

APPENDIX 3

Integrating and Contributing Author Biosketches

| Preface | |
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| Authors | |
| Robert Scholes | Robert (Bob Scholes is a systems ecologist at the University of the Witwatersrand. He has led many assessments over the past 25 years, including parts of the Intergovernmental Panel on Climate Change, the Millennium Ecosystem Assessment, the South african Assessment on Elephant Management, and the global Land Degradation and Restoration Assessments. Bob has co-led the shale gas development scientific assessment. |
| Paul Lochner | Paul Lochner is an environmental assessment practitioner at the CSIR in Stellenbosch, with over 25 years of experience in a wide range of environmental assessment and management studies. His particular experience is in the renewable energy, oil and gas, and industrial and port development sectors. He has been closely involved in the application of Strategic Environmental Assessment in South Africa. Paul has co-led the shale gas development scientific assessment. |
| Greg Schreiner | Greg Schreiner has worked at the CSIR for the past five years. He is interested in novel approaches to environmental assessment and social processes. He has a Masters Degree in Environment and Development from the University of Cambridge. He has for the past two years managed the day to day processes of the shale gas development scientific assessment. |
| Luanita Snyman-Van der Walt | Luanita Snyman-Van der Walt has worked at the CSIR for the past 3 years as an environmental assessment practitioner focussing on environmental assessment and Geographic Information System analyses. She has a Masters Degree in Environmental Science from North West University and assisted in managing the shale gas development scientific assessment. |
| Megan de Jager | Megan de Jager holds an MSc degree in Environmental Geography from the Nelson Mandela Metropolitan University. She is employed at the CSIR as an intern on the shale gas development scientific assessment and is currently undertaking a PhD on baseline monitoring of the Central Karoo. |
| Chapter 1: Scenarios and Activities | |
| Integrating Author | |
| Mike Burns | Mike Burns, who is a Harvard University Research Fellow, is qualified in both ecology and environmental ethics. He understands human valuation of the environment and the often conflicting sustainability implications thereof. A capacity to understand the functioning of coupled social-ecological systems is the hallmark of his contribution to sustainability science. Mike has 20 years of consulting experience in Africa's oil and gas sector. |
| Contributing Authors | |
| Doreen Atkinson | Doreen Atkinson is a Research Associate at the University of the Free State, Bloemfontein. Her areas of research expertise include local government, community development, intergovernmental relations, policy analysis, governance, local economic development, small towns and rural development, land reform, sustainable livelihoods, project and programme evaluation, and regional development. Doreen has extensive research on Karoo tourism, and has organised five Karoo conferences since 2009. |
| Oliver Barker | Oliver Barker has an MSc from the University of the Witwatersrand, and is a registered natural scientist and member of numerous organisations, including AEG, SAIEG and the Ground Water Division of the GSSA. Oliver has consulted for large corporations and assessed geological risk in mining prospects. He has authored and co-authored numerous technical reports and published papers. |
| Claire Davis | Claire Davis is climate change impacts and adaptation specialist with a particular research interest in the field of biodiversity and conservation. She currently holds the position of Researcher in the Natural Resources and the Environment Unit (NRE) at CSIR. A key area of expertise is her skills in conducting vulnerability and adaptation assessments and producing tailor-made climate change projections for specific sectors. |

