

DRAFT SCOPING REPORT

Draft Scoping Report for the proposed development of the Vhuvhili Solar Photovoltaic (PV) Facility near Secunda in the Mpumalanga Province.



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APPENDICES A to G

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APPENDIX A:

Curriculum Vitae of the Environmental Assessment Practitioners



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A.1. CURRICULUM VITAE OF THE ENVIRONMENTAL ASSESSEMENT PRACTITIONER

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A.1.1 CV OF PAUL LOCHNER

Name of firm: CSIR
Name of staff: Paul Lochner
Profession: Environmental Assessment and Management
Position in firm: Manager: CSIR Environmental Management Services
Years' experience: 28 years
Nationality: South African

BIO-SKETCH:

Paul Lochner is an environmental assessment practitioner (EAP) at the CSIR in Stellenbosch, with more than 28 years of experience in a wide range of environmental assessment and management studies. Paul commenced work at CSIR in 1992, after completing a B.Sc. degree in Civil Engineering and a Masters in Environmental Science, both at the University of Cape Town. His initial work at focused on wetlands and estuarine management; environmental engineering in the coastal zone; and coastal zone management plans. Since 2008, Paul has been the leader and manager of the Environmental Management Services (EMS) group within CSIR that has been at the forefront of advancing environmental assessment in South Africa. This group currently consists of approximately 10 to 20 environmental scientists, planners and engineers, with offices in Stellenbosch, Cape Town and Durban. Paul's particular experience is in environmental planning and assessment for renewable energy, electricity grid infrastructure, desalination, oil & gas, wetlands & coastal zone management, and industrial & port development. He has been closely involvement in the research and application of Strategic Environmental Assessment (SEA) in South Africa, and also has wide experience in Environmental & Social Impact Assessment, Environmental Management Programmes (EMPRs) and Environmental Screening Studies. He has been the project leader for over 40 SEAs and EIAs over the past 28 years. He also served as project leader for a suite of SEAs commissioned by the DFFE from 2014 to 2020. Paul is a Registered EAP (2019/745) with the Environmental Assessment Practitioners Association of South Africa (EAPASA).

EMPLOYMENT TRACK RECORD

The following table presents a sample of the projects that Paul Lochner has been involved in to this date:

Duration	Project description	Role	Client
2019 - 2020	Basic Assessments for proposed PV and EGI Developments near Ceres	Project leader	Veroniva (PTY) Ltd
2019 - 2020	Environmental scoping for a Desalination Plant and Water Carriage System for water supply to Windhoek and the central coastal area of Namibia	Project author	NamWater (Namibia) and KfW Development Bank (Germany)
2019 (in progress)	Environmental Performance Compliance Study for Foundries in South Africa	Project reviewer	National Foundries Technology Network

Duration	Project description	Role	Client
2019	Independent Expert review of the ecology study as part of the EIA and EMPR for diamond prospecting at Bloemhof Dam Nature Reserve, North West province	Independent reviewer	DEA Appeals Office
2018-2019	Greater Saldanha Bay Strategic Environmental Assessment (SEA): Phase 1 Monitoring and Decision Support System	Project leader	Western Cape provincial government
2018-2019	Environmental Screening Study for a proposed 100 to 150 megalitre/day desalination facility for City of Cape Town, Phase 1: Pre-feasibility study	Project co-leader	City of Cape Town and iX Engineers
2018-2019	EIA for 150 MW wind power project in Ghana	Proposal and EIA Quality Assurance	Volta River Authority and Seljen Consult Ltd
2019	Environmental Assessment for the Kenhardt solar PV facility and electrical infrastructure (100 MW x 3), Northern Cape	Project leader	Scatec Solar Africa (Pty) Ltd
2017-2019	SEA for Wind & Solar Photovoltaic Energy development in South Africa (Phase 2)	Project reviewer	DEA & national Dept of Energy (DOE)
2017-2019	SEA for the Expansion of EGI Corridors in South Africa	Project reviewer	DEA, DOE, iGas, Eskom (national electricity utility)
2017-2019	SEA for Energy Corridors and development of a gas pipeline network for South Africa	Project reviewer	DEA, DOE, iGas, Eskom (national electricity utility)
2017-2019	SEA for Aquaculture Development in South Africa (marine and freshwater)	Project leader	DEA and national Dept of Agriculture Forestry and Fisheries (DAFF)
2018	Environmental Assessments for the Vryburg Solar project (115 MW x 3) in the Vryburg Renewable Energy Development Zone (REDZ)	Co-project manager and co-author	Veroniva & Scatec
2018	EIA for West Bank Waste Water Treatment works marine outfall pipeline , East London	Independent reviewer	WSP and Buffalo City Municipality
2017-2018	Site selection and environmental screening for a proposed 120 – 150 ML/day desalination plant for the City of Cape Town	Project leader	City of Cape Town and iX Engineers
2017-2018	EIA and EMP for Icyari Coltan Mine , Rwanda	Project reviewer	Mawarid Mining Rwanda Ltd (MMRL), UAE
2016-2017	SEA for the Square Kilometre Array radio-telescope in the Karoo, South Africa	Project leader	DEA and DST
2016-2017	SEA for Shale Gas Development in the Karoo region of South Africa	Project co-leader	DEA and other government departments
2015-2016	SEA for the development of Electrical Grid Infrastructure for South Africa	Project leader	DEA and Eskom (national electricity utility)
2017	EIA for the 75 MW x 12 solar photovoltaic energy projects near Dealesville, Free State	Project leader	Mainstream Renewable Power SA
2014-2015	EIA for Ishwati Emoyeni 140 MW wind energy project and supporting electrical infrastructure at Murraysburg, Western Cape	Project leader	Windlab South Africa
2012-2015	SEA for identification of renewable energy zones for wind and solar photovoltaic projects in South Africa	Project leader	DEA and other national government departments
2012-2013	Environmental Screening Study (ESS) for a desalination plant for the City of Cape Town	Project leader	City of Cape Town & WorleyParsons
2012-2013	EIA for the desalination plant for the Saldanha area	Project leader	West Coast District Municipality & WorleyParsons
2012-2013	EIA for the manganese export terminal at the Port of Ngqura and Coega Industrial Development Zone (IDZ)	Project leader	Transnet

