecturing: 1990-2005**  
University of Cape Town: Environmental Economics, Social Impact Assessment, Strategic Environmental Assessment and Environmental Impact Assessment.  
Cape Technikon: Environmental Economics and Waste Management.  
Peninsula Technikon: Environmental Economics and Waste Management.

## **RELEVANT AREAS OF EXPERIENCE AND EXPERTISE**

### **Social Impact Assessment**

As a private consultant I have largely focused on SIA's. Projects include:

- SIA for Eskom Transmission lines from proposed Bantamsklip Nuclear Power Station, Western Cape (current);
- SIA for Eskom Transmission lines from proposed Koeberg Nuclear Power Station, Western Cape (current);
- SIA for Regional Eskom Wind Farm Investigation, Western and Eastern Cape (current);
- SIA for Boschendal Farm Mixed Use Development, Stellenbosch, Western Cape (current);
- SIA Cookhouse Wind Energy Facility, Eastern Cape Province, South Africa (2009);
- SIA Driftsands Nature Reserve, Cape Town, Western Cape (2009);
- SIA Kidds Beach Golf Estate, East London (2009);
- SIA Swartland Regional Mall, Malmesbury, Western Cape (2009);
- SIA Klipfontein Mixed Use Residential Development, Malmesbury, Western Cape (2009);
- SIA Struisbaai Harbour Development, Struisbaai, Western Cape (2009);
- SIA De Plaat Mixed Use Residential Development, Velddrift, Western Cape (2009);
- SIA Woodlands Golf Estate, East London, Eastern Cape (2009);
- SIA for Hopefield Wind Farm, Western Cape (2009);
- SIA Duttons Cove Residential Development, Herolds Bay, Western Cape (2008);
- SIA Ashton Mixed Use Development, Ashton, Western Cape (2009);
- SIA for Elitheni Coal Mine, Eastern Cape (2008);
- SIA for Mandela Bay Mixed Development Precinct, Mandela Bay, Eastern Cape (2008);
- SIA for Annandale Mixed Development Precinct, Cape Town, Western Cape (2008);
- SIA for Garden Route Dam development, George, Western Cape (2008);
- SIA for Valencia Uranium Mine, Swakopmund, Namibia (2007);
- SIA and Resettlement Action Plan (RAP) for Southern Ashanti Gold Mining Project, Ghana (2007);
- SIA for expansion of PPC cement factory, Riebeck West, Western Cape (2007);
- SIA for Moropule Coal Power Station, Botswana (2007);
- SIA for proposed residential development near Stillbaai, Western Cape (2007);
- SIA for proposed residential development near Gansbaai, Western Cape (2007);
- SIA and Social and Labour Plan for Xolobeni Heavy Mineral Sands Project, Eastern Cape, South Africa (2007);
- SIA Eskom Wind Energy Farm, Western Cape (2007);



- SIA and Social and Labour Plan for Tormin Heavy Mineral Sands Project, Western Cape, South Africa (2007);
- SIA Bulk Water Scheme, City of Cape Town, Western Cape (2007);
- SIA Montague Golf Estate, Western Cape (2006);
- SIA for Schalkenbosch Golf Estate, Tulbagh, Western Cape (2006);
- SIA for 2010 World Cup Stadium on Green Point Common, Cape Town (2006);
- SIA for raising of the Clanwilliam Dam, Western Cape (2005-06);
- SIA Kransvlei Golf Estate, Clanwilliam, Western Cape (2005);
- SIA for Mare Chicose Landfill Site, Mauritius (2005);
- Input into RAP for Mare Chicose Landfill Site, Mauritius (2005);
- SIA for road up-grade between Gansbaai and Bredadorp, Southern Cape (2005);
- SIA Zeekoevlei Golf Estate, Somerset West, Western Cape (2005)
- SIA Silwersand Golf and Resort Estate, Robertson, Western Cape (2003)
- SIA Darling Wind Farm, Western Cape (2003).
- SIA Assessment for Valkenberg East Site, Cape Town (2003).
- Maguga Dam, Swaziland. Development of socio-economic monitoring and evaluation programme, including indicators, for the resettlement programme. Swaziland (2001).
- SIA for Darling Wind Farm EIA, Darling, Western Cape (2001);
- N2 – Outeniqua Pass by-pass, George, SA. Socio-economic assessment for proposed by-pass options between the N2 and the Outeniqua Pass (1997).
- Social Assessment for Sparrebosch Golf Course, Knysna, SA (1996).
- Social Assessment for Riversonderend Road By-pass (1991).

#### **Social Impact Assessment Guidelines**

- Development of Guidelines for Social Impact Assessment for Department of Environmental Affairs and Development Planning, Western Cape, (2007);
- Development of a Social Assessment and Development Framework for Department of Water Affairs and Forestry, South Africa, including development of guidelines for Social Impact Assessment, Conflict Management, Relocation and Resettlement and Monitoring and Evaluation (2005).

#### **Strategic Environmental Assessment**

- Project Manager SEA Development of Biofuels in Northern Namibia (current);
- Project Manager SEA City of Windhoek, Namibia (2009);
- Project manager for SEA of the Phase 2 of the National Roads Strategy for Mozambique (2007).
- Joint project manager for SEA of Cape Town 2004 Olympic Bid, Cape Town, SA (1999).
- Baralink SEA, Johannesburg, SA. Specialist input on socio-economic aspects for Baralink SEA (1998).
- Training courses and lectures on SEA (see below).

#### **Environmental Assessment**

Experience includes developing proposals (technical and financial), liaising with clients, authorities and the public, developing terms of reference for specialist sub-consultants, project management and reviewing reports. Projects include:

- Darling Wind Farm, Western Cape, South Africa. Environmental assessment of proposed Wind Farm near the town of Darling (2002).
- Walvis Bay Naval Facility, Walvis Bay, Namibia. Environmental assessment of the proposed naval facilities in Walvis Bay (2001).
- Portnet Saldanha, Western Cape, SA. EIA for the expansion of a bulk iron ore export facility at the Port of Saldanha (2000).
- Coastal Park Waste General Waste Site, Cape Town, SA. EIA, including public participation for a large, general waste site (1998).
- Sanderlings Development Plettenberg Bay, SA. EA, including public participation, for proposed residential development adjacent to the coast (1999).
- Stellenbosch Mountain Golf Course Development, Stellenbosch, SA. EIA, including public participation, for an 18 hole golf course, hotel and residential development (1998).
- Sparrebosch EIA, Knysna, South Africa (SA). EIA, including public participation, for an 18 hole golf

- course, hotel and residential development (1996).
- Stones Hill by-pass, Grahamstown, SA. EIA, including public participation, of a proposed by-pass near Stones-Hill, Grahamstown (1992).
- Riversonderend N2 by-pass, Riversonderend, SA.EIA, including public participation, of a proposed by pass of the N2 around the town of Riversonderend (1991).

### **Sustainable Development and Research**

While most of the work that I have been involved in includes elements that relate to the concept of Sustainable Development, the projects listed below have had sustainable development as a specific focus.