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| Elizabeth (Liz) Day | Liz Day has over 20 years' experience in the field of freshwater ecosystems, mainly in the Western, Northern and Eastern Capes. Her particular interests include wetland and river water quality management, pollution abatement and protection strategies and understanding surface-groundwater interactions in wetlands. She has also been involved in wetland mapping and prioritisation projects for the CAPE fine-scale biodiversity planning project and for various local municipalities. |
| Surina Esterhuysen | Surina Esterhuysen is a researcher at the Centre for Environmental Management, University of the Free State. Recently, she has been extensively involved in work related to unconventional oil and gas extraction and led the project on the unconventional oil and gas interactive vulnerability map and monitoring framework development for the South African Water Research Commission. |
| Philip Hobbs | Philip Hobbs is a registered Professional Natural Scientist employed as a Senior Research Hydrogeologist in the NRE business unit. His ~35 years' experience includes the exploration and development of groundwater resources for water supply at all scales, the evaluation and assessment of land use activities (e.g. mining, industry and waste disposal) on groundwater, and the mapping of groundwater resource quantity and quality. |
| Ian McLachlan † | Ian McLachlan has a BSc Honours degree in Economic Geology from the University of the Witwatersrand, and is a Life Fellow of the GSSA. He worked for Soekor and Petroleum Agency SA where he gained wide experience in exploration operations in the Karoo and elsewhere. He also contributed to the compilation of the Minerals and Petroleum Resources Development Act of 2002 and associated Regulations. |
| Nigel Rossouw | Nigel Rossouw has more than 20 years' experience, working in different industry sectors and in a variety of roles, ranging from research, training, consulting, project implementation and corporate environmental planning. Nigel is the Environmental Planner for Shell South Africa Integrated Gas and is currently completing a PhD at UCT focusing on environmental governance of large engineering projects. |
| Simon Todd | Simon Todd has 18 years' experience as a terrestrial ecologist in arid systems. His primary focus includes examining the impacts of land use on biodiversity with the arid ecosystems of South Africa. Recent notable projects include specialist input for the Wind and Solar- and Eskom Grid Infrastructure Strategic Environmental Assessments, as well as on-going work related to the SKA. |
| Luanita Snyman-Van der Walt | Luanita Snyman-Van der Walt has worked at the CSIR for the past 3 years as an environmental assessment practitioner focussing on environmental assessment and Geographic Information System analyses. She has a Masters Degree in Environmental Science from North West University and assisted in managing the shale gas development scientific assessment. |
| Elsona van Huyssteen | Elsona van Huyssteen is a Principle Urban and Regional Planner at the CSIR and has over 20 years' experience in research, and policy development. She has lead collaborative multi-disciplinary initiatives in the urban and regional development planning field. Her interest focusses on innovative ways to engage collective futures through profiling spatial growth dynamics impacting cities, settlements and regions; transdisciplinary and multi-stakeholder initiatives, and action-orientated leadership. |

Chapter 2: Energy

Integrating Author

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| Jarrad Wright | Jarrad Wright is a Principal Engineer at the CSIR Energy Centre, with an MScEng (Elec), working predominantly in energy system operations and planning. He has extensive power sector operations and planning experience in eleven African countries. Jarrad was appointed by the President of South Africa to the NPC in 2015 as a Commissioner for the period 2015-2020 to assist in the implementation of the NDP. |
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Contributing Authors

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| Tobias Bischoff-Niemz | Tobias Bischoff-Niemz is the Energy Centre Manager at the Council for Scientific and Industrial Research, prior to which, he was with the Energy Planning Unit at Eskom, as part of the team that developed the long-term power-capacity expansion plan (Integrated Resource Plan) for South Africa. Tobias is also a member of the |
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| | Ministerial Advisory Council on Energy. |
| Clinton Carter-Brown | Clinton Carter-Brown has a PhD in Electrical Engineering from the University of Cape Town, and spent 18 years in Eskom, the later portion of which as a specialist in the Technology Division. He is lead author of over 15 conference and journal papers and has co-authored a number of contributions. Carter-Brown joined Aurecon's Tshwane Energy Unity as a Technical Director in 2014. |
| Owen Zinaman | Owen Zinaman is the Technical Lead for the 21 st Century Power Partnership South Africa Programme, operated out of the United States National Renewable Energy Laboratory. He holds a dual appointment as a Research Analyst at the Joint Institute for Strategic Energy Analysis, where he leads and supports various research activities and technical writing efforts for the U.S. natural gas sector. |

Chapter 3: Air Quality and Greenhouse Gas Emissions

Integrating Author

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| Harald Winkler | Harald Winkler is Director of the Energy Research Centre, University of Cape Town. His research interests focus on energy, environment and climate change mitigation. Harald has co-authored a journal publication on GHG emissions from coal compared to shale gas for electricity in South Africa. Harald has been a lead author on the Intergovernmental Panel on Climate Change and serves on editorial boards of six journals. |
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Contributing Authors