Duration	Project description	Role	Client
2011 - 2012	EIA (x2) for 100 MW solar photovoltaic project at Blocuso and 100 MW solar PV project at Roode Kop in the Northern Cape	Project leader	Mainstream Renewable Power
2011 – 2012	EIA (x2) for 75 MW solar photovoltaic project at GlenThorne and 75 MW project at Valleydora, in the Free State	Project leader	Solaire Direct
2010-2011	More than 10 Basic Environmental Assessments (BAs) for solar photovoltaic projects in the Western Cape, Northern Cape, Eastern Cape and Free State	Project leader	Conducted for Dutch, German, French and South African companies
2010/2011	EIA for a 100 MW wind project at Zuurbron and a 50 MW wind project Broadlands in the Eastern Cape	Project leader	WindCurrent SA (German-based company)
2010-2011	EIAs (x4) for the proposed InnoWind wind energy projects near Swellendam, Heidelberg, Albertinia and Mossel Bay (totalling approx 210 MW) , Western Cape, South Africa	Project leader	InnoWind South Africa (Pty) Ltd
2009-2010	EIA for the proposed Electrawinds wind energy facility of 45-75 MW capacity in the Coega IDZ, Eastern Cape	Project leader	Electrawinds N.V. (Belgium)
2009-2010	EIA for proposed 180 MW Jeffreys Bay wind energy project , Eastern Cape	Project Leader and co-author	Mainstream Renewable Power South Africa
2009-2010	EIA for the proposed 70 megalitre/day desalination plant at Mile 6 near Swakopmund, Namibia	Project leader	NamWater, Namibia
2009	ESS for a proposed Deepwater Port , Container Hub and Industrial Development Zone, Ghana	Project Manager	Project Management International Pty Ltd
2009	EMP for the Operational Phase of the Berg River Dam , Franschhoek, South Africa	Project leader and report co-author	TCTA (national water supply utility), South Africa
2006	Environmental Impact Assessment (EIA) for extension of Port of Ngqura, Eastern Cape	Project Leader and co-author	Transnet National Port Authority
2004-2005	Environmental and Social Impact Assessment (ESIA) report for the proposed alumina refinery near Sosnogorsk, Komi Republic, Russia	Project manager and co-author	Komi Aluminium Russia, IFC, European Bank for Reconstruction & Development (EBRD)
2005	Guideline for Environmental Management Plans (EMPs) for the Western Cape province	Author	Dept of Environmental Affairs & Development Planning, Western Cape
2003	Environmental Management Plan for the Operational Phase of the wetlands and canals at Century City, Cape Town	Project leader and lead author	Century City Property Owners' Association
2002	Environmental Impact Assessment for the proposed Pechiney aluminium smelter at Coega, South Africa	Project Manager and lead author	Pechiney, France
1999-2000	Cape Action Plan for the Environment: a biodiversity Strategy and Action Plan for the Cape Floral Kingdom - legal, institutional, policy, financial and socio-economic component	Project manager and contributing writer	World Wide Fund for Nature (WWF): South Africa and Global Environment Facility (GEF)
1999	Management Plan for the coastal zone between the Eerste and Lourens River, False Bay, South Africa	Project manager and lead author	Heartland Properties and Somchem (a Division of Denel)