- Environmental and social specialist for the development of Mozambique Biofuels Strategy (2007).
- Development of strategy for the development of the Environmental Goods and Service Industry in the Western Cape for the Department of Environmental Affairs and Development Planning in the Western Cape (2006).
- Review of the Environmental Goods and Service Industry in South African and development of a strategy for the Department of Trade and Industry, South Africa (2006).
- Chapter on the South African Environmental Goods and Services Industry for study commissioned by the Department of Environmental Affairs and Tourism (2006).
- Integrating Sustainable Development into the Integrated Development Planning Process in South Africa. Review of 4 case studies in SA for the World Summit On Sustainable Development, Johannesburg (2002).
- Development of Integrated Sustainable Transportation Assessment Framework for Transportation Planning in South Africa. Project Manager for joint project between EEU and Urban Transportation Research Group at UCT (2003).
- Project Manager for South African Cleaner Development Mechanism (CDM) initiative being undertaken by South South North Trust. Project involves the recovery of methane gas from the Bellville South Landfill Site in Cape Town (2004)
- Development of Toolkit for incorporating Sustainable Development in to the Integrated Development Planning Process in South Africa (2004).
- Integrating Sustainable Development into the Eastern Cape Province Provincial Growth and Development Plan, 2004-2020 (2003-2004).
- Department of Housing, South Africa. Assessment of options for the development of energy and water efficient low cost housing in South Africa and an assessment of potential financing mechanisms, South Africa (2000).

### **Review**

- Review of SIA for Nuclear 1 (3 conventional nuclear power plants) located along the western and south eastern coasts of South Africa (2009);
- Review of SIA for proposed PMBR Plant at Koeberg, Western Cape (2008);
- Review of specialist reports for the Groot Letaba Dam EIA, Mpumalanga, South Africa (2008).
- External Review Consultant for SIA component of N2 Wild Coast Toll Road EIA (2008).
- Internal Review Consultant for Golder Associates on Namakwa Sands Heavy Mineral Mining EIA, Western Cape (2006);
- Review of EIA for Palm Valley Golf Course Estate, Durbanville, Western Cape (2005);
- Review of EIA for Zeekoevlei Golf Course Estate, Somerset West, Western Cape (2005);
- Review of EIA for Oostenberg Waste Transfer Station, Brackenfell, Western Cape (2004);
- Review of Socio-Economic Study undertaken for the R300 Toll Road EIA, Cape Town, Western Cape (2004);
- Review of EIA for proposed establishment of Toll booths on Chapman's Peak Drive, Cape Town, Western Cape (2003);
- Review of EIA for Cell Phone Mast, Cedeberg, Western Cape (2003);
- Review of EIA for Hotel and Conference Center, Durbanville, Western Cape (2003);
- Review of EIA for N7 Road Up-grade, Clanwilliam, Western Cape (2002);
- Review of EIA for Up-grade of Sewage Works, Western Cape (2002).

## **Environmental Planning**

- Development of a Rehabilitation and Land Use Plan for the Alexkor Mining Area in the Richtersveld in the Northern Cape Province (2003-2007). This formed part of a land claim for the Richtersveld Community and included acting as an expert witness for the community in the associated court case.
- Southern Cape Spatial Development Framework (SCSDF), Southern Cape Region, SA. Environmental opportunities and constraints assessment for SCSDF study (2000).
- Stellenbosch Rivers Management Plan, Stellenbosch, SA. Integrated management plan for the urban river systems in Stellenbosch (1998).
- Wetton-Lansdowne corridor project, Cape Town, SA. Habitat conservation and biodiversity study to inform planning proposals for the Wetton-Lansdowne corridor (1998).
- Tygerberg Spatial Development Framework, City of Tygerberg, Cape Town, SA. Environmental baseline study for the spatial development framework study for the City of Tygerberg (1999).
- Protea Valley development options, City of Tygerberg, Cape Town, SA. Assessment and identification of suitable land use development options for Protea Valley (2000).

## **Waste Management**

- Mare Chicose Landfill, Mauritius. SIA and Compensation and Relocation Plan for proposed expansion of the current landfill site (2005).
- Robertson Waste Site, Robertson, SA. EA, including public participation, for the identification of a new waste site (2000).
- Coastal Park General Waste Site, Cape Town, SA. EIA for proposed expansion of a large, general waste site (1998).
- Windhoek general and hazardous waste site, Windhoek, Namibia. Investigation to identify new general and hazardous waste disposal site for Windhoek (1997).
- Walvis Bay general and hazardous waste site, Walvis Bay, Namibia. Investigation to identify new general and hazardous waste disposal site for Walvis Bay (1998).
- Port Elizabeth Waste Site, Port Elizabeth, SA. Environmental Assessment for permit application (1998).
- Brackenfell general waste site, Cape Town, SA. Permit application report and environmental assessment for Brackenfell waste site (1995).
- Ceres general waste site, Ceres, SA. Permit application report and environmental assessment for Ceres waste site (1995).
- Caledon general waste site, Caledon, SA. Permit application report and environmental assessment for Caledon waste site (1996).
- Wellington general waste site, Wellington, SA. Permit application report and environmental assessment for Wellington waste site (1996).
- Greyton general waste site, Greyton, SA. Permit application report and environmental assessment for Greyton waste site (1999);

## **Environmental Training Courses**

Experience includes design of training courses, development of training manuals and running courses for both the private and public sector. Courses include:

- Resource Economics for Coastal Managers and Government Officials, Namibian Government (2009).
- EIA and Environmental Management course for Swaziland Local Authorities, 2004.
- Integrated Coastal Management course for Department of Marine and Coastal Management, 2004.
- 5 regional Social Assessment Training Workshops for officials from the South African Department of Water Affairs and Forestry, 2004.
- EIA training course for officials of the South African National Parks, Kruger National Park, 2003.
- Environmental Management course for Shell South Africa, 2003.
- 10 Local Agenda (LA) 21 training courses for provincial and local government departments in South Africa during period 2000-2002.
- Resource Economics Workshop for South African Department of Water Affairs and Forestry, 2002.
- Conflict Resolution Workshop for subsistence fishermen, Kwa-Zulu Natal, 2002.
- Integrating the principles of LA 21 into Integrated Development Planning. Course presented at World Summit on Sustainable Development, Johannesburg, 2002.

- Environmental facilitation, mediation and conflict management. Training course for Independent Mediation Services in South Africa (IMSSA) facilitators, 1998, 1999 and 2000.
- Series of 4 Strategic Environmental Assessment training courses for officials of the Government of Botswana, 2000 & 2001.
- EIA training course for officials of the Government of Lesotho, 2000 and 2001.
- EIA training courses for local government officials in Cape Town, 2000.

### **Lecturing and Teaching**

I have been involved in the lecturing and teaching at an under and post-graduate level since 1990. The areas of interest include Environmental Economics, General Environmental Issues, EIA, SEA, SIA and Waste Management.

- Lecturer in Environmental Economics for the MPhil course in Environmental Management at University of Cape Town from 1990 –2006.
- Guest lecturer in SIA, EIA and SEA for MPhil course in Environmental Management at UCT, 2000-2004.
- Coordinator and lecturer in Environmental Economics at Cape Technikon, 1999.
- Coordinator and lecturer of waste management course, Peninsula Technikon in 1998.
- Guest lecturer at Peninsula Technikon for waste management, 1994 – 1998.
- Moderator for Peninsula Technikon waste management course, 1994-2002.
- Environmental Management for senior managers, module on a business management course for AngloVaal Management run by Prof John Simpson of UCT, 2000 and 2001.
- Guest lecturer on SIA and EIA for Geography and Environmental Science Honours, UCT. 2000-2004.
- Presenter and coordinator on annual Integrated Environmental Management Short Course run by the Environmental Evaluation Unit at UCT (2000-2006).
- Presenter on Integrated Coastal Management course run by Environmental Evaluation Unit at UCT 2005-2006.