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| Katye Altieri | Katye Altieri is a senior researcher at the Energy Research Centre, University of Cape Town. She has extensive experience in atmospheric chemistry and air pollution, including building shale gas emissions inventories. Katye completed a PhD focused on atmospheric chemistry at Rutgers University, and a Masters in Public Policy focused on development and energy at Princeton University. |
| Simon Clarke | Simon Clarke has an MSc in Environment and Development and is founding Director of IBIS Consulting, where he is a sustainability and climate change specialist with 15 years' experience. His experience covers greenhouse gas reporting, energy and carbon reduction and physical climate change risk. He has led the development and verification of over 100 greenhouse gas inventories for corporate clients and governments across multiple sectors. |
| Rebecca Garland | Rebecca Garland holds a PhD from the University of Colorado and has been an atmospheric chemist at the CSIR since 2011. She has worked in the field of atmospheric science for 16 years. Her expertise is in atmospheric science, with a research focus on modeling atmospheric composition, the resultant impacts from poor air quality and a changing climate. |
| Gerrit Kornelius | Gerrit Kornelius is a chemical engineer specialising in air quality management and greenhouse gas policy for the past 30 years. He has worked in the hydrocarbon industry, academia and consulting practice. He was involved in drafting regulations under the Air Quality Act and was a participant in drafting of Long-term Mitigation Strategy that advised government on greenhouse gas reduction pathways. |
| Matthew Meas | Matthew Meas is currently undertaking a Masters in Sustainable Energy Engineering at the University of Cape Town. Matthew received a bronze medal for research involving sympathetic vibrations of musical instruments with strings at the Eskom Expo for Young Scientists National Competition in 2009. His interests include thermodynamics, sustainable energy technologies, mechanical engineering research and development, and energy policy. |

Chapter 4: Earthquakes

Integrating Author

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| Raymond Durrheim | Raymond Durrheim is the South African Research Chair of Exploration, Earthquake and Mining Seismology and holds joint appointments at the University of the Witwatersrand and CSIR. He is co-director of the AfricaArray research and capacity-building programme and was co-leader of the Japanese-South African collaborative |
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| | project “Observational studies in South African mines to mitigate seismic risks” (2010-2015). |
| Contributing Authors | |
| Moctar Doucouré | C. Moctar Doucouré is an Associate-Professor of geophysics, Managing Director of AEON-Earth Stewardship Science Research Institute, and Manager of the Karoo Shale Gas Baseline Research Programme at the Nelson Mandela Metropolitan University, where he is responsible for geophysical research including airborne geophysics, deep subsurface geophysics, and micro-earthquakes. The programme involves 30 post-graduate students of which four are dedicated to geophysical operations and research in the Eastern Cape Karoo. |
| Vunganai Midzi | Vunganai Midzi has a PhD in Seismology from the University of Bergen, Norway. He is employed by the Council for Geoscience in Pretoria, South Africa, where he is mainly responsible for a team that carries out seismic hazard assessments for critical structures in South Africa and beyond. Vunganai also has experience in seismic monitoring and is well published. |
| Chapter 5: Water Resources | |
| Integrating Authors | |
| Philip Hobbs | Philip Hobbs is a registered Professional Natural Scientist employed as a Senior Research Hydrogeologist in the NRE business unit. His ~35 years’ experience includes the exploration and development of groundwater resources for water supply at all scales, the evaluation and assessment of land use activities (e.g. mining, industry and waste disposal) on groundwater, and the mapping of groundwater resource quantity and quality. |
| Elizabeth (Liz) Day | Liz Day has over 20 years’ experience in the field of freshwater ecosystems, mainly in the Western, Northern and Eastern Capes. Her particular interests include wetland and river water quality management, pollution abatement and protection strategies and understanding surface-groundwater interactions in wetlands. She has also been involved in wetland mapping and prioritisation projects for the CAPE fine-scale biodiversity planning project and for various local municipalities. |
| Contributing Authors | |
| Peter Rosewarne | Peter’s 40 years of experience includes geological mapping in the Merwerville/Fraserberg area, groundwater supply for municipalities, e.g. Beaufort West, hydrogeological studies for the proposed Ryst Kuil uranium mine near Beaufort West and assisting Shell with assessment of groundwater occurrence/risks related to shale gas. He has/currently sits on the Reference Groups of three groundwater projects related to Karoo shale gas for the Water Research Commission. |
| Surina Esterhuyse | Surina Esterhuyse is a researcher at the Centre for Environmental Management, University of the Free State. Recently, she has been extensively involved in work related to unconventional oil and gas extraction and led the project on the unconventional oil and gas interactive vulnerability map and monitoring framework development for the South African Water Research Commission. |
| Roland Schulze | Roland Schulze is Emeritus Professor, Fellow of the Royal Society of South Africa (FRSSAf), Member of the Academy of Science of South Africa, and is retired Professor of Hydrology at the University of KwaZulu-Natal. His research focus is currently on agro-hydrological modelling and mapping; impacts assessments of land use; and climate change impacts on the water and agricultural sectors. |
| Jenny Day | Jenny Day is an Emeritus Associate Professor Director of the Freshwater Research Unit at the University of Cape Town and is currently Honorary Professor at the Institute for Water Studies at the University of the Western Cape. Her particular interests include wetlands and their associated biotas; the effects of water chemistry on living organism, and the conservation and management of aquatic ecosystems. |
| Justine Ewart-Smith | Justine Ewart-Smith has 16 years of experience in the field of freshwater ecology, ranging from specialist input into biomonitoring, strategic environmental assessments and situation assessment surveys, to environmental flow studies both locally and abroad. Justine studied algal dynamics in Cape Rivers at the University of Cape Town and completed her PhD in Freshwater Ecology in 2012. |