Duration	Project description	Role	Client
1998	Environmental Assessment of the Mozal Matola Terminal Development proposed for the Port of Matola, Maputo, Mozambique	Project manager and author	SNC-Lavalin-EMS
1996-1997	Strategic Environmental Assessment (SEA) for the proposed Industrial Development Zone and Harbour at Coega, Port Elizabeth, South Africa	SEA project manager and report writer	Coega IDZ Initiative Section 21 Company
1995-1996	Environmental Impact Assessment and EMP for Development Scenarios for Thesen Island, Knysna, South Africa	Project manager and report writer	Thesen and Co.
1996	Environmental Impact Assessment for the Blouvllei wetlands at Century City, Cape Town	Project manager and report writer	Ilco Homes Ltd (now Monex Ltd)
1995	Environmental Impact Assessment for the Saldanha Steel Project, South Africa	Report author and project manager	Saldanha Steel Project
1994	Environmental Impact Assessment for the upgrading of resort facilities on Frégate Island, Seychelles	Project management, co-author, process facilitator	Schneid Israelite and Partners
1994	Environmental Impact Assessment for exploration drilling in offshore Area 2815, Namibia	Project manager and lead author	Chevron Overseas (Namibia) Limited
1994	Management Plan for the Rietvlei Wetland Reserve, Cape Town	Project manager and lead author	Southern African Nature Foundation (now WWF-SA)

EMPLOYMENT RECORD

- **1992 to present** Involved in coastal engineering studies; and various forms of environmental assessment and management studies. Council for Scientific and Industrial Research – Environmental Management Services (EMS) - Stellenbosch

QUALIFICATIONS/EDUCATION

- M. Phil. Environmental Science (University of Cape Town)
- B.Sc. Civil Engineering (awarded with Honours) (University of Cape Town)

LANGUAGE CAPABILITY

LANGUAGES	Speaking	Reading	Writing
English	Excellent	Excellent	Excellent
Afrikaans	Moderate	Moderate	Moderate

RECENT JOURNAL PUBLICATIONS AND PEER REVIEWED PAPERS

- A comprehensive list of publications is available on request, with a summary provided below of recent journal publications, book chapters and peer reviewed conference papers:
- Fischer D, Lochner P and Annergarn H, 2019. Evaluating the effectiveness of Strategic Environmental Assessment to facilitate renewable energy planning and improved decision-making: a South African case study, Impact Assessment and Project Appraisal - article ID: IAPA 1619389.
- Cape L., Retief F., Lochner P., Fischer T., and Bond A., 2018. Exploring pluralism: Different stakeholder views of the expected and realised value of strategic environmental assessment (SEA). Environmental Impact Assessment Review, Volume 69, March 2018, Pages 32-41.
- Cape L., Lochner P. and Fischer D., 2017. SEAs for major infrastructure programmes in SA. IAIA17 Conference Proceedings - 37th Annual Conference of the International Association for Impact Assessment, 4-7 April 2017 | Le Centre Sheraton Montreal | Montreal | Canada | www.iaia.org

- Schreiner, G.O., Scholes, R.J., Snyman-Van der Walt, L., De Jager, M., S, Esterhuyse., Dlodla, A., Lochner, P.A., Wright, J., Atkinson, D., Hardcastle, P., Kotze, H. 2017. Advancing a participatory and science-based approach to policy formulation for shale gas development in South Africa. In: Eds Whitton, J., Cotton, M., Brasier, K. 2017. Citizen and other stakeholder participation in unconventional fossil fuel land use decision-making, policy formation, regulatory practice or other governance mechanisms. London: Routledge.
- Lochner P, Mabin M & Cape L, 2015, Recent Strategic Environmental Assessment experience in South Africa and national principles, in IAIA16 (Japan) Conference Proceedings.