### **Public Participation**

Experience includes designing public participation processes and facilitating public meetings and workshops. Projects include:

- Green Point Common, Cape Town. Public participation and facilitation processes for development of new market area for informal traders (2005);
- Chapman's Peak Drive. Managed and facilitated the public participation processes for looking at the technical and funding options for re-opening Chapman's Peak Drive on the Cape Peninsula as a toll road (2001).
- Visserhok Hazardous waste disposal sites, Cape Town City Council and Wastetech, Cape Town, SA. Managed and facilitated the public participation processes for the permit application for two hazardous waste sites located at Visserhok (1994).
- Grand West Casino, Cape Town. Public participation processes for proposed establishment of the Grand West Casino at the Cape Show Grounds, Cape Town (1997).
- Coastal Park waste site, Cape Town, SA. Managed and facilitated public participation processes for the permit application for the Coastal Park general waste site (1998).
- Managed and facilitated public participation processes associated with EIA's listed above.

### **Environmental Management Plans and Rehabilitation Reports**

- Development of rehabilitation programme and cost estimate for damage caused by 80 years of alluvial diamond mining between Alexander Bay and Port Nolloth, West Coast, South Africa (current). This project is linked to the Richtersveld Land Claim and involved acting as an expert witness in the associated court case.
- Corridor Sands Heavy Mineral Project, Mozambique. Development of an Environmental Management Plan (EMP) for the construction phase of the project (2001).
- APC cement factory, Otjiwarongo, Namibia. Operational management plan for up-grade to meet the legislative requirements (2000).
- Sparrebosch golf course, hotel and residential development, Knysna, SA. Environmental Management Plan (EMP) for the construction phase (1997).
- M3 highway up-grade, Johannesburg, SA. EMP for the design and construction phase of the M3

- (1995).
- Trunk Road 46, Grahamstown-Port Alfred, Eastern Cape, SA. EMP for the construction phase (1994).
- Walvis Bay Naval facilities, Walvis Bay, Namibia. EMP for the construction phase of the project (2001).
- Trunk Road 46, Grahamstown to Port Alfred, Eastern Cape, SA. Rehabilitation proposals for borrow pits, quarries, cuts, fills and road surfaces (1993).
- Trunk Road 19, Maclear to Halcyon Drift, Eastern Cape, SA. Rehabilitation proposals for borrow pits and quarries (1992).
- Namakwa Sands, Heavy Mineral Mining Operation, West Coast SA. Conceptual Rehabilitation Plan (1991).

### **Environmental Management Systems and Audits**

- Vodacom, SA. Conceptual Development of an Environmental Policy and outline for an Environmental Management System for Vodacom, SA (1998).
- Marine Oil, SA, initial site audit (1999).
- Rose Foundation, SA. Audit of 15 waste oil-recycling facilities in SA (1997).
- Zambian Copper Belt, Zambia. Pre-acquisition audit of 20 electrical transformer stations (1997).
- APC Cement Factory, Otjiwarongo, Namibia. Operational audit of APC cement factory to assess compliance with Namibian legislation (2000).

### **Supervision of Students**

- 1994-2006: Supervision of the thesis component of MPhil in Environmental Management for a number of students. Usually requested to act as supervisor for at least one or two students per year.
- Internal and external examiner for a number of theses submitted in fulfillment of the M.Phil Environmental Management at UCT.

## **PUBLICATIONS AND PAPERS**

### **Environmental Publications and Guidelines**

- Principal Author of Health, Safety and Environmental Guidelines for Bitumen and Coal Tar Products, prepared for the SA Bitumen Association (Sabita), in 1994 and revised in 1998.
- Principal Author of Guidelines for Waste Management in South Africa, a handbook for local authorities, produced by Ninham Shand in 1993.
- Co-author of document outlining an integrated Waste Management Strategy for the Western Cape, SA, produced in 1995;
- Guidelines for Waste Management in South Africa, a handbook for local authorities, produced by Ninham Shand in 1993.

### **Papers and Articles**

The majority of the articles aimed at the layperson as opposed to journal articles.

1. SOWMAN, M R, GLAZEWSKI, J I, FUGGLE, R F, BARBOUR, A (1990) " Planning and legal responses to sea-level rise in South Africa", South African Journal of Science, v 86, 1990.
2. BARBOUR, T (1992) 'Addressing the social impacts of waste disposal by incorporating permit applications into the latest Integrated Environmental Management (IEM) procedures", Paper presented at Wastecon '92, 3 – 5 November 1992.
3. BARBOUR, T (1992) "Internalising externalities: An attempt to address social costs", paper presented at a workshop on the Economy and Environment, 25 November 1992.
4. BARBOUR, T (1993) " The importance of taking waste disposal seriously", IMIESA, v 18 no 7 July 1993.
5. BARBOUR, T (1993) "Community based waste collection", Earthyear 5<sup>th</sup> edition, winter 1993.
6. BARBOUR, T (1993) "Guidelines for waste management in South Africa", Ninham Shand, 1993.
7. BARBOUR, T (1994) "Quarry Rehabilitation Reports: Are they effective working documents or merely legal requirements?", EPM, v 5, no 2, February 1994.
8. BARBOUR, T (1994) "Environmental factors relating to site selection for dams", Paper presented at SAICE one-day seminar on earth dam design, 3 June 1994.



9. BARBOUR, T (1994) "Environmental Economics", Earthyear 7<sup>th</sup> edition, Summer 1994.
10. BARBOUR, T (1996) "Lessons learnt from Vissershok for public participation and landuse planning", Paper presented at Wastecon 96, Durban, South Africa.
11. BARBOUR, T and COLEMAN, A (1996) "Towards an integrated waste management strategy for the Western Cape", Paper presented at Wastecon 96, Durban, South Africa.
12. BARBOUR, T (1998) Strategic Environmental Assessment of the Cape Town 2004 Olympic Bid", paper presented at IAIA 98, Christchurch, New Zealand.
13. BARBOUR, T (2000) Robertson Waste Site: A Case Study, paper presented at Wastecon 2000, Somerset West, SA.
14. BARBOUR, T (2000) National Environmental Management Act: Implications for Waste Management and the Minimum Requirements, paper presented at Wastecon 2000, Somerset West, SA.
15. BARBOUR, T (2001). The role of economic incentives in promoting and/or improving environmental rights. Paper presented a Conference on Environmental Rights, Cape Town, 30 July 2001.
16. BARBOUR, T (2002). The role of environmental assessments in land-use planning. Paper presented at Southern African Town Planning Conference, Somerset West, 18-19 March 2002.
17. BARBOUR, T (2002). Incorporating principles of environmental sustainability into policy making. Conference on Environmental Practices for the 21<sup>st</sup> Century, Somerset West, 24-25 May, 2002.
18. BARBOUR, T and Brownlie, S (2002). Have mandatory environmental impact assessments improved decision-making in South Africa, and are they making a significant contribution to sustainable development? International Association for Impact Assessment (SA), National Conference, 7-9 October 2002.
19. Barbour, T (2003). Developing and evaluating effective strategies for managing hazardous materials and wastes. Paper prepared for Chemical and Toxic Waste Management Conference Park Hyatt, Rosebank, Johannesburg, February 2003.
20. Barbour T (2004). Incorporating Sustainable Development considerations in to the IDP process. Paper prepared for conference on Environmental Management for Local Government, Johannesburg, June 2004.
21. THESIS TOPIC "Quarry Rehabilitation: The need to adopt a pre-planning approach towards rehabilitation (MSc Environmental Science)." An important component of the study was the development of a Rehabilitation Programme and Rehabilitation checklist to assist those involved in carrying out rehabilitation work.

**CURRICULUM VITAE**  
**Johan Abraham van Schalkwyk**

**PERSONAL PARTICULARS**

Date of birth: 14 April 1952  
Identity number: 520414 5099 08 4  
Marital status: Married; one daughter  
Nationality: South African

**CURRENT POSITION**

Head of Research: National Cultural History Museum.