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| Marthie Kemp | Marthie Kemp is a plant ecologist at the Centre for Environmental Management, University of the Free State. Marthie has been involved in the development of an interactive vulnerability and monitoring framework to assess the potential environmental impact of unconventional oil and gas extraction and the development of a methodology to determine environmental water requirements for non-perennial rivers. |
| Nick Rivers-Moore | Nick Rivers-Moore is an aquatic ecologist with 15 years' professional experience. After completing a PhD in Hydrology at the University of Natal in 2003, he went on to a post-doctorate at the Institute for Water Research (Rhodes University). Nick is also a published regional expert on freshwater conservation planning, and successfully developed the first provincial freshwater conservation plan for KwaZulu-Natal, South Africa. |
| Henk Coetzee | Henk Coetzee has over 24 years' experience in Geophysics, and currently works at Council for Geoscience as a Specialist Scientist; Sustainable Resources and Environment Competency unit. His scientific experience includes radiometric surveying; remote sensing of mining environments; and research experience, specialising in the investigation, characterisation and rehabilitation of mining environments and abandoned mines and mine water, with a strong focus on acid mine. |
| Danita Hohne | Danita Hohne is a Scientific Technician with the Department of Water and Sanitation (Northern Cape), with 7 years' experience in groundwater management. Projects she has worked on include MeerKAT (SKA); renewable energy and thermal springs in Augrabies. With regards to hydraulic fracturing; Danita has been formulating baseline and monitoring concepts and assisting in writing the regulations for oil and gas exploration. |
| Ashton Maherry | Ashton Maherry has a BSc Honours degree from the University of the Free State, and is currently a full time Masters GISc student at UNIGIS International. Ashton has ~12 years' experience as a Geohydrologist at the Council for Scientific and Industrial Research, where he serves as a Senior Knowledge Applicator, GIS- and Groundwater specialist, and Project Manager. |

Chapter 6: Impacts on Waste Planning and Management

Integrating Author

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| Suzan Oelofse | Suzan Oelofse is a Principal Researcher and Research Group Leader at the CSIR, an Extra-ordinary Associate Professor in Environmental Sciences and Management at the North-West University and the President of the Institute of Waste Management of Southern Africa. Her expertise involves integrated waste management and water resource management; waste information and data; and reducing the environmental impacts of waste. |
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Contributing Author

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| Johan Schoonraad | Johan Schoonraad is a professional chemist with EnviroServ Waste Management, where he interacts with a small dedicated team of professional scientists and engineers to find appropriate solutions to complex hazardous waste and chemical pollution problems. He is involved in on-going operational issues as well as providing input to the development of solutions to meet the strategic goals of the company. |
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Chapter 7: Biodiversity & Ecological Impacts: Landscape Processes, Ecosystems and Species