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A.1.2 CV OF MINNELISE LEVENDAL

Name of Firm: CSIR
Full Name: Minnelise Rouchelle-Ann Levendal
Profession: Environmental Assessment Practitioner
Position in Firm: Senior Environmental Assessment Practitioner
Years' experience: 20 years
Nationality: South African

BIO-SKETCH

Minnelise is currently a Senior Environmental Assessment Practitioner (EAP) in the Environmental Management Services (EMS) Group at the Council for Scientific and Industrial Research (CSIR) in Stellenbosch. She joined the CSIR in 2004. Her current work entails managing EIAs and BAs to ensure that environmental criteria are adequately assessed in development applications, including monitoring and evaluation. She also prepares proposals and write reports.

She is currently managing various Environmental Impact Assessments (EIAs) for renewable energy projects in South Africa, including wind and solar. She was the project manager for ten Basic Assessments for wind monitoring masts in South Africa as part of the National Wind Atlas Project of the Department of Energy. Environmental Authorisation for these 10 BAs were granted by the national Department of Environmental Affairs (DEA) in 2010. She was the CSIR project manager for the 100 MW Ubuntu Wind Energy Facility near Jeffrey's Bay (Environmental Authorisation granted in June 2012), as well as the 50 MW Banna Ba Pifhu Wind Energy proposed by WKN Windcurrent near Humansdorp in the Eastern Cape (Environmental Facility Authorisation granted in July 2014). She also managed seven EIAs for seven solar Photovoltaic (PV) Facilities near Kenhardt for Mulilo Renewable Project Developments (2015-2016). She was the EAP for the Komas WEF near Kleinsee in the Northern Cape for ENERTRAG South Africa and Genesis Eco-Energy Developments. She is also currently undertaking several EIAs and BAs in the Western Cape, Mpumalanga and Gauteng.

BAs mentioned above and, in the table below.

EDUCATION

- | | | |
|--------------------------|--------------------------------|------|
| • M.Sc. (Botany) | Stellenbosch University | 1998 |
| • B.Sc. (Hons.) (Botany) | University of the Western Cape | 1994 |
| • B.Sc. (Education) | University of the Western Cape | 1993 |

PROFESSIONAL REGISTRATIONS / MEMBERSHIPS

- International Association for Impact Assessment (IAIA), Western Cape -Membership number: 5839
- Member of their Steering Committee from 2001-2003.
- Professional Natural Scientist (Pr.Sci.Nat) –117078) (ANNEXURE 1).

EMPLOYMENT RECORD

Name of current employer	Position	From	To
CSIR (EMS)	Senior Environmental Assessment Practitioner	2006	Present
CSIR (Natural Resources and the Environment)	Environmental Researcher	2004	2006
Western Cape Department of Environmental Affairs and Development Planning (DEA&DP)	Assistant Director	2003	2004
	Principal Environmental Officer	2002	2003
	Principal Environmental Officer	2002	2003
	Senior Environmental Officer	2001	2002
	Environmental Officer	1999	2000
University of the Western Cape	Junior Lecturer	1996	1996
Cape Peninsula University of Technology (CPUT)	Junior Lecturer	1995	1995

KEY SHORT COURSES AND TRAINING

- Environmental Law: Shepstone Wylie Attorneys; Presented by Janice Tooley (2020).
- (EAPASA) Assessor Course (NQF Level 5) (2019)
- Public Participation in Environmental Authorisation in South Africa: IAIA workshop presented by Tisha Greyling and Erika Du Plessis (2016).
- Environmental Law: Shepstone Wylie Attorneys; Presented by Janice Tooley (2015).
- Sharpening the Tool: New techniques and methods in Environmental Impact Assessment: Sustainable Environmental Solutions (Pty) Ltd (2015).
- Effective Skills for Challenging Meetings & Engagements: Conflict Dynamics (2015).
- Science Communication and Working with the Media: Proof Communications/Jive Media Africa (2014).
- Leadership, Innovation and Change Management: University of Stellenbosch (Business School) (2013).
- MS Project: CILLA (2011).
- Teaching Conservation beyond traditional pedagogical and discipline boundaries (2007)
- Project Management I and II: CILLA (2005)
- Social Impact Assessment: IAIA workshop (2002)
- Environmental Law ("The New Environmental Law Course for Environmental Managers): University of Potchefstroom: Center for Environmental Management) (2002).
- Implementing Environmental Management Systems (SABS/ISO 14001:1996): University of Potchefstroom: Center for Environmental Management (2002).
- Conflict Management in Environmental Issues: University of Potchefstroom: Center for Environmental Management) (2001).
- Please refer to the list of courses attended, e.g. at DEA&DP from 1999-2004; e.g. Meeting skills, Stress Management, Assertiveness, Client Care, Group Dynamics, Supervision course, Human Resource Management. I also attended various Computer Courses, e.g. Powerpoint Beginners and Powerpoint Advance.