**CURRENT ADDRESS**

Work:

P O Box 28088, Sunnyside, 0132

Tel: (012) 324 6082; Fax: (012) 328 5173; E-mail: [johnny@nfi.museum](mailto:johnny@nfi.museum)

Home:

62 Coetzer Ave, Monument Park, Pretoria, 0181

Tel/Fax: (012) 347 7270; 076 790 6777; E-mail: [jvschalkwyk@mweb.co.za](mailto:jvschalkwyk@mweb.co.za)

**ACADEMIC QUALIFICATIONS**

BA. – 1976 (UP)

BA. (Hons.) Archaeology - 1978 - (with distinction) (UP)

Post Graduate Diploma in Museum Science – 1979 (UP)

BA. (Hons.) Anthropology - 1981 - (with distinction) (UP)

MA. Anthropology – 1985 (UP)

D Litt et Phil (Anthropology) – 1996 (UNISA)

**NON ACADEMIC QUALIFICATIONS**

12th HSRC-School in Research Methodology - July 1990

Dept. of Education and Training Management Course - June 1992

Social Assessment Professional Development Course - 1994

Integrated Environmental Management Course, UCT - 1994

**EMPLOYMENT RECORD**

1978 - present: National Cultural History Museum, Pretoria

1976 - 1977: Archaeology Department, University of Pretoria

**PROFESSIONAL EXPERIENCE**

1992 - present: Chief researcher: Head of Department of Research. Manage an average of seven researchers in this department and supervise them in their various research projects. Also do various projects relating to Anthropology and Archaeology in Limpopo Province, Mpumalanga, North West Province and Gauteng. Am also in charge of the Museum's section for Heritage Impact Assessment projects. Have done work in this regard in Limpopo Province, Gauteng, Mpumalanga, North West Province, KwaZulu-Natal, Western Province, Botswana, Lesotho and Swaziland. Curated various exhibitions at different museums.

1978 - 1991: Curator of the Anthropological Department of the Museum. Carried out extensive fieldwork in both anthropology and archaeology and HIA projects all over Mpumalanga, Limpopo Province and Gauteng. Curated various exhibitions at different museums.

1976 - 1977: Assistant researcher responsible for excavations at various sites in Limpopo Province and Mpumalanga.

### **PROFESSIONAL ACCREDITATION**

Association for Southern African Professional Archaeologist: Principal Investigator for Iron Age, Colonial Period and Industrial Heritage. Membership no.: 164.

### **MEMBERSHIPS**

Member, Association for Southern African Professional Archaeologists  
Member, Anthropology Southern Africa  
Member, African Studies Association, Smithsonian Institute, Washington

### **PUBLICATIONS**

Published more than fifty papers on topics relating to anthropology, archaeology, history and impact assessment in various scientific journals - a complete list can be supplied on request.

### **CULTURAL RESOURCE MANAGEMENT PROJECTS**

Did more than 800 impact assessments (archaeological, anthropological and social) for various departments and companies. Projects include power lines, roads, pipelines, dams, mine developments, water purification works, historic landscapes, refuse dumps and urban developments. Clients include the following:

Pretoria City Council; AMCOAL; Anglo-Alpha; Africon; CSIR; Impala Platinum; Conradie, Müller & Associates, Architects; Dept. of Environmental Affairs & Tourism; Akasia City Council; Walmsley Environmental Consultants; HSRC; Rustenburg Platinum Mines; Digby Wells & Associates; Seneque, Maughan-Brown, SWK; Consultburo; BKS Consulting Engineers; Danie Joubert & Associates; Corporate Image; Western Platinum; Environmental Impact Management Services (EIMS); Strategic Environmental Focus (SEF); Oryx Environmental; Loxton, Venn & Associates; Ekokonsult Inc.; Anglo Platinum; Afrosearch Index; Gouws Uys & White; Booz-Allen & Hamilton (SA) Ltd; Midrand Metropolitan Council; GLMC; Bohlweki Environmental; Jones and Wagener Consulting Engineers; Kumba Resources, Lephalale, iNtatakusa Africa, Compagnie General de Geophysique; Cymbian Environmental Consultants; Ninham Shand Consulting Services, Exigent; Iliso; Knight-Piesold.



# Demos A. Dracoulides

PO BOX 60034, Table View 7439, Cape

Tel: +2721 551 1836 Fax: +2721 557 1078

Cell Phone: +2782 684 8082 E-mail: DemosD@xsinet.co.za

S.A. ID No: 660719 5763 186, Issued: 1995-12-27

## EDUCATION

**M.Sc. in Engineering, Energy Studies,** **12/1994**

**University of Cape Town, SA**

- Energy, Environmental Engineering. Thesis: "Air Pollution Modelling of the Greater Cape Town Region"

**Mechanical Engineering (B.Sc.),** **11/1991**

**Polytechnical School of Engineering, University of Patras**

## CONSULTING EXPERIENCE

### **Present Position:**

**Director of DDA Environmental Engineers:** Noise and Air Pollution Consultant

### **Years with organisation:**

Consulting work for 15 years

### **Noise and Vibration Modelling and Monitoring Studies**

*Specialisation: Traffic Forecasting, Noise Modelling, Noise Measurements, Noise and Vibration Impact Assessment, Design of Noise Mitigation Measures, Industrial, Vehicular and Aircraft Noise Prediction.*

- ◆ De Aar Farm Noise Impact Assessment Study, 2010.
- ◆ Spingbok Wind Farm Noise Impact Assessment Study, 2010.
- ◆ Delft Temporary Relocation Area Noise Impact Assessment Study, 2009.
- ◆ Worcester Wind Farm Noise Impact Assessment Study, 2009.
- ◆ Noise Impact Assessment and Design of noise mitigation measures for the Greyton Supermarket in Greyton, 2009.
- ◆ Noise Mitigation Investigation for A Twin-Shaft Shredder at Isofoam Plant in Atlantis, 2009.
- ◆ Langkloof Coal Mining Right Application Noise Impact Assessment Study, 2008.
- ◆ Polmaise Coal Mining Right Application Noise Modelling and Impact Assessment Study, 2007.
- ◆ Proposed Infrastructure and Open Pit Expansion at Rössing Uranium Mine, Noise and Vibration Impact Study, 2007.
- ◆ Apollo Brick Expansion Noise Impact Assessment Study, 2007.
- ◆ Ankerlig Power Station Noise Modelling and Impact Assessment Study, 2008.
- ◆ Acacia Power Station Relocation Noise Modelling and Impact Assessment Study, 2008.
- ◆ Pretoria North Modal Interchange Noise Impact Assessment Study, 2008.
- ◆ Noise Impact Assessment for the Estates Development on the Remainder of Farm 537 Annandale Next to Mr27 (R44) Between Stellenbosh and Somerset West, 2008.