Integrating Authors

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| Stephen Holness | Stephen Holness has 17 years' experience as a conservation planner, landscape ecologist and environmental GIS specialist. He is also an independent scientist associated with the Centre for African Conservation Ecology and the Coastal and Marine Research Institute at Nelson Mandela Metropolitan University. He specialises in systematic conservation planning in support of land use planning, marine spatial planning, protected area expansion and reserve management. |
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| Amanda Driver | Amanda Driver is the Senior Biodiversity Policy Advisor at the South African National Biodiversity Institute (SANBI). Her work focuses on translating South Africa’s biodiversity science into policy, legislation and practice. She led the National Biodiversity Assessment (2011), and has extensive experience in the application of spatial biodiversity information in a range of contexts at national and sub-national level. |
| Contributing Authors | |
| Simon Todd | Simon Todd has 18 years’ experience as a terrestrial ecologist in arid systems. His primary focus includes examining the impacts of land use on biodiversity with the arid ecosystems of South Africa. Recent notable projects include specialist input for the Wind and Solar- and Eskom Grid Infrastructure Strategic Environmental Assessments, as well as on-going work related to the SKA. |
| Kate Snaddon | Kate Snaddon has 20 years of experience in the field of freshwater ecology (both as a researcher and consultant) and general environmental consulting. Her skills are in environmental impact assessment of infrastructure and development projects that impact on surface freshwater ecosystems. Recently, Kate has been lead consultant on two national strategic environmental assessments for wind and solar, and electricity transmission infrastructure. |
| Michelle Hamer | Michelle Hamer has a PhD from the University of KwaZulu-Natal. She has worked as a museum curator and academic, and is currently the Director for animal taxonomy at SANBI. She has led several large scale invertebrate surveys and participated in red listing and other conservation initiatives. She has published 70 scientific papers and contributed to six book chapters. |
| Domitilla Raimondo | Domitilla Raimondo is the Threatened Plant Programme Manager at the South African National Biodiversity Institute. Domitilla is the lead author of the “Red List of South African Plants” (2009), inter alia, and co-authored “Taxonomic research priorities for the conservation of the South African flora” (2013). She is also involved in the Custodians of Rare and Endangered Wildflowers (CREW) programme. |
| Fahiema Daniels | Fahiema Daniels plays a key role in supporting biodiversity planning in South Africa by leading spatial analyses for National-scale projects, such as the Electricity Grid Infrastructure Strategic Environmental Assessment. Additional projects include listing of threatened ecosystems; the terrestrial component of the National Biodiversity Assessment; and developing the spatial layers that feed into Department of Environmental Affairs Natural Resource Management Land User Incentive tool. |
| Chapter 8: Agriculture | |
| Integrating Author | |
| Noel Oetlé | Noel Oetlé holds a Post Graduate Diploma in Agricultural Development from the University of London. He was founding Director of the Farmer Support Group at the University of KwaZulu-Natal, and is the Rural Programme Manager for the Environmental Monitoring Group. His work focuses on enabling small-scale farmers to adapt to climate change and enhance their livelihoods through the sustainable use of natural resources and improved market access. |
| Contributing Authors | |
| Lehman Lindeque | Lehman Lindeque is a Professional Natural Scientist in Agricultural Science with a Masters degree in Environmental Studies from the University of Newcastle, Australia. Lehman’s field of expertise is the assessment and mapping of land degradation and sustainable land management. His knowledge and skills are also internationally recognised, as demonstrated by his involvement in training and consultation abroad. |
| Justin du Toit | Justin Du Toit is as an agricultural researcher in Middelburg, Eastern Cape. His research interests include long-term vegetation changes as influenced by fire, grazing and rainfall in the central to eastern Karoo; dealing with invasive plants in semi-arid areas, notably slangbos and satansbos; and rainfall patterns in semi-arid South Africa. He also teaches courses on planted pastures, environmental management, and rehabilitation/ restoration. |

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| Igshaan Samuels | Igshaan Samuels is a research scientist working for the Agricultural Research Council. His current research focus involves assessing indigenous knowledge systems and its application in climate change adaptation in Namaqualand; assessing diet selection and resource use amongst different livestock species in semi-arid rangelands; and investigating and mapping livestock mobility patterns under variable socio-ecological conditions on the commons of Namaqualand. |
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Chapter 9: Impacts on Tourism in the Karoo

Integrating Author

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| Daan Toerien | Daan Toerien had an early career as researcher/academic, specialising in ecological and water research, involvement in science management. A period at the Sloan Business School of M.I.T. prompted research and scientific publications on the similarities between natural ecosystems and enterprise development in South African towns. This enabled the development of predictive capabilities that extend to shale gas and the Karoo's tourism industry. |
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Contributing Authors

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| Gerrie du Rand | Gerrie Du Rand is a Senior Lecturer and Head of the Foods and Nutrition Section at Department of Consumer Science, University of Pretoria. Her area of interest is Food Tourism and the use of Local foods in culinary mapping. She has received academic recognition nationally and internationally as a researcher and expert in the field of Food and Hospitality related consumer behaviour. |
| Caroline Gelderblom | Caroline Gelderblom has over 20 years' of experience in the environmental sector working with National and Provincial Agencies and at a municipal scale to strengthen institutions. She has a particular interest in public works programmes and sustainable land use planning, including the promotion of conservation, sustainable tourism and agriculture, which extend across South Africa into the Southern African Development Community. |
| Melville Saayman | Melville Saayman is the director of the Tourism Research in Economic Environs and Society (TREES) at the Potchefstroom Campus of the North-West University in South Africa. His field of research is tourism economics and management and he has published more than 160 scientific articles, 20 tourism books and more than 330 technical reports. |