PROJECT EXPERIENCE RECORD

The following table presents a list of key projects undertaken and currently being undertaken by Minnelise Levendal at the CSIR to date:

Completion Date	Project description	Role	Client
2020 – 2021	BA for the proposed Komass WEF near Kleinsee in the Northern Cape Province.	Project Leader and EAP	Genesis ENERTRAG Komass (Pty) Ltd
2021-2022 (ongoing)	BA for the proposed Vhuvhili Solar PV facility in Mpumalanga Province	Project Leader and EAP	ENERTRAG South Africa (Pty) Ltd
2021 -2022 (ongoing)	BA for the proposed eGoli WEF and Solar PV facilities in Gauteng.	Project Leader and EAP	ENERTRAG South Africa (Pty) Ltd
2021 -2022 (ongoing)	BA for the proposed iGolide WEF in Gauteng.	Project Leader and EAP	ENERTRAG South Africa (Pty) Ltd
2021 -2022 (ongoing)	BAs for the proposed power lines and EGI to support the Vhuvhili, eGoli and iGolide, WEF and solar PV facilities in Gauteng and Mpumalanga.	Project Leader and EAP	ENERTRAG South Africa (Pty) Ltd
2021 -2022 (ongoing))	EIA for the proposed Hugo WEF near De Doorns in the Western Cape	Project Leader and EAP	Genesis Eco-Energy Developments (Pty) Ltd
2021 -2022 (ongoing)	EIA for the proposed Khoe WEF near De Doorns in the Western Cape	Project Leader and EAP	Genesis Eco-Energy Developments (Pty) Ltd
2022 (ongoing)	EIA for the proposed solar PV and WEF cluster near Beaufort west in the Western Cape	Project Leader and EAP	Genesis Eco-Energy Developments (Pty) Ltd
2022 (ongoing)	EIA for the proposed solar PV cluster near Murraysburg in the Western and Northern Cape Province	Project Leader and EAP	Emoyeni Project Management (Pty) Ltd
2019-2020	BA for the proposed electrical grid infrastructure to support the proposed Rietrug, Sutherland and Sutherland 2 WEFs near Sutherland in the Northern and Western Cape	Project Leader and EAP	South Africa Mainstream Renewable Power Developments (Pty) Ltd
2020	Environmental Authorisation (EA) Amendment for the proposed Rietrug WEF near Sutherland in the Western Cape	Project Leader and EAP	South Africa Mainstream Renewable Power Developments (Pty) Ltd
2020	EA Amendment for the proposed Sutherland WEF near Sutherland in the Western and Northern Cape	Project Leader and EAP	South Africa Mainstream Renewable Power Developments (Pty) Ltd
2020	EA Amendment for the proposed Sutherland 2 WEF near Sutherland in the Western Cape	Project Leader and EAP	South Africa Mainstream Renewable Power Developments (Pty) Ltd
2020	EA Amendment for the proposed Kap Vley WEF near Kleinsee in the Northern Cape	Project Leader and EAP	Juwi Renewable Energies (Pty) Ltd
2020	EA Amendment for the proposed Gembok Solar PV 1 facility near Kenhardt in the Northern Cape	Project Leader and EAP	Mulilo Renewable Project Developments (Pty) Ltd
2020	EA Amendment for the proposed Gembok Solar PV 2 facility near Kenhardt in the Northern Cape	Project Leader and EAP	Mulilo Renewable Project Developments (Pty) Ltd
2020	EA Amendment for the proposed Boven Solar PV 1 facility near Kenhardt in the Northern Cape	Project Leader and EAP	Mulilo Renewable Project Developments (Pty) Ltd