- ◆ Formula 1 Grand Prix - Cape Town. Preliminary Noise Impact Assessment, 2007.
- ◆ Bakhuis, Suriname Mine: Ore Transport Noise and Vibration Impact Study, 2007.
- ◆ Aerodrome Road Extension Noise Impact Study, 2007.
- ◆ Noise Barrier Design Investigation for the David Atkins Residential Properties in Cape Town. 2007.
- ◆ Elitheni Coal Mine Noise Modelling and Impact Assessment Study, 2007.
- ◆ Noise Impact Assessment for the M12 Road, 2007.
- ◆ Nelspruit Northern Ring Road Noise Impact Assessment Study, 2007.
- ◆ Saldanha Port Expansion, Phase 2. Noise and Vibration Impact Assessment, 2007.
- ◆ Bhunga Avenue Extension. Noise Impact Assessment Study, 2006.
- ◆ Cape Town Port Deepening Noise and Vibration Impact Assessment, 2006.
- ◆ PPC Cement Expansion in Riebeek West. Noise and Vibration Impact Assessment, 2006.
- ◆ Gautrain Shaft Construction. Noise Modelling of Construction Sites and Mitigation Measures Verification, 2006.
- ◆ Cape Sawmills Renewable Energy Plant Noise impact Assessment, 2006.
- ◆ Backhuis, Suriname Mine: Baseline and Noise Impact Assessment Study, 2006.
- ◆ Symphony Way Road Development: Noise Impact Assessment Study. 2005.
- ◆ Klipfontein Corridor Project: Noise and Air Pollution Impact Determination. 2005.
- ◆ Noise Impact Assessment Study for the Development of Symphony Road and the Delf Symphony and Delf 7-9 Housing Projects, 2005.
- ◆ Klipfontein Corridor Project: Noise Monitoring and Determination of Baseline Conditions. 2005.
- ◆ Determination of the Current and Future Ambient Noise Levels Within and On the Perimeter of the Coega Industrial Development Zone (CIDZ). Coega Development Corporation, 2004.
- ◆ GAUTRAIN RAPID RAIL LINK Project Bid Documentation Preparation: Noise Modelling and Preliminary Assessment of Noise Barrier Positioning and Resulting Noise Levels Along the Gautrain Routes. 2003.
- ◆ N21 (R300) Cape Town Ring Toll Road: Noise Impact Assessment Study. 2002.
- ◆ Noise Impact Assessment Study for the Proposed Pulp United Pulp Mill Plant in Richards Bay, 2005.
- ◆ Landing and Departure Noise Abatement Procedures. Cape Town International Airport. City of Tygerberg. 2000.
- ◆ Hout Bay Main Road: Constantia Nek to Chapman's Peak Drive. Air Pollution and Noise Assessment Study. South Peninsula Municipality, 2000.
- ◆ Environmental Impact Assessment Study of the "City of Volos Bypass". Ministry of Environment, City Planning and Public Works (MECPPW). PG Ltd. 1998.
- ◆ Environmental Impact Study on improvement of Schimatari-Chalkida road, Ministry of Environment, Physical Planning and Public Works. PG Ltd. 1998.
- ◆ Environmental Impact Assessment Study for the Concrete Production Unit Blaxopoulos SA in Karpenisi, Greece. PG Ltd. 1998.
- ◆ Environmental Impact Assessment Study of "The Aleurada-Tatarna Bridge road section". Ministry of Environment, City Planning and Public Works (MECPPW). PG Ltd. 1998.
- ◆ Environmental Impact Assessment Study of project: "Completion of Motorway Larisa-Thessaloniki, Section: Rapsani IC-Platamonas". (MECPPW). K.Mihalopoulos-M.Vlahogiannis Ltd. 1997.
- ◆ EIS for the runway extensions of the National Airport of Araxos, Greece. M. Zarkadoula and Partners. 1998
- ◆ Kenilworth Race Course Development: Technical report on the Effect on Noise and Air Pollution Levels. Western Province Race Club. 1998.

- ◆ Extensions to Constantia Village Centre: Noise Impact Assessment. Norwich Life (PTY) LTD. 1998.
- ◆ EIS of Railroad Line Thessaloniki-Toxotes, Section: N.Karvali-Toxotes. Greece Railway Organization (GRO). Dromos SA. 1997.
- ◆ Noise barrier design for the N.Erythrea high school. ERGON SA. 1998.

# R HEYDENRYCH C V SHEET 1

## CURRICULUM VITAE

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Company Name	Arcus GIBB
Nationality	<b>Reuben HEYDENRYCH</b>
Date of Birth	South African
Profession	27.10.1969
Position	Environmental Assessment Practitioner
Specialisation	Senior Environmental Scientist/Associate
Start date with ARCUS GIBB	Project management, integrated environmental management including feasibility assessments, environmental impact assessments, environmental management programmes, public facilitation, strategic environmental assessments, environmental management frameworks, environmental auditing, environmental law, environmental policy and guideline development, environmental management systems (ISO 14001)
	2008 – Permanent full-time staff member

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### Key experience

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An environmental assessment practitioner with 17 years of experience, Reuben Heydenrych specialises in various environmental disciplines.

His key experience includes:

- **Project management** of various medium and large-scale infrastructural and environmental projects
- **Environmental Impact Assessment (EIA)** processes as required by the Environment Conservation Act, 1989 (Act No. 73 of 1989), the National Environmental Management Act, 1998 (Act No. 107 of 1998) and in terms of international requirements as team leader and team member on projects. Projects include exemption, scoping and full EIAs: rezoning, filling stations, water and sewage pipelines, roads (national, provincial and municipal), residential developments, game lodges, telecommunications structures, infrastructure in sensitive environments and industrial processes
- **Environmental advisory services and strategic environmental management** including Strategic Environmental Assessments (SEAs), environmental scans, environmental feasibility studies and Environmental Management Frameworks (EMFs)
- **Environmental management programmes (EMP)** for the construction and operational phases of infrastructure developments
- **Environmental auditing** including due-diligence, ISO 14001, legal compliance and waste audits

## R HEYDENRYCH C V SHEET 2

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### Qualifications

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Bachelor in Landscape. (Landscape Architecture): University of Pretoria, 1991

Master in Philosophy (Environmental Management): University of Cape Town, 1993

Short courses:

- Introduction to Public Participation: Environmental Evaluation Unit, 1993
  - Environmental Management System: Potchefstroom University, 1996
  - Environmental Law: Potchefstroom University, 1996
  - Environmental Auditing: Potchefstroom University, 1996
  - Waste Management: Pretoria Technikon, 1998
  - Certification Body Assessor Workshop: SA National Accreditation System, 12 – 14, Oct 2005
  - Workshop on the implementation of ISO 17021 (Conformity Assessment: Requirements for bodies performing audit and certification management system) – SA National Accreditation System, 24 Jan 2007
  - Intermediate Course in Photography: National College of Photography, 2005
  - Expressive Course in Photography: National College of Photography, 2007
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### Career summary

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June 2008 to       **Arcus GIBB** – Senior Environmental Scientist/Associate  
Date

Projects include:

- Scoping Phase Visual Impact Assessment for the proposed St. Helena Wind Farm, Western Cape. January 2011: Just Energy
- Scoping Phase Visual Impact Assessment for the proposed Langehoogte Wind Farm near Caledon, Western Cape. January 2011: SAGIT.
- Scoping Phase Visual Impact Assessment for the proposed Wolseley Wind Farm near Wolseley, Western Cape. January 2011: SAGIT.
- EIA phase Visual Impact Assessment for the NEMA Section 24G application for authorisation of a boathouse construction for 4 Special Forces Regiment at Langebaan, Western Cape. 2010: Department of Public Works.
- Finsch Mine Environmental Management Programme (EMPR) updating. The Finsch Mine is located in the Northern Cape Province. The EMPR required updating to consolidate various guidelines and operating procedures. Senior scientist. De Beers, 2008 – 2009
- Matjhabeng (Welkom) Local Municipality Master Plan Development. The environmental portion of the Status Quo Assessment, critical interventions and Master Plan for this local municipality in the Free State were compiled. Senior scientist. Latitude Management Services, 2008 – 2009
- Environmental Impact Assessment process of the Westgate-Tarleton-Kromdraai distribution power line in the Gauteng Province. Senior scientist. Eskom Distribution, 2009.
- Environmental Impact Assessment process of the Tumelo distribution power line near Kagiso in the Gauteng Province. Senior scientist. Eskom Distribution, 2009.