Chapter 10: Impacts on the Economics

Integrating Author

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| Hugo van Zyl | Hugo van Zyl is the director of Independent Economic Researchers, focusing on economics impact assessment, project appraisal and applied environmental resource economics. He has 18 years' experience in providing specialist inputs to environmental authorisation and policy processes, including projects in the mining, oil and gas sectors. He was lead author of a 2012 WWF sponsored discussion document on financial provisions for mine closure in South African. |
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Contributing Authors

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| Saliem Fakir | Saliem Fakir is the Head of the Policy and Futures Unit at the WWF-SA. His areas of focus include the economy, energy, climate and the food-water nexus. He has written on the economics of shale gas based on a study on framing the economics of shale gas. He is a regular columnist for Engineering News and other media outlets. |
| Anthony Leiman | Anthony Leiman is an associate professor at the School of Economics at the University of Cape Town. His expertise includes mining, fisheries, and project appraisal, particularly cost benefit analysis. Leiman co-authored a report on the sustainable management of natural resources focussing on Tanzania's new gas deposits in 2014 and helped formulate the WWF sponsored discussion document on financial provisions for mine closure in South Africa in 2012. |

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| Barry Standish | Barry Standish is visiting Professor of Economics at the Rotterdam School of Management, Erasmus University in Rotterdam. He specialises in applied macroeconomics, and has written and consulted extensively on the analysis of energy and electricity. Barry is director and consultant at Stratecon, and while he has consulted in various capacities in the past; economic and financial modelling is his key specialisation. |
| Chapter 11: Impacts on Social Fabric | |
| <i>Integrating Author</i> | |
| Doreen Atkinson | Doreen Atkinson is a Research Associate at the University of the Free State, Bloemfontein. Her areas of research expertise include local government, community development, intergovernmental relations, policy analysis, governance, local economic development, small towns and rural development, land reform, sustainable livelihoods, project and programme evaluation, and regional development. Doreen has extensive research on Karoo tourism, and has organised five Karoo conferences since 2009. |
| <i>Contributing Authors</i> | |
| Catherine Schenk | Catherine Schenk has 34 years of teaching experience and 40 years of work experience, which includes rural social work in South Africa, involving the evaluation of the recruitment; and retention strategy of the Department of Social Development, which was commissioned by Chiastolite Professional Services (CPS). In 2015 the University of the Western Cape and University of Johannesburg provided funding for her research on the waste pickers in the Karoo. |
| Sethulego Matebesi | Sethulego Matebesi is a Senior Lecturer and Acting Academic Head of the Department of Sociology at the University of the Free State. Sethulego's research focuses on community protests in South Africa, specifically the differential social organisation of communities and civic organisations in predominantly black and white neighbourhoods, as well as the effect of community trusts on protests in mining towns. |
| Karin Badenhorst | Karin Badenhorst founded the Footsteps Foundation and has over 25 years of research, consulting, business development and executive management experience in the large institutional environment. Her current research focuses on socio-economic and ecological entrepreneurship, sustainability, the renovation of selected economic, agricultural, natural, cultural and technological value chains for the benefit of small, distant, vulnerable, rural communities, with a particular focus on the Karoo. |
| Chapter 12: Impacts on Human Health | |
| <i>Integrating Author</i> | |
| Bettina Genthe | Bettina Genthe has over 30 years' experience in the field of environmental health aspects and water quality. She has been a temporary advisor to the World Health Organisation and United States Environmental Protection Agency on Exposure Assessment. She has extensive experience in water-related human health risk assessments, water quality monitoring, risk communication, health interventions, and health and hygiene awareness creation and education. |
| <i>Contributing Authors</i> | |
| Ashton Maherry | Ashton Maherry has a BSc Honours degree from the University of the Free State, and is currently a full time Masters GISc student at UNIGIS International. Ashton has ~12 years' experience as a Geohydrologist at the Council for Scientific and Industrial Research, where he serves as a Senior Knowledge Applicator, GIS- and Groundwater specialist, and Project Manager. |
| Maronel Steyn | Maronel Steyn has an M.Tech degree in Environmental Health from the Central University of Technology, and is a researcher within the CSIR's Water Resources competency area. Her key competencies lie in environmental epidemiology, human health risk and burden of disease. Maronel's areas of interest include drinking water treatment, wastewater treatment and reuse, water pollution microbiology, health |