Completion Date	Project description	Role	Client
2018-2019	BA for the proposed Kudusberg WEF near Sutherland in the Northern and Western Cape	Project Leader and EAP	G7 Renewable Energies
2018	EIA for the proposed Kap Vley WEF near Kleinsee in the Northern Cape	Project Leader and EAP	Juwi Renewable Energies (Pty) Ltd
2017-2018	EIA for the proposed Kuruman Phase 1 WEF near Kuruman in the Northern Cape	Project Leader and EAP	Mulilo Renewable Project Developments (Pty) Ltd
2017-2018	EIA for the proposed Kuruman Phase 2 WEF near Kuruman in the Northern Cape	Project Leader and EAP	Mulilo Renewable Project Developments (Pty) Ltd
2015-2016	EIA for the Gemsbok Solar Photovoltaic, PV 3 near Kenhardt in the Northern Cape	Project Leader and EAP	Mulilo Renewable Project Developments
2015-2016	EIA for the Gemsbok Solar PV 4 near Kenhardt in the Northern Cape	Project Leader and EAP	Mulilo Renewable Project Developments
2015-2016	EIA for the Gemsbok Solar PV 5 near Kenhardt in the Northern Cape	Project Leader and EAP	Mulilo Renewable Project Developments
2015-2016	EIA for the Gemsbok Solar PV 6 near Kenhardt in the Northern Cape	Project Leader and EAP	Mulilo Renewable Project Developments
2015-2016	EIA for the Boven Solar PV 2 near Kenhardt in the Northern Cape	Project Leader and EAP	Mulilo Renewable Project Developments
2015-2016	EIA for the Boven Solar PV 3 near Kenhardt in the Northern Cape	Project Leader and EAP	Mulilo Renewable Project Developments
2015-2016	EIA for the Boven Solar PV 4 near Kenhardt in the Northern Cape	Project Leader and EAP	Mulilo Renewable Project Developments
2014-2018	Special Needs and Skills Development Programme (undertook BAs for small-scale projects for applicants with special needs, i.e., financial constraints)	Project Manager	DEA
2010-2011	EIA for the proposed Ubuntu wind energy project, Eastern Cape	Project Manager and EAP	WKN Windcurrent SA
2010-2011	EIA for the proposed Banna Ba Pifhu wind energy project, Eastern Cape	Project Manager and EAP	WKN Windcurrent SA
2010-2011	BA for a powerline for the Excelsior WEF near Swellendam in the Western Cape	Project Manager and EAP	BioTherm Energy (Pty Ltd
2010-2011	EIA for a proposed Excelsior WEF near Swellendam in the Western Cape	Project Manager and EAP	BioTherm Energy (Pty Ltd
2010	Basic Assessment for the erection of two wind monitoring masts near Swellendam and Bredasdorp in the Western Cape	Project Manager and EAP	BioTherm Energy (Pty Ltd
2010	Basic Assessment for the erection of two wind monitoring masts near Jeffrey's Bay in the Eastern Cape	Project Manager and EAP	Windcurrent (Pty Ltd
2009-2010	Basic Assessment Process for the proposed erection of 10 wind monitoring masts in SA as part of the national wind atlas project	Project Leader and EAP	Department of Energy through SANERI; GEF
2009-2010	Basic Assessment for the wind monitoring mast on Farm Grootderm 10, Alexander Bay	Project Leader and EAP	Department of Energy through SANERI; GEF
2009-2010	Basic Assessment for the wind monitoring mast Farm Bloedzuigerfontein North 782, Calvinia	Project Leader and EAP	Department of Energy through SANERI; GEF

Completion Date	Project description	Role	Client
2009-2010	Basic Assessment for the wind monitoring mast Farm Katmakoe (including Farm Wespoort 294), Vredendal	Project Leader and EAP	Department of Energy through SANERI; GEF
2009-2010	Basic Assessment for the wind monitoring mast Farm Nooitgedacht (including Farm Oliphantskraal 61), Vredenburg	Project Leader and EAP	Department of Energy through SANERI; GEF
2009-2010	Basic Assessment for the wind monitoring mast Farm Uitzicht 232 en 233, Napier	Project Leader and EAP	Department of Energy through SANERI; GEF
2009-2010	Basic Assessment for the wind monitoring mast Farm Gunstfontein 131, Sutherland	Project Leader and EAP	Department of Energy through SANERI; GEF
2009-2010	Basic Assessment for the wind monitoring mast Farm Trakaskuilen15, De Rust	Project Leader and EAP	Department of Energy through SANERI; GEF
2010	Basic Assessment for the wind monitoring mast on Farm Nooitgedacht, Vredenburg	Project Leader and EAP	Department of Energy through SANERI; GEF
2010	Basic Assessment for the wind monitoring mast at the Ndende location, Farm Butterworth	Project Leader and EAP	Department of Energy through SANERI; GEF
2010	Basic Assessment for the wind monitoring mast on Farm Grootderm, Alexander Bay	Project Leader and EAP	Department of Energy through SANERI; GEF
2009	Basic Assessment Report for a proposed boundary wall at the Port of Port Elizabeth, Eastern Cape	Project Manager	Transnet Ltd
Other Environmental Assessments, Strategies, Biodiversity Management Plans, Frameworks and Reporting tools:			
2013-2014	Development of a National Management Plan and Strategy for Invasive Alien species	Project Manager	DEA
2012-2014	Development of a Biodiversity Management Plan for the African Lion (<i>Panthera leo</i>)	Project Manager	DEA
2010	South Africa's Second National Communication under the United Nations Framework Convention on Climate Change	Project Manager	SANBI
2006-2008	Monitoring and Evaluation of aspects of Biodiversity	Project Leader	CSIR project awarded through the Young Researchers Fund
2006	Integrated veldfire management in South Africa. An assessment of current conditions and future approaches.	Co- author	DEA (Working on Fire)
2004-2005	Biodiversity Strategy and Action Plan for the Wild Coast, Eastern Cape, SA	Project Manager	Wilderness Foundation
2005	Western Cape State of the Environment Report: Biodiversity section. (Year One).	Co- author and Project Manager	Department of Environmental Affairs and Development Planning