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- Basic Assessments for proposed upgrades to the PPC De Hoek cement factory in the Western Cape for Pretoria Portland Cement. Senior scientist. Pretoria Portland Cement, 2009.
- Second party ISO 14001 Environmental Management Systems audits: 3-day 2<sup>nd</sup> party comprehensive Environmental Management System audits of coal-fired power stations in Mpumalanga, a pumped storage scheme in KwaZulu-Natal and gas-turbine plants in the Western Cape. Environmental Auditor. Eskom Generation, 2008 – 2010.
- Basic Assessment processes for nine proposed Co-generation Power Plants for the Promethium-Exxaro Joint Venture. This project includes nine cogeneration power plants to be installed at mines and industrial facilities across South Africa, for the generation of electricity from waste gas. The projects will enable the project initiator to earn Carbon Credits through the Clean Development Mechanism in terms of the Kyoto Protocol under the United Nations Framework Convention on Climate Change. Senior Scientist. Promethium Carbon, 2008-2009.
- Strategic Environmental Assessment (SEA) and Generic Environmental Management Plan (EMP), as well the development of terms of reference for environmental impact assessments for Greater Port Harcourt, Nigeria. Senior environmental scientist. Rivers State Government of Nigeria and Greater Port Harcourt City Development Authority, 2008-2010.
- Strategic Environmental Technical Support Team to the Gauteng Provincial Government for the R20 billion Gautrain Project. Technical support will be provided during the construction and operational phases of this flagship transport service project. Senior scientist. Gautrain: 2008 – 2009.
- Strategic Advisory Team to the Airports Company of South Africa for the proposed Midfield Development at OR Tambo International Airport. Senior scientist. ACSA, 2009.
- Basic Assessment for the proposed Delta Apron upgrade at O R Tambo International Airport in Gauteng Province. Senior scientist. Airports Company of South Africa, 2008
- Environmental Impact Assessment of the Medupi Landfill Site Project in the Limpopo Province. Senior independent reviewer. Envirolution Consulting, 2009
- Environmental Impact Assessment of the Apollo-Lepini Distribution Power Line in Gauteng Province. Senior independent reviewer. Envirolution Consulting, 2009.
- Environmental Impact Assessment of the Mokopane Integration Project (including transmission lines and substations) in the Limpopo Province. Senior independent reviewer. Savannah Environmental, 2008 – 2009.
- Environmental Basic Assessment for the Watershed-Mmabatho distribution power line in the North West Province. Senior scientist. Eskom Distribution, 2009.
- Environmental Impact Assessment process of the Westgate-Tarleton-Kromdraai distribution power line in the Gauteng Province. Senior scientist. Eskom Distribution, 2009.
- Environmental Impact Assessment process of the proposed Mulilo coal-fired power station near Musina in Limpopo Province. Senior scientist. Mulilo Power (through Parsons Brinkerhoff), 2009.
- EIA and EMP for the proposed construction, operation and decommissioning of the Pebble Bed Modular Reactor and associated infrastructure in the Western Cape. The project proponent is the Generation Division of Eskom Holdings Limited. The EIA includes a detailed environmental impact assessment. The project includes detailed specialist studies, including social and biophysical, EIA process, public consultation, legal and nuclear technology studies. Senior scientist. Eskom Generation, 2008 – 2009.
- EIA and EMP for the proposed construction, operation and decommissioning of a conventional nuclear power station and associated infrastructure in the Western Cape (Nuclear-1). The project

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proponent is the Generation Division of Eskom Holdings Limited. The EIA includes the screening and selection of a suitable site for the nuclear plant, as well as a scoping process and detailed environmental impact assessment. The project includes 20 detailed specialist studies, including social and biophysical, EIA process, public consultation, legal and nuclear technology studies. Eskom Generation, 2008 – 2009.

- EIA for the proposed reclamation and treatment of Gaborone (Botswana) wastewater for potable use. This study involved a number of specialist studies and extensive public consultation. Senior scientist. 2008.
- Compilation of an Environmental Management Plan (EMP) for the construction and operational phases of the Perseus-Gamma, and Hydra-Gamma 765kV transmission power lines, extension to the Hydra Substation, turn-ins of the Beta-Hydra 765 kV transmission power line to Perseus and upgrading of the Perseus Substation. Eskom Transmission, 2008.

March 2004 to May 2008 **Strategic Environmental Focus** - Senior Project Manager, Unit Manager and Project Leader

Responsibilities included:

- Project management for a variety of projects at various scales and at various stages
- Management and co-ordination of unit staff
- Interfacing with government officials
- Unit time, budget and staff management
- Compilation of proposals and tenders
- Participation in strategic decision-making and company management

Aug 2003 to Feb 2004 **Strategic Environmental Focus** - Senior Environmental Manager

Feb 2004

Responsibilities included:

- Environmental impact assessment and scoping processes
- Environmental feasibility assessments
- Environmental management plans and auditing
- Environmental policy and guideline development
- Environmental auditing and implementation of environmental management systems
- GIS-based environmental management frameworks and other decision-support systems

Dec 1999 to Aug 2003 Environomics cc - Senior Consultant

Aug 2003

Responsibilities included:

- Environmental impact assessment
- Environmental management plans and environmental control officer
- Environmental policy and guideline development
- Environmental auditing and implementation of environmental management systems including ISO 14001 systems
- GIS-based environmental management frameworks and other decision-support systems
- Legislation development

May 1998 to 30 Nov 1999 Nissan South Africa - Group Environmental Manager

30 Nov 1999

Responsibilities included:

- Implementation and maintenance of an ISO 14001 compliant environmental management system (EMS) throughout 20 functional departments
- Coordinating three ISO 14001 certifications, comprising the main assembly plant, truck plant and engine plant

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- Duties at Nissan included monthly environmental performance auditing
- Environmental management system auditing
- Development of EMS procedures
- Environmental training
- Review of the entire EMS through advice to top management

Jan 1996 to Department of Environmental Affairs & Tourism - Landscape Architect

31 Apr 1998

Responsibilities included:

- Development of government policy for self-regulatory tools of environmental management
- Promotion of self-regulatory tools of environmental management amongst industry and other government departments
- Auditing and development of the environmental management system for the SANAE IV base in Antarctica
- Development of integrated environmental management guidelines
- Environmental impact assessment of possible tourism to Marion Island

1 July 1993 Cave Klapwijk and Associates - Landscape Architect

31 Dec 1995

Responsibilities included:

- Landscape design of commercial and residential landscapes
- Compilation of environmental impact assessments
- Rehabilitation planning

Project experience at previous employers:

### **Management of EIAs:**

- Project manager Scoping and EIA process for the installation of a Crude Acrylic Acid (CAA) tank at the Sasol site in Sasolburg; Sasol. 2008
- Project manager. EIA for the proposed Hendrina-Prairie-Marathon 400 kV 185 km transmission line between Hendrina and Nelspruit in Mpumalanga : Sebenzile Vilakazi (Eskom Transmission). May 2007 – June 2008
- Project manager. EIA process in terms of NEMA EIA regulations for the proposed 2 300 ha K'Shani Golf and Nature Reserve near Nelspruit : K'Shani Golf & Nature Reserve. 2006 - 2007
- Project manager. Environmental Impact Assessment for a proposed 115 km, 1.9 m diameter water pipeline between the Vaal Dam and Secunda (Vaal River Eastern Subsystem Augmentation project) for the TCTA, March to July 2005.
- Project manager. Scoping and Environmental Impact Assessment for the proposed Eskom Komati Water Scheme pipeline and power line project, Mpumalanga : Eskom. 2008.
- Project manager. Environmental Impact Assessment for the Menlyn Roads Project upgrading of municipal roads and the N1 highway in the eastern part of Pretoria : City of Tshwane Metropolitan Municipality and SA National Roads Agency. 2005-2006.
- Environmental Impact Assessment for the Eskom Kudu Integration project, a proposed 400 km, 400 kV electricity transmission line from Oranjemund (Namibia) to Vredendal (Western Cape) : Eskom, 2006 – 2007.
- Project manager. Environmental Impact Assessment for the proposed hotel, residential golf estate and game farm development at Viking Bay adjacent to the Vaal Dam : Tribid Investments



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- Project manager. Environmental Impact Assessment for the proposed residential golf estate at Huddle Park, Johannesburg : Tiyani Consortium. 2005 – 2008.
- Project manager. Environmental Scoping for the proposed Orlando Dam Intersection, a mixed use redevelopment at the former Orlando Power Station Site in Soweto: Joburg Property Company
- Project manager. Scoping and Environmental Impact Assessment for the proposed Millsite Development, Krugersdorp: Rand Leases.
- Project manager. Scoping and Environmental Impact Assessment for the proposed Comet Extension eight commercial and light industrial development, Boksburg : Urban Dynamics.
- Project manager. Environmental Impact Report for Brick Making Plant at Ispat Iscor site : Clay Fusion Technologies
- Project manager. Environmental scoping for proposed upgrading of the galvanising plant at Ispat Iscor in Vanderbijlpark : Iscor
- Project manager. Environmental scoping for proposed flood control berms in the Apies River Floodplain between Wonderboompoort and the Bon Accord Dam. BKS
- Project manager. Environmental scoping for the widening of 14<sup>th</sup> Avenue in Johannesburg : Arup
- Project manager. Environmental scoping for the widening of Addo Road (Road MR 450) in Port Elizabeth : PD Naidoo & Associates
- Environmental manager. Environmental scoping and environmental management plan for the proposed desilting of the Alberton Dam : SRK
- Environmental manager. Environmental scoping for the development of a proposed shopping centre on Holdings 34 & 35, Kempton Park Agricultural Holding : AJP Group
- Environmental manager. Environmental scoping for the installation of proposed electricity supply cables between Pretoria North Substation and the proposed Annlin Ext 19
- Environmental manager. Environmental scoping for the access road to the Innovation Hub in Pretoria : Arup
- Environmental manager. Environmental scoping for a water pipeline from Driefontein Dam to Duvha Power Station, Mpumalanga : Eskom
- Environmental manager. Environmental scoping for a proposed filling station in Dunkeld West, Johannesburg : Seedprop Consolidated Investments
- Environmental manager. Environmental scoping for the proposed upgrading of the Sinter Plant, Iscor Vanderbijlpark : Iscor Flat Steel
- Environmental scoping for the proposed Clover Hill Extensions 1-4 adjacent to the Bronkhorstspuit Dam : Clover Hill Developments (Pty) Ltd
- Environmental assistant. Environmental Impact Assessment of the proposed Midrand Estates development : Subconsultants to Eco Assessments
- Environmental manager. Environmental feasibility/risk assessment for the proposed Statue of Freedom in Port Elizabeth : KPMG Consortium – GAPP Architects
- Environmental manager. Environmental considerations for the proposed lodge development at the Automotive Supplier Park, Rosslyn : PD Naidoo & Associates

## R HEYDENRYCH C V SHEET 7

- Environmental manager. Site assessments – exemption applications of ±300 cellphone mast sites for the Cell C network : Subconsultants to Africon Engineering
- Fieldwork, public participation, EMP development. Environmental scoping of proposed roads and bulk water supply system at Madikwe Game Reserve, North West Province : Subconsultants to Eco Assessments. 2002
- Environmental manager. Environmental scoping for the proposed Alberton Waterfront Development : Odyssey Developments
- Environmental manager. Proposed development of a filling station on the corner of Brits Road and Doreen Road, Akasia for Gerneke & Potgieter : Attorneys – Mr Eugene Gerneke
- Environmental manager. Environmental scoping of a water pipeline at Makgabelwane, North West Province : Munayi Malaka Engineers
- Environmental assistant, public participation, EMP development. Environmental scoping for the proposed research base on Marion Island : Department of Environmental Affairs and Tourism (DEAT)
- Environmental manager. Environmental impact assessment of proposed tourism to Marion Island : Department of Environmental Affairs and Tourism (DEAT)
- Environmental assistant. Environmental Impact Assessment of the proposed Letsibogo Dam on the Motloutse River in northeastern Botswana : Cave Klapwijk & Associates
- Environmental control officer. Environmental Management Plan for the construction of a 40 m tall concrete microwave telecommunications tower at the CSIR, Pretoria. Telkom

### **Independent review of Environmental Impact Assessments**

- Reviewer. Pico Diamonds Environmental Management Plan for Alluvial Diamond Prospecting in the Richtersveld National Park, Northern Cape: SA National Parks through Cameron Cross Inc
- Reviewer. Scoping report for the proposed Kliprivier Nature Estate on Portions 4 and 8 of the farm Kliprivier 464 KQ & Portion 10 of the farm Rhenosterfontein 465 KQ, Limpopo Province: Dabchick Consultancy Limited
- Reviewer. Scoping report for the proposed Limpopo Wildlife Estate on Portions of the Farms Modena 13, MS, Parma 40 MS and Pontdrift 12 MS, Limpopo Province : SA National Parks, through Cameron Cross Associates
- Reviewer. Scoping and EIA reports for the proposed Dome Paradise Township on Portions 19 and 37 of the Farm Rietpoort 518 IQ, North West Province: Adv Jaco Venter. October 2007
- Reviewer. Backlog of EIA, scoping and exemption applications in terms of the Environment Conservation Act, 1989 on behalf of the Limpopo Dept of Economic Development Environment and Tourism (MDALA): LEDET. 2007 – 2008.
- Reviewer. Backlog of EIA, scoping and exemption applications in terms of the Environment Conservation Act, 1989 on behalf of the Mpumalanga Dept. of Agriculture and Land Affairs (MDALA): DEAT. 2007-2008.
- Reviewer. Scoping and EIA application for a proposed shopping centre and residential development on the Farm Klipriviersdal 371, Meyerton: Rand Merchant Bank Properties. 2007
- Reviewer. EIA process for the proposed Mmamabula – Delta 4 x 400 kV transmission lines: Haygon Safaris. May 2007

## **R HEYDENRYCH C V SHEET 8**

- Reviewer. Several EIA reports and the environmental management plan for the proposed Variant Alignment of the Gautrain through the Centurion area: Centurion Association for a Reasonable Environment/weCARE. 2006

### **Environmental Decision Support Systems**

- Data gathering, fieldwork and report writing for the following environmental decision-support systems
- Environmental manager. Gauteng Communication Network Strategy (GAUCONS), a decision-support and administration system for the authorisation of telecommunications masts: Gauteng Department of Agriculture Conservation Environment and Land Affairs (GDACEL)
- Environmental manager, report writing, fieldwork - Buffer zone projects : Phase 1 and 2 Buffer Zone projects for GDACEL, which provide guidelines for the authorisation of developments in proximity to activities that cause pollution (including landfill sites, sewage treatment plants, industries and mine dumps)
- Environmental assistant. Data gathering and database population of the National Forest Inventory : Department of Water Affairs and Forestry

### **Environmental Management Frameworks and Strategic Environmental Assessments**

- Data acquisition, ground truthing and compilation of the following GIS-based Environmental Management Frameworks
- Report on Environmental Management Framework for the Alexandra Renewal Project: Gauteng Department of Agriculture Conservation Environment and Land Affairs (GDACEL)
- Report on data gathering and fieldwork - Environmental Management Framework for Centurion Municipality: Subconsultants to Africon Engineering
- Project assistant. Environmental Management Framework for the Loch Vaal region, Gauteng: Gauteng Department of Agriculture Conservation Environment and Land Affairs (GDACEL)
- Strategic Environmental Assessment for the proposed Senqu Sources protected area : Maloti Drakensberg Transfrontier Project. 2006 – 2008.