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| | economics and diseases. |
| Hanna- Andrea Rother | Hanna-Andrea Rother, PhD, is Associate Professor and Head of the Environmental Health Division in the School of Public Health and Family Medicine at the University of Cape Town. She has over 25 years' experience in research, policy analysis, capacity building and teaching related to chemical exposure risks, risk management and mitigation, as well as risk perceptions and risk communication. |
| Leslie London | Leslie London is a public health specialist and Professor at the School of Public Health and Family Medicine, University of Cape Town. He is actively involved in the Centre for Occupational and Environmental Health Research, and has served on many committees dealing with ethics and human rights. He has published over 150 articles and 15 books or book chapters. |
| Mieke Willems | Mieke Willems is employed as evaluator in a technical position as Assistant Director in the Western Cape Government Health's Impact Assessment Unit. She has a Master's in Public Health from the University of Cape Town where her thesis related to risk perceptions surrounding fracking, specifically from a health perspective. Other research interests include environmental health, non-communicable diseases and diseases of lifestyle. |

Chapter 13: Impacts on Sense of Place Values

Integrating Author

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| Leanne Seeliger | Leanne Seeliger is an independent environmental ethics consultant. She completed a post-doctoral fellowship at the Economic Performance and Development Unit at the Human Sciences Research Council, and has lectured environmental philosophy at several tertiary institutions. She is an affiliate of the University of Stellenbosch's Unit for Environmental Ethics and the Environmental Education Programme. Her research interests are the green economy, adaptive governance, environmental ethics and environmental education. |
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Contributing Authors

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| Michael de Jongh | Michael de Jongh is Professor Emeritus, Anthropology, at Unisa. He has published widely and presented scientific papers internationally. For some 25 years his research focus has been on the Karoo in particular. He has published over 20 articles and several books and research reports in the fields of prehistory, history and anthropology reflect his engagement with the region and its people. |
| David Morris | David Morris heads Archaeology at the McGregor Museum and is Extraordinary Professor at Sol Plaatje University in Kimberley. His main research interest in rock art was the focus of his PhD at the University of the Western Cape. He is involved in a wide cross-section of projects and publications in Northern Cape archaeology, including development of public archaeology sites. |

Chapter 14: Visual, Aesthetic and Scenic Resources

Integrating Author

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| Bernard Oberholzer | Bernard Oberholzer is a landscape architect and environmental planner with over 20 years' experience in visual assessments, particularly for wind and solar energy, as well as gas pipelines and powerlines. He authored the <i>Guideline for Involving Visual and Aesthetic Specialists in EIA Processes</i> , and co-authored a heritage and scenic resources study for the Provincial Government, Western Cape. |
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Contributing Authors

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| Quinton Lawson | Quinton Lawson is a professional architect, with 15 years' experience in visual assessments. He is visiting lecturer for the University of Cape Town and serves on the Impact Assessment Committee of Heritage Western Cape for the Provincial Government Western Cape. Has been involved in numerous visual assessments, usually in association with BOLA, for solar and wind energy facilities, as well as gas pipelines and powerlines. |
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| Menno Klapwijk | Menno Klapwijk has 33 years' experience as a SACLAP registered professional landscape architect, and is a founding and principal member of Bapela Cave Klapwijk, landscape architects and environmental planners. He has over 100 publications and reports dealing mostly with environmental planning, environmental rehabilitations and control specification, and environmental- and visual impact assessment. He also assisted in drafting 'A Guideline for Involving Visual and Aesthetic Specialists in EIA Processes'. |
| Graham Young | Graham Young is a registered landscape architect and visual impact assessment specialist. He was awarded an ILASA Merit Award for his work and helped develop the <i>Guideline for Involving Visual and Aesthetic Specialists in EIA Processes</i> . He authored a research document for Eskom, <i>The Visual Impacts of Power Lines</i> , and produced ' <i>Guidelines for involving visual and aesthetic specialists</i> ' for a World Heritage Site in Mauritius. |

Chapter 15: Impacts on Heritage

Integrating Author

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| Jayson Orton | Jayson Orton has conducted numerous heritage impact assessments for a wide range of project types throughout the western half of South Africa since 2004, often collaborating with other specialists. His research interest is in the Later Stone Age archaeology and rock art of South Africa's arid environments, especially Namaqualand; on which he has published widely. |
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Contributing Authors

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| John Almond | John Almond is a Cape Town-based palaeontologist with almost 30 years' experience working on the geology and fossils of southern Africa. He worked for the Council for Geoscience for eight years, and has carried out numerous palaeontological impact assessments for developments and conservation areas in the Karoo, including strategic Impact Assessments for the SKA project and alternative energy developments. |
| Nicholas Clarke | Nicholas Clarke, a heritage architect, obtained his professional degree from the University of Pretoria, followed by a Masters Degree from Cambridge University. He has practiced as an architect and heritage advisor and lectured in built heritage studies at the University of Pretoria and Delft University of Technology. He is active in World Heritage, having undertaken numerous ICOMOS/UNESCO Missions. |
| Roger Fisher | Roger Fisher is Professor Emeritus, at the Department of Architecture, University of Pretoria. His research focuses on the South African built heritage, particularly as it serves sustainable communities. His expertise serves the public as advisor and committee member of various heritage bodies and committees and as practitioner acting as a heritage consultant. |