AWARDS

- 1995,1997,1999 -: Best student award in Grade 8, 10 and 12.
- 1999: Book Prize Award for best Afrikaans student in Grade 12.
- 2008: Best presentation Award at Arid Zone Conference (Northern Cape).
- 2015: CSIR award for Human Capital Development: Special Needs and Skills Development Programme.

CONFERENCE PRESENTATIONS & PAPERS

- **Levendal, M.** (2012). "Challenges in the Environmental Assessment of Renewable Energy Projects in South Africa" In IAIA (Portugal) Conference Proceedings.
- **Bowie, M.** (née Levendal) (1998). "Ecophysiological responses of four succulent Karoo species under different temperature and water regimes." In *Arid Zone Conference (Northern Cape) Conference Proceedings*.

PUBLICATIONS

- **Bowie, M. (née Levendal)** and Ward, D. (2004). Water status of the mistletoe *Plicosepalus acaciae* parasitic on isolated Negev Desert populations of *Acacia raddiana* differing in level of mortality. *Journal of Arid Environments* 56: 487-508.
- Wand, S.J.E., Esler, K.J. and **Bowie, M.R** (2001). Seasonal photosynthetic temperature responses and changes in ^{13}C under varying temperature regimes in leaf-succulent and drought-deciduous shrubs from the Succulent Karoo, South Africa. *South African Journal of Botany* 67:235-243.
- **Bowie, M.R.**, Wand, S.J.E. and Esler, K.J. (2000). Seasonal gas exchange responses under three different temperature treatments in a leaf-succulent and a drought-deciduous shrub from the Succulent Karoo. *South African Journal of Botany* 66:118-123.

LANGUAGE CAPABILITY

Language	Speaking	Reading	Writing
English	Excellent	Excellent	Excellent
Afrikaans	Excellent	Excellent	Excellent

A.1.3 CV OF DHIVESHNI MOODLEY

Full Name:	Moodley, Dhiveshni
Professional Registration:	Candidate Natural Scientist – Reg No: 1472997/19
Nationality:	South Africa
Current employer:	CSIR Environmental Management Services
Position in Firm:	Environmental Scientist and Assessment Practitioner (Intern)
Specialisation and Research interest:	Geographic Information Systems; Spatial Analysis; Mapping; Environmental Assessment and Management; Strategic Environmental Assessment; Food security; Flood Vulnerability Assessment, Hydopedological Assessment.

BIOSKETCH

Dhiveshni Moodley is an EAP Intern at the CSIR in Stellenbosch in the EMS group of the CSIR. Dhiveshni holds a BSc, BSc Honours (cum laude) and MSc (cum laude) degrees in Environmental Science from the University of KwaZulu-Natal. She has about two year's work experience in flood risk, hydopedological- and wetland functional assessment specialist studies, as well as conducting BAs and Scoping/EIAs in the Renewable Energy sector. Her key interest lies in using GIS analyses to apply the formation of accurate, feasible solutions to complex environmental challenges. Dhiveshni is a registered Candidate Natural Scientist (Reg. No. 1472997/19) with the SACNASP.