### **Environmental Management Systems, Policy and Auditing**

- Development and implementation of ISO 14001 certified environmental management systems (EMSs) and in the auditing of these systems
- Technical expert on ISO 14001 auditing for the South African National Accreditation System (SANAS) – witnessing of the conduct of ISO 14001 Certification Body auditors during audits and assessment of certification body management systems and documentation. Assessments completed include:
  - SABS (September 2005, June 2006, May 2007 and March 2008 – 72 hours total);
  - Price Waterhouse Coopers (Sept 2005, May 2006, Nov 2006 and July 2007– 40 hours total)
  - EQCSA (Nov 2005, Dec 2006 and Sep 2007 – 24 hours total)
  - SGS (Dec 2005, Oct 2006 and Sep 2007– 32 hours total)
  - AFAQ EAQA (Feb 2006 – 32 hours total) – in this instance SANAS was contracted to perform the witnessing on behalf of the United Kingdom Accreditation System (UKAS)
  - I-Cert (May 2006; Sep 2007 and Nov 2007– 24 hours total)
  - Standards Association of Zimbabwe (Jul 2006 and Jul 2007 – 28 hours total)
  - KPMG (Aug 2006 – 8 hours)
  - SANCERT (Jan and Aug 2007 – 24 hours total)

## R HEYDENRYCH C V SHEET 9

- Auditing of legal compliance for the Emalahleni Local Municipality's Integrated Municipal Environmental Programme (IMEP): Emalahleni Local Municipality. 2007
- Project manager. Development of 2nd edition Environmental Implementation Plan (in terms of the National Environmental Management Act, 1998): Department of Trade and Industry. 2006
- Environmental manager. Environmental Management System : Mbombela (Nelspruit) Local Municipality. 2003
- Environmental manager. Development of an environmental policy: Mbombela Local Municipality. 2003
- Group environmental manager. Implementation and certification of ISO 14001 compliant Environmental Management Systems: Nissan South Africa. 1998 – 1999
- Project assistant. Development of an Information Management System Directorate: Forest Regulation of the Department of Water Affairs and Forestry, 1998
- Environmental manager. Development of an ISO 14001 Environmental Management System for Debtech (De Beers research and development company). 1998
- Environmental auditor. Environmental Management System of the SANAE IV base in Antarctica for the Department of Environmental Affairs and Tourism (DEAT). 1995
- Environmental auditor. ISO 14001 certification and surveillance audits of four companies: South African Bureau of Standards (SABS). 1997 - 1998

### Legislation and Guideline Development

- Project manager. Abattoir Waste Management Guidelines Document and Standard Environmental Management Plan : Gauteng Department of Agriculture Conservation and Environment
- Development of a presentation for a series of Information Seminars on EIA Regulations in terms of the National Environmental Management Act : National Department of Environmental Affairs and Tourism
- Editor and project manager. Integrated Environmental Management Information Series Documents "Risk Management" and "Socio-economic Assessment" : Department of Environmental Affairs and Tourism
- Co-author: (together with James Cross). Integrated Environmental Management Information Series Document "Environmental Assessment Requirements of International Agreements" : Department of Environmental Affairs and Tourism
- Assistant. Development of a Discussion Document: "National Strategy for the *Development of Integrated Environmental Management*" : Department of Environmental Affairs and Tourism, Directorate: Environmental Impact Management
- Assistant. Revision of Chapter 5 of the National Environmental Management Act (Act No. 107 of 1998) dealing with environmental impact assessment and integrated environmental management procedures : Department of Environmental Affairs and Tourism
- Assistant and report writing - costing of the promulgation of a series of six National Environmental Management Bills (including the Air Quality Bill, Biodiversity Bill, Protected Areas Bill & NEMA 1<sup>st</sup> & 2<sup>nd</sup> Amendment Bills) : Department of Environmental Affairs and Tourism

## R HEYDENRYCH C V SHEET 10

- Assistant. Development of a South African Code of Practice: "*Environmental considerations for the planning and management of telecommunications structures*" : South African Bureau of Standards

### Miscellaneous

- Project manager. Supplemental field studies and beneficiary analysis related to a proposed rehabilitation and conservation strategy for wetlands in the highlands of Lesotho : Lesotho Dept of Water Affairs. 2007
- Environmental manager. Motivation report for the declaration of the Prince Edward Islands as a World Heritage Site : Department of Environmental Affairs and Tourism
- Rehabilitation of cutting at the house of Mr Naas Grimbeek at Hartebeespoort Dam
- Fieldwork for opencast coal mining rehabilitation: vegetation monitoring and soil compaction monitoring on Amcoal opencast coal mines. November 1991 to January 1992

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### Publications

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***Lessons learnt in the implementation of the new EIA regulations.*** Paper presented at Assessing Environmental Impacts Conference. 5 March 2007. The Business Zone

#### ***Editor for three Integrated Environmental Management (IEM) Information Series Documents***

- **Cross, J. 2005.** *Environmental Assessment for International Agreements.* Department of Environmental Affairs and Tourism: Pretoria
- **Bennett, L. 2006.** *Risk Management and Assessment.* Department of Environmental Affairs and Tourism: Pretoria
- **Aucamp, I. 2006.** *Socio-economic Impact Assessment.* Department of Environmental Affairs and Tourism: Pretoria

*The role of Geographical Information Systems (GIS) In EIAs under the new regulations* (Co-authored with Marilene Heunis) Paper at IQPC Conference "*Successfully conducting Environmental Impact Assessments*". 30-31 January 2006

*A National Strategy for Integrated Environmental Management in South Africa - Discussion Document* (Co-authored with Paul Claassen). 1998. Pretoria: Department of Environmental Affairs and Tourism. 57p

Assistant author to Paul Claassen: *SABS 0262-0: Draft Code of Practice - Environmental considerations for the planning and management of telecommunications structures*

*EMS in the Automotive Industry.* Paper at SAATCA Auditors Conference. 24 August 1999

*Using an internationally recognised EMS to open doors to global market opportunities and promote a chain of environmentally conscious business partnership.* Paper at Environmental Management Conference. 3 February 1999. AIC Conferences

*Current environmental policy framework and strategy for Environmental Management Systems in South Africa.* Joint paper with Ingrid Coetzee. South African Quality Institute Convention on Quality and the Environment. November 1997

*Do the right thing - an introduction to environmental auditing.* 1997. *Conserva*, 12 (1): 20-21

## R HEYDENRYCH C V SHEET 11

*ISO 14001 Environmental Management System Standard. 1996. Conserva. 11(4): 24-25*

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### Language capability

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	<b>Speaking</b>	<b>Reading</b>	<b>Writing</b>
English	Excellent	Excellent	Excellent
Afrikaans	Excellent	Excellent	Excellent

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**Signature**

**Date**

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