Chapter 16: Noise generated by Shale Gas- related activities

Integrating Author

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| Andrew Wade | Andrew Wade is the Managing Director of Sound Research Laboratories South Africa (SRL SA). He is a registered Chartered Engineer with the Engineering Council (UK), and is a member of the Institute of Acoustics (UK). He has significant experience in environmental noise and vibrations, building acoustics, industrial acoustics, acoustic modelling and Noise and Vibration Harshness (NVH). |
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Contributing Author

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| Adrian Jongens | Adrian Jongens (M.Sc. Electrical Engineering) has trained undergraduate and postgraduate engineering students on the application of fundamental physical acoustical principles to noise and vibration control for 40 years. In parallel, he has provided a consulting service in all aspects relating to noise and vibration control, building and architectural acoustics, noise management policy formulation and environmental noise impact assessment and mitigation. |
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| Chapter 17: Electromagnetic Interference | |
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| <i>Integrating Author</i> | |
| Adrian Tiplady | Adrian Tiplady has worked at SKA South Africa since 2005, and currently sits on the SKA Executive Committee as Head of Strategy. He has experience across a number of technical, scientific and strategic areas. Adrian was a member of the Working Group of the Task Team on Hydraulic Fracturing, and is involved in the environmental impact assessments of renewable energy projects in the Northern Cape Province. |
| <i>Contributing Authors</i> | |
| Paul van der Merwe | Paul van der Merwe, in his role as managing director of MESA Solutions, deals mainly with impact assessments of extensive engineering systems. MESA is involved in assessments of proposed large renewable energy developments in close proximity to the SKA project in the Northern Cape. MESA has assisted at least seven manufactures during various stages of their project proposal, including theoretical desktop investigation and field measurements of installed systems. |
| Braam Otto | Braam Otto has a Ph.D. in Electrical Engineering from the University of Stellenbosch. He works as a radio frequency engineer in the field of electromagnetic compatibility and radio frequency interference mitigation. He is actively involved in the South African Square Kilometre Array Project as EMC consultant, and has contributed to various environmental impact assessments in the renewable energy sector. |
| Chapter 18: Impacts on Integrated Spatial and Infrastructure Planning | |
| <i>Integrating Authors</i> | |
| Elsona van Huyssteen | Elsona van Huyssteen is a Principle Urban and Regional Planner at the CSIR and has over 20 years' experience in research, and policy development. She has lead collaborative multi-disciplinary initiatives in the urban and regional development planning field. Her interest focusses on innovative ways to engage collective futures through profiling spatial growth dynamics impacting cities, settlements and regions; transdisciplinary and multi-stakeholder initiatives, and action-orientated leadership. |
| Cheri Green | Cheri Green has over 30 years' research experience in fields of accessibility, transportation planning, land use development, facility location planning (in urban and rural context), and social facility provision norms. She is a Registered Town & Regional Planner and Senior Researcher at the CSIR. She has been involved in several studies in the Karoo region since 2002, including the development of Integrated Transport Plans. |
| <i>Contributing Authors</i> | |
| Phil Paige-Green | Phil Paige-Green is an Extraordinary Professor at Tshwane University of Technology and has over 40 years' experience in research, dissemination and implementation related to aspects of roads and pavement engineering. His speciality includes the use of local materials and design and evaluation of unpaved and paved low-volume roads. He has authored or co-authored, inter alia, more than 135 refereed papers and 350 contract, research and unpublished internal reports. |
| Mark Oranje | Mark Oranje is Professor and Head of the Department of Town and Regional Planning at the University of Pretoria. His key areas of interest are planning policy, regional development, intergovernmental development planning and the interface between mining and settlement development. Mark has authored and co-authored numerous publications and consulted on a wide range of issue related to his above areas of interest. |
| Stephen Berrisford | Stephen Berrisford is an independent consultant working at the intersection between law and urban planning in Sub-Saharan Africa. Stephen is an Honorary Adjunct Associate Professor at the University of Cape Town's African Centre for Cities. His work focuses on legal and policy dimensions of land use and urban development. He holds degrees from the University of Cape Town and Cambridge University. |