PROJECT TRACK RECORD

Completion	Description	Role	Client
In Progress	Scoping and Environmental Impact Assessment and Basic Assessment Processes for the Proposed Development of the Ingwe Wind and Solar PV Energy Project Cluster and its associated Electrical Grid infrastructure near Molteno in the Eastern Cape Province	Project Officer	ABO Wind renewable energies (Pty) Ltd
In Progress	Basic Assessment Process for the Proposed Development of the Ratel Battery Energy Facility and the associated Electrical Grid infrastructure near Kimberley in the Northern Cape Province	Project Officer	ABO Wind renewable energies (Pty) Ltd
In Progress	Basic Assessment Processes for the Proposed Development of seven 132 kV overhead transmission powerlines and its associated Electrical infrastructure near Beaufort West in the Western Cape Province	Project Officer	ABO Wind renewable energies (Pty) Ltd

Completion	Description	Role	Client
Approved	Scoping and Environmental Impact Assessment Processes for the Proposed Development of three Wind Energy Facilities; Kwagga 1 (279 MW), Kwagga 2 (341 MW) and Kwagga 3 (204.6 MW), near Beaufort West in the Western Cape Province	Project Manager	ABO Wind renewable energies (Pty) Ltd
In progress	Basic Assessment Processes for the Proposed Development of seven Solar Photovoltaic (PV) Energy Facilities; namely Rinkhals 1 (30 MW), Rinkhals 2 (30 MW), Rinkhals 3 (150 MW), Rinkhals 4 (150 MW), Rinkhals 5 (150 MW), Rinkhals 6 (150 MW) and Rinkhals 7 (150 MW), near Kimberley in the Free State and Northern Cape Provinces	Project Officer	ABO Wind renewable energies (Pty) Ltd
December 2019	The KwaDukuza Mall and Mixed-Use Precinct Wetland Functional Update Assessment, iLembe District Municipality, KwaZulu-Natal	Project member- Wetland delineation and assessment inputs	Wallace & Green Consulting (Pty) Ltd
July 2019	Specialist desktop hydropedology assessment for the Ballito Hills Development, eThekweni Municipality, KwaZulu-Natal	Project member- Hydropedological assessment	Triplo4 Sustainable Solutions (Pty) Ltd
July 2019	Specialist desktop hydropedology assessment for the Umhlali Development, eThekweni Municipality, KwaZulu-Natal	Project member- Hydropedological assessment	Triplo4 Sustainable Solutions (Pty) Ltd
June 2019	Specialist desktop hydropedology assessment for the Sheffield Waste Water Treatment Works, eThekweni Municipality, KwaZulu-Natal	Project member- Hydropedological assessment	Triplo4 Sustainable Solutions (Pty) Ltd

PAST EMPLOYMENT RECORD

2020 – current Environmental Scientist and Assessment Practitioner (Intern), Council for Scientific and Industrial Research – Environmental Management Services (EMS), Implementation Unit (IU) - Stellenbosch.

2020 - 2020 Agronomy and GIS Research Intern. South African Sugar Research Institute – Agronomy - Durban.

2019-2020 Junior Environmental Consultant. Aeon Nexus (Pty) Ltd - Durban

QUALIFICATIONS

2019	MSc. Environmental Science (<i>Cum Laude</i>)	University Kwa-Zulu Natal, Durban, South Africa
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2017	BSc. Hons. Environmental Science (<i>Cum Laude</i>)	University Kwa-Zulu Natal, Durban, South Africa
2016	BSc. Environmental Science	University Kwa-Zulu Natal, Durban, South Africa

SOFTWARE SKILLS

- | | |
|---|--|
| <ul style="list-style-type: none"> • ESRI Arcmap • Microsoft Office (Word, Excel, Powerpoint) • Google Earth | <ul style="list-style-type: none"> • QGIS • ERDAS IMAGINE • Pix4Dmapper |
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RELEVANT COURSES

- | | |
|-------------|---|
| 2020 | <ul style="list-style-type: none"> • CiLLA Conflict Resolution course • Groundwater, Boreholes, and Water use Licenses-E-learning lecture, Ground Water Division of the Geological Society of South Africa. |
| 2019 | <ul style="list-style-type: none"> • Flood Determination Workshop, Acute Training Management, Johannesburg. |
| 2019 | <ul style="list-style-type: none"> • The Department of Water and Sanitation Hydropedology-Course 1, Digital Soils South Africa, Centre for Wildlife Management, University of Pretoria. |

PROFESSIONAL AFFILIATIONS/REGISTRATIONS

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|---------------------|---|
| 2019-current | <ul style="list-style-type: none"> • South African Council for Natural Scientific Professions (SACNASP), Candidate Professional Natural Scientist (Reg. no. 1472997/19). |
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HONOURS AND AWARDS

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|---------------------|---|
| 2017 | <ul style="list-style-type: none"> • Allan Gray Achievement Award nominee |
| 2016-current | <ul style="list-style-type: none"> • Golden Key International Academic Honours Association |

LANGUAGE CAPABILITY

	Speaking	Reading	Writing
English	Excellent	Excellent	Excellent